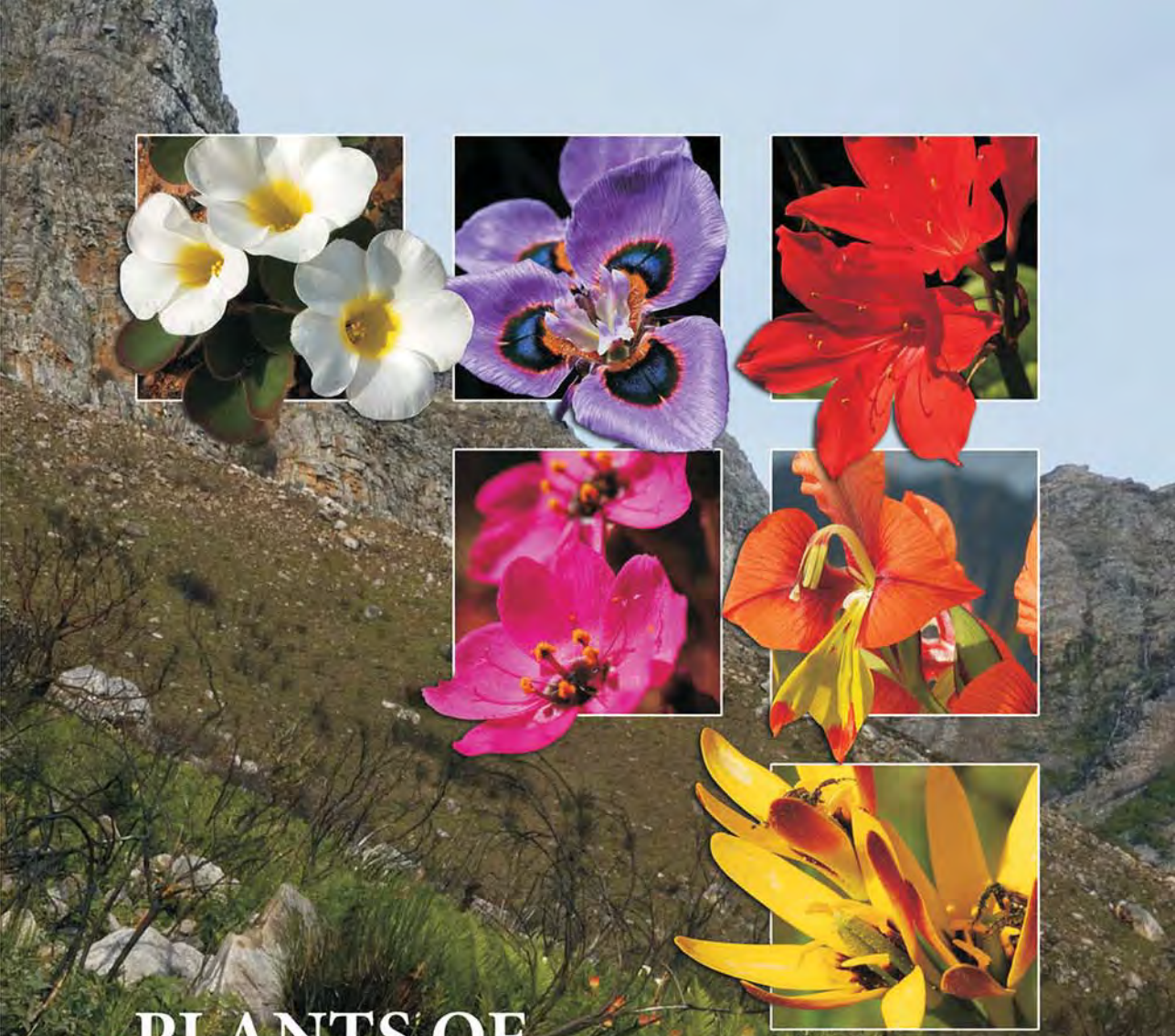
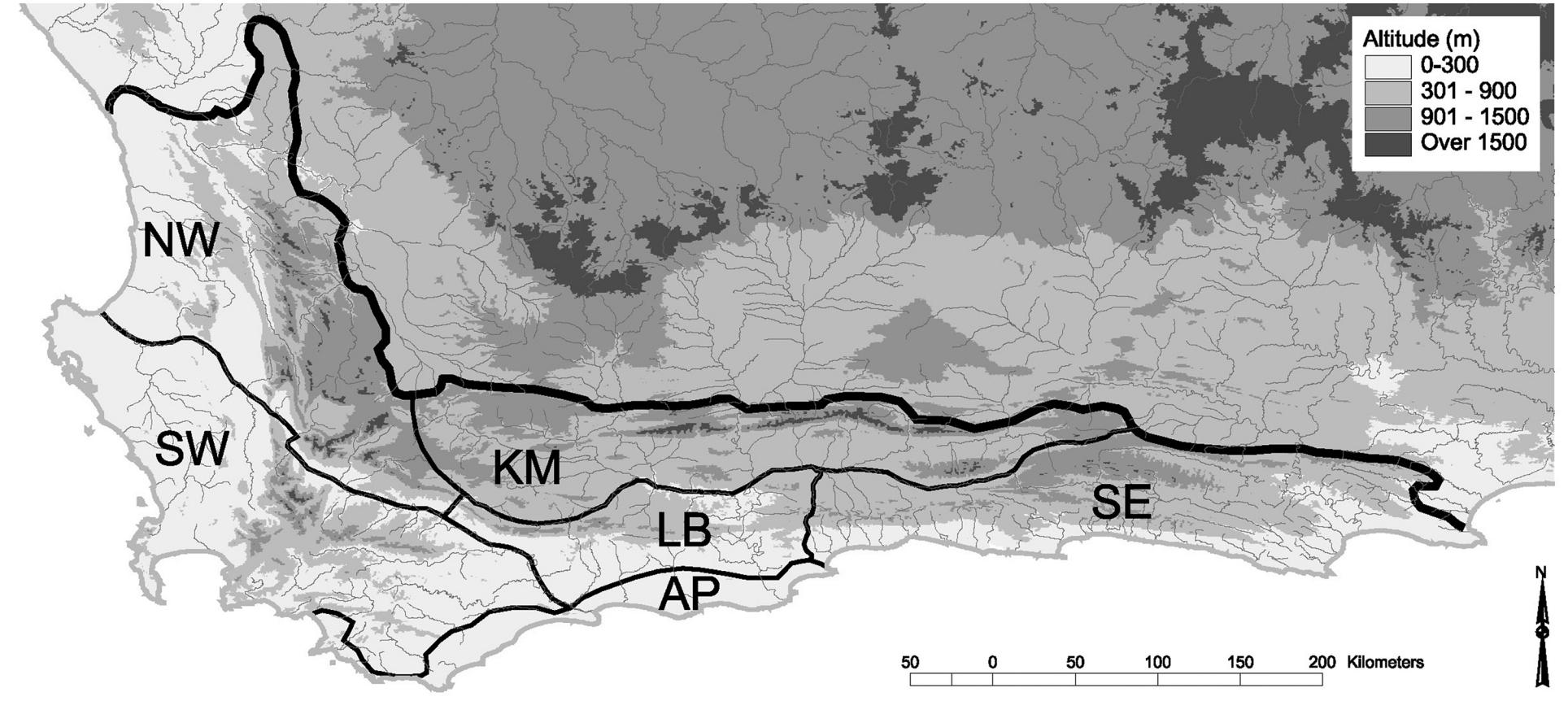


PLANTS OF THE GREATER CAPE FLORISTIC REGION

1: The Core Cape Flora

John Manning & Peter Goldblatt

STRELITZIA 29


Altitude (m)
0-300
301 - 900
901 - 1500
Over 1500
NW
SW
KM
LB
AP
SE
N
50 0 50 100 150 200 Kilometers

STRELITZIA 29

PLANTS OF THE GREATER CAPE FLORISTIC REGION

1: The Core Cape Flora

John Manning and Peter Goldblatt

SANBI
Biodiversity for Life

Pretoria
2012

STRELITZIA

This series has replaced *Memoirs of the Botanical Survey of South Africa* and *Annals of the Kirstenbosch Botanic Gardens* which SANBI inherited from its predecessor organisations.

The plant genus *Strelitzia* occurs naturally in the eastern parts of southern Africa. It comprises three arborescent species, known as wild bananas, and two acaulescent species, known as crane flowers or bird-of-paradise flowers. The logo of the South African National Biodiversity Institute is partly based on the striking inflorescence of *Strelitzia reginae*, a native of the Eastern Cape and KwaZulu-Natal that has become a garden favourite worldwide. It symbolises the commitment of the Institute to champion the exploration, conservation, sustainable use, appreciation and enjoyment of South Africa's exceptionally rich biodiversity for all people.

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Preface

It is just over 25 years since the completion of *Plants of the Cape flora* (Bond & Goldblatt 1984) and ten years since the publication of its successor, *Cape plants* (Goldblatt & Manning 2000). These two volumes enjoyed unexpected success and were used by a surprisingly broad range of people—for biologists of many fields they were a vital reference, while naturalists and plant people of all kinds found the books a valuable resource. We were often gratified to see an annotated and much-thumbed copy of one or the other on the bookshelf of a hiker, farmer, or wild flower enthusiast. The erstwhile Cape Floristic Region (CFR), now technically treated as the Core Cape Subregion (CCR) of the Greater Cape Floristic Region (GCFR), enjoys wide interest among amateur and professional biologists alike as an acknowledged hotspot for species diversity. As a region, it is rich in a range of remarkable and often beautiful plants. Botanical study of the Cape flora continues to advance, and the description of numerous new species over the past decade, as well as changes in their classification, particularly in family and generic circumscriptions, have rendered *Cape plants* substantially out of date. The number of indigenous plants recorded from the CCR since the appearance of *Cape plants* a decade ago has increased by an amazing 378 entries, most of them newly described species. This represents a 3–4% increase in the recorded flora over this period!

Publication of a new edition is thus appropriate, and has been timed to coincide with the appearance of a companion volume covering the flora of Namaqualand-southern Namibia and the western Karoo, the so-called Extra Cape Subregion, by D.A. Snijman. These two volumes will together constitute the first account of the vascular plants of the Greater Cape Floristic Region (i.e. the Core Cape Subregion itself plus the Extra Cape Subregion).

As in *Cape plants*, we have depended considerably on a diversity of botanical expertise available for the Cape flora, with the benefit of generous help from colleagues at the South African National Biodiversity Institute, the University of Cape Town, and several other institutions in South Africa and abroad. We continue the format in *Cape plants*, of using diagnostic descriptions for species as far as space allows and of citing ranges of species by phytogeographic centre, of which there are six within the Core Cape Subregion. Despite significant strides, botanical knowledge of the Cape flora is still imperfect, with several genera not revised for over 50 years and some not within the last century. Many species still await revision and a more complete documentation of their ranges and characteristics. Nevertheless, we now have a well-founded base line for each centre and the list can easily be adjusted in the light of new information.

The conservation of species and ecosystems concerns us all, and the provision of accurate information of all kinds about organisms is essential to the successful outcome of conservation efforts. We need to know how many species there are, what they look like, and where they occur before we can effectively direct conservation resources. With this in mind, we have tried to provide much of this basic information about the plants of the Core Cape Subregion within the scope of a single volume. It is possible to identify many or even all species in the smaller genera by using the generic keys and by following the arrangment of species into groups, in combination with the critical diagnoses and distributional information. Identification of species in larger genera remains a problem with no easy solution.

There is always a small gap between nomenclatural correctness and biological reality and whenever the two have diverged we have favoured biological reality. We therefore include several undescribed species, either with a manuscript name if one is available, or simply a number. Conversely, species that seem to us to be identical but have not been formally synonymised are treated informally under the earliest name, with their current name (still in bold type) included in parentheses. In this way our account is more critical and, we trust, reflects biological reality more accurately. The only formal synonyms listed are those species that were recognized in *Plants of the Cape flora* (1984) and *Cape plants* (2000).

The past ten years have been a time of considerable advance in the understanding of the evolution and radiation of plants, primarily through the increasing application of molecular techniques. One of the most striking consequences has been the realization that various genera were misplaced in their traditional families, and that some long-recognized families have no evolutionary integrity but instead represent specialized lineages within other families. We favour the practice of recognizing only those families that are natural, *i.e.* evolutionarily coherent (monophyletic), entities and we have consequently adopted the system of family and ordinal classification proposed by the Angiosperm Phylogeny Group as revised in 2003 (APG II 2003), which incorporates current molecular data into a classification of the orders and families of the flowering plants. Users will note especially that the inclusion of Asclepiadaceae in Apocynaceae, of Sterculiaceae and Tiliaceae in Malvaceae, and of Eriospermaceae in Ruscaceae as adopted in *Cape plants* is maintained, but that now Capparaceae (and Cleomaceae) are segregated from Brassicaceae, Araliaceae and Apiaceae are treated as separate families, *Celtis* is included in Ulmaceae, and *Anacampseros* is placed in the separate family Anacampserotaceae. Other changes to family circumscriptions are dicussed in the chapter Taxonomic changes, notably the separation of Picrodendraceae and Phyllanthaceae from Euphorbiaceae, and the enlargement of Stilbaceae to include some genera previously included in Loganiaceae (*Nuxia*) and Scrophulariaceae (*Charadrophila, Halleria*, and *Ixianthes*). Behniaceae and *Chlorophytum* (previously Anthericaceae) are both referred to Agavaceae, and Prioniaceae (comprising the monospecific *Prionium*) is subsumed in Thurniaceae.

We have adopted the changes proposed by the Angiosperm Phylogeny Group as representing a classification that more accurately reflects evolutionary processes, but we have resisted implementing the very broad family circumscriptions proposed by APG III (2009), opting instead to follow Haston *et al.* (2007) in retaining the smaller families that were offered as optional in APG II (2003). Both sets of family circumscriptions are monophyletic, but the smaller families recognized in APG II are not only more familiar but often more readily recognized and thus more useful for purposes of identification.We apologize to readers who may initially be confused and hope that the cross-references in the text will help them find their way.

Although family circumscriptions are now largely stabilized this is certainly not true for genera, and several significant changes have already been proposed, with others anticipated in the future. Just as with the families, more than one botanically justifiable option may be available for use. Far from being an indictment against botanists, this is an unavoidable consequence of the fact that these taxonomic categories are largely artificial—although ideally not arbitrary.

This volume concludes with a chapter of formal taxonomy. Here we include various nomenclatural changes required by the species treatments. These comprise primarily the description of various new species but we have also reduced some genera and species to synonymy, and corrected a few nomenclatural problems. Plant systematics remains a

dynamic discipline of ongoing synthesis. Species continue to be discovered and named, while new discoveries show that others lack reality. Although this volume will thus be out of date as soon as it is published, we are confident that it will prove as useful as its predecessors.

Again, we express our thanks to all who collaborated with us, sharing their knowledge, providing written accounts of families or genera, giving advice, or simply encouraging us in this undertaking. In particular we must express our gratitude to Nick Helme for helpful criticism and for numerous range extensions arising from his extensive field knowledge, Jan Vlok and Annelise Schutte-Vlok for important additions from the Little Karoo, Shirley Smithies for helpful comments on Scrophulariaceae, and Roy Gereau for nomenclatural advice. On the technical side, Mary Stiffler, librarian at Missouri Botanical Garden, was indefatigable in tracking down numerous references for us; Les Powrie, Chief Technology Information Adviser at SANBI, very kindly developed the maps that are an integral part of this volume; and Gerrit Germishuizen and Yolande Steenkamp did a truly magnificent job as technical editors.

We are especially grateful to Elizabeth Parker and the Parker family of Elandsberg Nature Reserve, who provided sponsorship towards the publication of *Cape plants*, and who have maintained their interest and encouragement in the production of this volume. The significance of Elandsberg Nature Reserve in the conservation of the Cape flora is commemorated in several recently described local endemics from the Reserve.

Finally, our thanks go to Peter H. Raven, Director of Missouri Botanical Garden, for his enthusiastic support through the years that it took to bring this work and its predecessors to completion.

New species, combinations and synonyms published in this volume

Genera
Afroaster J.C.Manning & Goldblatt (Asteraceae), *gen. nov.*

Species
Acrosanthes parviflora J.C.Manning & Goldblatt (Aizoaceae), *sp. nov.*
Campylostachys helmei J.C.Manning & Goldblatt (Stilbaceae), *sp. nov.*
Heterolepis anomala J.C.Manning & Goldblatt (Asteraceae), *sp. nov.*
Lachnostylis hanekomii R.H.Archer & J.C.Manning (Phyllanthaceae), *sp. nov.*
Lidbeckia pinnata J.C.Manning & N.A.Helme *sp. nov.*
Nenax velutina J.C.Manning & Goldblatt (Rubiaceae), *sp. nov.*
Pseudoselago hilliardiae J.C.Manning & Goldblatt (Scrophulariaceae), *sp. nov.*
Psydrax capensis J.C.Manning & Goldblatt (Rubiaceae), *sp. nov.*

Combinations

ACANTHACEAE

Dicliptera cernua (Hook. ex Nees) J.C.Manning & Goldblatt, *comb. nov.*
Dicliptera cliffordii (K.Balkwill) J.C.Manning & Goldblatt, *comb. nov.*
Dicliptera decorticans (K.Balkwill) J.C.Manning & Goldblatt, *comb. nov.*
Dicliptera gillilandiorum (K.Balkwill) J.C.Manning & Goldblatt, *comb. nov.*
Dicliptera grandibracteata (Lindau) J.C.Manning & Goldblatt, *comb. nov.*
Dicliptera namibiensis (K.Balkwill) J.C.Manning & Goldblatt, *comb. nov.*
Dicliptera namibiensis subsp. **brandbergensis** (K.Balkwill) J.C.Manning & Goldblatt, *comb. nov.*
Dicliptera paniculata (Forssk.) J.C.Manning & Goldblatt, *comb. nov.*
Justicia leptantha subsp. **late-ovata** (C.B.Clarke) J.C.Manning & Goldblatt, *comb. nov.*
Justicia linifolia (Lindau) J.C.Manning & Goldblatt, *comb. nov.*
Justicia nkandlaensis (Immelman) J.C.Manning & Goldblatt, *comb. nov.*

ASTERACEAE

Afroaster ananthocladus (Hilliard & B.L.Burtt) J.C.Manning & Goldblatt, *comb. nov.*
Afroaster hispida (Thunb.) J.C.Manning & Goldblatt, *comb. nov.*
Afroaster bowiei (Harv.) J.C.Manning & Goldblatt, *comb. nov.*
Afroaster chimanimaniensis (Lippert) J.C.Manning & Goldblatt, *comb. nov.*
Afroaster comptonii (Lippert) J.C.Manning & Goldblatt, *comb. nov.*
Afroaster confertifolius (Hilliard & B.L.Burtt) J.C.Manning & Goldblatt, *comb. nov.*
Afroaster erucifolius (Thell.) J.C.Manning & Goldblatt, *comb. nov.*
Afroaster laevigatus (Sond.) J.C.Manning & Goldblatt, *comb. nov.*
Afroaster lydenburgensis (Lippert) J.C.Manning & Goldblatt, *comb. nov.*
Afroaster milanjiensis (S.Moore) J.C.Manning & Goldblatt, *comb. nov.*
Afroaster nubimontis (Lippert) J.C.Manning & Goldblatt, *comb. nov.*
Afroaster peglerae (Bolus) J.C.Manning & Goldblatt, *comb. nov.*

Afroaster perfoliatus (Oliv.) J.C.Manning & Goldblatt, *comb. nov.*
Afroaster pleiocephalus (Harv.) J.C.Manning & Godlblatt, *comb. nov.*
Afroaster pseudobakerianus (Lippert) J.C.Manning & Goldblatt, *comb. nov.*
Afroaster serrulatus (Harv.) J.C.Manning & Goldblatt, *comb. nov.*
Afroaster tansaniensis (Lippert) J.C.Manning & Goldblatt, *comb. nov.*
Afroaster zuluensis (Lippert) J.C.Manning & Goldblatt, *comb. nov.*
Dimorphotheca sect. **Acanthotheca** (DC.) J.C.Manning & Goldblatt, *stat. nov*.
Mairia robusta (Z.-Wiegand) J.C.Manning & Goldblatt, *stat. nov.*
Nidorella aegyptiaca (L.) J.C.Manning & Goldblatt, *comb. nov.*
Nidorella attenuata (DC.) J.C.Manning & Goldblatt, *comb. nov.*
Nidorella ivifolia (L.) J.C.Manning & Goldblatt, *comb. nov.*
Nidorella obscura (DC.) J.C.Manning & Goldblatt, *comb. nov.*
Nidorella pinnata (L.f.) J.C.Manning & Goldblatt, *comb. nov.*
Nidorella pinnatifida (Thunb.) J.C.Manning & Goldblatt, *comb. nov.*
Nidorella podocephala (DC.) J.C.Manning & Goldblatt, *comb. nov.*
Nidorella ulmifolia (Burm.f.) J.C.Manning & Goldblatt, *comb. nov.*
Osteospermum apterum (B.Nord.) J.C.Manning & Goldblatt, *comb. nov.*
Osteospermum calcicola (J.C.Manning & Goldblatt) J.C.Manning & Goldblatt, *comb. nov.*
Osteospermum monstrosum (Burm.f.) J.C.Manning & Goldblatt, *comb. nov.*
Osteospermum sect. **Nephrotheca** (B.Nord. & Kallersjö) J.C.Manning & Goldblatt, *stat. nov*.
Osteospermum sect. **Calendula** (L.) J.C.Manning & Goldblatt, *stat. nov*.

FABACEAE

Lessertia frutescens subsp. **microphylla** (Burch. ex DC.) J.C.Manning & Boatwr., *comb. nov.*
Lessertia frutescens subsp. **speciosa** (E.Phillips & R.A.Dyer) J.C.Manning & Boatwr., *comb. nov.*

IRIDACEAE

Syringodea longituba subsp. **violacea** (M.P.de Vos) Goldblatt & J.C.Manning, *stat. nov.*

LAMIACEAE

Leonotis capensis (Benth.) J.C.Manning & Goldblatt, *comb. nov.*
Leonotis ebracteata (Peyr.) J.C.Manning & Goldblatt, *comb. nov.*
Leonotis ebracteata var. **kaokoveldensis** (Sebald) J.C.Manning & Goldblatt, *comb. nov.*
Leonotis glabrata (Vahl.) J.C.Manning & Goldblatt, *comb. nov.*
Leonotis glabrata var. **linearis** (Codd) J.C.Manning & Goldblatt, *comb. nov.*
Leonotis martinicensis (Jacq.) J.C.Manning & Goldblatt, *comb. nov.*
Leonotis neuflizeana (Courbon) J.C.Manning & Goldblatt, *comb. nov.*
Leonotis pechuelii (Kuntze) J.C.Manning & Goldblatt, *comb. nov.*
Leonotis sexdentata (Skan) J.C.Manning & Goldblatt, *comb. nov.*

ORCHIDACEAE

Evotella carnosa (Lindl.) J.C.Manning & Goldblatt, *comb. nov.*
Pterygodium sect. **Corycium** (Sw.) J.C.Manning & Goldblatt, *comb. et stat. nov*.
Pterygodium alticola (Parkman & Schelpe) J.C.Manning & Goldblatt, *comb. nov.*
Pterygodium dracomontanum (Parkman & Schelpe) J.C.Manning & Goldblatt, *comb. nov.*
Pterygodium ingeanum (E.G.H.Oliver) J.C.Manning & Goldblatt, *comb. nov.*

THELYPTERIDACEAE

Cyclosorus gueinziana (Mett.) J.P.Roux, *comb. nov.*

Reductions to synonymy

Agapanthus walshii L.Bolus (Agapanthaceae) = *Agapanthus africanus* subsp. *walshii* (L.Bolus) Zonn. & G.D.Duncan, *syn. nov*.

Evotella Kurzweil & Linder (Orchidaceae) = *Corycium* sect. *Carnosum* Kurzweil & Linder, *syn. nov.*

Gladiolus merianellus (L.) Thunb. (Iridaceae) = *Gladiolus bonaespei* Goldblatt & M.P.de Vos, *syn. nov.*

Pterygodium Sw. (Orchidaceae) = *Corycium* sect. *Microglossum* Kurzweil & H.P.Linder, *syn. nov.*

Tritoniopsis antholyza (Poir.) Goldblatt (Iridaceae) = *Tritoniopsis longituba* (Fourc.) Goldblatt, *syn. nov*.

Classification of the Cape flora

Classification of the lycopodiophytes and pteridophytes from Christenhusz *et al.* (2011a); of the gymnosperms from Christenhusz *et al.* (2011b); and of the flowering plants from Chase & Reveal (2009) [see also Reveal & Chase (2011)]. Family circumscriptions in subclass Magnoliidae [angiosperms] follow APG II (2003) and Haston *et al.* (2007), except for Caryophyllales: Portulacineae, which follows Nyffeler & Eggli (2010). Significant familial synonyms are included.

Class Equisetopsida *Land plants*

Lycopodiophytes
Subclass Lycopodiidae *Club-mosses, spike-mosses, and quillworts*
Order Lycopodiales
LYCOPODIACEAE

Order Isoetales
Isoetaceae

Order Selaginellales
SELAGINELLACEAE

Pteridophytes or monilophytes
Subclass Equisetidae *Horsetails*
Order Equisetales
EQUISETACEAE

Subclass Ophioglossidae *Adder's-tongue ferns*
Order Ophioglossales
OPHIOGLOSSACEAE

Subclass Marattiidae *Potato ferns*
Order Marattiales
MARATTIACEAE

Subclass Polypodiidae *Ferns*
Order Osmundales
OSMUNDACEAE

Order Hymenophyllales
HYMENOPHYLLACEAE

Order Gleicheniales
GLEICHENIACEAE

Order Schizaeales
ANEMIACEAE

Order Salviniales
MARSILEACEAE
*SALVINIACEAE

Order Cyatheales
CYATHEACEAE
*DICKSONIACEAE

Order Polypodiales
DENNSTAEDTIACEAE
PTERIDACEAE (= *ADIANTACEAE, VITTARIACEAE*)
CYSTOPTERIDACEAE
ASPLENIACEAE
THELYPTERIDACEAE
BLECHNACEAE
DRYOPTERIDACEAE
*NEPHROLEPIDACEAE
POLYPODIACEAE (= *GRAMMITIDACEAE*)

Gymnosperms
Subclass Cycadidae *Cycads*
Order Cycadales
ZAMIACEAE

Subclass Pinidae *Conifers*
Order Pinales
*PINACEAE

Order Araucariales
PODOCARPACEAE

Angiosperms or flowering plants
Subclass Magnoliidae

Palaeodicots
Order Nymphaeales
NYMPHAEACEAE

Order Piperales
PIPERACEAE
HYDNORACEAE

Order Laurales
LAURACEAE

Monocots
Order Alismatales
ARACEAE (= *LEMNACEAE*)
HYDROCHARITACEAE (= *NAJADACEAE*)
APONOGETONACEAE
JUNCAGINACEAE
ZOSTERACEAE
POTAMOGETONACEAE (= *ZANNICHELLIACEAE*)
RUPPIACEAE

Order Dioscoreales
DIOSCOREACEAE

Order Liliales
COLCHICACEAE

Order Asparagales
ORCHIDACEAE
LANARIACEAE
HYPOXIDACEAE
TECOPHILAEACEAE
IRIDACEAE
HEMEROCALLIDACEAE
ASPHODELACEAE
ALLIACEAE
AMARYLLIDACEAE
AGAPANTHACEAE
ASPARAGACEAE
AGAVACEAE (= *ANTHERICACEAE, BEHNIACEAE*)
HYACINTHACEAE
RUSCACEAE (= *CONVALLARIACEAE, DRACAENACEAE, ERIOSPERMACEAE*)

Order Commelinales
COMMELINACEAE
*PONTEDERIACEAE
HAEMODORACEAE

Order Zingiberales
STRELITZIACEAE

Order Poales
TYPHACEAE
XYRIDACEAE
THURNIACEAE (= *PRIONIACEAE*)
JUNCACEAE
CYPERACEAE
RESTIONACEAE
POACEAE

Eudicots
Order Ceratophyllales
CERATOPHYLLACEAE

Order Ranunculales
PAPAVERACEAE
FUMARIACEAE
MENISPERMACEAE
RANUNCULACEAE

Order Proteales
PROTEACEAE

Order Gunnerales
GUNNERACEAE

Order Saxifragales
HAMAMELIDACEAE
CRASSULACEAE
HALORAGACEAE

Order Vitales
VITACEAE

Order Zygophyllales
ZYGOPHYLLACEAE

Order Fabales
FABACEAE
POLYGALACEAE

Order Rosales
ROSACEAE
RHAMNACEAE
ULMACEAE
CANNABACEAE
MORACEAE
URTICAEAE

Order Fagales
MYRICACEAE

Order Cucurbitales
CUCURBITACEAE

Order Celastrales
CELASTRACEAE

Order Oxalidales
OXALIDACEAE
CUNONIACEAE

Order Malpighiales
EUPHORBIACEAE
PICRODENDRACEAE
PHYLLANTHACEAE
OCHNACEAE
ELATINACEAE
LINACEAE
HYPERICACEAE
VIOLACEAE
ACHARIACEAE (= *FLACOURTIACEAE* pp., *KIGGELARIACEAE*)
SALICACEAE (= *FLACOURTIACEAE* pp.)

Order Geraniales
GERANIACEAE
MELIANTHACEAE

Order Myrtales
*LYTHRACEAE
ONAGRACEAE
MYRTACEAE
PENAEACEAE
OLINIACEAE

Order Crossosomatales
GEISSOLOMATACEAE

Order Sapindales
ANACARDIACEAE
SAPINDACEAE
MELIACEAE
RUTACEAE (= *PTAEROXYLACEAE*)

Order Malvales
CYTINACEAE
MALVACEAE (= *STERCULIACEAE, TILIACEAE*)
THYMELAEACEAE
NEURADACEAE

Order Brassicales
SALVADORACEAE
RESEDACEAE
CAPPARACEAE
BRASSICACEAE

Order Santalales
BALANOPHORACEAE
SANTALACEAE (= *VISCACEAE*)
LORANTHACEAE

Order Caryophyllales
FRANKENIACEAE
TAMARICACEAE
PLUMBAGINACEAE
POLYGONACEAE
DROSERACEAE
CARYOPHYLLACEAE
AMARANTHACEAE (= *CHENOPODIACEAE*)
LIMEACEAE
MOLLUGINACEAE
DIDIEREACEAE
ANACAMPSEROTACEAE
AIZOACEAE (= *MESEMBRYANTHEMACEAE*)
PHYTOLACCACEAE

Order Cornales
CURTISIACEAE
GRUBBIACEAE

Order Ericales
BALSAMINACEAE
SAPOTACEAE
EBENACEAE
THEOPHRASTACEAE (= *SAMOLACEAE*)
PRIMULACEAE
MYRSINACEAE
RORIDULACEAE
ERICACEAE

Order Garryales
ICACINACEAE

Order Gentianales
RUBIACEAE
GENTIANACEAE
LOGANIACEAE
APOCYNACEAE (= *ASCLEPIADACEAE*)

Order Vahliales
VAHLIACEAE

Order Boraginales
BORAGINACEAE

Order Solanales
CONVOLVULACEAE
SOLANACEAE
MONTINIACEAE

Order Lamiales
OLEACEAE
GESNERIACEAE
PLANTAGINACEAE
SCROPHULARIACEAE (= *BUDDLEJACEAE*)
STILBACEAE (= *RETZIACEAE*)
LINDERNIACEAE
PEDALIACEAE
LAMIACEAE
OROBANCHACEAE
LENTIBULARIACEAE
ACANTHACEAE
BIGNONIACEAE
VERBENACEAE

Order Aquifoliales
AQUIFOLIACEAE

Order Asterales
CAMPANULACEAE
LOBELIACEAE
MENYANTHACEAE
GOODENIACEAE
ASTERACEAE

Order Bruniales
BRUNIACEAE

Order Dipsacales
DIPSACACEAE
VALERIANACEAE

Order Apiales
PITTOSPORACEAE
ARALIACEAE
APIACEAE

The Core Cape Subregion

Introduction

Situated at the southwestern tip of the African continent, between latitudes 31° and 34°30' S (endpapers), the biogeographic region known to successive generations of biologists as the Cape Floristic Kingdom, the Cape Floristic Region, and now the Core Cape Subregion, has a flora, and to a lesser extent a fauna, that differ so sharply from the immediate surrounds that it has impressed naturalists since its first formal documentation by European explorers in the sixteenth century. The flora of the southwestern Cape, termed here the Cape flora for convenience, is sufficiently distinctive that it was treated for several decades as one of the world's six floral kingdoms (e.g. Good 1974; Takhtajan 1986). The criteria for distinguishing floral kingdoms are somewhat subjective and Cox (2001) has since argued persuasively that the Cape flora is more appropriately recognised at the level of a floristic region, as the Core Cape Subregion (CCR). This is the classification that we followed in *Cape plants* (2000). More recently, Born *et al.* (2006) have highlighted the floristic links across the entire southern African winter-rainfall region, supporting the concept of a Greater Cape Floristic Region, of which the Cape flora, or CCR, constitutes the floristically most distinctive component. Following this system, we propose that the CCR is formally treated as the Core Cape Subregion (CCR) of the Greater Cape Floristic Region (GCFR). Whatever the hierarchical level adopted, however, the southwestern Cape is always accorded special status in classifications of the world's floras.

The distinctive nature of the Cape flora was first emphasized by Bolus (1875), who identified it as 'the only sharply demarcated flora in the subcontinent' and indicated the broad outline of its area. The current boundary of the Core Cape Subregion (CCR) was established by Bond & Goldblatt (1984), and is circumscribed essentially as the contiguous area that maximizes the contribution by fynbos heathland. We have applied this definition in refining the boundary to correspond with the distribution of fynbos heathlands published in Mucina & Rutherford (2006) [with a minor exception in the northwest, where the lower course of the Olifants River forms a convenient natural boundary]. Outlying islands or fragments of fynbos vegetation in Namaqualand, the Roggeveld, and in the Eastern Cape are therefore excluded. The distribution of the Fynbos Biome and of fynbos heathland in particular thus largely defines the CCR, which encompasses 89% of the Biome, as well as a similar fraction of the total extent of fynbos heathlands. The remarkably sharp inland boundary of the region is the consequence of the close association between fynbos heathland and the Cape Fold Belt. This is a result of the coincidence of multiple ecological factors, most notably a moderate to high average annual rainfall and oligotrophic sandstone soils of the Cape System. The boundary of the CCR is thus primarily eco-edaphic. The pyrophytic nature of fynbos heathlands further serves to maintain the sharp boundary, often in the order of metres, between it and adjacent local vegetation types (Mucina & Rutherford 2006). Its sclerophyllous, highly tanniniferous foliage discourages the activities of herbivores, further damping vegetation dynamics.

The Core Cape Subregion (CCR) encompasses a land area of some 90 760 km^2 (less than 4% of the southern African subcontinent) and an estimated 9 383 species of vascular plants (ferns and other spore-bearing vascular plants, gymnosperms, and flowering

plants) are currently known to occur here, of which just over 68% are endemic (Appendix). The great majority of these species—some 9 251 in all—are flowering plants. The Cape flora thus constitutes just over 46% of the ± 20 300 vascular plant species recorded from southern Africa (i.e. 21 153 species of land plants minus ± 866 mosses and liverworts: Germishuizen *et al.* 2006), and something around 20% of the entire flora of sub-Saharan Africa, which is estimated at 44 830 species (Klopper *et al.* 2007). The richness of the Cape flora is especially remarkable for a temperate flora.

It is now well established that the Core Cape Subregion has one of the richest floras in the world. Although substantially less diverse than Neotropical areas such as Costa Rica, Ecuador, or Guatemala, the Cape flora compares favourably with several regions in the moist tropics—undoubtedly the most species-rich habitats on Earth. The richness of the Cape flora is certainly notable in an African context, and compared with it, the tropical African flora is relatively depauperate in overall species numbers.

The taxonomic composition of the Cape flora is also extremely unusual (Bond & Goldblatt 1984; Goldblatt 1997). Predictably for a relatively arid region, the two largest families in the region are Asteraceae and Fabaceae, together comprising almost 20% of the total species. The next largest families are, however, unprecedented for any flora—nowhere else in the world do Iridaceae, Aizoaceae, Ericaceae, Proteaceae, and Restionaceae assume numerical significance, with the exception of parts of Australia where Proteaceae and Restionaceae are well represented.

Other floristic peculiarities of the flora are the dominance of small-leaved, sclerophyllous shrubs, the low number of tree species, and the uniquely high proportion of geophytic species (defined as seasonal herbaceous perennials with subterranean innovation buds on bulbs, corms, or prominent rhizomes—thus excluding shrubs and subshrubs that resprout from a woody caudex, often after fire). Geophytes comprise somewhat more than 17% of the species in the Cape flora, and are especially numerous among the monocots (notably Iridaceae, Orchidaceae, Hyacinthaceae, and Amaryllidaceae) but also include all local *Oxalis* (122 species), many *Pelargonium* species, and a diverse selection from other families, including Apiaceae, Asteraceae, and Lobeliaceae. In contrast, the CCR has a surprisingly low proportion of annual species (± 6.5%) for an area of largely semi-arid climate. This is in striking contrast to California (30% annuals) or Chile (nearly 16% annuals) (Arroyo *et al.* 1994), both of which occupy regions of comparable latitude and climate. Both strategies are primarily adaptations to seasonal climates, with geophytes retreating to underground storage organs during the time of year unfavourable for growth, and annuals ensuring their continued survival through the production of seeds. Geophytes are, however, favoured only in regions of reliable climatic seasonality without extended droughts, whereas annuals are suited to unpredictable seasonality.

Geologically, the Core Cape Subregion consists primarily of a mosaic of alternating sandstone and shale substrates, each giving rise to soils of quite different types. Local areas of limestone and granite contribute significantly to the edaphic diversity. Climates across the region are variable, with a strongly seasonal, winter-rainfall climate in the west passing sharply into a seasonal climate along the southern coast, with rainfall thoughout the year. The predominant orographic rainfall ranges locally from less than 100 mm up to 2 000 mm per year, with extremely steep gradients as a result of the mountainous landscape. These sharp local gradients in precipitation compound the edaphic diversity resulting from the mosaic of different soils, creating an unusual number of local habitats. A feature of many of the soils in the CCR is their low nutrient status, and many of the plants on such soils have poor seed dispersal capabilities, contributing to the high levels of local endemism.

Species richness of the Cape flora seems to be the result of this complex mosaic of diverse habitats and steep ecological gradients set against a background of *relatively stable* climate and geomorphology since the late Cenozoic. This has fostered active speciation and the evolution of new taxa, as well as the accumulation and persistence of existing taxa.

Physical characteristics

Geology and soils

Soils derived from rocks of pre-Carboniferous age, thus more than 400 million years ago (mya), cover a little over half the surface of the Core Cape Subregion (Figure 1). Most of these rocks are part of the Cape System, an ancient Ordovician–Devonian series of sedimentary strata, which consist of alternating series of quartzitic sandstones (Table Mountain and Witteberg Groups) and fine-grained shales (Bokkeveld Group). The land surface was dramatically folded and warped during the Jurassic as Antarctica separated from the south coast of southern Africa, and South America rifted away from the west coast. The folds run consistently parallel to the coasts, resulting in a series of east–west trending mountain ranges in the southern half of the CCR and north–south trending ranges in the west.

Differential weathering of the components of the Cape System has yielded two fundamentally different soil types—coarse-grained sandy soils poor in essential plant nutrients (Groves *et al*. 1983), and richer, clay soils of nutrient-intermediate status. These factors become limiting at the relatively low precipitation levels that are usual in the Core Cape Subregion, as a result of which the different soils support sharply different vegetation types with characteristic facies and suites of species. The soils also differ significantly in their structure and water-retention properties, and hence erosional patterns; the result is that the mountains consist primarily of sandstone rocks, and the valleys of shale. Where folding or faulting has been severe, more ancient rocks of the Precambrian Malmesbury Group are exposed. These are largely shales that give rise to clay soils of the same type as the shales of the Cape System. Granitic schists are locally exposed in deep valleys and

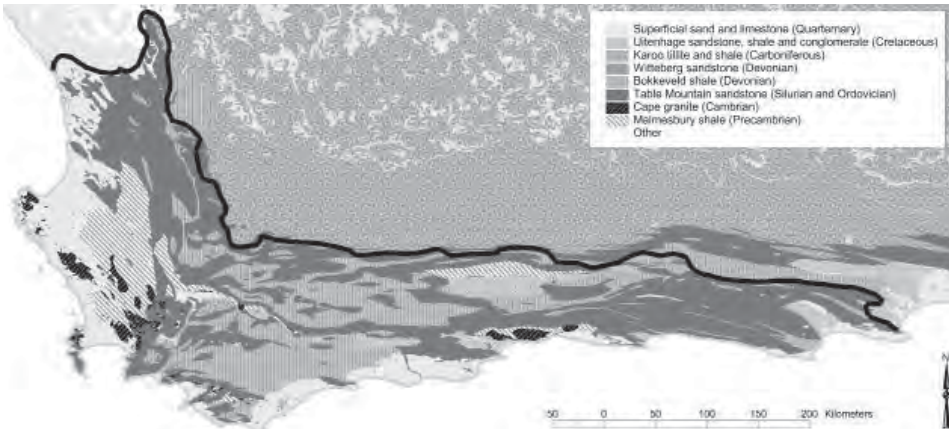


Figure 1.—Main geological formations in the Core Cape Subregion.

along the west coast, and limestones, mainly of Tertiary age, are exposed near the coast, but are extensive only along the southern seaboard from the Agulhas Peninsula to Mossel Bay. The coastal plain also includes areas with aeolian sandy soils derived from reworking of Cape Sandstones.

Moving from the littoral to the interior, the CCR landscape appears as a mosaic of coastal limestones and deep sands, succeeded by valleys with clay soils alternating with mountain ranges of nutrient-poor sands. Local faulting has added a secondary component of islands of one rock type embedded in another. The nutrient-poor and nutrient-intermediate soils both favour the development of fairly uniform, fire-adapted, sclerophyllous, shrubby vegetation types.

Landscape and climate

Mountain belts in the CCR are not particularly high, generally 1 000–2 000 m in elevation. Although well below a truly alpine zone, the peaks are high enough for winter freezing to be a factor affecting the vegetation. The mountains are rugged, with cliffs and exposed rock evident throughout. The steep topography and varied landscape amplify the effects of climatic variation, with the result that the mountains offer a greater diversity of habitats than are present in the lowlands.

The climate is strictly Mediterranean in the west, with rainfall mainly or exclusively in the winter months, but the eastern half of the CCR receives substantial summer precipitation and rainfall is largely aseasonal. Summers along the west coast are hot and dry but relatively less so in the east. Inland, in areas of low total rainfall, the average precipitation may be highest in the late summer months, notably in the Little Karoo, although effective rainfall is still mainly in the winter. South-facing mountain slopes benefit from summer moisture in the form of rain or fog from the southeast trade winds, and sheltered, fire-protected valleys throughout the region nurture patches of evergreen forest or thicket vegetation. The narrow coastal plain in the Knysna area has a particularly equable climate and high rainfall, and supports the largest extent of evergreen, broad-leaved forest in the subcontinent.

Local variation in rainfall is particularly pronounced in mountainous areas, especially when precipitation is orographic: mountain slopes facing prevailing winds receive considerably more precipitation than those in the lee of these winds. Rainfall patterns in the CCR show dramatic variation across the landscape, dropping from 2 000 mm per year on the high mountains of the ranges immediately facing the coast, to less than 200 mm on the leeward slopes of the interior ranges. Mosaic effects of soils across the entire region are thus complicated by variation in precipitation from the coast to the interior, as well as by changes in seasonality from the west of the region to the east. In addition, elevation and aspect affect precipitation depending on the direction of moisture-bearing winds.

The number of ecological niches available to plant life is multiplied by soil differences, and this is particularly pronounced as precipitation levels drop. The effect of soil on vegetation composition is less with ample rain, but rainfall is limiting almost throughout the region and the vegetation varies conspicuously with soil and available moisture. Climatic gradients are steep, although perhaps not more so than in most other areas of Mediterranean climate, but the effect in the CCR may be compounded by soil diversity.

Different soil types in the CCR support characteristic vegetation types, depending on a combination of associated levels of precipitation and protection from fire. Forest vegetation is typical of fire-protected sites with deeper soils where preciptation is high and fairly

evenly spread throughout the year. As soil qualities change and precipitation becomes lower or more seasonal, forest gives way to shrubby or herbaceous vegetation types. On nutrient-poor, sandy soils, forest is replaced by fynbos heathland, a sclerophyllous shrubland. Decreasing precipitation results in changes in the composition of fynbos communities and in a decrease in species diversity until rainfall minimums reach about 250–300 mm per annum, at which point succulent shrublands become dominant. On richer, clay soils, forest gives way to fynbos and then to renosterveld, another distinctive shrubland dominated by shrubby, microphyllous Asteraceae. Renosterveld is replaced at precipitation levels below 100 mm per annum by vegetation that is increasingly dominated by succulent perennials, primarily leaf-succulents.

The dissected nature of the landscape ensures that broad sweeps of one vegetation type are isolated from one another. The mosaic of different soil types alone contributes to increasing diversity, but the peculiar nature of nutrient-poor soils may result in higher than expected effects on plant diversity. Such soils appear to have a significant impact on plant dispersal and hence gene-flow (see *Speciation of the Cape flora*).

Winter-rainfall and climatic stability

How important is the current Mediterranean climate to the flora? The vegetation of the southwestern Cape prior to the establishment of the Pliocene winter-rainfall climate was very different from that now found here. Evergreen forest has been decreasing in extent since the middle of the Tertiary and its diversity has also dropped dramatically since the middle Miocene (Coetzee 1993). Families such as Casuarinaceae, Chloranthacaeae, Sarcolaenaceae, and Winteraceae that are no longer found on the African mainland, but still extant in Madagascar, were present in the region until the mid-Miocene (Coetzee & Praglowski 1984; Coetzee & Muller 1985). In addition, early to mid-Miocene deposits on the Cape west coast indicate a fauna adapted to forest and woodland (Hendey 1982).

The establishment of the cold Benguela Current along the west coast of southern Africa in the Miocene, with its cooling and drying effects on the west coast, was probably the single most important impetus for vegetation change in the subcontinent. Summer drought is likely to have become increasingly severe in the west as this current was strengthened through the spread of the Antarctic ice sheet at the end of the Miocene, ± 5 mya. Even in the late mid-Miocene, however, a fairly rich subtropical flora replete with palms was evident near Saldanha Bay on the west coast (Coetzee & Rogers 1982), a region that today supports a largely treeless, succulent or sclerophyllous shrubland. No palm species now occur in the Core Cape Subregion. Faunal remains from this period suggest that by the late Miocene, the widespread forest and woodland were being replaced by more open savanna (Hendey 1982). It was probably not until after the beginning of the Pliocene, *i.e.* less than 5 mya, that the present Cape flora could be distinguished, although elements of that flora are recognized in Oligocene pollen cores taken within the CCR and nearby (Scholz 1985). It seems clear that a climatic change that included increasing summer drought and lower overall rainfall was the driving force for vegetational change in southern Africa into the Pliocene.

Although post-Pliocene changes in climate of the Core Cape Subregion are poorly documented, the climate of the region, especially in the west, appears to have escaped marked fluctuations. In comparison with southern Europe, North America, and southern South America, all of which experienced cycles of extreme climatic fluctuations with periods of mild climate alternating with extreme cold and dryness (Villagrán 1994), the climate across the CCR appears to have been relatively stable throughout the Quaternary. Where-

as in central Chile, southern Europe, and North America, nearby mountain glaciers were developed and winter temperatures must have fallen to levels that their floras could not tolerate, the Cape appears to have merely endured cycles of drier and cooler or wetter and warmer conditions. The ameliorating affects of large oceans to the south and west would have prevented the extreme conditions that result in major extinction events. Although no glaciers developed, there is evidence of colder climates in the past consistent with a temperature depression of the order of 5°C at the latitude of the CCR (Deacon 1979).

The data of Meadows & Sugden (1991) are among few studies of the history of the Cape flora over the past 20 000 years. Pollen profiles from the Cedarberg Mountains in the northwestern part of the region show no vegetational changes comparable to those documented in Chile (Villagrán 1994) or California (Raven & Axelrod 1978). Instead, there seems to have been a series of subtle shifts in conditions that favoured one community type over another during the 14 600 years covered in their sampling. The Cedarberg data are especially notable because that range lies at the northern, more arid end of the CCR, and is thus particularly sensitive to climatic change.

In the southern Cape, the lowering of sea levels during the Pleistocene, by as much as 120 metres at times, resulted in the extension of the coastal plain off the Bredasdorp coast. The vegetation along the coast at this time was probably a grass-dominated one that supported the dominant alcephaline and equid fauna (Klein 1977). Even today, the clay soils of this area have a significant grass component. Vegetational changes at higher taxonomic level are thus not evident.

Vegetation

The Core Cape Subregion encompasses four biomes and several distinctive vegetation types (Rutherford & Westfall 1994; Cowling & Holmes 1992a; Mucina & Rutherford 2006), each with their own suites of species and physical characteristics (Figure 2, Table 1).

Fynbos heathland (or fynbos), an analogue of Australian kwongan, is the most distinctive and common vegetation type, covering just over half the CCR, typically on oligo-

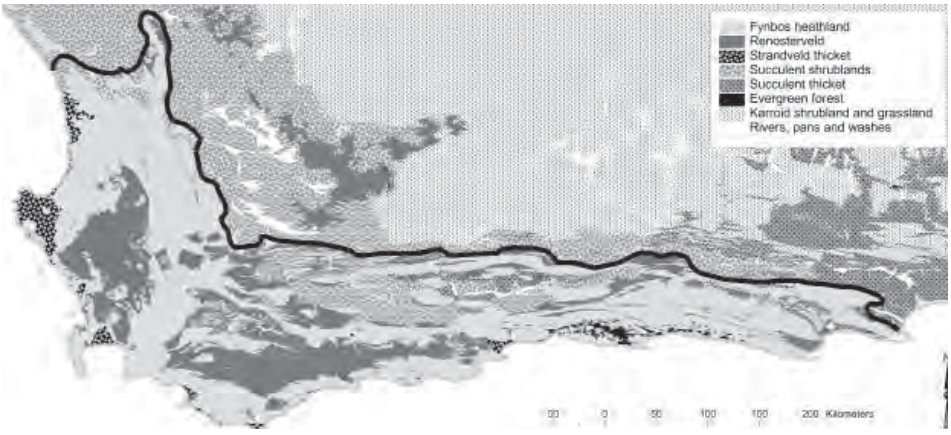


Figure 2.—Major vegetation types in the Core Cape Subregion. Adapted from Mucina & Rutherford (2006).

TABLE 1.—Major vegetation types in the Core Cape Subregion (additional minor types not included).

Biome	Vegetation type	Area 10^3 km^2 (% of CCR)	
Fynbos	Fynbos heathland	49.9 (55.0)	
	Renosterveld	22.0 (24.2)	74.9 (82.5)
	Strandveld thicket	3.0 (3.3)	
Succulent Karoo	Succulent shrubland	10.5 (12.0)	
Albany Thicket	Succulent thicket	2.9 (3.2)	
Afrotemperate Forest	Evergreen forest	0.1 (0.1)	
TOTAL		90.8 (100)	

trophic sandstone soils. Shrubs with ericoid (short, narrow, often needle-like) leaves predominate, although most species of Proteaceae, a family common in this vegetation type, have broad, sclerophyllous leaves. A second distinctive type of shrubland, renosterveld, is mostly restricted to richer, fine-grained soils, and shares few species with fynbos although the two often grow adjacent to one another. Dominated by microphyllous Asteraceae, renosterveld is an evergreen, fire-prone shrubland (distinctly grassy in some parts) with a rich herbaceous understory, which is often suppressed under a mature shrub cover but which becomes evident after fire or clearing. Strandveld thicket, a littoral vegetation of the western and southern coasts, differs strikingly from adjacent fynbos communities in the lack of Proteaceae and in the scarcity of Ericaceae, although Restionaceae may be common. It is dominated by sclerophyllous, broad-leaved shrubs along the southern coast but succulents become increasingly obvious in more arid situations, especially along the west coast. These three vegetation types constitute the Fynbos Biome (Mucina & Rutherford 2006), which covers over 80% of the CCR (Table 1).

More arid sites, with rainfall below 200 mm per annum, support a vegetation of small, succulent-leaved shrubs, including many Aizoaceae and Asteraceae, forming a succulent shrubland distinguished as the Succulent Karoo Biome, which covers 12% of the CCR, mainly the arid intermontane basin of the Little Karoo. The remaining 3% of the region, primarily in the eastern half, is occupied by succulent thicket (Albany Thicket Biome) and evergreen forest (Forest Biome). Forests in the CCR are of two types: southern coastal forests, restricted to the littoral plain and coastal dunes between the Cape Peninsula and Kei Mouth in the Eastern Cape, and southern afrotemperate forests, occupying sheltered seaward slopes, plateaux and scarps, mainly at altitudes around 600 m but ranging from near sea level to a little over 1 000 m (Mucina & Rutherford 2006). Southern afrotemperate forests are endemic to the CCR, and although occurring from its northern limit on the Bokkeveld Mtns to its eastern boundary at Port Elizabeth, they are only developed to any real extent in the Knysna-Tsitsikamma region.

Fire

Fire is an integral part of the ecology of the CCR and accounts for several aspects of the flora. The architecture of mature fynbos and renosterveld shrubs produces a low, relatively uniform, closed canopy of twiggy and microphyllous to sclerophyllous plants that is prone to periodic burning. Fire itself has a disruptive effect on the vegetation and has obviously been a feature of the ecology for so long that a large flora of ephemerals, geophytes and other pyrophytic perennials and short-lived shrubs has evolved to appear in the years fol-

lowing a fire. These plants are succeeded within a few years by longer-lived shrubs. The long-term ecological consequence of the fire component of the flora is the existence of a niche for species that grow rapidly after fire and bloom and reproduce in the immediate post-fire years. This suite of species contributes substantially to the overall diversity in the flora. Mature vegetation is affected in more subtle ways by fire, which may cause local fluctuations in species composition and even the elimination of some taxa, creating opportunities for diversification and speciation.

Floristic composition

Major families and genera

The number of vascular plant families now recognized in the Cape flora is 178, of which 154 are seed plants and 25 are Lycopodiophytes and Pteridophytes. Asteraceae, typically the largest family in floras of arid to semi-arid regions, are the most diverse family in the Cape flora (Table 2, Appendix), as well as in the Greater Cape Floristic Region. Fabaceae, well developed in most parts of the world, remain the second largest family in the flora. A unique aspect of the Cape flora (and consequently of the southern African flora as a whole), is the extraordinarily high contribution made by the three next largest families, Iridaceae, Ericaceae, and Aizoaceae (Table 2). Scrophulariaceae, Restionaceae, and Proteaceae follow in size in a sequence that differs from that described in past analyses of the

TABLE 2.—Ranking of the 20 largest families in the Cape flora.

	Family	Species	Endemic (%)	Genera (endemic)	Species/genus
1.	Asteraceae	1 077	669 (62.0)	125 (32)	8.6
2.	Fabaceae	764	634 (83.0)	43 (8)	17.8
3.	Iridaceae	758	594 (78.3)	29 (6)	26.1
4.	Ericaceae	680	659 (96.9)	1 (0)	680
5.	Aizoaceae	624	454 (72.8)	76 (19)	8.3
6.	Scrophulariaceae	419	294 (70.1)	32 (5)	13.1
7.	Restionaceae	342	313 (91.5)	16 (9)	21.3
8.	Proteaceae	333	321 (96.4)	14 (9)	23.8
9.	Rutaceae	295	280 (94.9)	15 (6)	19.7
10.	Orchidaceae	234	146 (61.8)	24 (2)	9.7
11.	Poaceae	217	85 (39.2)	61 (2)	3.6
12.	Cyperaceae	207	109 (52.7)	28 (5)	7.4
13.	Hyacinthaceae	200	93 (46.2)	12 (1)	16.6
14.	Asphodelaceae	170	91 (53.2)	8 (0)	21.3
15.	Geraniaceae	158	89 (56.3)	3 (0)	52.7
16.	Polygalaceae	142	124 (87.3)	2 (0)	71.0
17.	Apiaceae	138	104 (75.4)	27 (5)	5.1
18.	Rhamnaceae	138	125 (90.6)	5 (0)	27.6
19.	Rosaceae	131	114 (87.0)	5 (0)	26.2
20.	Crassulaceae	130	39 (30.0)	5 (0)	26.0
	TOTAL	7 157 (76.2% of the total flora of 9 383 species)		495 (49.6% of the total of 997 genera)	

Cape flora (Bond & Goldblatt 1982; Goldblatt & Manning 2000) as a result of the publication of numerous critical taxonomic revisions, especially of genera of Restionaceae and Scrophulariaceae. In earlier analyses, Aizoaceae (primarily Mesembryanthemoideae and Ruschioideae) assumed even greater importance, but critical taxonomic appraisals of the genera almost unfailingly recognize fewer species. This family, now the fifth largest after Ericaceae, is the only one in the flora to show a substantial decrease in species numbers, from 660 species to 624 species, since the publication of *Cape plants* (Goldblatt & Manning 2000). Species numbers in Iridaceae, in contrast, have risen markedly, from 661 to 758 spp.

Scrophulariaceae, sixth largest family in the Cape flora (and fifth largest in the Greater Cape Floristic Region), are well represented across Africa, especially in the floras of drier areas (Maggs *et al*. 1998). This family contributes 167 annual species to the Cape flora, far more than does the family with the next highest number annuals, Asteraceae, which contribute 132 annual species. The large numbers of species of Restionaceae and Proteaceae, respectively seventh and eighth largest families, are other striking features of the Cape flora.

Although the importance of Ericaceae, Proteaceae, and Restionaceae in the Cape flora, both in terms of biomass and in species diversity, is widely understood, the high number of species of Iridaceae, predominantly a family of herbaceous, seasonal geophytes, has only recently been fully appreciated. Nowhere else in the world does this family comprise more than a small proportion of the local flora, and the marked radiation by both Iridaceae and Ericaceae is one of the most unusual features of the Cape flora.

The diversification of Ericaceae, Proteaceae, Restionaceae, Rutaceae, and even Cyperaceae and Fabaceae, is closely associated with the impoverished sandstone soils of the Cape mountain ranges, and these families are poorly represented on other soils. It is notable that Fabaceae, which occur widely through semi-arid areas, are poorly represented in the Namaqualand and Western Karoo floras where soils are generally richer. The radiation of Iridaceae shows a similar, although weaker, edaphic correllation, with one third of the genera predominantly or exclusively resticted to sandstone and limestone soils, including six of the nine largest genera in the region (those with more than 50 species). *Moraea*, the largest genus in Iridaceae, is less evidently linked to fynbos soils and its diversity must have other explanations.

Poaceae are comparatively poorly represented in the Cape flora. Although third largest in number of genera, the family ranks eleventh in total species, with fewer species than Restionaceae and barely more than Cyperaceae, the two families that occur in habitats elsewhere occupied by grasses. This situation, which is paralleled only in southwestern Australia, contrasts sharply with surrounding parts of southern Africa, where Poaceae are a prominent and sometimes predominant family. The grasses are the largest family in the flora of Namibia (Maggs *et al*. 1998), for instance, and one of the five largest families in southern Africa excluding the Cape flora.

Remarkably few of the 178 families of vascular plants that are represented in the Cape flora account for the bulk of the species. Only 23 families, barely one tenth of the CCR families, contribute more than 100 species each, and just 12 families contribute more than 200 species each. In contrast, 32 families contribute just a single species each. This unequal distribution of species among the families ensures that the largest ten families combined account for 5 526 species (59%) of the total flora, with the largest 20 families accounting for 7 157 species (over 75%) of the flora (Table 2).

The total flora of the Greater Cape Floristic Region numbers some 11 420 vascular plant species, of which 8 900 (78 %) are endemic (D.A. Snijman, pers. comm.). Species endemism for the Greater Cape Floristic Region is thus notably higher than that for the CCR alone (68.3%), providing compelling evidence for the floristic integrity of the unified region (CCR plus Namaqualand-southern Namibia and western Karoo [Extra-CCR]). Aizoaceae (± 661 spp.) are the largest family in the Extra-CCR flora, followed by Asteraceae (496 spp.), Iridaceae (± 270 spp.), Scrophulariaceae (± 220 spp.), and Hyacinthaceae (173 spp.). The Extra-CCR flora therefore differs significantly from the CCR flora in the predominance of succulent plants, notably Aizoaceae.

Endemic families

The unique floristic composition of the Cape flora, with its high representation of Ericaceae, Iridaceae, Proteaceae, and Restionaceae, is strengthened by the additional occurrence of six endemic or near-endemic families. The four strictly endemic families are all small dicotyledonous families of diverse affinity (Table 3). Penaeaceae (Myrtales) (23 spp.) are the only endemic family of any size, followed by Grubbiaceae (Cornales) (3 spp.), Roridulaceae (Ericales) (2 spp.), and Geissolomataceae (Crossomatales) (ordinal classification following APG III 2009).

Bruniaceae, a near-endemic, are another of the distinctive families of the CCR. Of an estimated 78 species in six genera, just three species in two genera extend beyond the confines of the region—two species further into the Eastern Cape and the third species restricted to southern KwaZulu-Natal. The family is an isolated one placed between Apiales and Dipsacales (Savolainen *et al.* 2000) and treated in its own order Bruniales. *Lanaria* (Lanariaceae), another near-endemic in the Asparagales, is widespread in the CCR and extends outside its confines a short distance to the east to Grahamstown.

The southern Africa flora as a whole includes just nine endemic families. These are, in addition to the six families absolutely or almost restricted to the Core Cape Subregion (Table 3), the eudicot families Curtisiaceae (Cornales, 1 genus: 1 species) and Rhynchocalycaceae (Myrtales, 1:1), and the cycad family Stangeriaceae (Cycadales, 1:1). Thus, all except Bruniaceae and Penaeaceae, are monogeneric and mono- or oligotypic.

Retziaceae (1 sp.), which were considered an endemic core Cape family in the past (e.g. Goldblatt *et al.* 1979; Bond & Goldblatt 1984), are nested in Stilbaceae (Bremer *et al.* 1994),

TABLE 3.—Endemic and near-endemic families in the Cape flora.

Family	Genera	Species	Estimated age
ENDEMIC			
Penaeaceae	7	23	10–14 my[1]
Grubbiaceae	1	3	50–98 my[2]
Roridulaceae	1	2	92–100 my[3]
Geissolomataceae	1	1	76–86 my[3]
NEAR-ENDEMIC			
Bruniaceae	6	78	85–90 my[3]
Lanariaceae	1	1	113 my[4]

Estimated ages from [1]Renner *et al.* (2001), [2]Galley & Linder (2006), [3]Wikström *et al.* (2001) and [4]Janssen & Bremer (2004).

with floral specializations for bird pollination the source of most of its distinctive features; and Stilbaceae, traditionally regarded as a CCR endemic family, have now been expanded to include several additional genera, both Cape and sub-Saharan, and are thus no longer endemic. Aitoniaceae, Greyiaceae, and Oftiaceae have at times been recognized as South African endemics but are no longer treated as separate families, being readily referable to Meliaceae (APG II 2003), Melianthaceae (APG II 2003) and Scrophulariaceae (Goldblatt *et al.* 1979), respectively. *Prionium serratum*, the only species of Prioniaceae (Poales), is now included in Thurniaceae. Achariaceae (including Kiggelariaceae) were until recently regarded as a southern African endemic family but have been expanded to include several genera of Africa and the Old World tropics.

Genera

Some 997 genera of vascular plants (950 genera of seed plants), representing about half of the genera occurring in southern Africa, are represented in the Cape flora, with some 154 (± 15.5 %) endemic (Appendix). This modest level of generic endemism gives only a partial indication of the unusual nature of the flora, and a high number of genera are near-endemics (i.e. moderate in size and with just one or two species extending locally outside the CCR).

The skewed size of the families in the Cape flora is mirrored by the genera. *Erica* (Ericaceae), with some 680 species, is by far the largest genus in the flora (Table 4). Changes in the circumscription of *Erica* have now resulted in the inclusion of all the minor genera of southern African Ericoideae, leaving this one genus with over 7% of the species in the flora. It is unclear whether this remarkable pattern of radiation without generic diversification is associated with the relatively recent arrival of ancestral ericaceous stock in the region or whether it is associated with rapid evolution following the establishment of a Mediterranean climate here. By comparison, the smaller families Proteaceae and Restionaceae appear to belong to old African (or even Gondwanan) groups that are now poorly represented elsewhere in Africa, and show the highest levels of endemism at generic level. These two families, along with Bruniaceae, are the only non-endemic families that show greater than 50% generic endemism.

TABLE 4.—Total species for the 20 largest genera in the Cape flora (number of endemic species in parentheses). Subtotals per column of ten genera.

Ranking	Genus	No. Species (endemic)	Ranking	Genus	No. Species (endemic)
1.	*Erica*	680 (659)	11.	*Muraltia*	109 (101)
2.	*Aspalathus*	273 (254)	12.	*Gladiolus*	108 (86)
3.	*Restio*	163 (146)	13.	*Selago*	100 (77)
4.	*Agathosma*	163 (159)	14.	*Disa*	100 (82)
5.	*Pelargonium*	150 (85)	15.	*Crassula*	97 (26)
6.	*Phylica*	132 (125)	16.	*Geissorhiza*	94 (88)
7.	*Cliffortia*	125 (113)	17.	*Ruschia*	87 (75)
8.	*Oxalis*	122 (89)	18.	*Thesium*	86 (65)
9.	*Moraea*	122 (84)	19.	*Leucadendron*	84 (80)
10.	*Senecio*	114 (54)	20.	*Helichrysum*	81 (34)
SUBTOTAL		2 044 [21.8%]			946 [31.9%]
TOTAL	**2 990 (31.8%)**				

Aspalathus (Fabaceae) is the second largest genus, with 273 species, followed by *Restio* (Restionaceae), *Agathosma* (Rutaceae), *Pelargonium* (Geraniaceae), *Phylica* (Rhamnaceae) and *Cliffortia* (Rosaceae), each with between 125 and 163 species (Table 4). Fourteen genera contribute more than 100 species each, and thirty-six genera have over 50 species. The ten largest genera together contain 2 044 species (21.8% of the flora), with the next ten largest genera contributing an additional 946 species. The 20 largest genera in the flora, representing just 2% of the genera recorded in the Cape flora, thus account for slightly less than a third of the species.

No single ecological pattern unites the species-rich genera. *Erica*, *Aspalathus*, *Phylica*, *Agathosma*, *Cliffortia*, and the two largest genera of Proteaceae (*Leucadendron* and *Protea*), are all best developed on sandy soils and are most diverse in montane habitats. In contrast, species of *Crassula, Disa, Gladiolus, Moraea*, *Oxalis*, and *Pelargonium* appear to occur with equal frequency on nutrient-poor, nutrient-intermediate, or comparatively rich soils, and favour lowland habitats. *Crassula* and *Ruschia* are succulents, and *Disa, Geissorhiza*, *Gladiolus*, *Moraea*, and *Oxalis* are seasonal geophytes, as are many species of *Pelargonium*. The remaining larger genera contain mostly shrubs or small trees, although a few species of *Pelargonium*, *Senecio*, *Crassula*, and *Helichrysum* are annuals. Species of *Thesium* are mostly hemiparasitic shrubs, with one species described as annual.

The most obvious shared factors in successful genera in the CCR seem to be either a shrubby habit or seasonal geophytism, but this is essentially true of the flora as a whole. Over 17% of the total species in the flora are geophytes with bulbs, corms, tubers, or rhizomes, and the number of species with underground perennating buds would be even higher if plants with woody caudexes were included.

The ratio of species per genus in the Cape flora (9.4 species per genus for all vascular plants and 9.8 species/genus for seed plants) (Table 5) is high compared to other floras, ranking among the highest in the world (Fenner *et al*. 1997). Southern Africa as a whole (including the CCR), has a comparable ratio of 9.6% (*fide* Goldblatt 1978). The ratio of three dicots to one monocot species in the Cape flora is close to the average for floras across the world, and although the proportion of monocots (26.3% of total species) does not seem unusual, the families that are represented in the Cape flora are most unexpected. Some half of the monocot species are geophytic members of Asparagales and Liliales, notably Iridaceae, Orchidaceae, Hyacinthaceae, and Amaryllidaceae. The fact that the

TABLE 5.—Selected statistics for the Core Cape Subregion and various comparable regions (adapted from Bond & Goldblatt 1984). Percentages are of totals for each flora.

Region	No. of species/ genus	Ten largest genera %	Monocots %	Asteraceae %	Annuals %
Cape flora	9.4	21.8	26.3	11.5	6.5
Southern Africa	9.6	15.1	23.0	11.0	7.0
Cape Peninsula	4.2	17.5	34.6	11.5	9.6
KwaZulu-Natal	3.9	17.0	27.1	11.4	± 6.5
Eastern North America	5.2	21.8	28.2	12.7	8.7
Europe	7.8	14.0	18.0	12.0	?
California	5.3	15.2	19.2	13.6	27.4
Sonoran Desert	3.3	12.8	12.1	15.0	21.4
Texas	3.9	10.2	24.4	13.4	20.4
Hawaii	4.4	81.0	11.8	15.9	0.04
New Zealand	5.1	26.3	27.3	12.5	6.0

proportion of monocot to dicot species matches that elsewhere in the world is therefore evidently merely coincidental.

Palaeoendemic families and genera

The endemic and near-endemic families of the CCR are all small, contributing relatively few genera and species to the flora. Members of these families, with the single exception of the rhizomatous perennial *Lanaria*, are evergreen, sclerophyllous shrubs, often summer-flowering, and mostly restricted to sandstone-derived soils.

These families are predominantly taxonomically isolated, except for Penaeaceae, which are allied to Oliniaceae and Rhynchocalycaceae (and which have been expanded to include these families in APG III 2009). Indirect dating of molecular phylogenies (Table 3, *Endemic families*) roots most of the endemic or near-endemic families of the Cape flora in the late Cretaceous or early Tertiary, and they are thus best regarded as palaeoendemics. They appear to be relicts of an ancient temperate southern African flora adapted to nutrient-poor soils. Penaeaceae, evidently of early or mid-Miocene age and therefore much younger, are better interpreted as neoendemic.

Among non-endemic families, the endemic or near-endemic genera that are taxonomically isolated and mono- or oligotypic (and thus probably palaeoendemic), are genera of the geologically oldest plant communities, *i.e.* tropical thicket and evergreen forest. Especially notable is the monospecific *Platylophus* (Cunoniaceae), one of only two continental African members of this family. The other, *Cunonia capensis*, is common in the CCR but extends into northeastern southern Africa. Other mono- or oligotypic genera such as *Laurophyllus* and *Heeria* (Anacardiaceae), *Hartogiella* and *Maurocenia* (Celastraceae), *Lachnostylis* (Phyllanthaceae), *Hyaenanche* (Picrodendraceae), and *Smelophyllum* (Sapindaceae), also exemplify the palaeoendemic component of the depauperate tree element of the flora and mostly have ranges restricted to the southern or eastern portion of the CCR.

Non-forest habitats harbour few palaeoendemic genera apart from members of the endemic (and near-endemic) families of the Cape flora. Among them are the monotypic shrublets *Empleuridium* (Celastraceae) and *Ixianthes* (Stilbaceae), and the small riparian tree *Metrosideros angustifolia* (Myrtaceae), a member of an otherwise Australasian genus. All three are restricted to the western half of the CCR, and *Metrosideros angustifolia*, the only African member of the otherwise Australasian Myrtoideae: Metrosiderinae, seems as geographically isolated as *Cunonia* and *Platylophus*. The geophytic genera *Bulbinella* and *Bulbine* (Asphodelaceae), and *Wurmbea* (Colchicaceae), are also African-Australasian disjuncts but radiation in all three has occurred primarily in the Greater Cape Floristic Region.

The small number of palaeoendemics in the CCR emphasizes the major contribution that recent speciation in a narrow range of families and genera has made to the total species diversity of the flora.

Diversity

Regional diversity

The patterns of endemism within the Core Cape Subregion are fairly consistent, and an analysis of these patterns in selected genera that have diversified largely on sandstone

substrates, has resulted in the recognition of several regional centres of endemism (endpapers). Weimarck (1941) pioneered this field, which has now been refined by Cowling and his co-workers (Cowling *et al.* 1992). The presence of these centres suggests that exchange between them is limited through geographic isolation or because different microclimates in each centre favour local species at the expense of migrants.

The Southwestern Centre (SW), lying at the geographic centre of the CCR, has the largest flora (4 864 species) with the highest level of endemism (30.5%) (Table 9), followed by the Northwestern Centre (NW) (4 259 species with 25.7% endemism). The Karoo Mountain (KM) and Southeastern (SE) Centres have much smaller floras with substantially lower levels of endemism. The two smallest centres, the Langeberg (LB) and Agulhas Plain (AP) Centres, understandably have smaller floras. More significantly, the Southeastern Centre, although only moderately smaller in area than the Northwest and Southwest Centres, has a markedly smaller flora (2 937 species) with only 9.4% endemism. This may be explained by its more equable and apparently less diverse climate, which translates to fewer local microhabitats available for species diversification, but there may be a historical component as well.

Differences in levels of endemism across the Centres are striking. The Southwestern and Northwestern Centres each have about twice the proportion of endemic species as the other Centres, a reflection not only of their greater climatic diversity but probably also of the relative stability of the Pleistocene climate here, and perhaps also of its stronger seasonality.

Species-areas analysis confirms that western (seasonal) landscapes in the CCR have more than double the number of species than eastern (aseasonal) landscapes across all area sizes (Cowling & Lombard 2002). Analysis of phylogenetic diversity across the region, however, reveals the converse (Forest *et al.* 2007). The flora in the western portion of the CCR is phylogenetically clustered, comprising relatively closely related genera resulting from multiple radiations over at least the last 25 million years. The flora in the eastern portion, in contrast, is phylogenetically 'over-dispersed', containing genera that are, on average, less closely related to one another, largely reflecting the influence of adjacent subtropical floras.

Life forms

The Cape flora, like all Mediterranean floras, has relatively few trees. This life form occurs in only 220 species, or less than 2.5% of the flora (Table 6). Almost two thirds of the species are shrubs and perennial herbs, with shrubs the most common life form in the Core Cape Subregion, accounting for an estimated 5 023 species, or 53.6% of the flora. Shrubs in the CCR are diverse in form but typically comprise species with sclerophyllous,

TABLE 6.—Life forms in the Cape flora.

Life form	No. species (% of flora)
Trees	220 (2.3)
Shrubs and subshrubs	± 5 000 (54.0)
Perennials	1 035 (11.0)
Geophytes	1 635 (17.2)
Graminoids	795 (8.4)
Annuals	612 (6.5)
Other	80 (0.6)
TOTAL	**9 383 (100)**

and mostly microphyllous leaves. Although the fine-leaved foliage of the Cape heathlands has often been cited as the origin of the name fynbos, the term was originally applied to fine-stemmed shrublands or woodlands lacking the large timber trees that were so necessary a resource for the early Dutch settlers at the Cape (Bews 1916; Manning 2007). Shrubs in the CCR also include large numbers of species with succulent leaves (especially Aizoaceae), as well as stem-succulents such Euphorbiaceae, some of which are so reduced in size that even the term shrublet hardly seems deserved.

The Core Cape Subregion stands out from both California and Chile in the overwhelming contribution made by shrubby species (Table 7). This is largely accounted for by the the nutrient-poor soils that favour this life form. The Cape flora also differs strikingly from other Mediterranean floras in the surprisingly low proportion of annuals—only some 612 species, or 6.5% of the total flora (Table 6). This is a sharp contrast to floras of the Mediterranean climate zones of California and Chile, with 30% and 16% annuals respectively (Kalin *et al.* 1994; Cowling *et al.* 1996). Paradoxically, although the proportion of annual species in the Cape flora is low, the annual flora itself is comparatively rich in the absolute number of species. The total number of annual species in the CCR is actually nearly twice the 378 species of annuals in Chile, an area of comparable size, and California, which is four times larger than the CCR, has 1 279 species of annuals, or only twice as many as the CCR. The CCR is thus not depauperate in annuals in relation to its area, but its wealth of other life forms makes the annual habit appear under-represented. No comparative data are available for the Mediterranean basin but a small annual flora is also characteristic of Southwestern Australia, an area with a recent geological history comparable to that of the CCR and a similar pattern of nutrient-poor sandstone soils and richer clays. The low proportion of annuals in the CCR has remained without a satisfactory explanation since it was first noted by Bond & Goldblatt (1984), but may simply lie in the disproportionate numbers of other life forms, especially geophytes and microphyllous shrubs, both of which are particularly well adapted to the nutrient-poor soils where species have low dispersal frequencies and thus particularly high regional diversity and are favoured by the reliable seasonality of the climate.

The two families, Scrophulariaceae and Asteraceae, are the most important among the annual flora. Scrophulariaceae, with 167 species, contribute the largest number of annuals—more than Asteraceae, which include some 132 annual species (Table 8). Aizoaceae, Brassicaceae, Campanulaceae, Crassulaceae, Cyperaceae, Fabaceae, and Poaceae contribute between 20 and 35 species each to the annual flora. Campanulaceae, in particular, require taxonomic study, and our estimate of the number of species in the family, including its annual component, is subject to significant revision.

In contrast to the low proportion of annuals, the Cape flora has perhaps the highest proportion of geophytes of any flora in the world, and it is four to five times richer in these species than other Mediterranean floras (Esler *et al.* 1999). At least 1 635 species, over 17% of the total, have specialized underground organs including bulbs, corms, rhizomes or

TABLE 7.—Comparison of life forms in the California flora, central Chile, and the Cape flora. Figures are percentages of total species; perennials include geophytes and graminoids. Data for California and Chile from Arroyo *et al.* (1994), Kalin *et al.* 1994 and Cowling *et al.* 1996.

Region	Annuals %	Perennials %	Shrubs %	Trees %
Cape	6.5	37.4	53.6	2.5
California	30.2	56.2	11.0	4.6
Central Chile	15.8	63.4	17.8	2.9

TABLE 8.—Families with the highest number of annuals in the Cape flora.

Family	No. of species
Scrophulariaceae	167
Asteraceae	132
Brassicaceae	35
Poaceae	27
Cyperaceae	27
Aizoaceae	26
Fabaceae	23
Crassulaceae	23
Campanulaceae	21
Gentianaceae	17
Molluginaceae	16
TOTAL ANNUALS	612 (6.5% of flora)

tubers, and are seasonally dormant (Table 6). The overwhelming number of geophytes are monocots, which contribute over 1 300 geophytic species, 740 of which are members of the Iridaceae. Almost all these species are deciduous, remaining dormant underground in the dry season, but we have included here the few more or less evergreen species (e.g. *Agapanthus*, *Kniphofia*) with geophyte-type underground organs. The other main category of monocots is the graminoids, comprising perennial species of Cyperaceae, Juncaceae, Poaceae, Restionaceae, and a few other families that together account for 795 species.

Distribution of the different life forms is uneven across the Core Cape Subregion, with species diversity among the two most distinctive life forms, annuals and geophytes, dropping dramatically from west to east (Table 9). The summer-dry NW and SW Centres have the largest numbers of geophytes as well as the highest proportion of geophyte species across all the centres, 20.2% and 17.4%, respectively. Each of these two Centres alone actually includes more than 50% of all geophyte species in the entire CCR. The other Centres have many fewer geophytes, comprising between 14.1% and 15.8% of their floras. Annuals are also most common in the west, especially in the NW Centre, which has 10.3% annual species or 65% of the total annual species in the CCR. The remaining Centres each have no more than 6.8% annuals. The distribution of trees shows the converse, with relatively few tree species in the NW Centre (1.6%) and the highest number by far in the SE Centre (5.6%).

TABLE 9.—Comparison of species richness, endemism, and proportion of life forms in the floras of the six phytogeographic Centres of the Core Cape Subregion and the Cape Peninsula.

Centre	**Area (10^3 km^2)**	**Total species**	**Endemism**	**Trees (%)**	**Annuals (%)**	**Geophytes (%)**
Northwest	23.1	4 259	25.5%	69 (1.6)	417 (10.3)	855 (20.2)
Southwest	21.3	4 864	30.5%	95 (1.9)	314 (6.8)	846 (17.4)
Agulhas Plain	4.2	1 530	13.6%	24 (1.6)	92 (6.7)	202 (14.7)
Karoo Mountain	16.8	2 336	15.3%	48 (2.1)	131 (6.1)	330 (14.1)
Langeberg	8.1	2 457	11.3%	100 (4.1)	127 (5.4)	389 (15.8)
Southeast	17.3	2 938	9.4%	163 (5.6)	156 (5.5)	427 (14.5)
Cape Peninsula	4.7	2 250	7.5%	52 (2.3)	189 (8.4)	471 (20.9)
Core Cape Subregion	90.8	9 381	68.3%	220 (2.4)	612 (6.5)	1 635 (17.2)

These patterns seem directly related to climate. Both geophytes and annuals are adapted to seasonal climates, whereas a climate with higher, more evenly distributed rainfall characteristic of the LB and SE Centres, favours a tree flora and fewer geophytes and annuals. The comparatively high numbers of trees in the SW Centre reflect the dissected landscape, incorporating sheltered, sea-facing valleys, and the regular occurrence of rainfall in the summer along its southern coast and interior.

Comparisons with other floras

An aspect of the CCR that is of particular interest is the high level of species diversity, both regional and local. For its size (90 760 km^2), the number of species of vascular plants, 9 383 (9 261 seed plants plus 122 pteridophytes and lycopodiophytes) is comparable with areas of the wet Neotropics (Table 10). Thus Panama (75 000 km^2) has 7 300 seed plant species and Costa Rica (54 000 km^2) has over 9 300 species.

Southern Africa as a whole has a particularly rich and diverse flora for a predominantly temperate region. The area customarily treated for floristic purposes as southern Africa (Botswana, Lesotho, Namibia, South Africa, and Swaziland) has a flora of ± 20 300 native vascular plant species in an area of 2 674 000 km^2, and South Africa alone has some 18 720 species (± 18 470 seed plants plus ± 250 lycopodiophytes and pteridophytes) (Germishuizen *et al.* 2006). This is striking when compared with an estimated 19 000 species in all

TABLE 10.—Comparison of endemism of native vascular plants in selected regions of the world.

Region	Area (10^{3}km^2)	No. genera	%Endemism	No. spp.	%Endemism	Ref.
CONTINENTAL AREAS						
Southern Africa	2 674	2 130	20.0	20 300	62.0	1
Peru	1 285	2 210	2.1	16 500	31.2	2
MEDITERRANEAN CLIMATE AREAS						
Core Cape Subregion	90.8	997	15.4	9 383	68.3	
California Floristic Province	324	806	6.5	4 240	47.7	3
Central Chile	104	591	-	2 395	± 22.5	4
	155	-	-	2 537	± 23.4	5
SW Australia	270	462	± 20	3 650	68	6
				or ± 8 000	± 75	7
MOIST TO WET TROPICS						
Costa Rica	54	2 023	-	9 361	-	8
Panama	75	1 800	-	7 300	± 15	9
TROPICAL OR TEMPERATE ISLANDS						
Hawaii	16.6	267	15	1 138	86	10
New Zealand	268	393	10	1 996	81	3
Madagascar	594	1 730	19	+ 13 000	± 89	11
MEDITERRANEAN ISLANDS						
Crete	± 9	-	-	± 1 706	± 10	12
Peloponnese	21	-	-	2 400	± 12.5	12
Sardinia	24	-	-	2 054	± 6	12
Sicily	26	-	-	± 2 700	± 10	12

References: 1. C. de Wet pers. comm., Germishuizen *et al.* 2006; 2. Brako & Zarucchi 1993, Zarucchi pers. comm.; 3. Raven & Axelrod 1978; 4. Arroyo *et al.* 1994; 5. Arroyo & Cavieres 1997; 6. Beard 1970; 7. Hopper 1992; 8. Zamora *et al.* 2004; 9. D'Arcy 1987; 10. Wagner 1991, Wagner *et al.* 1990; 11. Phillipson *et al.* 2006; 12. Médail & Quézel 1997.

of North America north of Mexico, or the estimated 16 500 native vascular plant species (15 800 seed plants plus ± 700 lycopodiophytes and pteridophytes) currently recognized for Peru, an area of 1 285 000 km^2 (Brako & Zarucchi 1993; Zarucchi pers. comm.).

To put this in a regional context, all of tropical Africa may have about 26 500 species (Lebrun & Stork 1997), in an area nearly ten times larger than that of southern Africa and about 250 times larger than the Core Cape Subregion. Southern Africa and North Africa contribute approximately 22 000 additional species, making a total of ± 48 500 species for the entire African continent. The tiny CCR, occupying less than 0.5% of the total area of Africa, thus has just under one fifth of all the species on the continent! Southern Africa, excluding the CCR, has about 12 320 species of vascular plants, a figure comparable with that of southern tropical Africa (Angola, Malawi, Mozambique, Zambia, and Zimbabwe), which has 11 637 species. In an African context, both the CCR and the southern African subregion have higher species diversities than predicted on the basis that species diversity increases toward the equator. These figures make southern Africa (Germishuizen *et al.* 2006), and the CCR in particular, the richest temperate floras in the world.

Although the floras of the Mediterranean climatic regions are often regarded as unusually species-rich, particularly compared with other temperate floras, this is true only of the Cape and, to a lesser extent, of southwestern Australia. The Californian flora is not notably richer than expected for its area, whereas that of Chile is poorer than expected (see Figure 6 in Linder 2003). Species richness in the CCR is in fact significantly higher than expected for its size, and the region compares favourably with that of tropical rainforests, grouping with Panama, the Phillipines, Madagascar, and Brazil in richness (Linder 2003). The diversity of species in the CCR is thus remarkable by any measure, and comparable to many of the richer tropical floras.

Some 6 403 species of the Cape flora (68.3%) are endemic to the CCR, well above the percentage endemism of most other Mediterranean climatic regions (see Figure 2 in Linder 2003). The percentage endemism in the CCR is higher than that of both Chile and the California Floristic Province, and is also relatively higher than that of southwestern Australia when adjusted for the differences in area between the two regions. This makes the Cape flora one of the most distinctive in the world. Such levels of endemism are usually associated with islands that have been isolated for long periods of geologic time, or have very sharp boundaries that limit direct plant migration. In a biological sense, the CCR is in effect an island, surrounded partially by ocean and partially by an ecological buffer of climate and sharply different soils. Among continental floras, that of southwestern Australia is also significant in sharing with the CCR an unusually high percentage endemism for a local continental flora, and so does that of southern Africa as a whole, but this is partially due to what may be termed the 'Cape Effect'—excluding the CCR from southern Africa significantly reduces the richness and percentage endemism for the subcontinent, giving a total vascular flora for the reduced region of ± 14 000 species, of which ± 6 700 species (48%) are endemic.

The high levels of diversity and local endemism that are characteristic of the Core Cape Subregion are emphasized by comparing the subcentres within the region with other areas. The SW and NW Centres both have over 4 000 species and over 31% or 26% endemism respectively, compared with about 2 400 species and an estimated 22–23% endemism (depending on the geographical definition of the region) for the entire Mediterranean flora of Chile, an area over five times greater than either of these subcentres of the CCR. Likewise, important centres of local endemism (hot spots) within the Mediterranean Basin, including the islands of Sicily, Sardinia, and Crete, or the Peloponnese Peninsula, all of more-or-less comparable geographic size to the NW or SW Centres, have approximately half or

less than half the number of species, with between 6% and 12.5% endemism (Médail & Quézel 1997).

Alpha diversity

Aspects of plant species diversity have been addressed on several levels and it has been shown that at the local level, selected areas within the Core Cape Subregion are not unusual on a world scale (Cowling 1992; Goldblatt 1997) and are less species-rich than many areas sampled in the New and Old World lowland tropics (Gentry 1988a, b). Patterns of alpha diversity (the number of species in a homogenous community) in a range of vegetation types in the CCR, including fynbos, renosterveld, forest thicket, and evergreen forest are illuminating. Fynbos sites (with seasonal species not included in species counts) have a mean alpha diversity of 68 species per 1 000 m^2, with 121 the highest number of species recorded at any site (Cowling & Holmes 1992a). Fynbos diversity is by no means uniform and there is ample evidence that diversity is higher in the west than in the south and in more mesic than dry sites (Bond 1983).

Non-fynbos sites have been less well studied. Figures in the literature for renosterveld include means of 66 (Tilman *et al.* 1983) and 84 (Cowling & Holmes 1992b) species per 1 000 m^2. Forest thicket sites have a mean of 59 species per 1 000 m^2, forest sites have ranges of 44 to 52 species, and succulent karoo shrublands a mean of 43 species in the same area (Tilman *et al.* 1983).

By comparison, California chaparral communities have alpha diversity levels around 34 species per 1 000 m^2, but the more comparable Southwestern Australian region has an average of 69 species per 1 000 m^2 in heathland (kwongan), a vegetation type similar to fynbos. While these figures are consistent with higher total species richness in the Core Cape Subregion and southwestern Australia compared with the California Floristic Province, they do not explain the comparable regional diversity of the CCR and the lowland wet tropics. In the wet tropics mean alpha diversity of trees (including woody lianas) alone has been found to range from 129 species (Africa) to 140 species (Neotropics), to 193 species (Asia) per 1 000 m^2 (Gentry 1988b), about twice the alpha diversity found in Mediterranean communities on nutrient-poor soils. Inclusion of epiphytes and other herbaceous plants raises alpha diversity in some tropical sites. Gentry & Dodson (1987) have shown that a major component of the plant species diversity in tropical forests actually lies with the epiphytes. Similarly, the inclusion of seasonal geophytes would increase the figures for the CCR and until more comprehensive surveys are made, any comparisons can only be tentative.

Beta and gamma diversity

Beta diversity (species turnover along a habitat or environmental gradient) is relatively high in the Core Cape Subregion. Cowling (1990), for example, has reported nearly complete replacement between sites on the Agulhas plain differing from one another in soil features but climatically and topographically similar. Differences between communities on sandstone versus clay soils are nearly complete so that the plants on these two soils types are treated as belonging to different vegetation types.

Gamma diversity (species turnover in equivalent habitats along geographic gradients, also called delta diversity) is likewise extremely high in the CCR, and is reflected in the high levels of regional endemism. Species replacement values of 46–70% have been reported by Kruger & Taylor (1979) for sites 25 km apart, and Linder (1985) has suggested

that geographic replacement may account for 30% of the differences between species composition along geographic gradients in similar habitats. These figures, however, are lower than some estimates for lowland Neotropical sites (B. Boyle pers. comm.).

Speciation in the Cape flora

The Core Cape Subregion is richer in species than the floras of other temperate regions and of most tropical ones (Table 10). One of five regions in the world with a Mediterranean climate, the CCR has substantially more species than do either California or Central Chile, which are much larger in area, and although southwestern Australia has a flora that may be as large as that of the CCR, it is at least three times larger in area. Only the Mediterranean Basin has a flora that is larger than the CCR but it is only about 2.5 times as rich despite covering an area approximately 25 times larger than the CCR. The reasons for the substantially higher species diversity of the CCR compared with these floras are several, and include a range of factors, both physical and historic.

A diversity of soils, a rugged landscape, and extremely variable and complex rainfall patterns have combined in the Core Cape Subregion to produce a mosaic of sharply different habitats that lie in close proximity to one another in a repeated pattern across the entire area. This high physical heterogeneity, although striking, is not unique to the region and may even be greater in other parts of the globe. The California Floristic Province, too, has a wide range of soils, including serpentine substrates not present in the CCR, diverse climates, a rugged topography with higher mountains than those in the southwestern Cape, plus a wider latitudinal extension. Likewise, the Mediterranean Basin, more than two orders of magnitude larger than the CCR, has a wide diversity of soils and a rugged landscape, with the mountains also higher than those found in the region. Both areas are often cited as being species-rich compared to neighbouring regions, yet both are substantially poorer in species than the CCR; California in absolute terms, and the Mediterranean is proportionally much less diverse for its huge area. Southwestern Australia, in contrast, which has a flora approaching that of the CCR in size, noticeably lacks the rugged topography of other regions, although it exhibits some of the ecological features of the CCR. And even more evidently, why does the southwestern Cape have more than twice the species as the similar-sized and equally heterogeneous landscapes of the southeast (Cowling *et al.* 1996)? Physical heterogeneity alone cannot therefore account for the richness of the Cape flora and edaphic factors may be more significant.

Of the five Mediterranean regions of the world, only the southwestern Cape and southwestern Australia have soils that include large areas of nutrient-poor quartzitic sands, and at least part of the explanation for the higher species numbers here has been thought to relate directly to the peculiar effects of this substrate on plant life. High levels of local diversity have been considered characteristic of nutrient-poor soils (Tilman 1982, 1983), and if this is correct, then the mere existence of large areas of such soils should account for the comparatively high alpha diversity of heathland vegetation in both South Africa and southwestern Australia compared with that in California or Chile. This hypothesis is, however, not supported either in the southwestern Cape or southwestern Australia, where alpha diversity levels on nutrient-poor and nutrient-intermediate soils differ only minimally (Goldblatt 1997). Although they may not support a flora significantly richer than that occurring on soils of other nutrient status, nutrient-poor soils in the southwestern Cape are able to maintain particularly high beta diversity in the associated fynbos vegetation, both on geographical gradients and on slightly different soils under the same climatic conditions. Comparable data for nutrient-intermediate and nutrient-rich sites are not yet available.

The high frequency of fire is another aspect that contributes to diversity in the Core Cape Subregion. Fire is also significant in southwestern Australia and California but not in the Mediterranean zone of Chile. A combination of edaphic and topographic diversity, steep local climatic gradients, peculiar nutrient-poor soils, and frequent fires, although undoubtedly important in promoting species diversity in the CCR, is still an inadequate explanation for the presence of the unusually rich flora in the CCR, particularly when compared to southwestern Australia. In a recent study by Kreft & Jetz (2007) in which environmental moisture relations and habitat heterogeneity were identified as core predictors of global species richness, the CCR emerged as a signal anomaly, containing more than twice as many species as predicted by their model.

A notable and perhaps crucial difference between the Core Cape Subregion and other areas of Mediterranean climate, possibly excluding southwestern Australia, lies in their Pliocene–Pleistocene climatic history. Available data indicate a history for southern Africa very different from that experienced in the northern hemisphere and to a lesser extent in Chile. Cycles of extreme cold and aridity alternating with warm wet phases made these areas periodically largely uninhabitable by their current floras, elements of which either became extinct or were confined to local sites of relatively mild climate. A similarly dynamic history for the CCR hypothesizes that Pleistocene glacial cycles caused a northward shift in the winter-rainfall zone, which in turn caused a northward expansion of the flora during the pluvial periods but local extinction and its restriction to refugia during dry periods (Axelrod & Raven 1978). The little evidence available for the CCR, however, indicates a more moderate climate without changes of such cataclysmic dimensions. Pollen cores reflect comparatively modest shifts in the flora (Meadows & Sugden 1991), even in the semi-arid and ecologically sensitive Cedarberg Mountains. Changes there might be expected to have been more severely influenced by the drier and colder climatic conditions that are postulated to have occurred during glacial periods when belts of vegetation adapted to Mediterranean climates contracted away from the dry zones that lay towards the equator.

The absence of any evidence of major changes in the vegetation of the CCR makes it seem likely that the Pleistocene glacial cycles did not have the profound effects on plant life in southern Africa that they did in the northern hemisphere or Chile. In southern Africa, relatively drier and wetter cycles may simply have changed the local composition of vegetation, perhaps causing some local extinction, which in turn created opportunities for speciation. Locally, there is good evidence that glacial climates in the southeastern Cape were harsher than those in the southwest, resulting in the widespread disappearance of fynbos and concomitant high extinction rates during much of the Quarternary (Cowling *et al.* 1996). Recently, Cowling *et al.* (2009) have highlighted the role of moderate geomorphic perturbation, notably the two major uplift events in the late Cenozoic that raised the central plateau, in stimulating speciation in the CCR by increasing topographic and edaphic heterogeneity.

The unusually high species richness of the Core Cape Subregion, notably in the southwest, is therefore in all likelihood a consequence of sustained climatic stability and reliability, facilitating the more-or-less uninterrupted evolution of the flora in a region of high physical complexity. Analysis of patterns of speciation among several Cape clades by Schnitzler *et al.* (2011) supports this scenario, with radiations in different groups initiated throughout the Oligocene and Miocene. Net diversification rates appear to have remained constant through time at globally moderate rates, suggesting that the hyperdiversity of the Cape flora is the result of consistently moderate/high speciation rates and/or low extinction rates.

The history of this evolution can be traced through the modes of speciation evident in the flora [see Van der Niet & Johnson (2009) for a recent review]. Although there are few

such studies for plant groups centred in the CCR, available evidence suggests that parapatric speciation, linked to substrate or microclimatic differences, is an important mode of speciation in some families. In this model, vicariant species are either more or less allopatric or even sympatric, and exhibit differences in ecology such as edaphic, microclimatic, seasonal, or pollination characteristics. Soil differences have been identified as the primary cause of speciation in *Babiana* and *Moraea* (Iridaceae) and also *Protea* (Proteaceae), while fire-survival strategies have been instrumental in speciation in Fabaceae–Podalyrieae (Schnitzler *et al.* 2011). In *Rhodocoma* (Restionaceae), a genus restricted to nutrient-poor sandstone soils in montane habitats, vicariant species favour different habitats and are not significantly isolated geographically (Linder & Vlok 1991). Parapatric speciation also appears to have been more important than geographic isolation in Iridaceae in the southwestern Cape and adjacent parts of the southern African west coast (Goldblatt & Manning 1996; Rymer *et al.* 2010).

Parapatric or microgeographic speciation may actually be the rule, not the exception in plants (Levin 1993), and is favoured by reduced gene flow across strong selection differentials. The mosaic of different substrates that characterizes the southwestern Cape may provide such a strong selective differential. High levels of both beta and gamma diversity support the hypothesis that microgeographic speciation has played a major role in speciation in the Cape flora. Nearly adjacent habitats under the same climatic and topographical conditions, which differ only in their substrates (coarse sand or fine sand or limestone), can support plant communities that differ radically in their species composition while still broadly similar in family and generic composition (Cowling & Holmes 1992a).

Evidence for adaptive radiation is provided by the *Gladiolus carinatus* complex, which demonstrates a continuum of gradual speciation through simultaneous divergence in habitat preferences and in prezygotic isolating mechanisms (Rymer *et al.* 2010), rather than of abrupt speciation associated with the suddden interruption in gene flow predicted by allopatric or quantum speciation models (Linder 2008). Geographical isolation is more complete among the members of *Protea* sect. *Exsertae*, and species in the group display little ecological differentiation (Prunier & Holsinger 2010). It is hardly surprising that there is evidence for both parapatric and more strictly allopatric models of speciation in recent radiations in the CCR but the relative importance of the two models remains to be established. Certainly, adaptive radiations, which are distinguished by ecological shifts among species, are more likely to result from differential selection pressures and thus follow parapatric/sympatric speciation models than are non-adaptive radiations, which are characterized by ecological equivalence in allopatry. Both types of radiation can be equally rapid in the CCR (0.34–1.2 Mya) (Prunier & Holsinger 2010; Rymer *et al.* 2010).

Although the Cape flora may not differ from other floras in mean pollen dispersability (Linder 1985), many of its most characteristic elements have low seed dispersal distances. Most species in the Core Cape Subregion show no evident adaptations for dispersal and are passively dispersed, with seed dispersal distances under 5 m (and most likely much less than this). Dispersal in most Aizoaceae is by rain drops falling on hydrochastic capsules, and this mechanism, although an active one, results in very short dispersal distances. Active seed dispersal by ants is disproportionately well represented in both the CCR (Bond & Slingsby 1983) and Australia (Berg 1975). Over 1 000 Cape species, notably in the families Fabaceae, Proteaceae, Restionaceae, Rhamnaceae, and Rutaceae, produce seeds with fatty bodies (elaiosomes) that are attractive to ants, and an undetermined additional number are transported to underground nests by harvester ants. In vegetation types prone to frequent fires, such as fynbos, the burial of seeds is a valuable adaptation. However, dispersal distances for ant-dispersed seeds are also short, with a mean global distance of 0.96 m (Gómez *et al.* 1998). More effective dispersal strategies are relatively restricted

in their occurrence. Wind dispersal is characteristic of many Asteraceae and Orchidaceae (which have comparatively low levels of endemism in the Cape flora), while long-distance dispersal involving flying vertebrates (birds and bats) is least common, and is especially rare in plants on nutrient-poor substrates. There is an assumption that plants on such soils cannot afford to allocate resources to protein-rich berry or capsular fruits (Bond & Slingsby 1983). The low frequency of fruits with burs and spines, adapted for exochory, suggests that dispersal by non-flying vertebrates has always been unimportant in the flora, perhaps because the fauna has historically been a small one in terms of numbers of species and individuals. This is largely the result of the unpalatibility, low nutrient status, and low productivity of the flora as a whole.

Indirect evidence of the importance of reduced gene flow distances in stimulating local species diversity comes from a comparison of the number of species and their level of endemism between taxa with widely dispersed seeds and those with reduced dispersal distances. Genera with fleshy diaspores or those that are well adapted for wind dispersal tend to have wide ranges, few species per genus and low levels of local endemism. Compare the two berry-fruited species of *Muraltia*, *M. scoparia* and *M. spinosa* (Polygalaceae), with the remaining species of that genus, which have dry fruits and number over 100 species, most with narrow ranges. Similarly, *Chasmanthe* (Iridaceae), which has fleshy or deceptive (brightly coloured) seeds, has two widespread species and one localized one, whereas its relative, *Tritonia* which has dry seeds, is species-rich and most of the species have narrow ranges. Another striking example is *Osteospermum moniliferum* (Asteraceae), which has seeds enclosed in a fleshy pericarp. It extends throughout the CCR and far beyond it into tropical Africa. The numerous dry-seeded species *Osteospermum* have considerably smaller geographic ranges. This comparison is also instructive at the family level. Low seed dispersability is typical of most of the larger and most characteristic families in the flora, many of which have both unusually high ratios of species to genus and high levels of local endemism. Ericaceae, Iridaceae, and Fabaceae that all largely lack highly developed mechanisms for long-distance seed dispersal, have ratios of above 20 species per genus and higher than 80% endemism. Asteraceae and Orchidaceae, with wind-dispersed seeds, and Poaceae and Anacardiaceae, with fruits adapted to animal dispersal, show levels of local and regional endemism below the mean for the flora. More direct evidence of low levels of gene flow has been documented among the species of *Protea* sect. *Exsertae* (Prunier & Holsinger 2010).

The massive speciation of the flora in the Core Cape Subregion is, therefore, most likely explained by a model of local speciation in the presence of moderate climatic and topographic perturbations. It appears that a relatively stable climate prevailed in the southwestern Cape during the Pleistocene and that local parapatric speciation across steep environmental gradients may account for a considerable proportion of the speciation events that occurred in the region. Because of the relative stability it seems reasonable to postulate that extinction rates in the main vegetation zones, fynbos, renosterveld, and succulent shrubland were low and more than compensated for by local speciation events. The nutrient-poor soils scattered in a mosaic across the region must have raised local speciation rates because of the characteristic low vagility of the seeds in the great majority of the plants adapted to these soils. Likewise, the low vagility of many of the species in succulent shrubland, although presumably a consequence of different selective forces, has the same consequences, with high levels of local speciation, and thus high levels of diversity across geographic, environmental, and edaphic gradients.

The extensive radiation of plants in the Core Cape Subregion must have been promoted by the emergence of new habitats through changing climatic conditions, rejuvenation of the landscape, and exposure of the coastal plain as sea levels fell at times during the Pleis-

tocene, all within the context of relative climatic stability. At the same time, the flora was increasingly isolated by the winter-wet and summer-dry climate regime from recruitment from the summer-rainfall-adapted flora of adjacent parts of southern Africa, which also largely lack the low- or nutrient-intermediate soils so characteristic of the CCR.

Another distinctive feature of the Cape flora is the disproportionate representation by relatively few lineages—almost half the species in the CCR are found in 33 'Cape floral clades' identified by Linder (2003) as those that may have inititally diversified in the region and that have at least half of their species in the CCR. Such a high contribution by a very small number of lineages is typical of island floras, emphasizing once again the effective isolation of the CCR from the rest of the subcontinent. Predictably, the proportional representation of life forms in the 'Cape floral clades' mirrors that of the flora as a whole (Table 6), with shrubs, subshrubs, and perennials dominant (70%), followed by geophytes (18%) and graminoids (11%), and with only a minor contribution by annual species (2%).

A final characteristic of the Cape flora is the great, often extreme, diversity of flower forms in several of the genera, especially among the geophytes. This is linked to a diversity of pollination strategies, several of which are poorly exploited outside the region. In particular, pollination by sunbirds, long-proboscid flies, monkey-beetles, rodents, and the butterfly *Aeropetes*, are more extensively developed in the southwestern Cape than elsewhere in Africa. All these strategies favour differently shaped, mostly moderately sized to large, brightly coloured flowers. Both Iridaceae and Ericaceae, for example, have adopted a range of pollination strategies not evident or only weakly expressed elsewhere across their range (Vogel 1954; Goldblatt & Manning 2006), and are often striking when in bloom. The generally low insect diversity in the CCR (Giliomee 2003), combined with a short season favourable for both plant and insect growth, are probably the major factors responsible for this diversification in pollination strategies, which, more than anything else, has made the Cape flora so extremely appealing to human sensibilities.

Conservation aspects

The CCR is one of 34 biodiversity hotspots identified worldwide by Mittermeier *et al.* (2005). The combination of high species diversity in the region, coupled with a high proportion of range-restricted taxa, makes it especially vulnerable. Although the available data for South Africa's threatened plant taxa are based on provincial boundaries (Raimondo *et al.* 2009), few of the cited taxa from Western Cape extend beyond the boundaries of the CCR, and the two areas are thus essentially comparable from this perspective. The flora of the Western Cape is by far the most seriously threatened in southern Africa, including some seven or eight times as many taxa at risk of extinction as the Eastern and Northern Cape and KwaZulu-Natal, the three provinces next most badly affected. Of the national total of 2 577 plant taxa that are threatened (in danger of regional or global extinction: categories CR, EN, or VU) (Raimondo *et al.* 2009), 1 831 (71%) are found in the Western Cape, where they are concentrated in lowland areas that have been most affected by agriculture and urbanization. With around 12.6% of its flora threatened, South Africa is comparable to other floristically hyperdiverse countries that have completed conservation assesments of their floras, but the Western Cape, with 17% of its flora threatened and almost 30% of conservation concern, is far worse off than the national average.

A total of 3 087 taxa (i.e. species, subspecies, and varieties) from the Fynbos Biome (again, largely congruent with the CCR) are now considered to be of conservation concern (all categories except LC), with 1 736 taxa in danger of extinction (Raimondo *et al.* 2009).

TABLE 11.—Cape flora species considered to be extinct (EX) or extinct in the wild (EW) (Raimondo *et al.* 2009, with additional entry marked *).

Species	Family	Status	Region
Cephalophyllum parvulum	Aizoaceae	EX	NW: Clanwilliam
*Jordaaniella anemoniflora**	Aizoaceae	EW	SW: Cape flats
Lampranthus vanzijliae	Aizoaceae	EX	NW: Worcester
Helichrysum outeniquense	Asteraceae	EX	SE: Joubertina
Thamnea depressa	Bruniaceae	EX	SW: Genadendal
Isolepis bulbifera	Cyperaceae	EX	SW: Cape Peninsula
Erica turgida	Ericaceae	EW	SW: Cape Peninsula
Erica verticillata	Ericaceae	EW	SW: Cape Peninsula
Aspalathus complicata	Fabaceae	EX	NW: Piketberg
Aspalathus cordicarpa	Fabaceae	EX	LB: Garcia's Pass
Aspalathus variegata	Fabaceae	EX	SW: Cape Flats
Cyclopia filiformis	Fabaceae	EX	SE: Van Staden's Mtns
Cyclopia laxiflora	Fabaceae	EX	SE: Knysna
Liparia graminifolia	Fabaceae	EX	SW: Cape Flats
Psoralea gueinzii	Fabaceae	EX	SW: Stellenbosch
Disa forcipata	Orchidaceae	EX	SE: Knysna
Leucadendron grandiflorum	Proteaceae	EX	SW: Cape Peninsula
Leucadendron spirale	Proteaceae	EX	NW: Wolseley
Willdenowia affinis	Restionaceae	EX	SW: Cape Peninsula
Nemesia micrantha	Scrophulariaceae	EX	SW: Cape Peninsula

Habitat loss in the biome is estimated at over 30%. Crop cultivation is the major cause of habitat loss and degradation in the CCR, affecting 1 194 (34%) taxa of conservation concern, followed by urbanization and other infrastructural development (964 taxa: 27 %), and overgrazing (382 taxa: 11%). Of the 38 species of South African plants that are considered to be extinct or extinct in the wild, 20 spp. (53%) are elements of the Cape flora (Table 11), representing a disproportionately high percentage of the national total. Although widely scattered through the CCR, most of these species are from lowland habitats that have suffered most from urbanization and agriculture. The Cape Peninsula and adjacent flats, the area that has become most urbanized for the longest period, has been particularly seriously impacted upon (9 taxa; 45%), followed by the upper Breede River Valley (2 taxa; 10%). Larger southern African families with disproportionately high numbers of threatened taxa include Iridaceae, Proteaceae, Ericaceae, Rutaceae, Fabaceae, Asphodelaceae, and Aizoaceae. Most of these families are characteristic of the Cape flora, reflecting the high proportion of threatened species in the CCR.

Most of the richer soils within the CCR have been converted to cereals, vineyards, and deciduous fruit orchards, with the result that most of the species endemic to renosterveld shrublands in the Swartland and Overberg are now restricted to fragments unsuitable for cultvation, where they are susceptible to ecological and genetic pressures. Increasing cultivation of crops such as rooibos tea and potatoes is putting pressure on previously secure fynbos habitats, and the expanding wine industry is increasingly encroaching on areas of natural vegetation. The threats posed by urbanization are largely concentrated in lowland areas along the western and southern Cape coasts, and around Cape Town itself.

Encroachment by invasive alien species is another major threat to the Cape flora, affecting over 20% of taxa of conservation concern in the biome. The areas that are most

affected are again the lowlands, specifically the flats between Malmesbury and Cape Town, and the Agulhas and Riversdale coastal plains. The mountain flora on many of the coastal ranges is also under threat from rapid invasion of *Pinus* and *Hakea*. A further threat, especially to slow-growing alpine species and serotinous taxa, is the increasing frequency of fires. Areas close to human settlement and roads are most at risk.

Using this book

Arrangement of taxa

The family circumscriptions used here are those recommended by the Angiosperm Phylogeny Group (APG II 2003) as enumerated by Haston *et al.* (2007), except for Caryophyllales: Portulacineae, where we follow the more recent findings of Nyffeler & Eggli (2010). Plant families are arranged alphabetically within the major categories Lycopodiophytes, Pteridophytes, Gymnosperms, and Angiosperms: Palaeodicots, Monocots, and Eudicots. This departure from a traditional dichotomy in the Land Plants reflects the current understanding of relationships among the families.

Genera are arranged alphabetically within each family. Accepted generic names are in **bold**. Formal generic synonyms are in *italics*. Genera previously regarded as occurring in the area but which are now regarded as extra-limital, either through a revision of their circumscription or as a result of misidentification, are listed in plain capitals with a reference to the current generic placement of the relevant species.

Species within each genus are generally also listed alphabetically but in many instances have been grouped in various ways as an aid to identification at the species level. Where possible, the larger genera have been subdivided using more or less readily visible characters but in some instances (e.g. *Drimia, Moraea*, *Restio*) the generic circumscriptions have been so radically altered from those used in the recent past that the species are grouped informally in their previous arrangements as an aid to locating them.

The grouping of species in the larger genera is usually indicated in the form of a dichotomous key. Each lead is labelled alphabetically in turn, with the second couplet distinguished by an apostrophe after the initial letter (e.g. A, A'; B, B'). In rare instances a trichotomy occurs and in these cases the third option is indicated by a double apostrophe after the initial letter (e.g. A, A', A"). In a few instances a dichotomous (or trichotomous) division using strictly contrasting character states is not practical (e.g., *Centella* and *Pelargonium*), and here the final division is into a number of *Groups* distinguished by a combination of characters.

Species entries

Recognized species are listed in **bold**. Species which we consider conspecific but which are currently recognized nomenclaturally are included in parentheses in **bold**. Formal synonyms are indicated in *italics*. Common names, which apply to particular species, are provided after species names and their synonyms, if any.

Each species entry contains information on habit and morphology, flowering time, habitat, occurrence per phytogeographic region, and geographical distribution. In some instances information on flowering time or habitat may be lacking and this in indicated by a ? in the appropriate place.

Morphology

The brief descriptions are intended to provide a working picture of the species, including, where appropriate or available, diagnostic characters useful in distinguishing the species. Most entries include the following information: habit (tree, shrub, subshrub, perennial, geophyte, or annual) and a measure of size, usually height, at flowering; leaf arrangement if otherwise than alternate, shape, vestiture, and other features appropriate to the group; and flower arrangement, colour, shape if variable within a genus, and various other critical features; fruit characters are included if striking or diagnostic.

Flowering time

The flowering period is indicated in months; in species that occur outside the Core Cape Subregion, flowering time applies specifically to populations occurring within our area. Some species have very extended periods of flowering and in these instances, only the peak flowering periods during the year are indicated. Several geophytic species in particular, flower only in the season immediately after a fire has cleared the surrounding vegetation and this is indicated where known.

Habitat

Information on the habitat of the species is given when available, including slope and soil or vegetation type. Many species in the Cape flora are more-or-less specific to sandy, clay, or limestone substrates.

Phytogeography and distribution

Occurrence of a species in each of six phytogeographic centres recognized in the Core Cape Subregion (see map on endpapers) is indicated by the abbreviations **NW** (Northwest Centre), **SW** (Southwest Centre), **AP** (Agulhas Plain), **KM** (Karoo Mountain Centre), **LB** (Langeberg Centre), and **SE** (Southeast Centre). A more complete indication of the range, from north to south and west to east, follows in parenthesis. This is particularly precise for species endemic to the Cape flora but less so for species extending beyond its boundaries. Note that in this account, the term E Cape refers to ranges east of Port Elizabeth and not the Eastern Cape provincial boundaries.

Endemic taxa

Families, genera, and species endemic to the Cape flora are marked with the symbol • after each entry. Species and genera endemic to the Greater Cape flora are indicated by the letters **gce** after their entries.

Introduced taxa

Families, genera, and species that are not native to the Cape flora are marked with the symbol * before each entry. Introduced species have been kept to a minimum and include only those that have become naturalized and might be mistaken for part of the native flora.

Symbols

A summary of all non-standard symbols or abbreviations used is given below.

• Endemic to the Core Cape Subregion.
gce Endemic to the Greater Cape Floristic Region.
* Non-native to the Core Cape Subregion.
= Indicates a species that has been formally included in another.
? Information is lacking or doubtful.
incl. Applied to a species that we informally consider to be the same as another but which has not yet been formally synonymized with it.
NW, **SW**, **AP**, **KM**, **LB**, **SE** Occurring in these phytogeographic centres (see *Phytogeography and distribution* above).

The Core Cape Flora

LYCOPODIOPHYTES

Lycopods, spike-mosses and quillworts
by J.P. Roux

ISOETACEAE

ISOETES L. QUILLWORT ± 150 spp., nearly cosmopolitan

capensis A.V.Duthie CAPE QUILLWORT Tufted geophyte with horny, deltate scales. Sporophylls 5–35, slender, to 20 cm long, ligule cordate. Sporangium with complete velum. Clay and sandy soils in low-lying seasonally flooded areas and vleis, to 300 m, SW (Darling to Stellenbosch and Worcester).•

stellenbossiensis A.V.Duthie STELLENBOSCH QUILLWORT Tufted geophyte with tricuspidate scales. Sporophylls 5–33, to 12 cm long, ligule small, elongate-deltate. Sporangium lacking velum. Seasonally waterlogged soils and seeps on granite outcrops, to 300 m, SW (Tulbagh to Cape Flats and Stellenbosch).•

toximontana L.J.Musselman & J.P.Roux GIFBERG QUILLWORT Tufted geophyte with 3-lobed rootstock and horny, tricuspidate scales. Sporophylls 3–10, to 42 mm long. Sporangium lacking velum; megaspores grey-green. Seasonal pools and seepage areas, 300–560 m, NW (Gifberg and Cedarberg).•

LYCOPODIACEAE

1. Stems isotomous, without elongate indeterminate main stems; sporophylls and vegetative leaves alike, or if smaller then not ephemeral ..... **Huperzia**
1.' Stems anisotomous, differentiated into long, indeterminate rhizomatous or trailing main stems and determinate aerial branchlet systems; sporophylls strongly modified, ephemeral:
2. Strobili erect, pedunculate, borne on branchlet systems which arise dorso-laterally on main stem ..... **Lycopodium**
2.' Strobili pendulous and sessile or terminating in simple erect branches which arise dorso-laterally on creeping stems ..... **Lycopodiella**

HUPERZIA Bernh. FIR-MOSS ± 300 spp., pantemperate and tropical

gnidioides (L.f.) Trevis. Perennial with erect, arching or pendulous, dichotomously branched, aerial stems. Leaves firm and leathery, closely imbricate, narrowly oblong, to 10 mm long. Sporophylls shorter than foliage leaves, forming distinct strobili at branch ends. Montane forests and exposed rock crevices at higher altitudes, 150–2 000 m, SW, LB, SE (Cape Peninsula to Limpopo, Madagascar).

saururus (Lam.) Trevis. Perennial with crowded, erect, (mostly) unbranched aerial stems. Leaves firm and leathery, closely imbricate, subulate, to 13 mm long. Sporophylls indistinguishable from foliage leaves, not forming distinct strobili. Rock ledges and cliffs above 1 700 m, SW, KM, LB, SE (Riviersonderend Mtns to Drakensberg and E and W Africa, Madagascar).

LYCOPODIELLA Holub CLUB-MOSS ± 40 spp., pantemperate and tropical

caroliniana (L.) Pic.Serm. SLENDER CLUB-MOSS Perennial with prostrate main stems, somewhat dorsiventrally flattened. Leaves lanceolate, lateral leaves spreading horizontally, dorsal leaves

smaller than lateral leaves, adpressed. Stobili solitary, erect. Marshes and seeps in fynbos, to 1 500 m, NW, SW, KM, LB, SE (Pakhuis Mtns to Knysna and E southern Africa, temperate America).

cernua (L.) Pic.Serm. NODDING CLUB-MOSS Perennial with prostrate main stem and erect, much-branched leafy stems, lateral branches bearing strobili. Leaves subulate. Strobili solitary at branch apices. Moist stream banks and road cuttings, to 200 m, NW, SW, LB, SE (Gifberg to tropical Africa, Madagascar).

LYCOPODIUM L. CLUB-MOSS ± 40 spp., pantemperate and tropical

clavatum L. RUNNING CLUB-MOSS Perennial with prostrate main stem and dichotomously branched, erect stems. Leaves with a translucent hair point. Strobili pedunculate, in groups of 2–5. Moist forest margins and road cuttings, 300–1 500 m, NW, SW, KM, LB, SE (Grootwinterhoek Mtns to Knysna, E and W Africa, Mascarenes).

zanclophyllum J.H.Wilce (= *Lycopodium complanatum* L.) RUNNING-PINE Perennial with prostrate or underground main stem and repeatedly dichotomously branched, aerial stems. Leaves leathery, subulate, subtending along stems, to 4 mm long. Strobili pedunculate, in groups of 2–8. Sheltered rocky slopes, 1 000–2 000 m, NW, SW, KM, SE (Grootwinterhoek Mtns to Port Elizabeth, and Madagascar).

SELAGINELLACEAE

SELAGINELLA P.Beauv. SPIKE-MOSS ± 700 spp., nearly cosmopolitan

caffrorum (Milde) Hieron. RESURRECTION PLANT Mat-forming perennial with branched, prostrate leafy stems, radially symmetrical or occasionally slightly dorsiventral. Leaves leathery, narrowly lanceolate, narrowly grooved along midrib below, margins ciliate. Strobili to 14 mm long. Rock faces and crevices, 800–1 200 m, KM (Little Karoo to tropical Africa).

kraussiana (Kunze) A.Braun ex Kuhn KRAUSS'S SPIKE-MOSS Perennial with prostrate, spreading stems, branched, 1–3-furcate. Leaves herbaceous to thinly herbaceous, anisophyllous, median leaves sparsely toothed, lateral leaves serrate. Strobili at apex of ultimate branches, to 17 mm long, sporophylls carinate, serrulate. Forest floors, mostly in wet conditions, to 500 m, SE (George to E Africa and Macronesia).

pygmaea (Kaulf.) Alston ANNUAL SPIKE-MOSS Annual with erect, slender, hair-like stems, simple or sparsely branched, terminating in 1 or 2 strobili. Leaves thinly herbaceous, isophyllous, lanceolate, distant, ovate. Strobili to 10 mm long, sporophylls lanceolate, to 2 mm long, carinate. Seasonally moist shaded ground, fynbos and renosterveld, 150–400 m, NW, SW, AP, SE (Clanwilliam to Port Elizabeth).•

PTERIDOPHYTES

FERNS
by J.P. Roux

ADIANTACEAE = PTERIDACEAE

ANEMIACEAE

MOHRIA Sw. SCENTED FERN 7 spp., Africa, Madagascar and Réunion

caffrorum (L.) Desv. SCENTED FERN, BRANDBOSSIE Rhizomatous perennial. Fronds erect, the fertile usually longer than the sterile, stipe terete, scaled, to 16 cm long, lamina 2-pinnatifid to

3-pinnate, to 27 cm long, glandular and sparsely hairy above, densely hairy and scaled beneath. Sporangia near-marginal. Fynbos and renosterveld, to 500 m, NW, SW, KM, LB, SE (Bokkeveld Mtns to E Cape).

saxatilis J.P.Roux Rhizomatous perennial. Fronds caespitose, erect, the fertile slightly longer than the sterile, stipe terete, scaled, to 60 mm long, lamina 2-pinnatifid, to 12 cm long, glandular and sparsely hairy above, densely scaled beneath. Sporangia near-marginal. Sandstone rock ledges, 900–1 200 m, NW (Pakhuis to Hex River Mtns).•

ASPLENIACEAE

ASPLENIUM L. SPLEENWORT ± 650 spp., nearly cosmopolitan

A. Lamina 1-pinnate or 1-pinnate-pinnatifid, but never 2- or more pinnate
B. Lamina proliferous near apex

flexuosum Schrad. Perennial with short, erect rhizome. Fronds to 50 cm, caespitose, some with proliferous bud on rachis near apex, stipe sparsely scaled, lamina ovate-lanceolate, to 45 cm, 1-pinnate to 2-pinnatifid, pinnae coriaceous, auriculate acroscopically, more deeply incised above into 2- or 3-fid oblong lobes. Sori to 9 mm long, indusium entire. Shaded forest floors, 150–400 m, SE (George to Limpopo).

gemmiferum Schrad. MOTHER FERN Perennial with erect rhizome. Fronds to 65 cm, arching, stipe initially densely scaled, lamina oblong-lanceolate, 1-pinnate, proliferous on rachis near apex, pinnae to 13 cm long, ovate-lanceolate, serrate, sparsely scaled beneath. Sori linear, indusium entire. Forest floors and mossy rocks, 100–500 m, LB, SE (Heidelberg to W Africa).

lunulatum Sw. HALFMOON FERN Perennial with short, erect to suberect rhizome. Fronds to 35 cm, arching, proliferous on rachis near apex, stipe glabrous at maturity, lamina linear-lanceolate, 1-pinnate, pinnae to 35 mm long, oblong-obtuse, falcate, auriculate acroscopically, crenate-serrate, sparsely minutely scaled beneath. Sori linear, indusium entire. Moist forest floors and boulders, 100–800 m, SW, LB, SE (Cape Peninsula to E Africa).

protensum Schrad. DOWNY SPLEENWORTH Perennial with suberect rhizome. Fronds to 1.1 m, arching, proliferous on rachis near lamina apex, stipe with scales and short hairs, lamina herbaceous, narrowly elliptic, 1-pinnate to 2-pinnatifid, pinnae to 6.5 cm long, with up to 55 pinna pairs, inaequilaterally narrowly trullate to lanceolate, to 5.3 cm long, pinnatifid into linear lobes, upper surface densely hirsute along costa, sparsely hirsute along veins, lower surface with scales and few-celled hairs along the costa, veins and often also between veins, rachis with short hairs. Sori linear, indusium entire, to 4 mm long. Mossy boulders in forests, mostly near streams, 100–600 m, SE (George to W Africa and Madagascar).

B.' Lamina never with proliferous buds near apex

capense (Kunze) Bir, Fraser-Jenk. & Lovis Perennial with short, erect rhizome. Fronds to 14 cm long, erect or spreading; stipe to 1 cm long, densely scaled, lamina narrowly elliptic, pinnatisect, rachis proximally dark brown, green towards apex, adaxially flattened or shallowly grooved, segments to 1.7 cm long, pale to dark green above, firmly herbaceous, adnate, oblong-obtuse, lanceolate-obtuse, ovate-obtuse, to transversely broadly ovate, entire to repand, upper surface glabrous, densely scaled below. Venation obscure. Sori to 10 pairs per pinna, linear, to 2 mm long, indusium obsolete. Forest margins and scrub, 100–500 m, NW, LB, SE (Citrusdal to Humansdorp, and E Cape to tropical Africa).

cordatum (Thunb.) Sw. RESURRECTION FERN, SKUBVARING Perennial with short rhizome. Fronds to 14 cm, caespitose, suberect or appressed on ground, thinly coriaceous, involute when dry, stipe densely scaled, lamina elliptic to narrowly elliptic, pinnatifid to 2-pinnatifid, pinnae narrowly oblong, weakly undulate, densely scaled beneath. Sori linear, indusium obsolete. Rock crevices and boulder bases in drier situations, 200–400 m, NW, SW, KM, LB, SE (Bokkeveld Mtns to E Africa and Madagascar).

erectum Bory ex Willd. ERECT SPLEENWORT Perennial with short, erect or suberect rhizome. Fronds to 51 cm, erect to arching, stipe subglabrous, narrowly green-winged in upper half, lami-

na 1-pinnate to 2-pinnatifid, narrowly elliptic, pinnae to 3 cm long, falcate, obtusely dentate. Sori to 15 per pinna, indusium entire to erose. Forest floors, 300–500 m, SW, LB, SE (Cape Peninsula to W Africa and India).

monanthes L. SINGLE-SORUS SPLEENWORT Perennial with erect rhizome. Fronds to 35 cm, suberect, stipe initially scaled, often proliferous at lamina base, lamina linear, 1-pinnate, pinnae to 1.4 cm long, oblong-falcate, broadly cuneate-flabellate at base, outer margins crenate-dentate, sparsely scaled beneath. Sori solitary, parallel to basiscopic margin, indusium subentire. Forests and ravines, 150–600 m, SW, LB, SE (Cape Peninsula to W Africa, Madagascar and tropical America).

platyneuron (L.) Britton, Sterns & Poggenb. EBONY SPLEENWORT Rhizome suberect. Fronds to 24 cm, erect, tufted, stipe initially scaled, lamina linear, 1-pinnate, with up to 50 pinna pairs, pinnae oblong, auriculate acroscopically, margins irregularly crenate-serrate, sparsely scaled beneath. Sori to 14 pairs per pinna, indusium erose. Forest margins and stream banks, 150–800 m, LB, SE (Langeberg to Mpumalanga and N America).

trichomanes L. MAIDENHAIR SPLEENWORT Perennial with erect rhizome. Fronds tufted, to 18 cm, stipe glabrous, lamina linear, pinnate, pinnae to 8 mm long, to 32 pairs, broadly oblong-circular, minutely scaled beneath. Sori 2–7 per pinna, indusium erose. Cliffs and boulders, 800–1 400 m, SW (Tulbagh to Stellenbosch and S Africa to Eurasia, N America, Australasia).

A.' Lamina 2- or more pinnate
C. Stipe and rachis groove centrally ridged

rutifolium (P.J.Bergius) Kunze CARROT FERN Perennial with short, erect rhizome. Fronds caespitose, to 35 cm, stipe glabrous at maturity, lamina coriaceous, narrowly elliptic, 3- or 4-pinnatifid, pinnae to 19 pairs, ultimate lobes oblanceolate, sparsely scaled beneath. Sori 1 per lobe, pouch-like, indusium entire. Low-level epiphyte or lithophyte in forests, to 400 m, LB, SE (Swellendam to tropical Africa).

theciferum (Kunth) Mett. CARROT FERN Perennial with short, erect rhizome. Fronds caespitose, stipe sparsely scaled, upper groove with a central ridge, lamina coriaceous, narrowly ovate-lanceolate, 2- or 3-pinnatifid, pinnae to 10 pairs, oblong to trapeziform, lobes spathulate, sparsely scaled beneath. Sori cupuliform, 1 per lobe, indusium entire. Forest epiphyte or lithophyte, 200–850 m, SE (George to Knysna and S to W Africa).

C.' Stipe and rachis groove not centrally ridged

adiantum-nigrum L. BLACK SPLEENWORT, BLACK MAIDENHAIR Perennial with short rhizome. Fronds erect to arching, to 43 cm, stipe initially scaled, lamina firmly herbaceous, narrowly deltoid, 2- or 3-pinnate, pinnae unequally cuneate, pinnules oblong, shallowly lobed to deeply pinnatifid, serrate to dentate, minutely scaled beneath. Sori linear, indusium entire. Cliffs and boulders, to 2 100 m, NW, SW, KM, LB, SE (Gifberg to Eurasia, Mexico).

aethiopicum (Burm.f.) Bech. AFRICAN SPLEENWORT Perennial with short rhizome. Fronds arching, to 35 cm, stipe scaled, lamina firmly herbaceous, lanceolate, 2-pinnate to 4-pinnatifid, pinnae divided into narrowly obovate to narrowly oblong segments, irregularly incised, subglabrous above, scaled beneath. Sori linear, of irregular lengths, indusium subentire. Terrestrial, epilithic, or epiphytic in forests and scrub, to 400 m, NW, SW, KM, LB, SE (Grootwinterhoek Mtns to W Africa, Madagascar).

lobatum Pappe & Rawson LOBED SPLEENWORT Perennial with short rhizome. Fronds arching, to 45 cm, stipe subglabrous, lamina herbaceous, narrowly elliptic, 2-pinnate to 4-pinnatifid, pinnae narrowly oblong, pinnules rhombic, coarsely serrate or lobed, sparsely scaled beneath. Sori 3–6 per pinnule, indusium entire. Moist, deeply shaded forests, to 800 m, SE (Knysna to E Africa and Madagascar).

simii A.F.Braithw. & Schelpe SIM'S SPLEENWORT Perennial with erect rhizome. Fronds tufted, to 40 cm, stipe dark brown to black, glabrous at maturity, lamina firmly herbaceous, narrowly oblong, 2-pinnatifid to 2-pinnate, pinnae to 10 pairs, trapeziform, incised into 3–5 obcuneate lobes, margins dentate, scaled beneath. Sori of irregular lengths, indusium entire. Low-level epiphyte and on forest floors, 200–500 m, SE (Knysna to E Africa).

BLECHNACEAE

BLECHNUM L. DEER FERN ± 150 spp., nearly cosmopolitan

A. Sterile fronds pinnatifid

attenuatum (Sw.) Mett. LARGE DEER FERN Rhizomatous perennial. Fronds arching, to 1 m long, stipe scaled, sterile lamina firmly herbaceous, elliptic, pinnatifid, dark green above, pale below, basal segments decrescent, narrowly oblong-attenuate, entire, fertile lamina elliptic, pinnate, pinnae linear, sessile. Sori extending most of the length of the fertile pinnae, indusium erose. Wet, shady sites, streams and in forests, 100–800 m, SW, LB, SE (Cape Peninsula to E Africa and Madagascar).

inflexum (Kunze) Kuhn Perennial with short, but thick, erect rhizome. Fronds erect, to 30 cm long, stipe scaled, sterile lamina oblong-elliptic, pinnatifid, pinnae narrowly oblong, entire, fertile lamina shorter than sterile, narrowly oblong, pinnae linear, subsessile. Sori extending most of the length of the fertile pinnae, indusium lacerate. Moist, exposed stream banks and forest margins, 600–1 300 m, NW, SW, KM, SE (Clanwilliam to Knysna to Mpumalanga).

A.' Sterile fronds 1-pinnate

australe L. SOUTHERN DEER FERN Perennial with branched rhizome and stolons. Fronds erect or arching, to 40 cm long, stipe sparsely scaled, lamina herbaceous, narrowly elliptic, to 35 cm long, 1-pinnate, sterile pinnae oblong-acute, mucronate, base somewhat auriculate, fertile pinnae linear-auriculate, falcate. Sori extending most of the length of fertile pinnae, indusium lacerate. Rock crevices and forest floors, 150–1 200 m, NW, SW, KM, LB, SE (Gifberg to E Africa, Madagascar and S Atlantic islands).

capense Burm.f. CAPE DEER FERN Perennial with massive rhizome. Fronds erect or arching, to 2 m long, stipe scaled, sterile lamina herbaceous, oblong-acute, 1-pinnate, pinnae oblong-acuminate, minutely serrate, fertile lamina narrowly oblong-acute, pinnae linear. Sori extending most of the length of the fertile pinnae, indusium lacerate. Moist stream banks, exposed or shaded, 170–1 400 m, NW, SW, LB, SE (Citrusdal to E Africa).

punctulatum Sw. Rhizomatous perennial. Fronds arching, to 70 cm long, often reddish when immature, stipe proximally scaled, lamina herbaceous, oblong-elliptic, 1-pinnate, sterile pinnae oblong-attenuate, fertile pinnae linear, base somewhat auriculate acroscopically. Sori extending most of the length of the fertile pinnae, indusium erose. Moist forests, terrestrial or lithophytic, 250–800 m, NW, SW, KM, LB, SE (Pakhuis Mtns to Zimbabwe and Madagascar).

tabulare (Thunb.) Kuhn MOUNTAIN DEER FERN Perennial with thick, erect rhizome. Fronds erect to suberect, coriaceous, to 1.6 m long, stipe proximally scaled, lamina coriaceous, narrowly oblong, to 1.4 m long, 1-pinnate, sterile pinnae subsessile, entire, fertile pinnae subsessile to shortly petiolate. Sori extending most of the length of the fertile pinnae, indusium lacerate. Exposed moist slopes, 300–1 200 m, NW, SW, KM, LB, SE (Pakhuis Mtns to W Africa and Madagascar).

CYATHEACEAE

1. Vein branches simple; scales on abaxial surface of pinnules without marginal setae. . . . . **Alsophila**
1.' Veins forked; scales on abaxial surface of pinnules with setae . . . . . **Sphaeropteris**

ALSOPHILA R.Br. TREE FERN ± 235 spp., Old World tropics and subtropics

capensis (L.f.) J.Sm. CAPE TREE FERN Shrub or tree with caudex to 4.5 m high, slender. Fronds arching, to 2.5 m long, stipe scaled, lamina to 3-pinnatifid, pinnule segments narrowly oblong, dentate, with bullate scales along costules beneath. Sori 1 or 2 at base of each pinnule segment, indusium asymmetric. Moist forests in ravines, 350–1 200 m, SW, LB, SE (Cape Peninsula to Knysna and E Africa, Brazil).

***SPHAEROPTERIS** Bernh. SCALY TREE FERN 120 spp., Old World tropics and subtropics, but absent from Africa and Madagascar

***cooperi** (Hook. ex F.Muell.) R.M.Tryon SCALY TREE FERN, LACY TREE FERN, AUSTRALIAN TREE FERN Caudex erect, simple, to 5 m tall and 15 cm diam., lower part thickened and covered by adventitious roots, fronds to 20 per plant, arching, to 4 m long, stipe to 45 cm long, 4.5 mm diam., initially densely scaled, basal scaled to 5 cm long, pale brown, margins closely set with short and dark setae, lamina elliptic, to 3-pinnate, to 3 m long and 1.4 m wide, pinnae 1-pinnate-pinnatifid to 2-pinnate, narrowly ovate to ovate, to 27 cm long, pinnules pinnatifid to 1-pinnate, segments herbaceous, oblong-obtuse, falcate, dentate. Sori up to 11 pairs per segment, circular, indusium absent. Stream banks and seepage areas in forests and forest margins, 50–250 m, SW, SE (native of Australia, Cape Peninsula to Tsitsikamma, also E Cape and KwaZulu-Natal, naturalized in various parts of the world).

CYSTOPTERIDACEAE

CYSTOPTERIS Bernh. ± 6 spp., nearly cosmopolitan

fragilis (L.) Bernh. BRITTLE FERN Rhizomatous perennial. Fronds erect, to 30 cm long, stipe sparsely scaled, lamina thinly herbaceous, oblong-lanceolate, 3- or 4-pinnatifid, to 15 cm long, ultimate segments obtusely dentate. Sori circular, indusium at receptacle base scale-like, lacerate. Moist cliffs and rocks, 1 300–2 100 m, NW, SW, KM, LB, (Worcester to Ladismith and S to E Africa, panboreal).

DENNSTAEDTIACEAE

1. Sori with paraphyses; venation always with some anastomoses:
 2. Lamina glabrous ..... **Histiopteris**
 2.' Lamina set with acicular hairs ..... **Blotiella**
1.' Sori without paraphyses; venation free:
 3. Sporangia borne along a marginal vascular commisure protected by a well-differentiated, reflexed, marginal indusium ..... **Pteridium**
 3.' Sporangia borne terminally on anterior branch of a vein protected by a differentiated lobe margin. ..... **Hypolepis**

BLOTIELLA R.M.Tryon LANCE FERN ± 15 spp., tropical America, Africa and Madagascar

glabra (Bory) R.M.Tryon Rhizomatous perennial. Fronds to 1.5 m long, arching, stipe pubescent, lamina elliptic, 2- or 3-pinnatifid, pinna costa winged for at least three-quarters of its length, pinna lobes oblong, adnate, crenate to pinnatifid into sinuate lobes, pubescent, venation of ultimate lobes plane or impressed above, but raised beneath. Sori semicircular in small sinuses of frond segments, indusium membranous. Moist, shaded, forest floors, 100–600 m, SE (George to Knysna and S and E Africa, and Madagascar).

natalensis (Hook.) R.M.Tryon NATAL LANCE FERN Rhizomatous perennial. Fronds soft, to 2 m long, arching, stipe thinly pubescent, lamina 2-pinnatifid to 2-pinnate, lanceolate, pinnae oblong-acuminate, incised into adnate to sinuate lobes, thinly pubescent, venation of ultimate lobes raised on both surfaces. Sori subcircular, in marginal sinuses of pinna segments, indusium membranous. Wet forest floors and stream banks, 150–400 m, SE (Knysna to E Africa and Madagascar).

HISTIOPTERIS (J.Agardh.) J.Sm. > 1 sp., pantropical and temperate

incisa (Thunb.) J.Sm. Rhizomatous perennial, rhizome widely creeping. Fronds arching, to 3 m long, stipe glabrous, lamina pinnatifid to 2-pinnatifid, broadly lanceolate, proximal pinnae segments auriculate and developed close to the rachis, ultimate lobes oblong, entire to sinuate. Sori linear along margins of ultimate lobes, indusium entire. Moist stream banks, 180–800 m, NW, SW, LB, SE (Gifberg to W Africa, Madagascar).

HYPOLEPIS Bernh. ± 40 spp., pantropical

sparsisora (Schrad.) Kuhn FALSE BRAKEN Rhizomatous perennial forming large stands. Fronds to 3 m long, stipe near glabrous at maturity, lamina 3- to 5-pinnatifid, ultimate segments oblong, crenate to pinnatifid. Sori singly on acroscopic margin of lobes of ultimate segments, pseudo-indusium subentire. Along streams on forest margins, 100–900 m, SW, LB, SE (Cape Peninsula to E and W Africa, Madagascar).

villoso-viscida (Thouars) Tardieu Rhizomatous perennial. Fronds suberect to arching, to 1 m long, stipe dark, hairy, lamina to 3-pinnate-pinnatifid. Sori in 1 to 3 pairs on ultimate segments, pseudo-indusium often strongly modified, receptacle haired. Perennial stream banks and seeps, ± 50–760 m, SW, SE (Cape Peninsula to Genadendal and E Cape, also S Atlantic Islands).

PTERIDIUM Gled. ex Scop. BRACKEN FERN, ADELAARSVARING 1 sp., cosmopolitan

aquilinum (L.) Kuhn Perennial with deep, subterranean rhizome. Fronds erect, to 1.5 m long, stipe glabrous at maturity, lamina coriaceous, deltate, 3- or 4-pinnate, pinnule segments deeply pinnatifid into obtuse, oblong lobes, glabrous or thinly pubescent above, densely pubescent-to-mentose beneath. Sori elongate, submarginal, pseudo-indusium ciliate. Fynbos and forest margins, to 1 000 m, NW, SW, AP, KM, LB, SE (Gifberg to Europe).

*DICKSONIACEAE

***DICKSONIA** L'Hér SOFT TREE FERN ± 30 spp., tropical America and pacific region to Australia and New Zealand

***antarctica** Labill. AUSTRALIAN TREE FERN Tree to 3 m, caudex erect, simple, to 20 cm diam., densely covered by adventitious roots. Fronds tufted, to 25 per plant, arching, to 3 m long, stipe and rachis shallowly sulcate above, lamina to 3-pinnate, glabrous, venation free, ending in the margin in sterile segments, indumentum of simple pluricellular uniseriate hairs on the rhizome and frond axes. Sori marginal at vein endings, solitary on each lobe; receptacle slightly elevated, paraphysate, indusium adaxially a slightly differentiated marginal lobe, abaxially with a thinner smaller indusium joined at the base, spores yellow. Deeply shaded streambanks in forests, 250–350 m, SW (Cape Peninsula).

DRYOPTERIDACEAE

1. Indusium absent; sporangia acrostichoid ..... **Elaphoglossum**
1.' Indusium present, sporangia in distinct sori:
  2. Basal pinnae never basiscopically developed:
    3. Venation free. ..... **Polystichum**
    3.' Venation reticulate. ..... **Cyrtomium**
  2.' Basal pinnae conspicuously basiscopically developed:
    4. Indusium peltate ..... **Rumohra**
    4.' Indusium reniform:
      5. Lamina with scales and isocytic hairs along veins but never with acicular hairs .... **Dryopteris**
      5.' Lamina with acicular hairs along veins. ..... **Megalastrum**

***CYRTOMIUM** C.Presl. NET-VEINED HOLLY FERN, HOLLY FERN ± 9 spp., centred in SE Asia

***falcatum** (L.f.) C.Presl Rhizomatous perennial, rhizome short, erect or decumbent. Fronds arching, to 40 cm long, stipe densely scaled, lamina 1-pinnate, lanceolate to narrowly ovate, pinnae glossy, mid-green, firmly herbaceous, ovate-falcate, acroscopically auriculate, unequally lobed, serrate, venation reticulate. Sori circular, scattered, to 1.5 mm diam., indusium peltate. Moist,

shady and disturbed sites, 20–250 m, SW, SE (SE Asia, introduced from Hermanus to Knysna, also KwaZulu-Natal).

CYSTOPTERIS see **CYSTOPTERIDACEAE**

DRYOPTERIS Adans. WOOD FERN ± 150 spp., nearly cosmopolitan

antarctica (Baker) C.Chr. Rhizomatous perennial. Fronds arching, to 40 cm long, stipe scaled, lamina ovate-deltate, 3-pinnatifid, proximal pinnae basiscopically developed, pinnules narrowly deltate, lobes strongly dentate, with filiform scales above and clathrate scales beneath. Sori on ultimate segments. Moist, shady gullies and cliff bases, 1 200–2 250 m, NW, SW, KM, LB, SE (Cold Bokkeveld Mtns to E Africa).

inaequalis (Schltdl.) Kuntze Rhizomatous perennial. Fronds suberect to arching, to 40 cm long, stipe scaled, lamina ovate to broadly deltate, 3- or 4-pinnatifid, proximal pinna pair basiscopically developed and regularly reduced, pinnules oblong, crenate-serrate, sparsely scaled beneath. Sori circular, indusium subentire. Moist forest floors and stream banks, 250–600 m, SW, LB, SE (Cape Peninsula to E and W Africa).

pentheri (Krasser) C.Chr. Rhizomatous perennial. Fronds erect to arching, to 1.8 m long, stipe proximally densely scaled, lamina ovate to ovate-triangular, 2- or 3-pinnate, with up to 16 petiolated pinna pairs, basal pinna pair ovate to narrowly ovate, generally not reduced, segments herbaceous, ovate to oblong-obtuse, lobed, glabrous above, or glandular along and between veins, or with a few hairs along costule, below sparsely glandular with 2-celled and multicellular hairs. Sori to 1.8 mm diam.; indusium entire, repand, or erose. Mostly in deeply shaded forests and forest margins, 100–250 m, SW, LB, SE (Cape Peninsula to Tsitsikamma and E and W Africa and Madagascar).

ELAPHOGLOSSUM Schott ex J.Sm. TONGUE FERN ± 600 spp., pantemperate and tropical

acrostichoides (Hook. & Grev.) Schelpe Rhizomatous perennial. Fronds erect or arching, stipe sparsely scaled, lamina simple, coriaceous, narrowly elliptic, to 35 cm long, minutely stellate-scaled above, moderately substellate-scaled beneath. Sporangia acrostichoid, exindusiate. Moist, protected or exposed rocks, 200–1 200 m, NW, SW, LB, SE (Grootwinterhoek Mtns and Cape Peninsula to E and W Africa, Mascarenes).

angustatum (Schrad.) Hieron. BUCK TONGUE FERN Rhizomatous perennial. Fronds erect or arching, stipe moderately scaled, lamina simple, coriaceous, oblanceolate, to 25 cm long, minutely stellate-scaled above, moderately stellate-scaled beneath. Sporangia acrostichoid, exindusiate. Moist boulders along streams, 280–700 m, SW, LB, SE (Cape Peninsula to KwaZulu-Natal).

conforme (Sw.) J.Sm. Rhizomatous perennial. Fronds erect, stipe scaled, lamina simple, entire, coriaceous, viscid when young, sterile elliptic, fertile oblong-elliptic, sterile smaller than fertile, scaled along midrib above, minutely substellate-scaled beneath. Sporangia acrostichoid, exindusiate. Moist rock ledges in fynbos, 600–1 000 m, SW (Cape Peninsula to Stellenbosch and E Africa and St Helena).

MEGALASTRUM Holttum ± 30 spp., pantropical and temperate regions

lanuginosum (Willd. ex Kaulf.) Holttum DOWNY FOREST FERN, FLUWEEL WOUDVARING Rhizome erect, to 45 cm long, fronds arching, to 1.9 m long, stipe to 78 cm long, with scales and multicellular hairs, acicular or filiform, lamina elliptic, to 1.2 m, to 4-pinnate, with up to 15 petiolated pinna pairs, basal pinna pair to 2-pinnate, inaequilaterally ovate-deltate, to 55 cm, basiscopically developed, segments oblong-cuneate, to 8.2 cm, pinnatifid, ultimate segments sessile, herbaceous, lobed, denticulate, costule and lamina regularly set with multicellular, acicular hairs up to 1 mm long along veins, and unicellular gland-like hairs between veins, beneath more closely set with hairs like those on adaxial surface, acicular hairs present between veins and along margins. Venation evident, branches terminate in sinus between teeth. Sori to 1 mm diam. Mainly deep shade along perennial streams or seepages in evergreen forests, 150–1 400 m, SE (Wilderness to Port Edward and E Africa).

POLYSTICHUM Roth SHIELDFERN ± 200 spp., nearly cosmopolitan

incongruum J.P.Roux Perennial with decumbent, branched rhizome. Fronds suberect to arching, to 1.8 m long, stipe densely scaled, lamina firmly herbaceous to coriaceous, ovate-truncate to broadly ovate-truncate, 2- or 3-pinnate, pinnules narrowly trullate to somewhat falcate, subglabrous above, sparsely scaled beneath. Sori circular, indusium peltate, repand to erose, often black-centred. Forest floors, 50–1 000 m, LB, SE (Swellendam to Hogsback).

monticola N.C.Anthony & Schelpe MOUNTAIN SHIELDFERN Perennial with short rhizome. Fronds suberect or arching, to 84 cm long, stipe densely scaled, lamina ovate-truncate, 2-pinnate to 3-pinnatifid, pinnules often lunate, aristate, subglabrous above, sparsely scaled beneath. Sori circular, indusium peltate, erose. Forest floors, shaded cliffs and rocks, 600–1 200 m, NW, SW, KM, LB, SE (Kamiesberg and Cape Peninsula to Free State).

pungens (Kaulf.) C.Presl PRICKLY SHIELDFERN Rhizomatous perennial. Fronds suberect to arching, to 1.4 m long, stipe moderately scaled, lamina firmly herbaceous, broadly ovate, proximal acroscopic pinnule largest, pinnules ovate to rhomboid, punctate, subglabrous above, sparsely scaled beneath, large bullate scales often subtending each pinnule. Sori circular, indusium peltate, minute, amorphous. Shaded forest floors and gullies, 250–800 m, SW, LB, SE (Cape Peninsula to Mpumalanga).

sinense (Christ) Christ (= *Polystichum wilsonii* Christ) WILSON'S SHIELDFERN Perennial with short, suberect rhizome. Fronds suberect to arching, to 1 m long, caespitose, stipe densely scaled, lamina 2-pinnate, ovate-lanceolate, upper pinnae mostly folded back along rachis, pinnules aristate, moderately scaled above, densely scaled beneath. Sori circular, indusium peltate, erose. Moist, rock shelters, 1 300–2 100 m, NW, KM (Worcester to Oudtshoorn and tropical Africa to E Asia).

transvaalense N.C.Anthony TRANSVAAL SHIELDFERN Perennial with short, suberect rhizome. Fronds suberect, to 1 m long, caespitose, stipe scaled, lamina 2-pinnate, narrowly ovate-attenuate, pinnules auriculate, aristate, subglabrous above, with twisted scales beneath. Sori circular, indusium peltate, fimbriate. Streamsides in forests, 500 m, SW (Riviersonderend Mtns and S to W Africa).

RUMOHRA Raddi ± 6 spp., circum-austral

adiantiformis (G.Forst.) Ching SEVEN-WEEKS FERN, SEWEWEEKSVARING Rhizomatous perennial. Fronds arching, to 1.2 m long, stipe scaled, lamina coriaceous, pentagonal, 3-pinnate to 4-pinnatifid, proximal pinnae basiscopically developed, ultimate segments ovate, margins crenate-dentate, sparsely scaled beneath. Sori circular, indusium peltate. Forests and rocky ravines, 50–1 200 m, SW, LB, SE (Cape Peninsula to Mpumalanga, Madagascar, S Oceanic islands, Australia, Polynesia, Mesoamerica).

EQUISETACEAE

EQUISETUM L. HORSETAIL 15 spp., temperate regions of the world, except Australasia

ramosissimum Desf. AFRICAN HORSETAIL, PERDESTERT, LIDJIESGRAS Perennial with underground rhizome. Aerial stems erect and hollow forming distinct internodes, ribbed, leaves reduced to a short, papery sheath of fused teeth at each node. Strobili terminal on branches. Wet sites in fynbos, 100–1 200 m, AP, KM, SE (Cape Infanta and George to W Africa, Madagascar).

GLEICHENIACEAE

GLEICHENIA Sm. ± 110 spp., southern Africa, Malaysia, Australasia, Madagascar

polypodioides (L.) Sm. CORAL FERN, CREEPING FERN Rhizomatous perennial. Fronds widely spaced, falsely dichotomously branched with a terminal bud in each false dichotomy, all branches

bearing foliar segments, pinnules linear, lobed. Sori partially immersed in lamina bearing 2–4 sporangia. Shady, moist rocks, 500–1 600 m, NW, SW, KM, LB, SE (Cedarberg to E Africa, Madagascar).

GRAMMITIDACEAE = **POLYPODIACEAE**

HYMENOPHYLLACEAE

1. Involucres usually bivalved; receptacle not exserted . . . . . **Hymenophyllum**
1.' Involucres usually not bivalved; receptacle long exserted . . . . . **Crepidomanes**

CREPIDOMANES (C.Presl.) C.Presl. ± 30 spp., palaeotropics and northern temperate regions

melanotrichum (Schltdl.) J.P.Roux Rhizome widely creeping, irregularly branched, closely set with dark, adhesive hairs, fronds spaced, to 45 mm long, stipe proximally closely set with dark, adhesive hairs, lamina broadly elliptic, to 2-pinnatifid, rachis winged. Sori borne near rachis, turbinate, somewhat dilated, with large rounded lobes; receptacle long exserted. On wet rocks in forest, 250–1 000 m, LB, SE (George to Knysna and E and W Africa, Madagascar).

HYMENOPHYLLUM Sm. FILMY FERN ± 250 spp., pantemperate and tropical regions

A. Fronds densely stellate-haired

aeruginosum (Poir.) Carmich. (= *Sphaerocionium marlothii* (Brause) Pic.Serm.) Perennial with hair-like, branched rhizome. Fronds 2-pinnatifid to 2-pinnate, stipe with stellate hairs, lamina to 8 cm long, set with stalked stellate hairs on margins and veins. Sori at lobe apices, with small, shallow, indusial valves set with stellate hairs. Wet rocks in gullies and tree stems in evergreen forests, 250–1 500 m, NW, SW, LB, SE (Grootwinterhoek Mtns and Cape Peninsula to Knysna, S Atlantic islands).

A.' Fronds not bearing stellate hairs

capense Schrad. CAPE FILMY FERN Perennial with branching rhizome. Fronds 2-pinnatifid, stipe partially narrowly winged, lamina to 10 cm long, bifurcate to pinnatifid into 3–7 entire lobes. Sori on distal acroscopic segments with entire indusial valves. Wet, shaded rocks, 800–1 500 m, SW, LB, SE (Cape Peninsula to E Africa and Madagascar).

peltatum (Poir.) Desv. Perennial with branched rhizome. Fronds 2-pinnatifid to 2-pinnate, stipe partially narrowly winged, lamina to 18 cm long, unequally pinnatifid acroscopically, lobes serrate. Sori on proximal acroscopic segments with entire indusial valves. Wet cliffs and rocks in forests, 200–1 200 m, NW, SW, LB, SE (Gifberg to Europe, S America, Australasia).

tunbridgense (L.) Sm. TUNBRIDGE FILMY FERN Perennial with branched rhizome. Fronds 2- or 3-pinnatifid, stipe partially narrowly winged, lamina to 10 cm long, bilaterally pinnatifid to 2-pinnatifid, lobes linear, serrate. Sori on proximal acroscopic lobes with serrate indusial valves. Wet, shaded rocks and tree trunks in forest, 200–1 200 m, NW, SW, KM, LB, SE (Gifberg to S Europe, Madagascar).

LOMARIOPSIDACEAE see DRYOPTERIDACEAE

MARATTIACEAE

MARATTIA see **PTISANA**

PTISANA Murdock ± 20 spp., palaeotropics

fraxinea (Sm.) Murdock (= *Marattia fraxinea* Sw.) PITTED POTATO FERN Plants terrestrial, rhizome massive, to 15 cm diam., fronds arching, to 3 m long, stipe pulvinate, up to 1.5 m long, with a pair of carnose stipules, lamina coriaceous, to 2 m long, 2-pinnate, pinnules linear-attenuate, to 160 mm long. Synangia submarginal. Always in moist conditions in deeply shaded, evergreen forests, 80–1 000 m, SE (George to Storms River and E Africa).

MARSILEACEAE

MARSILEA L. WATER-CLOVER, WATERKLAWER ± 50 spp., nearly cosmopolitan

burchellii (Kunze) A.Braun BURCHELL'S WATER-CLOVER Aquatic perennial. Fronds with slender, glabrous stipes, pinnae variable, pedicels free, straight, slender, pilose at first. Sporocarps crowded, small, subcircular, pyriform, lateral ribs not apparent, superior tooth developed, conical. Seasonal vleis and seeps, 250–400 m, NW, SW (Namaqualand and Karoo, Nieuwoudtville to Malmesbury).

capensis A.Braun CAPE WATER-CLOVER Aquatic perennial. Fronds with slender, usually crowded stipes, pinnae narrowly obdeltate, flanks slightly convex, pedicels solitary, free, slender. Sporocarps obliquely broad-oblong or irregularly rhombic in lateral view, lateral ribs absent, superior tooth distinct, conical, erect or recurved. Seasonal vleis, 250–400 m, NW, SW, AP, KM, SE (Namaqualand and Karoo to Port Elizabeth, and N Africa).

macrocarpa C.Presl Aquatic perennial. Fronds with stipes usually glabrous, pinnae with brown interstitial streaks beneath, flanks concave, pedicels free. Sporocarps narrowly rectangular in dorsiventral cross section, lateral ribs distinct, superior tooth present, short. Seasonal vleis, 250–400 m, SW (Cape Peninsula and S to E Africa).

schelpeana Launert Aquatic perennial. Fronds with stipes crowded, slender, pinnae narrowly obdeltoid, flanks slightly convex, outer margins bilobate, appressed pilose at first, pedicels from base of stipe, erect. Sporocarps solitary or crowded, obliquely ovate-oblong to elliptic in lateral view, lateral ribs absent, superior tooth distinct. Seasonal vleis, 150–500 m, AP, SE (Bredasdorp to E Cape).

PILULARIA L. PILLWORT ± 5 spp., disjunct in N and S America, Europe, NE- and S Africa, Australia and New Zealand

americana A.Braun Minute herb, rhizome creeping, branched, leaves simple, terete, to 19 mm long. Sporocarps globose, to 2.5 mm diam., densely hairy. Rim of ephemeral pools, NW (Bokkeveld Mtns and N and S America).

*NEPHROLEPIDACEAE

***NEPHROLEPIS** Schott BOSTON FERN ± 20 spp., pantropical and subtropical

***exaltata** (L.) Schott BOSTON FERN Perennial with erect rhizome. Fronds erect, stipe scaled, lamina ovate-lanceolate, pinnate, pinnae subsessile, oblong-acute, auriculate, serrate-dentate, subglabrous. Sori semilunate, indusium reniform, opening towards the pinna margin. Disturbed areas, to 400 m, SW, SE (tropical American weed, Cape Peninsula to Knysna).

OPHIOGLOSSACEAE

OPHIOGLOSSUM L. ADDER'S-TONGUE ± 30 spp., cosmopolitan

bergianum Schltdl. BERGIUS'S ADDER'S-TONGUE Perennial with fusiform rhizome, roots proliferous. Leaves 2–4, tropophore narrowly oblanceolate, to 5 cm long. Sporophore arising from leaf base, apparently independently, with 4–7 pairs of sporangia. Seasonally wet sites in fynbos, to 650 m, NW, SW (Gifberg to Cape Peninsula).•

gracile Pocock ex J.E.Burrows Perennial with linear rhizome, roots proliferous. Leaves 1 or 2, tropophore narrowly elliptic to narrowly ovate. Sporophore to 14 cm long, with 13–28 pairs of sporangia. Seasonally moist soils in fynbos, 250–900 m, NW, SW, SE (Pakhuis Mtns to George).•

nudicaule L.f. SLENDER ADDER'S-TONGUE Perennial with linear rhizome, roots proliferous. Leaves 2–5, tropophore elliptic to narrowly ovate. Sporophore to 4 cm long, with 5–9 pairs of sporangia. Seasonally moist sand and clay soils in karroid scrub and fynbos, 500–1 200 m, NW, SW, KM, LB, SE (Clanwilliam to Oudtshoorn).•

polyphyllum A.Braun Perennial with fusiform rhizome, roots proliferous. Leaves 1 or 2, tropophore elliptic to narrowly ovate, to 6 cm long. Sporophore to 10 cm long, with 11–36 pairs of sporangia. Seasonally moist soils in fynbos and renosterveld, 100–1 200 m, AP, KM, LB (Bredasdorp to Oudtshoorn, tropical and N Africa to India).

OSMUNDACEAE

1. Sporangia on contracted apical fertile segments ..... **Osmunda**
1.' Sporangia on non-contracted basal fertile segments ..... **Todea**

OSMUNDA L. ROYAL FERN ± 6 spp., pantemperate and tropical mountains

regalis L. ROYAL FERN Perennial with erect rhizome. Fronds erect, stipe glabrous at maturity, lamina to 1 m, 2-pinnate, fertile pinnae borne in apical portion, sterile pinnules narrowly oblong, to 6 cm long, fertile pinnules with groups of sporangia. Stream banks, 700–1 500 m, NW, SW, SE (Cedarberg to Limpopo, worldwide).

TODEA Willd. ex Bernh. KING FERN 2 spp., S Africa and Australasia

barbara (L.) T.Moore KING FERN Perennial with massive rhizome. Fronds erect, stipe with loose tomentum, lamina to 1 m, 2-pinnatifid, pinnules oblong with broadened adnate bases, sporangia on distal third of pinnae. Sori confluent at maturity. Stream banks in fynbos, to 1 500 m, NW, SW, KM, LB, SE (Cedarberg to E southern Africa).

POLYPODIACEAE

1. Lamina unevenly lobed or pinnatifid; venation free or reticulate:
2. Receptacle with conspicuous peltate clathrate paraphyses ..... **Pleopeltis**
2.' Receptacle with inconspicuous simple, hair-like paraphyses ..... **Polypodium**
1.' Lamina simple, entire:
3. Venation free; sori elongate. ..... **Grammitis**
3.' Venation reticulate; sori rotund to elliptic:
4. Areoles without included veinlets or if these present then few and excurrent. ..... **Pleopeltis**
4.' Areoles with simple and forked excurrent and recurrent included veinlets ..... **Lepisorus**

GRAMMITIS Sw. ± 60 spp., pantropical and austral

poeppigiana (Mett.) Pic.Serm. Rhizomatous perennial. Fronds closely spaced, sessile, lamina rounded-oblong, to 4 cm long, sparsely scaled beneath. Sori elongate, to 2.5 mm long, set in a

line on either side of midrib at angles of 20° to midrib. Rock crevices on peaks above 1 700 m, SW, LB (Stellenbosch to Swellendam and circum-Antarctic).

LEPISORUS (J.Sm.) Ching ± 40 spp., Africa and Asia

schraderi (Mett.) Ching Rhizomatous perennial. Fronds spaced, erect, simple, entire, stipe glabrous, lamina narrowly elliptic, to 30 cm long. Sori round, in a line on either side of midrib in upper half of lamina, to 6 mm diam. Low-level epiphyte in forests, 100–600 m, LB, SE (Langeberg at Heidelberg to George, and to E Africa, Madagascar).

PLEOPELTIS Humb. & Bonpl. ex Willd. (= ×*PLEOPODIUM*) SHIELD-SORUS POLYPODY ± 10 spp., America, Africa, Madagascar to India

macrocarpa (Bory ex Willd.) Kaulf. Perennial with widely spreading rhizome. Fronds spaced, firmly herbaceous to coriaceous, stipe sparsely scaled, lamina simple, entire, narrowly elliptic, to 20 cm long, minutely lacerate-scaled beneath. Sori oval, to 4 mm diam. Forest epiphyte or lithophyte, to 800 m, SW, LB, SE (Cape Peninsula to tropical Africa, Madagascar, tropical and S America).

×**simiana** (Schelpe & N.C.Anthony) N.R.Crouch & Klopper (*Polypodium polypodioides* subsp. *ecklonii* × *Pleopeltis macrocarpa*). Rhizomatous perennial. Fronds spaced, stipe scaled, lamina sinuate to deeply pinnatifid below, irregular, segments unequally deltate, sinuate around sori, scaled beneath. Sori in 2 rows, one on either side of midrib in upper half of lamina, oval. Forest epiphyte or lithophyte, 400–1 200 m, SE (Knysna to E southern Africa).

×*PLEOPODIUM* Schelpe & N.C.Anthony = **PLEOPELTIS**

POLYPODIUM L. POLYPODY ± 150 spp., mostly extratropical regions of the world

ensiforme Thunb. Perennial with short rhizome. Fronds spaced, erect, coriaceous, stipe sparsely scaled, lamina oblong to lanceolate, deeply pinnatifid almost to midrib into linear, shallowly crenate lobes. Sori round, to 2 mm diam., in a single line on either side of the costa. Lithophyte or low-level epiphyte in forests, 100–1 300 m, SW, KM, LB, SE (Betty's Bay to E Cape).

vulgare L. COMMON POLYPODY Rhizomatous perennial. Fronds spaced, erect, soft, stipe glabrous, lamina ovate-oblong, pinnatifid to near midrib into oblong, entire lobes. Sori round, to 22 per lobe, to 3 mm diam. Damp, shaded rocks, 800–2 100 m, NW, SW, LB, SE (Grootwinterhoek Mtns to Mpumalanga and Europe).

PTERIDACEAE (= *ADIANTACEAE, VITTARIACEAE*)

1. Lamina simple; sporangia in two exindusiate inframarginal grooves parallel to the midrib. . . . . **Vittaria**
1.' Lamina pedately or pinnately divided; sporangia borne along the veins and exindusiate, or sori submarginal and covered by a recurved lamina margin that may be modified to form a pseudo-indusium:
2. Sporangia borne along free veins abaxially on the lamina; sori exindusiate; small ephemeral plants . . . . . **Anogramma**
2.' Sporangia borne at free vein endings or along a continuous or interrupted near-marginal vascular plexus; plants perennial:
3. Lamina pedately divided . . . . . **Doryopteris**
3.' Lamina pinnately divided:
4. Ultimate segments articulated to short petiolules:
5. Sporangia borne on a strongly modified recurved pseudo-indusium which the veins enter . . . . . **Adiantum**

5.' Sporangia borne along a near-marginal vascular plexus and covered by a continuous, modified margin along the ultimate segment lobes ..... **Pellaea**

4.' Ultimate segments not articulated:

6. Pinnae or ultimate segments with a distinct sterile apex; sporangia occur along a continuous near-marginal vascular plexus ..... **Pteris**

6.' Pinnae or ultimate segments without a distinct sterile apex where the sori occur along a near-marginal vascular plexus ..... **Cheilanthes**

ADIANTUM L. MAIDENHAIR FERN, VROUEHAAR ± 150 spp., nearly cosmopolitan

aethiopicum L. Perennial with widely spreading rhizome. Fronds arching, stipe terete, lamina ovate, 3-pinnate, pinnules cuneate to rhomboid, petiolate, minutely dentate on outer margins with veins ending in teeth. Sori 1 or 2 per pinnule on outer margin, indusial flaps glabrous, orbicular to deeply reniform. Moist banks in forests, 100–400 m, SW, LB, SE (Grootwinterhoek Mtns to George, Alexandria forest).

capillus-veneris L. BLACK MAIDENHAIR, SWART VROUEHAAR Rhizomatous perennial. Fronds arching, soft, stipe glabrous, lamina ovate-deltate, 3-pinnate, pinnules cuneate, shallowly to deeply lobed, minutely crenate-dentate, veins ending in teeth. Sori along outer margins of pinnules, indusial flaps lunate to oblong. Shaded moist rock faces, to 800 m, NW, SW, KM, SE (Gifberg to tropical Africa, Madagascar).

***hispidulum** Sw. ROSY MAIDENHAIR Perennial with short rhizome. Fronds erect, pedate, stipe hispid, lamina deltate, repeatedly dichotomously divided with up to 8 linear pinnae, pinnules rhombic, hispid beneath. Sori on acroscopic outer margin of pinnules, indusial flaps pilose, rotund to oblong. Moist banks in forests, SW (?Asian weed, Cape Peninsula).

poiretii Wikstr. LARGE MAIDENHAIR Perennial with widely spreading rhizome. Fronds arching, soft, stipe glabrous, lamina ovate-deltate, 3- or 4-pinnate, pinnules obcuneate to shallowly reniform, articulated at apex of filiform petiolules, veins ending in sinuses between marginal teeth. Sori along outer margins of pinnules, indusial flaps lunate. Moist forest floors, 250–800 m, SW (Cape Peninsula and S to E Africa to India, Central and S America).

***raddianum** C.Presl DELTA MAIDENHAIR Perennial with widely spreading rhizome. Fronds arching, stipe glabrous, lamina ovate-deltate, 3- or 4-pinnate, ultimate segments obcuneate, outer margins minutely cuneate-serrate, veins ending in sinuses between marginal teeth. Sori on outer margins of ultimate segments, indusial flaps reniform. Naturalized on moist stream banks, 100–250 m, SW, SE (S American weed, Cape Peninsula to Wilderness).

ANOGRAMMA Link ± 5 spp., pantemperate and tropical

leptophylla (L.) Link ANNUAL FERN Annual with minute, erect rhizome. Fronds few, tufted, erect, stipe glabrous, lamina 2- or 3-pinnatifid, to 7 cm long, ultimate segments broadly cuneate, shallowly lobed. Sori along veins, exindusiate. Damp, shady, moist earth slopes, 150–1 000 m, NW, SW (Gifberg to Worcester, nearly worldwide).

CHEILANTHES Sw. LIP FERN ± 150 spp., subcosmopolitan

A. Stipe and/or rachis terete in cross section

contracta (Kunze) Mett. ex Kuhn Rhizomatous perennial. Fronds erect, to 25 cm long, stipe with hairs and scales, lamina lanceolate, 2-pinnate to 3-pinnatifid, to 30 cm long, pinnules to 7-lobed, hairy on both surfaces. Sori on ultimate lobes, protected by revolute margin, indusium absent. Shady rocks, 200–1 200 m, NW, SW, AP, KM, SE (Namaqualand to Port Elizabeth and E southern Africa).

eckloniana (Kunze) Mett. ECKLON'S LIP FERN, RESURRECTION FERN Rhizomatous perennial. Fronds erect, to 30 cm long, coriaceous, stipe scaled, lamina narrowly oblong, to 11 cm long, 2-pinnate to 3-pinnatifid, pinna segments pinnatifid into obtuse lobes, white-hairy above, densely tomentose beneath. Sori marginal, forming an interrupted soral line, indusium small. Rock outcrops, 1 000–1 200 m, KM (Witteberg and Karoo, throughout southern Africa and Zimbabwe).

hirta Sw. PARSLEY FERN Perennial with short creeping rhizome. Fronds erect, to 30 cm long, soft, stipe pilose, lamina linear-lanceolate, 2-pinnate to 3-pinnatifid, pinnae sparsely pubescent. Sori discrete on margins of incurved pinnule lobes, indusium minute. Rock crevices and boulder bases, 250–1 400 m, KM, SE (George to E Africa, Madagascar).

parviloba (Sw.) Sw. Rhizomatous perennial. Fronds erect, to 35 cm long, coriaceous, stipe pilose, lamina ovate-lanceolate, 2-pinnate to 3-pinnatifid, pinnae pinnatifid into oblong segments, viscid. Sori at apices of ultimate segments, exindusiate. Dry rocky slopes and rocks, 300–1 400 m, NW, SW, KM (Grootwinterhoek Mtns to E southern Africa and Namibia).

A.' Stipe and rachis sulcate above
B. Indusium discrete or exindusiate

bergiana Schltdl. BERGIUS'S LIP FERN Perennial with short, erect rhizome. Fronds herbaceous, to 40 cm long, stipe densely pilose, lamina pentagonal, 3-pinnate to 5-pinnatifid, proximal pinnae basiscopically developed, rounded lobes set with hairs along costae and veins on both surfaces. Sori at margins of lobes, indusium subentire. Deep shade in forests, 50–1 200 m, SE (George to E Africa, Madagascar).

capensis (Thunb.) Sw. CAPE LIP FERN Plants summer dormant. Rhizomatous perennial. Fronds erect to spreading, to 20 cm long, herbaceous; stipe nitid, usually glabrous, lamina ovate-deltate, to 12 cm long, 3-pinnatifid, proximal pinna pair basiscopically developed, ultimate segments serrate-crenate, with few scales along costa and costules. Sori at vein endings at margin, indusium erose. Rock outcrops in fynbos and scrub, to 1 200 m, NW, SW, AP, KM, LB, SE (Bokkeveld Mtns to Port Elizabeth, southern Africa).

depauperata Baker Rhizomatous perennial. Fronds erect, to 30 cm long, coriaceous, stipe scaled, lamina linear, to 17 cm long, 2-pinnate to 3-pinnatifid, pinnule lobes oblong-lanceolate with crenate recurved margins, with yellowish hairs beneath. Sori beneath revolute margins, exindusiate. Rocks and cliffs, 500–1 000 m, SW, KM, LB, SE (SW and S Cape).

induta Kunze Perennial with spreading rhizome. Fronds erect, to 25 cm long, coriaceous, stipe scaled, lamina broadly lanceolate, 3-pinnate to 4-pinnatifid, ultimate segments deeply pinnatifid into rounded-oblong, crenate segments, tomentose beneath. Sori at margins of ultimate segments, indusium discrete. Rock outcrops, 500–1 200 m, NW, SW, LB (Cedarberg to Heidelberg and S Africa).

multifida (Sw.) Sw. Perennial with short creeping rhizome. Fronds erect, to 25 cm long, coriaceous, stipe subglabrous, lamina oblong-ovate, 4- or 5-pinnatifid, proximal pinnae basiscopically developed, pinnules pinnatifid into ovate-oblong lobes. Sori discrete, around margins of ultimate segments, indusium entire to lacerate. Rock outcrops, 150–1 200 m, NW, SW, KM, LB, SE (Vanrhynsdorp to E Africa).

B.' Indusium continuous

deltoidea Kunze Perennial with short rhizome. Fronds erect, to 12 cm long, soft, stipe glabrous, lamina broadly deltate, to 10 cm long, 2- or 3-pinnatifid, proximal pinnae basiscopically developed, rachis winged. Sori linear, indusium continuous, erose. Rock outcrops and open ground in karroid scrub, 150–800 m, NW (Namibia to Citrusdal).

hastata (L.f.) Kunze Plants summer dormant. Perennial with short creeping rhizome. Fronds erect, to 20 cm long, soft, stipe glabrous at maturity, lamina linear-lanceolate, to 18 cm long, ultimate segments acute or obtuse, crenate. Sori marginal, linear, indusium membranous. Sheltered rocks and under bushes, 120–1 200 m, NW, SW, KM, LB, SE (Namibia to George).

involuta (Sw.) Schelpe & N.C.Anthony Perennial with short rhizome. Fronds erect, to 25 cm long, herbaceous, stipe with hairs and scales, lamina linear to lanceolate, 2-pinnate to 3-pinnatifid, ultimate segments unequally oblong-hastate, scaled along costules beneath. Sori along margins of ultimate segments, linear, indusium continuous. Dry rocky slopes in karroid scrub, 500–800 m, KM (Witteberg to E Africa).

namaquensis (Baker) Schelpe & N.C.Anthony NAMAQUA LIP FERN Rhizomatous perennial. Fronds erect, to 20 cm long, thinly coriaceous, stipe distally shallowly sulcate, lamina oblong-ovate, 3-pinnatifid, proximal pinnae largest, ultimate segments oblong-obtuse to hastate. Sori on margins of ultimate segments, indusium erose. Rock crevices, 300–600 m, NW, SW, KM (Namibia to Cape Peninsula and Witteberg).

robusta (Kunze) R.M.Tryon ROBUST LIP FERN Rhizomatous perennial. Fronds erect, to 10 cm long, coriaceous, stipe glabrous, lamina oblong-ovate, 3-pinnatifid, ultimate segments narrowly hastate to ovate. Sori marginal, indusium linear, irregularly minutely erose. Exposed gravelly soils among low scrub, 200–400 m, SW (Namibia to Moorreesburg).

viridis (Forssk.) Sw. COMMON LIP FERN, GREEN CLIFF BRAKE Rhizomatous perennial. Fronds arching, to 40 cm long, stipe initially scaled, lamina soft, deltate-pentagonal, 2- to 4-pinnate, proximal pinnae basiscopically developed, ultimate segments narrowly hastate. Sori marginal, confluent, indusium membranous, subentire. Forest margins and scrub, 200–800 m, SW, LB, SE (Cape Peninsula to Arabia and India).

DORYOPTERIS J.Sm. OAK FERNS ± 27 spp., pantropical

concolor (Langsd. & Fisch.) Kuhn GERANIUM FERN, OAK-LEAF FERN Perennial with short, procumbent rhizome. Fronds suberect, stipe scaled, lamina hastate-pentagonal, 3-pinnatifid, proximal pinnae basiscopically developed. Sori marginal, indusium continuous or discontinuous. Shaded forest floors, 300–600 m, SE (George to tropical Africa, Asia, Australasia, C and S America).

PELLAEA Link CLIFF-BRAKE ± 35 spp., nearly pantropical

calomelanos (Sw.) Link HARD FERN Perennial with a short rhizome. Fronds erect, to 30 cm long, coriaceous, stipe terete, lamina narrowly ovate, 3-pinnate, pinnules cordate to broadly hastate, entire, glaucous, articulated to petiolules. Sori marginal, continuous, entire. Rock crevices and boulder bases, 300–1 500 m, SW, KM, LB, SE (Cape Peninsula to E Africa, Madagascar, Spain, India).

leucomelas (Mett. ex Kuhn) Baker Perennial with a short rhizome. Fronds erect, to 25 cm long, coriaceous, stipe proximally scaled, lamina narrowly ovate-deltate, 2- or 3-pinnate, pinnules oblong-ovate to broadly hastate, articulated to short petiolules, glabrous or thinly hairy. Sori marginal on revolute margin, indusium entire. Rock outcrops in fynbos and karroid scrub, 600–1 000 m, KM, LB, SE (Montagu to Port Elizabeth).•

pteroides (L.) Prantl MYRTLE FERN Perennial with a short rhizome. Fronds erect, to 40 cm long, coriaceous, stipe glabrous with age, lamina ovate-deltate, 2- or 3-pinnate, proximal pinnae basiscopically developed, ultimate segments oblong to ovate, minutely crenate, articulated to short petiolules. Sori marginal, discrete, indusium broadly oblong. Fynbos and forests, 300–1 700 m, NW, SW, KM (Clanwilliam to Ladismith).•

rufa A.F.Tryon Rhizomatous perennial. Fronds erect, to 25 cm long, coriaceous, stipe proximally scaled, lamina narrowly oblong-elliptic, 2- or 3-pinnate, pinnules broadly elliptic, entire, articulated to short petiolules. Sori linear, indusium subentire. Rock outcrops, 900–1 100 m, KM, SE (Ladismith to Willowmore and S Karoo).

PTERIS L. BRAKE ± 200 spp., pantemperate and tropical

buchananii Baker ex Sim BUCHANAN'S BRAKE Perennial with widely spreading rhizome. Fronds arching, soft, to 1.5 m, stipe glabrous, lamina broadly deltate, 4-pinnatifid, proximal pinnae basiscopically developed, ultimate lobes falcate, adnate, apices serrate, costules spinulose beneath, veins reticulate, forming costal areolae. Sori along lobe margins, indusium erose. Moist soil in forests, 150–800 m, LB, SE (Heidelberg to E Africa).

cretica L. CRETAN BRAKE, AVERY FERN Rhizomatous perennial. Fronds erect, soft, stipe glabrous, lamina deltate, 1-pinnate, basal pinnae 2-pinnate, pinnae linear, margins serrate-dentate. Sori in marginal lines, indusium linear, subentire. Forests, to 1 000 m, LB, SE (Heidelberg to S Europe, Madagascar; adventive on Cape Peninsula).

dentata Forssk. TOOTHED BRAKE Rhizomatous perennial. Fronds arching, to 1.5 m long, stipe glabrous, lamina ovate, 3-pinnatifid, proximal pinnae basiscopically developed, deeply pinnatifid, lobe apices serrate, veins free. Sori in a marginal line, indusium erose. Forest floors and ravines, 100–1 200 m, NW, SW, LB, SE (Grootwinterhoek Mtns and Cape Peninsula to tropical Africa, Madagascar).

*__tremula__ R.Br. SHAKING BRAKE Perennial with short, erect rhizome. Fronds erect to arching, to 1 m long; stipe glabrous, lamina herbaceous, ovate; proximal pinnae basiscopically developed, 3- or 4-pinnate, veins free, ultimate segments linear, apices obtuse, dentate. Sori in marginal lines. Forest margins and roadsides, 50–300 m, SW, SE (Australasian weed, Cape Peninsula to Knysna).

vittata L. CHINESE LADDER BRAKE Rhizomatous perennial. Fronds arching, stipe proximally scaled, lamina elliptic-oblong, 1-pinnate, pinnae linear-attenuate, margins minutely crenate. Sori in submarginal lines extending for most of pinna length, indusium subentire. Shaded rock crevices and forest margins, to 500 m, SW, LB, SE (Cape Peninsula to Port Elizabeth, pantemperate and tropical).

VITTARIA Sm. SHOESTRING FERN ± 50 spp., pantropical

isoetifolia Bory BOOTLACE FERN Perennial with short rhizome. Fronds simple, sessile, pendent, to 20 cm long, lamina linear. Sori in 2 inframarginal grooves with paraphyses. Moist forests or at higher elevations in sheltered rock crevices, to 1 000 m, SW, SE (Cape Peninsula to Limpopo, Madagascar).

*SALVINIACEAE

***AZOLLA** Lam. MOSQUITO FERN 7 spp., pantemperate and tropical

***filiculoides** Lam. Perennial with horizontal, minutely papillate rhizome, roots borne singly. Upper leaf lobe ovate, lower leaf lobe hyaline. Megasporocarps with prominent dark apex, microsporocarps borne singly or subtended by a megasporocarp. Dams, vleis and rivers, SW (S American weed, Cape Flats).

***SALVINIA** Ség. ± 10 spp., temperate and tropical

***molesta** D.S.Mitch. KARIBA WEED Floating perennial with horizontal rhizome. Floating fronds in pairs, emarginate, base cordate, folded along midrib, with multicellular papillae with 4 separate curved segments adjoining apically above, submerged fronds dissected. Sporocarps spherical, hairy. Standing inland waters, to 250 m, SW, SE (tropical African weed, Cape Peninsula to Knysna).

SCHIZAEACEAE

SCHIZAEA Sm. GRASS FERN, TOOTHBRUSH FERN ± 30 spp., pantropical

pectinata (L.) Sw. CURLY GRASS FERN Perennial with underground rhizome. Fronds erect, linear, to 20 cm long, fertile portion with a recurved rachis, pinnae to 9 mm long. Sporangia in 2 rows on either side of costa. Dry mountain slopes, 100–600 m, NW, SW, AP, KM, LB, SE (Clanwilliam to E Africa and Madagascar).

tenella Kaulf. Perennial with underground rhizome. Fronds erect, linear, to 25 cm long, fertile portion with a straight ascending rachis, pinnae to 4 mm long. Sporangia borne in 2 rows on either side of costa. Moist stream banks and cliff ledges, 300–1 500 m, fynbos, NW, SW, KM, LB, SE (Cold Bokkeveld to Limpopo).

THELYPTERIDACEAE

1. Veins free, meeting the margin above the lobe sinus ..... **Thelypteris**
1.' Veins either free and meeting the margin at the lobe sinus, connivent below the sinus, or with one or more vein pairs uniting below the sinus to form areoles ..... **Cyclosorus**

AMAUROPELTA Kunze = **THELYPTERIS**

CHRISTELLA H.Lév. = **CYCLOSORUS**

CYCLOSORUS Link (= *CHRISTELLA, STEGNOGRAMMA*) ± 220 spp., pantropical

gueinziana (Mett.) J.P.Roux (= *Christella gueinziana* (Mett.) Holttum) Perennial with erect rhizome. Fronds arching, soft, stipe thinly pubescent, lamina elliptic, 2-pinnatifid, the proximal 2 pinnae pairs decurrent and deflexed, pinnae deeply pinnatifid, pubescent, basal pair of veins anastomosing at sinus. Sori medial, to 16 per lobe, indusium orange, pilose. Stream banks in forests, 200–400 m, SE (George to S and E Africa).

interruptus (Willd.) H.Itô Perennial with widely spreading rhizome. Fronds erect, soft, stipe glabrous, lamina oblong-lanceolate, pinnae narrowly oblong, shallowly incised, glabrescent, basal pair of veins anastomosing well below sinus. Sori circular, to 18 per lobe, indusium densely pilose. River banks and other marshy areas, 100–600 m, SW, SE (Worcester to W and E Africa and Mauritius).

pozoi (Lag.) C.M.Kuo (= *Stegnogramma pozoi* (Lag.) K.Iwats.) Perennial with erect rhizome. Fronds arching, stipe thinly pubescent, lamina lanceolate, pinnate, proximal pinnae decurrent and deflexed, pinnae adnate, narrowly oblong, incised about midway to costa into rounded undulate lobes, pilose. Sori linear along veins, exindusiate. Shaded forest floors and stream banks, 100–400 m, SW, SE (Cape Peninsula to W and E Africa and Spain).

STEGNOGRAMMA Blume = **CYCLOSORUS**

THELYPTERIS Schmidel (= *AMAUROPELTA*) MAIDEN FERN ± 210 spp., pantropical

bergiana (Schltdl.) Ching (= *Amauropelta bergiana* (Schltdl.) Holttum) BERGIUS'S WOOD FERN Perennial with erect rhizome. Fronds arching, stipe sparsely pubescent, lamina narrowly elliptic, 2-pinnatifid, proximal 4 or 5 pinna pairs decrescent and deflexed, pinnae deeply pinnatifid, with straight hairs on costa and costules above, with short hooked hairs beneath. Sori medial, to 14 per lobe, indusium minute. Moist stream banks in forests, 100–400 m, SW, LB, SE (Cape Peninsula to tropical Africa).

confluens (Thunb.) C.V.Morton SCALY LADY FERN, BOG FERN Perennial with widely spreading rhizome. Fronds erect, soft, 2-pinnatifid, stipe glabrous, lamina lanceolate, pinnae deeply pinnatifid, costa scaled or thinly pilose. Sori circular, to 18 per lobe, medial, indusium glabrous. Marshes and stream banks, 100–400 m, SW, LB, SE (Cape Peninsula to W and E Africa, Madagascar and Australasia).

knysnaensis N.C.Anthony & Schelpe (= *Amauropelta knysnaensis* (N.C.Anthony & Schelpe) Parris) KNYSNA WOOD FERN Perennial with erect rhizome. Fronds arching, stipe thinly pubescent, lamina elliptic, pinnate, 5 proximal pinna pairs decurrent and deflexed, pinnae pinnatifid into oblong pinnules, proximal acroscopic pinnule largest, lamina hairy beneath. Sori medial, indusium with minute stalked yellow glands and hairs. Moist forests, to 400 m, SE (Knysna).•

VITTARIACEAE = *PTERIDACEAE*

GYMNOSPERMS

Cone-bearing plants

CUPRESSACEAE

WIDDRINGTONIA Endl. CEDAR 3 spp., W Cape to S tropical Africa

cedarbergensis J.A.Marsh CLANWILLIAM CEDAR, SEDERBOOM Monoecious, often gnarled tree to 10(–20 m). Adult leaves scale-like, ovate, adpressed. Female cones with rough valves, tubercled on margins. Sandstone slopes and rocks above 1 000 m, NW (Cedarberg).•

nodiflora (L.) Powrie (= *Widdringtonia cupressoides* (L.) Endl.) MOUNTAIN CYPRESS, BERGSIPRES Monoecious shrub or tree to 10 m (to 50 m in tropics). Adult leaves scale-like, narrowly oblong, keeled, adpressed. Female cones with smooth to wrinkled valves. Rocky sandstone and clay slopes, SW, LB, SE (Cape Peninsula to E Cape and to S tropical Africa).

schwarzii (Marloth) Mast. BAVIAANSKLOOFSEDER Like **W. cedarbergensis** but 17–26 m, sometimes to 40 m, and seeds broadly winged. Rocky ravines, SE (Baviaanskloof and Kouga Mtns).•

*PINACEAE

*PINUS L. PINE ± 90 spp., N temperate and subtropical

*__pinaster__ Aiton CLUSTER PINE Monoecious, pyramidal tree to 40 m. Leaves needle-like, 80–240 mm long, in bundles of 2, grey-green, sparse and rigid. Cones often clustered, ovoid-conic, scales narrow, carinate with recurved apiculus. Sandy and rocky mountain slopes, NW, SW, LB, SE (Ceres, Cape Peninsula to E Cape, widespread Mediterranean weed).

*__pinea__ L. UMBRELLA PINE, STONE PINE Monoecious, umbrella-shaped tree to 30 m. Leaves needle-like, 50–150 mm long, in bundles of 2, thick and rigid. Cones usually solitary, ovoid-subglobose, scales thick, radially ribbed, blunt; seeds edible. Rocky slopes, NW, SW (Ceres, Cape Peninsula to Bredasdorp, Eastern Cape, Mediterranean native).

*__radiata__ D.Don RADIATA PINE Monoecious, conical to rounded tree to 30 m, Leaves needle-like, 60–150 mm long, in bundles of (2)3, dense and slender, dark green. Cones strongly asymmetrical, obliquely ovoid, scales short and thick, apiculate. Moist mountain slopes, NW, SW, LB, SE (Bokkeveld Mtns to Lesotho, commercial N American native).

PODOCARPACEAE

1. Fruit borne on scaly or leafy, axillary branchlets, receptacle not swollen ..... **Afrocarpus**
1.' Fruit borne on naked axillary branchlets, receptacle leathery or swollen and fleshy ..... **Podocarpus**

AFROCARPUS (J.Buchholz & N.E.Gray) C.N.Page YELLOWWOOD ± 3 spp., southern and tropical Africa

falcatus (Thunb.) C.N.Page (= *Podocarpus falcatus* (Thunb.) R.Br. ex Mirb.) OUTENIQUA YELLOWWOOD Dioecious, tall tree, 20–60 m. Leaves narrowly lanceolate to linear-elliptic, twisted at base, 20–40 × 2–6 mm. Seeds borne on scaly or leafy stalks, yellow to brown, without a fleshy arillode. Mostly coastal forests, LB, SE (Swellendam to tropical Africa).

PODOCARPUS L'Hér. ex Pers. YELLOWWOOD ± 100 spp., mostly southern hemisphere, temperate and tropical

elongatus (Aiton) L'Hér. ex Pers. BREËRIVIERGEELHOUT Like **P. latifolius** but sometimes a spreading shrub 3–6 m, leaves narrower, 20–70 × 3–5 mm and seeds dark green. Mainly sandstone slopes along streams, NW, SW, KM, LB (Bokkeveld Mtns to Swellendam).•

latifolius (Thunb.) R.Br. ex Mirb. OPREGTE GEELHOUT Dioecious tree to 30 m. Leaves linear-elliptic, 35–60 × 6–10 mm. Seeds grey to purple, borne on nude stalks swollen above to form a fleshy reddish arillode. Forests and open mountain slopes, SW, LB, SE (Cape Peninsula to tropical Africa).

ZAMIACEAE

ENCEPHALARTOS Lehm. CYCAD ± 50 spp., southern and tropical Africa

caffer (Thunb.) Lehm. DWARF CYCAD Dioecious tree with subterranean stem. Leaves pinnate, leaflets many, linear-lanceolate, mostly entire, twisted at various angles. Female cones lime-green, to 30 cm. Jan.–Mar. Coastal grasslands, SE (Humansdorp to E Cape).

horridus (Jacq.) Lehm. BLUE CYCAD Dioecious stemless or short, single-stemmed tree to 1 m. Leaves pinnate, glaucous, leaflets distant below, ovate to lanceolate, lobed and sharply toothed, pungent. Female cones bluish green, to 40 cm. Oct.–Feb. Rocky grasslands, woodlands or karroid scrub, SE (Baviaanskloof Mtns to Port Elizabeth).•

lehmannii Lehm. KAROO CYCAD Dioecious tree to 2 m, often branched from base. Leaves pinnate, dark green but glaucous when young, leaflets linear-lanceolate, pungent, sometimes 1- or 2-toothed. Female cones green, to 50 cm. Feb.–May. Karroid scrub, SE (Baviaanskloof Mtns to E Cape).

longifolius (Jacq.) Lehm. THUNBERG'S CYCAD Dioecious tree to 3 m, often branched below. Leaves pinnate, dark green, leaflets finely pubescent, oblong-lanceolate, pungent, usually entire. Female cones olive-green, to 60 cm. May–June. Stony sandstone slopes, SE (Uniondale to E Cape).

ANGIOSPERMS Flowering Plants

PALAEODICOTYLEDONS

HYDNORACEAE

HYDNORA Thunb. BOBBEJAANKOS 12 spp., Africa and Madagascar

africana Thunb. Leafless, achlorophyllous root parasite to 15 cm. Flower solitary, fleshy and warty or scaly, clavate with 3 or 4 lobes connate at tips, brown with orange inside. Aug.–Feb. Parasitic on *Euphorbia*, NW, SW, KM, LB, SE (S Namibia to Cape Peninsula to E Cape, KwaZulu-Natal).

LAURACEAE

1. Parasitic, twining herbs with yellowish, thread-like stems and scale-like leaves ..... **Cassytha**
1.' Trees or shrubs with well-developed leaves:
  2. Flowers usually unisexual; anthers 4-valved; leaves usually with pits on underside in axils of lowest 1 or 2 pairs of veins. ..... **Ocotea**
  2.' Flowers bisexual; anthers 2-valved; leaves without pits ..... **Cryptocarya**

CASSYTHA L. FALSE DODDER, DEVIL'S TRESSES, NOOIENSHAAR ± 16 spp., Old World tropics, mostly Australia

ciliolata Nees Yellowish, achlorophyllous perennial vine parasitic on trees and shrubs. Leaves rudimentary, scale-like. Flowers in crowded clusters, yellowish. Fruits fleshy, red. Mainly Sept.–Jan. Various trees and shrubs, NW, SW, AP, KM, LB, SE (Clanwilliam to E Cape).

CRYPTOCARYA R.Br. ± 200 spp., Old World tropics

angustifolia E.Mey. ex Meisn. BLUE LAUREL Shrub or small tree to 3 m, finely hairy on young twigs. Leaves linear-lanceolate. Flowers in axillary panicles, whitish. Berries black. Nov. Local, along streams and rivers, NW, SW, LB (Cold Bokkeveld to Langeberg: Swellendam).•

OCOTEA Aubl. STINKWOOD, STINKHOUT ± 200 spp., mostly tropical America, 4 spp. in Africa

bullata (Burch.) Baill. Monoecious, evergreen tree, 8–30 m, with bark pale when young. Leaves elliptic-oblong, glossy, with pits in vein axils. Flowers in axillary cymes, polygamous, yellowish. Mainly Dec.–Feb. Coastal and mistbelt forests, SW, LB, SE (Cape Peninsula to Mpumalanga).

NYMPHAEACEAE

NYMPHAEA L. WATERLILY, WATERLELIE ± 60 spp., pantropical and warm temperate

nouchali Burm.f. (= *Nymphaea capensis* Thunb.) BLUE WATERLILY Aquatic perennial with floating leaves, woolly below. Leaves orbicular, deeply notched at base, margins undulate or scalloped, petioles long or short. Flowers blue, scented, closing at night. Dec.–Mar. Ponds and lakes, NW, SW, AP, LB, SE (Elands Bay and Cape Peninsula to tropical Africa, Asia, Australia).

PIPERACEAE

1. Shrubs; stamens 2–6; anther thecae usually distinct; stigmas 2–4 ..... **Piper**
1.' Herbs; stamens 2; anther thecae usually confluent; stigma 1 ..... **Peperomia**

PEPEROMIA Ruiz & Pav. 1 000+ spp., pantropical and subtropical, mainly America

retusa (L.f.) A.Dietr. Soft, creeping perennial to 20 cm, rooting from the nodes. Leaves slightly succulent, obovate, glossy, minutely ciliolate along apex. Flowers in thread-like, terminal spikes, green. Jan.–Mar. Forest floors and humus on sheltered rocks, SW, KM, LB, SE (Cape Peninsula to Mpumalanga).

tetraphylla (G.Forst.) Hook. & Arn. Creeping perennial to 15 cm, with jointed, divaricately branched stems rooting from nodes. Leaves in whorls of 4, rhomboid, leathery, 3-veined from base. Flowers in narrowly club-shaped, terminal spikes, green. Jan.–Apr. Lithophytic or epiphytic in forests, LB, SE (Swellendam to tropical Africa, pantropical).

PIPER L. PEPPER 1 000+ spp., pantropical and subtropical

capense L.f. BOSPEPER, WILDEPEPER Soft, straggling shrub to 3 m. Leaves ovate, acuminate, 5–7-veined from base, glossy above, paler and hairy on veins beneath. Flowers in spadix-like spikes, greenish. Oct.–Nov. Forests and sheltered cliffs, LB, SE (Swellendam to tropical Africa).

MONOCOTYLEDONS

AGAPANTHACEAE

by D.A. Snijman

AGAPANTHUS L'Hér. AGAPANTHUS, BLOULELIE 8 spp., southern Africa, absent from arid areas

africanus (L.) Hoffmanns. Rhizomatous evergreen geophyte, 25–70 cm. Leaves suberect, strap-shaped. Flowers broadly funnel-shaped, deep blue, thick-textured, 25–40 mm long. Dec.–Apr., mainly after fire. Rocky sandstone slopes, SW, AP, LB (Cape Peninsula to Swellendam).•

praecox Willd. Rhizomatous evergreen geophyte, 50–100 cm. Leaves suberect, strap-shaped. Flowers broadly funnel-shaped, blue to white, thin-textured, 30–70 mm long. Dec.–Feb. Rocky slopes in bush and forest margins, SE (Knysna to E Cape).

walshii L.Bolus (= *Agapanthus africanus* subsp. *walshii* (L.Bolus) Zonn. & G.D.Duncan) Rhizomatous evergreen geophyte, 60–70 cm. Leaves suberect, strap-shaped. Flowers nodding, tubular, deep blue, thick-textured, 20–35 mm long. Jan.–Feb., mainly after fire. Rocky sandstone slopes, SW (Steenbras Mtns to Grabouw).•

AGAVACEAE (= *ANTHERICACEAE*, *BEHNIACEAE*)

Agave by G.F. Smith & R.R. Klopper

1. Climber; leaves cauline, ovate, with distinct cross-connections between the parallel primary veins; flowers campanulate with anthers included; fruit a large, whitish berry. . . . . **Behnia**
1.' Small or large, tufted perennials; leaves basal, rosulate or distichous; flowers tubular or rotate but anthers always exserted; fruit a capsule:
2. Herbaceous perennials; leaves soft-textured, not pungent; perianth rotate, fugaceous; ovary superior . . . . . **Chlorophytum**
2.' Robust, succulent perennials; leaves leathery or succulent, pungent; perianth tubular, fleshy, long-lasting; ovary inferior . . . . . **Agave**

*AGAVE L. CENTURY PLANT, GARINGBOOM 200 spp., SW USA to Venezuela

***americana** L. Massive, stemless, monocarpic, rosulate leaf succulents to 2 m, profusely proliferous on basal suckers. Leaves grey-blue, erect, becoming spreading to reflexed, sword-shaped, pungent, margins with numerous, straight to recurved teeth. Flowering pole branched, tree-like, flowers erect, yellow to greenish yellow. Dec.–Feb. Near farms and gardens, NW, SW, KM, LB, SE (widespread in southern Africa, introduced from USA or Mexico).

***sisalana** Perrine Medium-sized to large, stemless or short-stemmed, monocarpic, rosulate leaf succulents to 2 m, proliferous on elongated rhizomes. Leaves dark green, erect, sword-shaped, pungent, margins lacking teeth. Flowering pole branched, tree-like, profusely bulbiferous, flowers erect, green to dull greenish white. Sept.–May. Spreading from farms and gardens, SW, AP, LB, SE (mainly SE southern Africa, introduced, probably from Mexico).

BEHNIA Didr. AFRICAN SOLOMON'S SEAL 1 sp., eastern southern Africa

reticulata (Thunb.) Didr. Climbing perennial. Leaves ovate, glossy, with reticulate venation. Flowers in axillary cymes, nodding, urn-shaped, cream-coloured to green. Berries whitish. Mainly Sept.–Dec. Forests and scrub, SE (Knysna to Zimbabwe).

CHLOROPHYTUM Ker Gawl. (= *ANTHERICUM* in part) GRASS-LILY ± 150 spp., mainly tropical Africa, also Asia

A. Inflorescence divaricately branched; pedicels articulated near base; capsules transversely ribbed

monophyllum Oberm. Rhizomatous geophyte to 50 cm. Leaf single, linear. Flowers in much-branched racemes, white, filaments rough. Capsules 3-winged, pedicels articulated near base. Dec. Sandy flats, NW (Cold Bokkeveld).•

rigidum Kunth Rhizomatous geophyte to 50 cm, roots fleshy. Leaves distichous, lanceolate, stiff. Flowers in few-branched racemes, white with brown keels, filaments rough. Capsules 3-winged, pedicels articulated near base. May–Oct. Stony slopes and flats, NW, SW (Ceres to Villiersdorp).•

viscosum Kunth Rhizomatous geophyte to 60 cm, roots slightly swollen, pinkish. Leaves ± linear, stiff, closely ribbed, glandular. Flowers in simple or laxly branched, glandular racemes, white with dark keels, filaments rough. Capsules 3-winged, pedicels articulated near base. June–Oct. Rocky sandstone slopes, NW (S Namibia to Piketberg). **gce**

A.' Inflorescence simple or branched; pedicels articulated near middle; capsules smooth
B. Filaments smooth

capense (L.) Voss Rhizomatous geophyte with compressed stems to 1 m, roots long, fleshy. Leaves linear to lanceolate, glaucous, closely ribbed. Flowers in much-branched racemes, white, filaments smooth. Capsules 3-winged, pedicels articulated above the middle. Oct.–Apr. Shaded bush, often near sea, SE (Humansdorp to King William's Town).

comosum (Thunb.) Jacques HEN-AND-CHICKENS, SPIDER PLANT Rhizomatous geophyte to 80 cm, roots swollen toward tips. Leaves soft, channelled. Flowers in long, few-branched racemes

often with leafy tufts at nodes, white, filaments smooth. Capsules 3-winged, pedicels articulated near the middle. Oct.–Apr. Forests and bush in shade, LB, SE (Swellendam to Mpumalanga).

rangei (Engl. & K.Krause) Nordal (= *Anthericum rangei* Engl. & K.Krause) Rhizomatous geophyte to 40 cm, roots wiry with scattered tubers. Leaves grass-like. Flowers in lax, branched racemes, white, filaments smooth. Capsules ovoid, pedicels articulated below the middle. Nov.–Mar. Sand or stony slopes, often granite, NW, SW (S Namibia to Cape Peninsula). **gce**

B.' Filaments rough

crispum (Thunb.) Baker Rhizomatous geophyte to 50 cm, roots unevenly swollen. Leaves in a flat rosette, lanceolate, margins crisped and fringed. Flowers in much-branched racemes, white with green keels, filaments rough. Capsules 3-winged, pedicels articulated in the middle. Sept.–Apr. Stony flats, LB, SE (Riversdale to Alexandria).

lewisiae Oberm. Rhizomatous geophyte, 15–30 cm, roots slender. Leaves few, linear, densely hairy, with blunt dark tips. Flowers in unbranched, hairy racemes, white with green keels, filaments rough. Capsules 3-winged, pedicels articulated below the middle. Sept. Sandstone slopes, NW (Botterkloof).•

pauciphyllum Oberm. Rhizomatous geophyte, 15–30 cm, roots slender, swollen toward tips. Leaf single, linear, rigid, margins ciliate, sheath purple-spotted. Flowers in unbranched racemes, white with green keels, filaments rough. Capsules 3-winged, pedicels articulated near the middle. Apr.–Sept. Rocky sandstone slopes, NW (Nardouw to Cedarberg).•

triflorum (Aiton) Kunth Rhizomatous geophyte to 1 m, roots hard, dark and tapering. Leaves lanceolate, margins ciliate. Flowers in unbranched racemes, white, reddish on reverse, filaments rough. Capsules 3-winged, pedicels articulated near the middle. July–Oct. Sandy slopes and flats, NW, SW (Elands Bay to Cape Peninsula).•

undulatum (Jacq.) Oberm. Rhizomatous geophyte to 50 cm, roots slender and stiff, sometimes with short tubers. Leaves lanceolate, margins ciliate. Flowers in unbranched racemes, white with red keels, filaments rough. Capsules 3-winged, pedicels articulated near the middle. July–Oct. Stony flats and slopes, NW, SW (Namaqualand and W Karoo to Somerset West). **gce**

ALLIACEAE

by D.A. Snijman

1. Rootstock bulbous; flowers campanulate to urceolate, white to pink, tepals connate at base, without a corona; inner filaments tricuspidate ..... **Allium**
1.' Rootstock rhizomatous; flowers salver-shaped, mauve, cream-coloured, green or brown, tepals fused below into a tube, with a corona; anthers sessile ..... **Tulbaghia**

ALLIUM L. ONION ± 550 spp., mainly northern hemisphere

dregeanum Kunth AJUIN, WILDEUI Bulbous geophyte, 35–80 cm, strongly aromatic. Leaves linear, dry at flowering time, suberect. Flowers in a compact spherical head, white to pink. Oct.–Dec. Dry stony slopes and flats, NW, LB, SE (Namaqualand, Clanwilliam to Langkloof, dry areas throughout southern Africa).

TULBAGHIA L. WILD GARLIC 20 spp., S Africa to S tropical Africa

alliacea L.f. Similar to **T. capensis** but corona lobes completely fused into fleshy collar 6–8 mm long and upper anthers inserted on it. Mar.–May. Widespread, NW, SW, LB, SE (Clanwilliam to Cape Peninsula to Port Elizabeth, throughout southern Africa).

capensis L. Bulbous geophyte, 15–35 cm, strongly aromatic. Leaves spreading, linear. Flowers brownish to purplish and green with orange corona, corona lobes 6, free or fused below, to 5 mm long. Apr.–Oct. Rocky slopes, SW, AP, LB, SE (Namaqualand, Cape Peninsula to Langkloof). **gce**

dregeana Kunth Bulbous geophyte, 15–25 cm, strongly aromatic. Leaves spreading, linear. Flowers cream-coloured to greenish yellow, corona lobes completely fused into a fleshy ring 2 mm long. May–Oct. Stony soils, NW, SW (Namaqualand and W Karoo to Worcester, Cape Peninsula to Stanford). **gce**

violacea Harv. ICINZINI Bulbous geophyte, 20–35 cm, strongly aromatic. Leaves suberect, linear, glaucous. Flowers mauve, corona lobes 3, free, to 2 mm long. Nov.–Apr. Karroid bush and forest margins and stream banks, KM, SE (Ladismith, Knysna to KwaZulu-Natal).

AMARYLLIDACEAE

by D.A. Snijman

1. Scape hollow or rarely solid; fruit dehiscent and papery; seeds dry, black and flattened. . . . . **Cyrtanthus**
1.' Scape solid; fruit various; seeds moist, cream-coloured, pink, reddish or green, ovoid or subglobose and slightly angled by compression:
2. Leaves often spirally twisted; inflorescence acaulescent, 1-flowered; fruit clavate, cylindrical or occasionally ellipsoid, much longer than wide, not ribbed or conspicuously veined . . . . . **Gethyllis**
2.' Leaves rarely spirally twisted; inflorescence well developed above ground, (1–)many-flowered; fruit subfusiform to globose or trigonous, rarely much longer than wide and then ribbed or conspicuously veined:
3. Plants rhizomatous or bulbous, tunics not producing extensible threads when torn; leaves often speckled with red; spathe valves 4 or more, often conspicuous; fruit indehiscent, fleshy or pulpy:
4. Plants with large, fleshy bulbs; leaves sword- or tongue-shaped, without midrib, succulent and often pubescent . . . . . **Haemanthus**
4.' Plants rhizomatous; leaves with petiole-like base and prominent midrib, thin-textured and glabrous . . . . . **Scadoxus**
3.' Plants bulbous, tunics producing extensible threads when torn; leaves immaculate, or if speckled then fringed with long bristles; spathe valves 2, inconspicuous; fruit dehiscent or indehiscent, papery or membranous:
5. Leaf margins hyaline, ± fringed with short, branched cilia; pedicels usually shorter than flowers at anthesis; filaments free to base; fruit indehiscent, often beaked; seeds thinly cork-covered:
6. Leaves annual, closely abutting each other in an erect fan, apices all subacute to obtuse; fruiting head detaching from scape apex; fruit trigonous, prominently 3-ribbed . . . . . **Boophone**
6.' Leaves perennial, suberect or prostrate, apices of all but youngest leaves truncate; fruiting head not detaching from scape apex; fruit irregularly shaped, smooth or 6-ribbed:
7. Leaves evenly spreading, channelled, suberect to recurved; perianth tube mostly curved . . . . . **Crinum**
7.' Leaves biflabellate, flat, prostrate; perianth tube straight . . . . . **Ammocharis**
5.' Leaf margins smooth, softly pubescent or raised and fringed with long bristles or short, branched, red cilia; pedicels rarely shorter than flowers at anthesis; filaments connate at base, or if free then fused to style base; fruit dehiscent, beakless; seeds cutinous, not corky:
8. Leaves with prominent midrib; perianth > 80 mm long; seeds slightly angled by compression, pink to colourless, only embryo green . . . . . **Amaryllis**
8.' Leaves without midrib; flowers < 80 mm long; seeds ovoid, usually reddish, integument and embryo green:
9. Flowers actinomorphic:
10. Leaves 2(3), glabrous; flowers persisting after anthesis; filaments connate into short to long tube, free from style; anthers centrifixed to subcentrifixed; style slender . . . . . **Hessea**
10.' Leaves 2–6, glabrous or hairy; flowers withering after anthesis; filaments free or if fused then filament tube trilocular; at least 1 filament whorl adnate to style base; anthers subcentrifixed to dorsifixed . . . . . **Strumaria**
9.' Flowers zygomorphic (sometimes only by deflexed style), rarely actinomorphic but then bright red or deep pink and leaves broad and prostrate:
11. Leaves narrow, usually < 25 mm wide, subsucculent; pedicels slender, rarely longer than flowers; tepal margins often undulate; capsules subglobose, membranous, without conspicuous transversal veins . . . . . **Nerine**
11.' Leaves broad, usually > 25 mm wide, leathery; pedicels stout, usually much longer than flowers; tepal margins rarely crisped; capsules trigonous to fusiform, with conspicuous transversal veins:

12. Leaves immaculate, margins smooth or with short, branched cilia; pedicels obscurely 3-angled in cross section; flowers > 25 mm long, tepals ± spreading, filaments tightly clustered, not bulbous at base; capsules prominently ribbed, tardily dehiscent ..... **Brunsvigia**

12.' Leaves speckled with red, margins with long bristles; pedicels sharply triangular in cross section; flowers < 20 mm long, tepals reflexed, filaments ± separate, bulbous at base; capsules not ribbed, readily dehiscent ..... **Crossyne**

AMARYLLIS L. BELLADONNA, MARCH-LILY 2 spp., Namaqualand and W Cape gce

belladonna L. Bulbous geophyte to 90 cm. Leaves 5–11, dry or absent at flowering, rosulate, suberect, narrowly to broadly lanceolate, channelled, midrib prominent. Flowers usually 6–12, often turned to 1 side, large, trumpet-shaped, pink to white, throat usually pale lemon, fragrant. Feb.–Apr., mainly after fire. Loamy soils on lowlands, NW, SW, AP, LB, SE (Olifants River Valley to George).•

AMMOCHARIS Herb. SEEROOGBLOM 7 spp., southern Africa to tropical E Africa and Sudan

coranica (Ker Gawl.) Herb. Bulbous geophyte, 25–35 cm. Leaves ± 15, distichous, trailing, strap-shaped, falcate with truncate apex. Flowers 3–55, in a rounded cluster, widely funnel-shaped, pink to red, sweetly scented, pedicels remaining short when fruiting. Nov.–Feb. Seasonally damp, karroid flats, KM, SE (Oudtshoorn to S Angola and Zimbabwe).

longifolia (L.) M.Roem. (= *Cybistetes longifolia* (L.) Milne-Redh. & Schweick.) Like **A. coranica** but up to 40 cm tall, pedicels elongating and stiffening when fruiting, and fruit spindle-shaped and 6-ribbed, with papery walls (*vs.* subglobose, smooth and membranous-walled). Dec.–Apr. Flats and slopes in sandy or stony soil, NW, SW (S Namibia to Cape Peninsula and Bonnievale). **gce**

APODOLIRION see **GETHYLLIS**

BOOPHONE Herb. OXBANE, KOPSEERBLOM 2 spp., southern Africa to tropical E Africa

disticha (L.f.) Herb. Bulbous geophytes, 25–50 cm. Leaves 12–20, usually dry at flowering, in an upright fan, lanceolate, channelled, grey, edges usually undulate, apex acute. Flowers 50–100 or more, in a dense, spreading cluster, pink to red, fragrant, pedicels elongating in fruit. Sept.–Mar. Rocky slopes and flats, SW, AP, LB, SE (Robertson and Bredasdorp to tropical E Africa).

haemanthoides F.M.Leight. Like **B. disticha** but leaves ± 20, obtuse and flowers in a compact, brush-like cluster, cream-coloured, later turning pinkish. Mainly Nov.–Feb. Coastal sands, limestone or dolerite rocks, NW, SW (S Namibia and W Karoo to Saldanha). **gce**

BRUNSVIGIA Heist. CANDELABRA-LILY, KANDELAAR ± 20 spp., southern Africa

A. Flowers actinomorphic

elandsmontana Snijman Bulbous geophyte to 20 cm. Leaves 4–6, dry at flowering, prostrate, elliptical, margin pink. Flowers 6–18, in a small roundish cluster, bright pink, actinomorphic, tepals evenly outspread, veins not darkly coloured, without scent, stamens centrally clustered. Capsules 3-angled, thinly ribbed, rounded apically. Mar.–May. Well-drained pebbly flats, NW (Bo-Hermon: Elandskloof Nature Reserve).•

marginata (Jacq.) Aiton Bulbous geophyte to 20 cm. Leaves 4, dry at flowering, prostrate, elliptical. Flowers 10–20, in a compact, hemispherical head, actinomorphic, bright scarlet, tepals widely spreading, stamens prominent, centrally clustered. Capsules sharply 3-angled. Mar.–June. Rocky sandstone (granite) slopes, NW, SW (Citrusdal to Worcester and Paarl).•

A.' Flowers zygomorphic
B. Flowers pink

bosmaniae F.M.Leight. (incl. **B. appendiculata** F.M.Leight.) Bulbous geophyte to 20 cm. Leaves 5 or 6, dry at flowering, prostrate, oblong, margin red. Flowers ± 20, in a large roundish head, tepals broadly oblong, pink with darker veins, outer stamens ± half as long as inner, scented. Capsules sharply 3-angled, heavily ribbed. Mar.–May. Coastal sand, clay, limestone and granite soils, NW, SW (Namaqualand to W Karoo to Tygerberg). **gce**

gregaria R.A.Dyer Bulbous geophyte, 20–40 cm. Leaves 4–6(–8), dry at flowering, prostrate, tongue-shaped, margin red or pale red. Flowers 20–40, in a dense, hemispherical head, tepals evenly spreading or flaring upwards, tube well-developed, pink to crimson. Capsules 3-angled, rounded above, heavily ribbed. Mar.–Apr. Clay or sandy soils, SE (Humansdorp to King William's Town).

striata (Jacq.) Aiton (incl. **B. minor** Lindl.) Bulbous geophyte, 15–35 cm. Leaves 4–6, dry at flowering, prostrate, elliptical, minutely papillate above. Flowers 8–30, in a rounded head, tepals flaring upwards, recurved, shell-pink, midrib dark. Capsules 3-angled, rounded above, thinly ribbed. Mar.–Apr. Stony slopes and flats, NW, AP, KM, LB, SE (Bokkeveld Mtns to near Steytlerville to Cape Infanta).•

B.' Flowers red

josephinae (Redouté) Ker Gawl. (incl. **B. gydobergensis** D.Müll.-Doblies & U.Müll.-Doblies) LANTANTER Bulbous geophyte to 65 cm, bulbs often exposed. Leaves 8–20, dry at flowering, recurved, oblong. Flowers 20–60, in a widely spreading head, red, tepals unequally rolled back. Capsules spindle-shaped. Feb.–Mar. Slopes and clay flats in renosterveld, NW, SW, AP, KM, SE (W Karoo to Worcester to Baviaanskloof and Humansdorp). **gce**

litoralis R.A.Dyer Like **B. josephinae** but bulb subterranean, leaves ± 18, narrower, to 7.5 *vs.* 20 cm wide, ± upright, flowers mostly to 20(–40), with a longer tube, 15–25 *vs.* to 15 mm long. Feb.–Mar. Coastal sands, SE (Knysna to Port Elizabeth).•

orientalis (L.) Aiton ex Eckl. KONINGSKANDELAAR Bulbous geophyte, 40–50 cm. Leaves usually 6, dry at flowering, prostrate, oblong. Flowers 20–40, in a dense, spherical head, red, tube 2–5 mm long, tepals unequally rolled back. Capsules sharply 3-angled, heavily ribbed. Feb.–Apr. Sand or rarely clay, mainly coastal forelands, NW, SW, AP, SE (S Namaqualand to Cape Peninsula and Knysna). **gce**

CARPOLYZA Salisb. = **STRUMARIA**

CLIVIA Lindl. BUSH-LILY, BOSLELIE 6 spp., NW Cape and eastern southern Africa

mirabilis Rourke Rhizomatous, evergreen perennial to 1.2 m, with long fleshy roots. Leaves 5–12, basally clustered, suberect, strap-shaped, channelled, dark maroon near base, often striped white along midrib. Flowers 20–35, in a terminal cluster, pendulous, tubular, scarlet, with green to yellow tips. Berries irregularly oblong, dark red. Oct.–Nov. Shaded kloofs, NW (Bokkeveld Escarpment).•

CRINUM L. MARSH-LILY ± 65 spp., pantropical but mainly sub-Saharan Africa

lineare L.f. Bulbous geophyte, 18–70 cm. Leaves ± 8, arching from base, linear, 5–25 mm wide, channelled. Flowers 4–14, spreading to pendulous, trumpet-shaped, white to pale pink, with darker pink keels, sweetly scented, anthers black, pedicels to 2.5 cm long. Jan.–Mar. Sandy soils, SE (Port Elizabeth to Peddie District).

variabile (Jacq.) Herb. Bulbous geophyte, 45–60 cm. Leaves ± 10, recurved, lanceolate to linear, 4–50 mm wide. Flowers 6–12, large, trumpet-shaped, pale to deep pink, with deeper pink or green keels, heavily scented, anthers yellow, pedicels to 5 cm long,. Jan.–May. Streambeds, NW (Namaqualand and W Karoo to Biedouw River). **gce**

CROSSYNE Salisb. PARASOL-LILY, SAMBREELBLOM 2 spp., Namaqualand, W Karoo and W Cape gce

flava (W.F.Barker ex Snijman) D.Müll.-Doblies & U.Müll.-Doblies GEELSAMBREELBLOM Like **C. guttata** but flowers pale yellow to maroon, ± zygomorphic with stamens declinate. Mar.–May. Shale flats and rocky slopes, NW (Namaqualand to Cedarberg). **gce**

guttata (L.) D.Müll.-Doblies & U.Müll.-Doblies Bulbous geophyte to 45 cm. Leaves 4–6, dry at flowering, prostrate, broadly strap-shaped, speckled brownish red beneath, margins bristly. Flowers ± 200, in a round head, small, actinomorphic, maroon to dusky pink, tepals reflexed. Feb.–Apr., usually after fire. Shale and granite flats and lower slopes, NW, SW, AP, LB (Piketberg to Swellendam).•

CYBISTETES Milne-Redh. & Schweick. = **AMMOCHARIS**

CYRTANTHUS Aiton FIRE-LILY, BRANDLELIE ± 50 spp., southern and tropical Africa

*A. Flowers cream-coloured or yellow to salmon, uniformly coloured or with green, pink to red on keels or green on tips (see also **C. sanguineus**)*

aureolinus Snijman Bulbous geophyte, 22–30 cm. Leaves 2–4, emergent at flowering, strap-shaped. Flowers 4–10, erect to spreading, narrowly funnel-shaped, sulphur-yellow, sometimes with green median keels, stamens shortly exserted from throat. Jan. Damp northern foothills, KM (Swartberg near Meiringspoort).•

leptosiphon Snijman Bulbous geophyte to 30 cm. Leaves 1–5, usually dry at flowering, linear. Flowers 1–4, suberect, narrowly funnel-shaped, somewhat bilabiate, cream-coloured, with pale apricot or pink on tube and keels of segments, stamens well-exserted, with filaments apricot-coloured and decurrent into throat. Feb.–Mar. Gravelly clay, LB (near Swellendam).•

leucanthus Schltr. WITBRANDLELIE Bulbous geophyte to 30 cm. Leaves 1 or 2, usually dry at flowering, linear. Flowers 1–4, suberect, narrowly tubular, with spreading, broadly elliptic segments, cream-coloured to white, sweetly scented, stamens shortly exserted from throat. Jan.–Mar. Sandstone or limestone slopes or flats, SW, AP (Betty's Bay to Potberg).•

loddigesianus (Herb.) R.A.Dyer GRASVELDELIE (incl. **C. clavatus** (L'Hér.) R.A.Dyer, **C. speciosus** R.A.Dyer) Bulbous geophyte, 8–30 cm. Leaves 1–3, sometimes dry at flowering, strap-shaped. Flowers 1–5, suberect, funnel-shaped, cream-coloured to pale yellow, keels pink or green, stamens exserted from throat. Oct.–Mar., after rain. Grasslands or grassy fynbos in sandy soils, SE (Humansdorp to East London).

obliquus (L.f.) Aiton KNYSNA LILY, JUSTAFINA Bulbous geophytes, 20–60 cm, robust. Leaves ± 6, usually green at flowering, broadly strap-shaped, twisted. Flowers 6–12, nodding, large, funnel-shaped, yellow and orange with green tips, stamens included in perianth. Aug.–Feb. Grasslands and grassy fynbos, SE (Knysna to KwaZulu-Natal).

ochroleucus (Herb.) Burch. ex Steud. Bulbous geophyte, 13–36 cm. Leaves 2 or more, dry or emergent at flowering, linear. Flowers 2–6, suberect, tubular, cream-coloured to dull yellow, tinted pink or green on tube, acrid-scented, inner stamens shortly exserted from throat, Sept.–Nov. Dry, sandy or stony middle slopes or flats, AP, LB (Langeberg: Garcia's Pass and Still Bay).•

A.' Flowers red, bright pink or purple, uniformly coloured or with darker bands on backs or dark stripes leading into throat
B. Flowers tubular to narrowly funnel-shaped
C. Perianth bilabiate, the upper 3 or 4 segments connivent and hooded over the stamens

fergusoniae L.Bolus Bulbous geophyte to 35 cm. Leaves 1–3, often dry at flowering, linear, thick, ribs minutely papillate beneath. Flowers 4–8, spreading, tubular, red, segments ± half as long as tube, 3 upper projecting forward, 2 lateral spreading, lower decurved, style subcapitate, arched upwards. Dec.–Jan. Shale or sand on sandstone or limestone, AP, LB, SE (Bredasdorp to Sedgefield).•

inaequalis O'Brien Bulbous geophyte to 30 cm, bulbilliferous. Leaves 2–7, green at flowering, linear. Flowers 4–9, suberect to spreading, narrowly funnel-shaped, coral-red, fleshy, segments oblong, 3 upper hooded, 2 lateral spreading, lower decurved, becoming more zygomorphic with age, style subcapitate, arched upwards. Jan. Sandstone ridges, KM, SE (De Rust to Kouga Mtns).•

labiatus R.A.Dyer Bulbous geophyte to 30 cm, bulbilliferous. Leaves 3 or 4, green at flowering, strap-shaped. Flowers ± 8, suberect, tubular, coral-red, fleshy, segments oblong, ribbed, 4 upper overlapping and forming a hood, 2 lower decurved, style subcapitate, strongly decurved. Dec.–Jan. Shaded rock faces, KM, SE (Klein Swartberg, Toorwaterpoort and Baviaanskloof Mtns).•

C.' Perianth segments ± equally spreading

angustifolius (L.f.) Aiton FIRE-LILY, BRANDLELIE Bulbous geophyte to 60 cm, often forming clumps. Leaves 2–4, rarely dry at flowering, strap-shaped. Flowers 4–10, nodding, tubular, scarlet, often orange inside, stamens exserted from throat, style 3-branched. Oct.–Feb.(–Mar.), after fire. Slopes and flats in seasonal streams and vleis, NW, SW, AP, KM, LB, SE (Cedarberg to Port Elizabeth).•

carneus Lindl. Bulbous geophyte to 75 cm, robust. Leaves up to 10, usually green at flowering, broad, twisted. Flowers 15–25, nodding, long, tubular, crimson or pink, stamens dilated at base, shortly exserted from throat, style truncate. Dec.–Feb. Coastal sand, SW, AP (Kleinmond to Potberg).•

collinus Ker Gawl. Bulbous geophyte, 15–35 cm, forming clumps. Leaves usually 2, sometimes dry at flowering, narrowly strap-shaped, greyish. Flowers 4–11, nodding, narrowly funnel-shaped, bright red to orange, stamens shortly exserted from throat, style 3-branched. Dec.–May. Rocky shale and sandstone slopes, SW, AP, KM (Riviersonderend Mtns to Zuurberg).•

odorus Ker Gawl. Bulbous geophyte to 30 cm. Leaves 2 or 3, present or absent at flowering, linear. Flowers 1–5, suberect to spreading, tubular, dark red to maroon, sweetly scented, stamens shortly exserted from throat, style 3-branched. Feb.–Apr., after fire. Lower to middle slopes, LB (Langeberg: Swellendam).•

ventricosus Willd. (incl. **C. pallidus** Sims) BRANDLELIE Bulbous geophyte, 10–25 cm. Leaves 1–5, usually dry at flowering, linear. Flowers 2–10, nodding, tubular, slightly swollen above, vermilion to bright red, sometimes pinkish, filaments attached to base of tube, arching under upper segment. Dec.–May, after fire. S-facing sandstone slopes in fynbos, SW, AP, SE (Cape Peninsula to Kouga Mtns).•

B.' Flowers widely funnel- to trumpet-shaped or urn-shaped
D. Flowers uniformly coloured

elatus (Jacq.) Traub GEORGE LILY, BERGLELIE Bulbous geophyte to 60 cm. Leaves ± 5, green at flowering, broadly strap-shaped. Flowers 2–9, suberect to spreading, large, widely funnel-shaped, scarlet, rarely pink, stamens well-exserted from throat, style capitate. Nov.–Mar., often after fire. Forest margins and moist mountain slopes, SE (George to Humansdorp).•

guthrieae L.Bolus BREDASDORP LILY Bulbous geophyte, 10–15 cm. Leaves 2 or 3, dry at flowering, linear. Flowers solitary or rarely paired, erect, large, widely funnel-shaped, bright red, stamens well-exserted from throat, style capitate, pedicel very short. Mar.–Apr., after fire. Lower sandstone slopes, SW (Bredasdorp).•

montanus R.A.Dyer Bulbous geophyte to 25 cm, bulbilliferous. Leaves 3–5, green at flowering, strap-shaped. Flowers 5–10, erect, widely funnel-shaped from a narrow tube, red, stamens well-exserted, style subcapitate. Jan.–Mar. Rocky crevices on upper slopes, SE (Baviaanskloof Mtns).•

D.' Flowers with dark lines leading into throat from tepal sinuses

debilis Snijman Bulbous geophyte, 10–25 cm. Leaves ± 3, dry at flowering, linear. Flowers 1(–3), suberect, narrowly trumpet-shaped, pale to bright pink, with darker pink streaks leading into throat, stamens clustered against lower segment, style 3-branched. Nov.–Apr. Stony, sandy soil on rocky slopes, LB, SE (Attaquaskloof to Outeniqua Mtns).•

flammosus Snijman & Van Jaarsv. Bulbous geophyte, 25 cm, bulbs partially exposed. Leaves 2–4, dry at flowering, lanceolate, greyish, somewhat leathery. Flowers solitary or rarely paired, erect, large, widely funnel-shaped, scarlet, with darker stripes leading into throat, stamens well-exserted from throat, style 3-branched, pedicel short and stout. Mar. Shaded rock crevices on cliffs, SE (Baviaanskloof Mtns).•

sanguineus (Lindl.) Walp. KEI LILY Bulbous geophyte to 50 cm. Leaves 1–4, dry or green at flowering, linear-lanceolate. Flowers 1–3(–4), spreading, narrowly to widely funnel-shaped, scarlet or rarely salmon-pink, with darker red stripes leading into throat, stamens exserted, style declinate, 3-branched. Jan.–Mar. Rocky, S-facing slopes, SE (Baviaanskloof Mtns to S Sudan).

spiralis Burch. ex Ker Gawl. VARKSTERTLELIE Bulbous geophyte, 15–30 cm. Leaves 2 or 3, usually dry at flowering, narrowly strap-shaped, coiled. Flowers 3–7, nodding, narrowly trumpet-shaped, flame-red, stamens shortly exserted, style 3-branched. Dec.–Feb. Flats and lower slopes in semi-arid habitats, SE (Uitenhage to Port Elizabeth).•

staadensis Schönland Bulbous geophyte to 40 cm. Leaves 2–5, green at flowering, linear, greyish. Flowers 2–6, spreading horizontally, tube narrow and curved below, then abruptly inflated and urn-shaped, vermilion, stamens shortly exserted, style 3-branched. Feb.–Mar. Grassy fynbos on moist slopes, SE (Van Staden's Mtns near Port Elizabeth).•

wellandii Snijman Bulbous geophyte to 40 cm. Leaves 2 or 3, dry or green at flowering, linear. Flowers 4–7, spreading horizontally, small, funnel-shaped, vermilion to scarlet, with darker stripes leading into throat, stamens shortly exserted, style included in tube, broadly 3-lobed. Feb. Stony slopes in grassy renosterveld, SE (Humansdorp).•

GETHYLLIS L. (incl. APODOLIRION in part) KUKUMAKRANKA ± 38 spp., S Namibia, N and W Cape to NE southern Africa

A. Anthers > 6; style central and erect

afra L. Bulbous geophyte, 10–14 cm. Leaves 12–30, dry at flowering, erect, linear, spiralled, glabrous or shortly hairy, basal sheath not prominent. Flower cup-shaped, white, keeled with red on reverse, anthers 9–18, arranged in 6 clusters. Berry fleshy, yellow to red. Dec.–Jan. Sandy flats, SW, AP, LB (S Namaqualand to Cape Peninsula to near Heidelberg). **gce**

britteniana Baker Bulbous geophytes, 15–25 cm. Leaves 19–45, dry at flowering, erect, narrowly strap-shaped, spiralled, glabrous, basal sheaths paired, spotted. Flower large, widely cup-shaped, white to pink, anthers 35–60, arranged in 6 clusters. Berry fleshy, yellow with red spots. Oct.–Mar. Sandveld, NW (Namaqualand to Nardouw Mtns and Darling). **gce**

campanulata L.Bolus (incl. **G. multifolia** L.Bolus) Bulbous geophyte to 15 cm, usually forming clumps. Leaves 9–23, dry at flowering, suberect, linear, scarcely twisted, smooth or slightly pubescent, hairs short. Flower large, cup-shaped, cream-coloured, anthers 12, in 6 pairs. Berry fleshy, yellow. Nov.–Jan. Flat rocky places and stony clay soils, NW (Bokkeveld Escarpment and W Karoo to Worcester). **gce**

ciliaris (Thunb.) Thunb. Bulbous geophyte, 15–30 cm. Leaves 15–25, dry at flowering, suberect, narrowly strap-shaped, spiralled, fringed with long, upturned hairs, basal sheath minutely spotted when exposed. Flower large, cup-shaped, ivory or pink, anthers more than 20, in 6 clusters. Berry fleshy, yellow. Nov.–Feb. Flats and slopes in sand, NW, SW (Namaqualand to just N of Cape Peninsula). **gce**

undulata Herb. Like **G. ciliaris** but leaves twisted and edges undulate. Dec.–Jan. Sandy flats, NW, SW (Olifants River Valley).•

A.' Anthers 6; style central and erect or curved sideways
B. Leaves softly hairy or scaly, with compound, star-shaped or scale-like hairs

barkerae D.Müll.-Doblies Bulbous geophyte, ± 4 cm. Leaves 1–8, dry at flowering, rosulate, prostrate, elliptic, pubescent with star-like hairs. Flower with outspread tepals, pale pink, stamens 6, style curved sideways. Berry slender, white to translucent, with red seeds. Dec. Rocky slopes, NW (Heerenlogement Mtn and Nardouw Mtns).•

verrucosa Marloth Bulbous geophyte to 5 cm. Leaves 3–8, dry at flowering, spreading, narrowly strap-shaped, slightly curled, covered with silver, scale-like hairs centrally fixed to a dark red tubercle. Flower with spreading tepals, white to pale pink, stamens 6, style curved sideways. Oct.–Dec. Shale soils, AP (W Karoo and Agulhas Plain). **gce**

villosa (Thunb.) Thunb. Bulbous geophyte to 15 cm. Leaves 3–12, dry at flowering, spreading, narrowly lanceolate, spiralled, covered with soft medifixed hairs. Flower with spreading tepals, pink or white, stamens 6, style curved sideways. Berry slender, white to translucent with red seeds. Nov.–Jan. In sand, clay or limestone NW, SW, AP (Namaqualand and W Karoo to Cape Peninsula to Mossel Bay). **gce**

B.' Leaves glabrous or softly hairy with simple hairs

gregoriana D.Müll.-Doblies Bulbous geophyte to 15 cm, forming clumps. Leaves 1 or 2, dry at flowering, erect, strap-shaped, not twisted, grey, glabrous or softly pubescent, hairs simple. Flower with outspread tepals, white, stamens 6, style central and erect. Berry leathery, cream-coloured to olive-green with maroon speckles. Dec.–Jan. Uplands in sand or clay, NW (S Namaqualand to Cedarberg). **gce**

kaapensis D.Müll.-Doblies Bulbous geophyte, 10–15 cm. Leaves ± 7, green at flowering, suberect, linear, weakly spiralled. Flower cup-shaped, white with pink beneath, stamens 6, style central and erect. Nov.–Dec., after fire. Sandy flats, SW (Cape Peninsula).•

lanceolata (Thunb.) L.f. (= *Apodolirion lanceolatum* (Thunb.) Benth. & Hook.f. ex B.D.Jacks.) Bulbous geophyte to 3 cm. Leaf solitary, dry at flowering, spreading to prostrate, strap-shaped, margins sometimes crisped. Flower funnel-shaped, white, inner stamens 6, decurrent on lower third of tepals. Berry fleshy, ovoid, yellow. Dec.–Feb. S-facing slopes in rocks, AP, KM, LB (Ladismith to Still Bay to Swellendam).•

lanuginosa Marloth Bulbous geophyte, 4–10 cm. Leaves 7–18, dry at flowering, suberect, linear, loosely to tightly coiled, both surfaces sparsely pubescent with simple hairs. Flower with outspread tepals, white to pale pink, stamens 6, style curved sideways. Berry fleshy, yellow to orange. Sept.–Dec. Sand or clay, often near rocks, NW, SW (Namaqualand and W Karoo to Saldanha). **gce**

marginata D.Müll.-Doblies Bulbous geophytes, ± 3 cm. Leaves 1–4, dry at flowering, suberect, elliptical, margins thickened, pale and minutely undulate. Flower with widely spreading tepals, white, stamens 6, style curved sideways. ?Dec. ?, NW (Heerenlogement and Pakhuis Mtns).•

spiralis (Thunb.) Thunb. Bulbous geophyte, 6–15 cm. Leaves 6–12, dry at flowering, suberect, linear, curled, glabrous or rarely fringed. Flower with widely spreading tepals, white with pale pink undersurface, stamens 6, style curved sideways. Berry fleshy, straw-coloured. Nov.–Jan. Stony slopes, SW, KM, SE (Worcester to Little Karoo to Addo).

transkarooica D.Müll.-Doblies Bulbous geophyte, 8–10 cm. Leaves 6–12, dry at flowering, suberect, linear, spiralled towards apex, mostly smooth, occasionally sparsely hairy. Flower with widely spreading tepals, rose-pink, anthers tailed, lobes somewhat divergent at base, stamens 6, style curved sideways. Berry fleshy, yellow to pinkish. Nov.–Dec. Sandy or loamy soils, NW (Ceres and W Karoo to Free State).

verticillata R.Br. ex Herb. Bulbous geophyte, 10–25 cm. Leaves 5–10, dry at flowering, suberect, linear, coiled towards apex, glabrous, basal sheaths paired, spotted and fringed. Flower with widely spreading tepals, white, stamens 6, style curved sideways, stigma broadly 3-lobed. Berry fleshy, yellow. Nov.–Feb. Sandy flats and rocky slopes, NW, SW (Namaqualand to Darling). **gce**

sp. 1 (**Apodolirion cedarbergense** D.Müll.-Doblies) Bulbous geophyte to 3 cm. Leaves 2 or 3, dry at flowering, suberect to recurved, linear, channelled. Flower with widely spreading tepals, white or pale pink, fragrant, stamens 6, ± equally long, inserted in throat, style curved sideways. Berry purple, texture unknown. Jan. Sandy flats and slopes, NW (Cedarberg).•

sp. 2 (**Apodolirion macowanii** Baker) Bulbous geophyte to 7 cm. Leaves 2–4, dry or sometimes green at flowering, suberect, strap-shaped, coiled, margins slightly raised and rough. Flower funnel-shaped, white, stamens 6, inserted in throat, inner stamens up to ± 7.5 mm longer than outer. Berry fleshy, long, orange-yellow. Dec.–Apr. SE (Jeffreys Bay to near Grahamstown and Addo).

[**Species excluded** No authentic material known: **G. oligophylla** D.Müll.-Doblies, **G. oliverorum** D.Müll.-Doblies]

HAEMANTHUS L. PAINTBRUSH, POWDERPUFF 22 spp., southern Africa, mainly Namaqualand

*A. Flowers and bracts pink or white (see also **H. canaliculatus**, **H. crispus** and **H. sanguineus**)*

albiflos Jacq. Bulbous geophyte, 6–30 cm. Leaves 2–6, green at flowering, spreading to prostrate, tongue-shaped, smooth or pubescent, unmarked. Flowers in a compact head, white, bracts 4–8, thin-textured, white with green veins. Berry white, orange or red. Apr.–Aug. Coastal and riverine scrub, AP, KM, SE (Still Bay and Oudtshoorn to KwaZulu-Natal).

amarylloides Jacq. Bulbous geophyte to 25 cm. Leaves 2, dry at flowering, erect to prostrate, strap-shaped, glabrous, plane, pinkish towards base. Flowers spreading, pale to dark pink, bracts 4–9,

pink, thin-textured. Feb.–Apr. Seasonally moist sites, NW (Namaqualand, Bokkeveld Mtns to Clanwilliam). **gce**

pumilio Jacq. Bulbous geophyte, 5–20 cm. Leaves 2, dry at flowering, suberect, narrowly strap-shaped, channelled, twisted, barred with red near base beneath. Flowers slightly spreading, pink to white, bracts 4–6, pale to dark pink, thin-textured. Mar.–Apr., after fire. Seasonally wet clay flats, SW (near Hermon, Paarl, and Stellenbosch).•

A.' Flowers and bracts red

canaliculatus Levyns Bulbous geophyte to 20 cm. Leaves 2, dry at flowering, narrowly strap-shaped, suberect to recurved, spreading, glabrous, channelled, basally speckled with red beneath. Flowers slightly spreading, scarlet (rarely pink), bracts 5–7, acute, scarlet (rarely pink), somewhat leathery. Dec.–Mar., after fire. Swampy coastal flats, SW (Rooi Els to Betty's Bay).•

coccineus L. APRIL FOOL Bulbous geophyte, 6–40 cm. Leaves 2, dry at flowering, spreading, tongue-shaped, fleshy, usually speckled beneath, margin often rolled back and ciliate. Flowers in a compact head, scarlet, bracts 6–9(–13), scarlet, stiff and fleshy. Feb.–Apr. Coastal scrub and rocky slopes, NW, SW, AP, KM, LB, SE (S Namibia to near Grahamstown).

crispus Snijman Bulbous geophyte, 4–15 cm. Leaves 2, dry at flowering, spreading to suberect, narrowly strap-shaped, channelled, with wavy edges, speckled near base beneath. Flowers in a small, compact head, red (rarely pink), bracts 4 or 5, blunt, red (rarely pink), waxy. Mar.–Apr. Stony lower slopes, NW (Namaqualand to Olifants River Valley). **gce**

nortieri Isaac Bulbous geophyte to 30 cm. Leaf solitary, dry at flowering, erect, broadly elliptical, narrowly strap-shaped near base, rough, leathery, sticky, often collecting sand. Flowers in a compact head, on a hispid scape, deep red, bracts 5–8, acuminate, red, leathery. Feb.–Mar. Seasonal washes, NW (Nardouw Mtns).•

pubescens L.f. POEIERKWAS Bulbous geophyte, 7–30 cm. Leaves 2, dry at flowering, recurved to prostrate, strap-shaped, pubescent above or fringed. Flowers in a tight head, on a glabrous or pubescent scape, red (rarely pink), bracts usually 4, large, acute, red (rarely pink), fleshy. Feb.–Apr. Sandy flats, NW, SW (Namaqualand to Cape Peninsula). **gce**

sanguineus Jacq. VELSKOENBLAAR Bulbous geophyte, 5–30 cm. Leaves 2, dry at flowering, prostrate, often broader than long, leathery, often outlined with red. Flowers crowded in a dense head, red or pink, bracts 5–11, leathery, red or pink. Jan.–Apr., especially after fire. Lower slopes, NW, SW, AP, KM, LB, SE (Nardouw Mtns to Port Elizabeth). **gce**

HESSEA Herb. SAMBREELTJIE 14 spp., S Namibia, N and W Cape

A. Tepals crisped

cinnamomea (L'Hér.) T.Durand & Schinz Bulbous geophyte, 6–15 cm. Leaves 2, dry or emergent at flowering, spreading, linear. Flowers widely funnel-shaped, in a north-facing cluster, tepals crisped, white to pale pink with claret centre, with spicy scent. May–June, after fire. Peaty lowlands, SW (Riverlands, Joostenberg and Cape Peninsula).•

monticola Snijman Bulbous geophyte to 25 cm. Leaves 2, dry at flowering, spreading, narrowly strap-shaped, shallowly channelled. Flowers star-shaped, in a widely spreading cluster, tepals crisped, white to pale pink, lined red near throat, stamens less than two thirds as long as tepals. Mar.–May, usually after fire. Rocky slopes or seasonally wet valleys, NW, SW, LB (Piketberg and Cedarberg to Kogelberg and Swellendam).•

undosa Snijman Bulbous geophyte to 23 cm. Leaves 2, dry at flowering, spreading, linear, shallowly channelled. Flowers star-shaped, in a dense spreading cluster, tepals crisped, pink with reddish centre, stamens ± two thirds as long as tepals. June–July. Seasonally waterlogged, sandstone rock pockets, NW (Gifberg).•

A.' Tepals plane

breviflora Herb. Bulbous geophyte to 20 cm. Leaves 2(3), dry or emergent at flowering, spreading, narrowly strap-shaped, basal sheath conspicuous and red. Flowers star- to widely funnel-shaped, in a small spreading cluster, pink, stamens slightly shorter to longer than tepals. Apr–May. Sandy pockets between rocks, lower slopes, NW, SW (Namaqualand, Olifants River Valley to Hopefield). **gce**

mathewsii W.F.Barker Bulbous geophyte to 19 cm. Leaves 2(3), dry or emergent at flowering, spreading, narrowly strap-shaped, shallowly channelled. Flowers star-shaped, in a spreading cluster, pale pink with dark pink to crimson centre, filaments with basal, incurved hooks. May. Limestone flats, SW (Vredenburg to Langebaan).•

pusilla Snijman Like **H. stellaris** but leaves to 1 *vs.* 1–7 mm wide, filament tube 2 *vs.* < 1.5 mm long and narrowing rather than widening upwards, filaments spreading horizontally from tube rather than spreading upwards. Apr.–May. Sandy sandstone plateaus, NW (Bokkeveld Mtns).•

stellaris (Jacq.) Herb. Bulbous geophyte, 7–20 cm. Leaves 2, dry or emergent at flowering, spreading, linear to narrowly strap-shaped. Flowers star-shaped, in a spreading cluster, pale to deep pink, occasionally with a dark star-shaped centre, stamens slightly shorter, a little longer than tepals. Apr.–June. Sandy or clay flats, NW, KM (Vanrhyns Pass, W Karoo, Karoopoort to Oudtshoorn). **gce**

NERINE Herb. NERINE ± 23 spp., southern Africa

A. Flowers actinomorphic

sarniensis (L.) Herb. GUERNSEY LILY Bulbous geophyte, 25–45 cm. Leaves 4–7, dry at flowering, spreading, broadly strap-shaped. Flowers actinomorphic, tepals recurved, 5–8 mm wide, scarlet with a golden sheen, rarely pink or white, stamens centrally clustered, suberect. Mar.–May. Rocky slopes, NW, SW (Citrusdal to Caledon).•

A.' Flowers zygomorphic

humilis (Jacq.) Herb. (incl. **N. breachiae** W.F.Barker, **N. tulbaghensis** W.F.Barker) Bulbous geophyte, 15–35 cm. Leaves 4–6, dry or emergent at flowering, spreading to prostrate, strap-shaped, 4–10(–15) mm wide. Flowers pink, tepals flared upwards, 3–5 mm wide, undulate, pollen whitish. Apr.–June. Loamy soils among rocks, NW, SW, AP, KM, LB (Clanwilliam to Bredasdorp, Komsberg foothills to W Swartberg). **gce**

peersii W.F.Barker Bulbous geophyte, 30–50 cm. Leaves 3 or 4, green at flowering, spreading, strap-shaped. Flowers in a loose head, tepals flared upwards, 2–5 mm wide, pale pink with a deep pink median stripe, undulate in upper half, apex recurved and slightly twisted, pollen yellow. Apr.–May. S-facing slopes and river gorges, KM, SE (Meiringskloof to Kammanassie Mtns to Baviaanskloof Mtns).•

pudica Hook.f. Bulbous geophyte, 25–35 cm. Leaves 3, emergent at flowering, suberect, narrowly strap-shaped. Flowers 1–4, trumpet-shaped, tepals 9–10 mm wide, almost flat, pale pink with dark keels. Mar.–May, usually after fire. Steep rocky slopes, SW (Riviersonderend Mtns).•

ridleyi E.Phillips Like **N. humilis** but leaves broader, 15–25 mm wide and flowers on pedicels up to 80 mm long. Feb.–Apr. Steep, S-facing, sandstone ledges, NW (Cold Bokkeveld to Hex River Mtns to Franschhoek Mtns).•

SCADOXUS Raf. BLOOD-LILY 9 spp., W Cape to tropical Africa

puniceus (L.) Friis & Nordal Bulbous geophyte, 30–45 cm. Leaves 2–7, often dry at flowering, erect, petiole-like bases sheathing to form a false stem. Flowers in a dense, obconical head, red to salmon-pink, bracts usually more than 5, variable in size, pedicels longer than 10 mm. Sept.–Jan. Coastal bush, AP, SE (Agulhas plain to tropical Africa).

STRUMARIA Jacq. ex Willd. CAPE SNOWFLAKE, TOLBOL 28 spp., S Namibia to W Cape, Karoo and Free State

A. Flowers bell- or funnel-shaped

picta W.F.Barker Bulbous geophyte to 13 cm. Leaves 2, dry at flowering, spreading. Broadly strap-shaped, leathery, minutely ciliate. Flowers widely bell-shaped, white with broad reddish brown central bands beneath, scented, somewhat ascending, on minutely hairy pedicels, scape often deflected sideways. May–June. Clay flats on tillite, NW (Bokkeveld Escarpment). **gce**

salteri W.F.Barker Bulbous geophyte to 25 cm. Leaves 2, rarely 3, dry at flowering, prostrate, elliptic, dark green, minutely ciliate. Flowers 5–14, spreading, widely funnel-shaped, rose-pink, keels dark reddish pink. May. Sandstone rock crevices, NW (Pakhuis and Nardouw Mtns).•

spiralis (L'Hér.) Aiton (= *Carpolyza spiralis* (L'Hér.) Salisb.) Bulbous geophyte, 5–15(–27) cm. Leaves 4–6, spreading, filiform. Flowers 1–4, small, erect, funnel-shaped, white to pink, scape wiry, spirally twisted below, persisting after fruiting. May–Aug. Seasonally wet flats and rock crevices, SW, AP, KM, LB (Cape Peninsula to Heidelberg and Swartberg).•

truncata Jacq. NAMAQUALAND SNOWFLAKE Bulbous geophyte, 20–35 cm. Leaves 2–6, usually dry at flowering, erect, narrowly strap-shaped, spreading into a fan, usually twisted. Flowers 3–26, nodding, narrowly funnel-shaped, white to pink. Apr.–June. Stony or loamy flats, NW (Namaqualand to W Karoo and Bokkeveld Escarpment).

watermeyeri L.Bolus Bulbous geophyte, l0–15 cm. Leaves 2, dry at flowering, prostrate, elliptic, with pustulate sticky margins. Flowers 4–11, erect or facing one side, funnel-shaped, tepals spreading above, pale pink, usually with darker pink median band. Apr.–May. Shallow soil on sandstone pavements, NW (Bokkeveld Mtns).•

A.' Flowers star-shaped

chaplinii (W.F.Barker) Snijman Bulbous geophyte to 10 cm. Leaves 2, dry at flowering, prostrate, ovate, softly hairy above. Flowers 4–14, on long spreading pedicels, star-shaped, white, tepals flat, style tapering uniformly downwards to a broad base. Mar.–Apr. Granite outcrops, SW (Saldanha and Langebaan).•

discifera Marloth ex Snijman Bulbous geophyte to 15 cm. Leaves dry at flowering, 2, spreading strap-shaped, softly hairy usually above and beneath. Flowers (2–)5–16, on long spreading pedicels, star-shaped, white, thinly striped with green or pink, often scented, tepals channelled, style abruptly swollen in basal third. Mar.–May. Heavy soils, NW (S Knersvlakte and Bokkeveld Plateau to W Karoo). **gce**

gemmata Ker Gawl. Bulbous geophyte to 40 cm. Leaves dry at flowering, 2, spreading to prostrate, usually pubescent. Flowers (2–)6–14, star-shaped, pale lemon, rarely cream-coloured, tepals crisped, with a translucent swelling at the base. Feb.–May. Stony slopes or flats, clay or limestone, AP, KM, LB, SE (Bredasdorp to Riversdale, Ladismith to Port Elizabeth, Great Karoo).

leipoldtii (L.Bolus) Snijman Bulbous geophyte to 15 cm. Leaves 2, dry at flowering, prostrate, oval, with a dense white fringe. Flowers 8–15, on long spreading pedicels, star-shaped, white, style evenly enlarged in basal third. Mar.–Apr. Sandstone rock ledges, NW (Lambert's Bay to Olifants River Valley).•

tenella (L.f.) Snijman Bulbous geophyte, 10–20 cm, slender. Leaves up to 6, usually present at flowering, spreading, filiform. Flowers 2–14, on long spreading pedicels, star-shaped, white, sometimes flushed with pink, style abruptly swollen in lower half. Apr.–July. Seasonally damp, loamy flats, NW, SW (Bokkeveld Escarpment and W Karoo to Cape Peninsula and Montagu, Free State).

unguiculata (W.F.Barker) Snijman Bulbous geophyte to 35 cm. Leaves 2, rarely 3, usually dry at flowering, suberect, broadly elliptic, abruptly narrowed towards base, glabrous, pale green. Flowers 7–24, on long spreading pedicels, star-shaped, white with wine-red stripes on reverse, strongly scented, tepals clawed at base. May. Loamy, stony soils, NW (Botterkloof Valley).•

ANTHERICACEAE = **AGAVACEAE**

APONOGETONACEAE

APONOGETON L.f. WATERBLOMMETJIE ± 30 spp., palaeotropics and southern Africa

A. Tepals ± equalling stamens

desertorum Zeyh. ex A.Spreng. Rhizomatous aquatic. Leaves floating, oblong, cordate. Flowers spirally arranged and crowded, whitish, with 2 tepals, stamens usually 6. Nov.–May. Rock pools, SE (Uitenhage to Botswana and Namibia).

junceus Lehm. RAMSHORN Rhizomatous aquatic. Leaves floating, lanceolate to linear. Flowers distichous, white to lilac, with 1–3 tepals, stamens usually 6. Oct.–Dec. Ponds, marshes and rivers, AP, LB, SE (Riversdale to Zimbabwe and N Namibia).

A.' Tepals longer than stamens

angustifolius Aiton Rhizomatous aquatic. Leaves floating, small, elliptic to lanceolate. Flowers distichous, white, with 2 tepals, stamens usually 6. June–Sept. Pools and ditches, SW (Malmesbury to Worcester).•

distachyos L.f. Rhizomatous aquatic. Leaves floating, oblong. Flowers distichous, white, with 1 tepal, scented, stamens 8–16. July–Dec. Pools and ditches, NW, SW, AP, LB, SE (Bokkeveld Mtns to Knysna).•

fugax J.C.Manning & Goldblatt (= *Aponogeton ranunculiflorus sensu* Cape plants 2000) Rhizomatous aquatic. Leaves submerged, subterete. Flowers in paired, opposed spikes, 3 or 4 per spike, white, with 2 unequal tepals, stamens 4. Aug.–Sept. Seasonal pools, NW, SW, AP (Bokkeveld Mtns and W Cape to Agulhas plain).•

ARACEAE (= *LEMNACEAE*)

1. Terrestrial plants; leaves present, well developed; flowers in a spike-like spadix subtended by a large, petaloid spathe ..... **Zantedeschia**
1.' Minute floating aquatic herbs; leaves absent:
2. Roots absent; plants globular ..... **Wolffia**
2.' Roots present; plants discoid:
3. Roots several, usually short ..... **Spirodela**
3.' Root solitary, usually long ..... **Lemna**

LEMNA L. DUCKWEED, DAMSLYK 9 spp., nearly cosmopolitan

gibba L. Minute, floating aquatic forming large colonies. Leaves spongy. Flowers minute. Nov.–Dec. Freshwater pools and dams, SW, LB, SE (Cape Peninsula to Uitenhage, cosmopolitan).

minor L. Minute, floating aquatic forming colonies. Leaves thin. Flowers minute. Nov.–Dec. Pools, SE (Uitenhage, cosmopolitan).

SPIRODELA Schleid. 4 spp., nearly cosmopolitan

punctata (G.Mey.) C.H.Thomps. Minute, floating aquatic forming dense colonies. Leaves purple beneath. Oct.–Dec. Freshwater pools, SW (Cape Peninsula, cosmopolitan).

WOLFFIA Horkel ex Schleid. 7 spp., nearly cosmopolitan

arrhiza (L.) Horkel ex Wimm. Minute, floating aquatic forming colonies, without roots. Oct.–Dec. Freshwater pools, SW, SE (Cape Peninsula to Knysna, widespread in Old World).

ZANTEDESCHIA Spreng. CALLA-LILY, VARKBLOM 8 spp., southern Africa

aethiopica (L.) Spreng. Rhizomatous geophyte, 60–100 cm. Leaves sagittate, on long spongy petioles. Flowers with large white spathe and yellow spadix. June–Dec. Sandy or rocky places, usually seasonally damp, NW, SW, AP, KM, LB, SE (Richtersveld, Kamiesberg, Bokkeveld Mtns to Limpopo).

ASPARAGACEAE

ASPARAGUS L. (= *MYRSIPHYLLUM, PROTASPARAGUS*) KATDORING, KRULKRANSIE, WILDE-ASPERSIE ± 120 spp., mainly Africa, also Asia

A. Tepals fused below; cladodes usually broad and leaf-like and solitary in the axils

alopecurus (Oberm.) Malcomber & Sebsebe Erect, brush-like shrublet to 80 cm. Cladodes linear. Flowers nodding, solitary in axils, tepals fused below, filaments straight. Apr.–Oct. Rocky sandstone slopes and flats, NW (Namaqualand to Clanwilliam).

asparagoides (L.) Druce Scrambler to 3 m. Cladodes ovate. Flowers nodding, solitary in axils, tepals fused below, filaments straight. July–Sept. Widespread in bush, NW, SW, AP, KM, LB, SE (Gifberg to Port Elizabeth to tropical Africa).

declinatus L. Much-branched scrambler to 1 m. Cladodes in threes, linear. Flowers nodding, solitary in axils, tepals fused below, filaments straight. June–Oct. Mostly rock outcrops, fynbos and coastal scrub, NW, SW, AP, KM, LB (S Namibia to Riversdale).

fasciculatus Thunb. Shrublet to 1 m, sprawling or scrambling in bush. Cladodes fascicled, filiform. Flowers nodding, 1–3 in axils, tepals fused below, filaments straight. Mar.–June. In bush, NW, SW (Namaqualand and W Karoo to Saldanha).

kraussianus (Kunth) J.F.Macbr. Sprawling shrublet to 1 m. Cladodes lanceolate with a distinct midrib. Flowers nodding, solitary in axils, tepals fused below, filaments straight. Sept.–Oct. Strandveld and fynbos, NW, SW, AP (Clanwilliam to Still Bay).•

multituberosus R.A.Dyer Scandent to erect shrublet to 45 cm. Cladodes ovate to heart-shaped, many-veined. Flowers nodding, 1–3 in axils, tepals fused below, filaments straight, styles 3. July–Sept. Rocky lower slopes and flats, NW (Namaqualand and W Karoo to Karoopoort).

ovatus Salter Scandent shrublet to 1 m. Cladodes ovate, many-veined. Flowers nodding, 1–3 in axils, tepals fused below, filaments straight. July. Mostly coastal, SW, AP, SE (Saldanha to East London).

scandens Thunb. Scandent shrublet to 2 m. Cladodes in one plane, in threes with a solitary smaller one opposing a larger pair, narrow, slightly sigmoid. Flowers nodding, 1–3 in axils, tepals spreading, filaments straight. Sept.–Jan. Forests and bush in shade, NW, SW, AP, LB, SE (Gifberg to Tsitsikamma Mtns).•

undulatus (L.f.) Thunb. Erect, branched shrublet to 40 cm. Cladodes lanceolate, ribbed. Flowers nodding, 1–3 in axils, tepals fused below, filaments straight. July–Oct. Sandy slopes, often in shade, NW, SW (Namibia to Hottentots Holland Mtns).

volubilis Thunb. Scandent shrublet to 1 m. Cladodes narrowly elliptic, several-veined. Flowers nodding, solitary in axils, tepals fused below, filaments straight. June–Oct. Coastal scrub or forests, NW, SW, AP, LB, SE (Citrusdal to E Cape).

A.' Tepals free; cladodes linear to needle-like, usually in fascicles
B. Flowers 1–3(–many) on an apical disc

burchellii Baker Erect to sprawling, spiny shrub to 1.5 m, spines spreading. Cladodes 2 or 3 in fascicles, terete. Flowers 1–3 on an apical disc, tepals and filaments spreading. Feb.–May. Mainly dry bush, SW, AP, KM, LB, SE (Stellenbosch to Queenstown).

capensis L. KATDORING Erect spiny shrub to 1 m, stems brush-like, with spines in threes. Cladodes mostly 5 in clusters, sublinear, hairy. Flowers 1 or 2 on an apical disc, tepals and filaments spreading. Mainly Apr.–Aug. Rocky slopes, NW, SW, AP, KM, LB, SE (S Namibia to Transkei).

exsertus (Oberm.) Fellingham & N.L.Mey. Erect spiny shrublet to 80 cm, stems thin, spines single or paired. Cladodes 1–3 in fascicles, terete, pubescent. Flowers 1 or 2 on an apical disc, tepals and filaments spreading. Nov.–Dec. Shale slopes in renosterveld, NW (Worcester District).•

mariae (Oberm.) Fellingham & N.L.Mey. Erect spiny shrub to 1 m, stems densely puberulous, pale, spines in threes. Cladodes 1–4 in fascicles, filiform. Flowers 1–3 on an apical disc, tepals and filaments spreading. Mar.–May. Stony flats, SW, LB (Bredasdorp to Mossel Bay, also Grahamstown).

setaceus (Kunth) Jessop FEATHERY ASPARAGUS Spiny climbing shrub to 2 m, stems spiny only at base. Cladodes numerous in fascicles, filiform. Flower solitary on an apical disc, tepals and filaments spreading. Sept.–Apr. Mainly forests, AP, LB, SE (Port Beaufort to S tropical Africa).

stipulaceus Lam. Erect, brush-like shrublet to 50 cm, stems minutely ribbed, pubescent, spines in threes. Cladodes 3 in fascicles, terete. Flowers 1 or 2 on an apical disc, tepals and filaments spreading. Apr.–July. Coastal dunes, SW, AP (Cape Peninsula to Bredasdorp).•

striatus (L.f.) Thunb. Erect shrublet to 60 cm, stems minutely striate with weak spines. Cladodes single, linear, hard and striate. Flowers few to many on an apical disc, tepals and filaments spreading. Aug.–Jan. AP, KM, LB, SE (Agulhas to E Cape and Free State).

suaveolens Burch. Erect spiny shrub to 1 m, stems sometimes brush-like, spines in twos or threes. Cladodes 1–6 in fascicles, terete. Flowers 1–3 on an apical disc, tepals and filaments spreading. Mainly Apr.–Sept. Rocky slopes, NW, AP, KM, LB, SE (widespread in southern Africa).

subulatus Thunb. Scandent or erect shrub to 2 m, stems minutely grooved, with adpressed spines below. Cladodes 3–6 in fascicles, filiform. Flowers on an apical disc, tepals and filaments spreading. Sept.–Dec. Dry rocky sites, SE (Humansdorp to Komga).

B.' Flowers few in the axils or several in racemes

aethiopicus L. Spiny climber to 3 m, stems pale and ribbed, spines hooked. Cladodes 4–6 in fascicles, terete. Flowers in racemes. Jan.–June. Mainly dry bush, NW, SW, AP, KM, LB, SE (Namaqualand to Transkei).

africanus Lam. Spiny shrub to 1 m or climber to 3 m, stems with straight or spreading, brownish spines. Cladodes ± 12 in fascicles. Flowers up to 6 in axils, tepals and filaments spreading. Aug.–Dec. Usually moist places, SW, KM, LB, SE (Saldanha to N KwaZulu-Natal).

confertus K.Krause Erect spiny shrub to 1 m, stems ribbed, papillate, with orange-brown spines. Cladodes 1–3 in fascicles, linear. Flowers 1–3 in axillary racemes, tepals and filaments spreading. ?. Stony flats and slopes, NW, KM, LB (Robertson to S Karoo).

crassicladus Jessop Spiny, scandent or sprawling shrub to 2 m, branches short, flexuose, pubescent, spines hooked. Cladodes in fascicles, succulent, curved. Flowers in fascicles on short branches, tepals and filaments spreading. Nov.–Dec. SE (Plettenberg Bay to E Cape).

densiflorus (Kunth) Jessop Erect or spreading, spiny shrub to 60 cm, stems striate with hooked spines. Cladodes 1–few in fascicles, linear. Flowers in racemes, tepals and filaments spreading. Oct.–Mar. Mainly coastal, SE (Uitenhage to S Mozambique).

exuvialis Burch. Erect or scrambling shrub, 0.5–2 m, stems with white membranous bark, sometimes with minute spines. Cladodes in fascicles, filiform. Flowers 2–6 in axils, tepals and filaments spreading. Oct.–Apr. Mainly dry areas, NW, SW, KM, LB, SE (drier parts of S Africa, Namibia, Botswana).

filicladus (Oberm.) Fellingham & N.L.Mey. Erect spiny shrub to 60 cm, stems pale grey with hooked spines. Cladodes 15–25 in fascicles, falcate. Flowers in racemes, tepals and filaments spreading. ?. Stony slopes, SE (Knysna to Queenstown).

lignosus Burm.f. Spiny shrublet to 80 cm, stems spreading to erect, pale, striate. Cladodes terete, in fascicles. Flowers 1–4 in axils. Oct.–May. Rocky sandstone slopes and marshy flats, NW, SW, AP, KM, LB (Clanwilliam to Mossel Bay).•

macowanii Baker Erect or scandent, spiny shrub to 2 m, stems with hooked spines below. Cladodes to 50 in fascicles. Flowers many in fascicles on young branches, tepals and filaments spreading. Mainly Sept.–Nov. Moist sites often near rivers, SE (Knysna to Mozambique).

mucronatus Jessop Erect spiny shrub to 1 m, branches pubescent with spreading spines. Cladodes grey, 1–4 in fascicles. Flowers ± 2 in axils, tepals and filaments spreading. Oct.–Dec. Stony flats, SW, KM, LB, SE (Paarl to Queenstown and Kimberley).

multiflorus Baker Coarse, scrambling or tangled shrub, stems striate and velvety, bearing blunt triangular knobs. Cladodes 7 in fascicles. Flowers few in axils, tepals and filaments spreading. Dec.–Jan. Stony slopes, SW, LB, SE (Swellendam to E Cape).

natalensis (Baker) J.-P.Lebrun & Stork Spiny climber or shrub, stems pale grey, with small spines. Cladodes 1–4 in fascicles, linear. Flowers in racemes, tepals and filaments spreading. Aug.–Sept. Scrub, SE (Plettenberg Bay to tropical Africa).

oliveri (Oberm.) Fellingham & N.L.Mey. Erect, spiny, puberulous shrublet to 20 cm, stems brush-like, striate. Cladodes solitary, terete and spiny. Flowers 1–few in axils, succulent, ?cleistogamous. Nov. Rocky sandstone slopes, KM (Rooiberg).•

ramosissimus Baker Scandent shrublet, 1–2.2 m. Cladodes 3 in fascicles, linear, keeled. Flowers nodding, solitary in axils, tepals spreading, filaments straight. Sept.–Feb. Moist shady places, LB (Potberg to Mpumalanga).

recurvispinus (Oberm.) Fellingham & N.L.Mey. Erect spiny shrub, stems dark, bearing hooked spines. Cladodes 1–3 in fascicles, terete. Flowers paired in axils, tepals and filaments spreading. Nov. Little and Great karoo, KM (Ladismith to Oudtshoorn).

retrofractus L. Scrambling spiny shrub to 3 m, stems grey and ribbed when young, with spreading spines. Cladodes in feathery fascicles, filiform. Flowers 2–7 in axils, tepals and filaments spreading. Apr.–June. Sandy and stony flats and slopes, NW, SW, KM, LB (S Namibia to E Cape).

rubicundus P.J.Bergius Erect spiny shrubs to 1.5 m, stems dark brown, glossy, with spreading spines. Cladodes ± 10 in fascicles, terete. Flowers 1 or 2 in axils, tepals and filaments spreading. Mainly Mar.–June. Sandy and granite slopes, NW, SW, AP, KM, LB, SE (Kamiesberg, Gifberg to Uitenhage).

ASPHODELACEAE

Aloe by R.R Klopper & G.F. Smith, **Astroloba** by N.L. Meyer & G.F. Smith, **Haworthia** by B. Bayer

1. Tepals free or connate at base, spreading or campanulate:
 2. Flowers long-lived with persistent perianth; filaments smooth; ovules 2 per locule seeds shield-shaped ..... **Bulbinella**
 2.' Flowers lasting less than a day with deciduous perianth; filaments scabrid or bearded; ovules usually many per locule seeds angled:
  3. Pedicels articulated below flower; stigmas subglobular ..... **Asphodelus**
  3.' Pedicels not articulated below flower; stigmas minute:
   4. Filaments retrorsely scabrid; flower white ..... **Trachyandra**
   4.' Filaments densely bearded; flowers yellow or orange (rarely white) ..... **Bulbine**
1.' Tepals fused below into a tube, erect or shortly spreading above:
  5. Inflorescence terminal, usually a simple dense spike; leaves basal, soft, immaculate, usually keeled ..... **Kniphofia**
  5.' Inflorescence apparently axillary, sometimes branched; leaves various but usually succulent, hard, thick, prickly, maculate or immaculate, in basal or apical rosettes or cauline, rounded on back:
   6. Stamens as long as or longer than perianth:
    7. Perianth tube distinctly curved near the middle and ± inflated below ..... **Gasteria**
    7.' Perianth ± straight, at most upturned near tip but then not inflated below ..... **Aloe**
   6.' Stamens shorter than perianth and included in it:
    8. Perianth distinctly bilabiate ..... **Haworthia**
    8.' Perianth regular or at most weakly bilabiate ..... **Astroloba**

ALOE L. ALOE, AALWYN ± 550 spp., sub-Saharan Africa, Arabia, Madagascar, Mascarene Islands, Socotra

A. Trees or large shrubs with erect stems
B. Stems mostly simple
C. Inflorescence usually simple

comosa Marloth & A.Berger CLANWILLIAM ALOE, CLANWILLIAMAALWYN Single-stemmed succulent tree, 1–2 m, covered below with persistent dry leaves. Leaves grey or blue-green, occasionally ± brownish pink, obscurely lineate above, lanceolate-ensiform, to 65 cm long; margin pinkish, with small, reddish brown, deltoid teeth. Racemes narrowly cylindric, dense, simple, occasionally with a short branch, to 2.5 m high. Flowers red to dull pink in bud, deep pink or rosy white to pinkish ivory when mature, ± 35 mm long; stamens and stigma well exserted. Dec.–Jan. Dry rocky slopes in fynbos–renosterbos transition, NW (Clanwilliam and Swartruggens Mtns to Hex River Valley).•

speciosa Baker SPAANSAALWYN, SLAPHORINGAALWYN Single-stemmed or branched succulent tree mostly to 4 m, covered below with persistent dry leaves. Leaves dull glaucous-green with slight bluish or reddish tinge, without spots, lanceolate-attenuate, 60–80 cm long; margins narrow, deep to pale pink, with small, pale red teeth. Racemes simple, broadly cylindric, dense, arcuate-erect, ± 0.5 m high. Flowers red in bud, greenish white at maturity, 30–35 mm long; stamens and stigma well exserted. Aug.–Sept. Steep slopes in succulent thicket, AP, KM, LB, SE (Montagu and Swellendam to E Cape: King William's Town).

C.' Inflorescence usually branched

africana Mill. UITENHAGE ALOE, UITENHAAGSE-AALWYN Succulent perennial tree, 2–4 m , rarely branched, with persistent dried leaves. Leaves dull green to somewhat glaucous, without spots, spreading to recurved, up to 650 mm long, upper surface glabrous or with few, scattered, reddish spines in upper third, lower surface with few, reddish spines in median line near apex; margin with pungent, deltoid, reddish teeth. Racemes cylindric, dense, branched, 60–80 cm high. Flowers dull red in bud, yellow-orange at maturity, up to 55 mm long, upper half of open flowers markedly upcurved; stamens and stigma well exserted. July–Sept. Dense bushveld, SE (Humansdorp to Port Alfred).

ferox Mill. BITTER ALOE, TAPAALWYN, OPREGTE-AALWYN Succulent, perennial tree. Stem 2–3 m high, can be up to 5 m high, unbranched, erect, densely covered with persistent dried leaves.

Leaves dull green, sometimes with reddish tinge, without spots, lanceolate-ensiform, up to 1 m long, surfaces smooth or with irregular scattered spines; margin with stout, deltoid, reddish to brownish red teeth. Racemes cylindric, dense, branched, ± 1 m long. Flowers orange to scarlet, occasionally yellow or white, ± 33 mm long; stamens and stigma well exserted. May–Nov. Rocky slopes, SW, AP, KM, LB, SE (Swellendam to Port Edward in E Cape).

pluridens Haw. FRENCH ALOE, FRANSAALWYN, GARAA Succulent tree to 3(–5) m, simple or branched, with persistent dried leaves in upper half. Leaves pale green to yellowish green, obscurely lineate, lanceolate-falcate, 60–70 cm long; margin narrow, white, cartilaginous, with deltoid, incurved, white or pale pink teeth. Racemes conical, dense, branched, up to 1 m high. Flowers salmon-pink to dull scarlet, rarely yellow, 40–45 mm long; stamens and stigma well exserted. May–July. Succulent thicket, SE (Humansdorp to E Cape: Kei Mouth and Durban).

B.' Stems branched

arborescens Mill. KRANTZ ALOE, KRANSAALWYN Succulent shrub to 3 m, much branched with leaves clustered at branch tips. Leaves dull green to grey-green, without spots, 50–60 cm long; margins with firm, pale teeth, usually curved forward. Racemes conical to elongate conical, usually simple, ± 80 cm high. Flowers scarlet, orange-red, rarely yellow; stamens and stigma exserted. May–Aug. Rocky outcrops, SW, AP, LB, SE (Caledon to S tropical Africa).

***camperi** Schweinf. CAMPER'S ALOE, GROENAALWYN Succulent shrub to 1 m, branched at base, divergent or decumbent, with persistent dried leaves. Leaves dark green, occasionally with dull white, lenticular spots especially toward base, spots usually more numerous beneath, triangular, 50–70 cm long; margins reddish with pungent, brownish red teeth. Racemes cylindric to ± conical, dense, with arcuate-ascending branches, 70–100 cm high. Flowers orange to yellow, 22–28 mm long; stamens and stigma exserted. Aug.–Nov. Rocky slopes, SW (lower slopes of Table Mountain, alien from Eritrea and Ethiopia).

kamnelii Van Jaarsv. Succulent, perennial shrub to 1.5 m long, branched from base, rarely solitary, with persistent dried leaves. Leaves glossy, grass-green, both surfaces distinctly lineate, linear-lanceolate, 30–40 cm long; margin reddish brown, cartilaginous, with dark brown teeth. Racemes simple, lax, cylindric-acuminate, 80–100 cm, ascending. Flowers yellow, green-tipped in bud, 45 mm long; stamens and style slightly exserted. Aug.–Oct. Shale outcrops in succulent karoo, NW (Doorn River Valley and adjacent Olifants River Valley).•

lineata (Aiton) Haw. RED-SPINED ALOE, STREEPAALWYN Succulent shrub to 1.5 m, simple or branching below, usually covered in persistent dried leaves. Leaves dull to bright green, or bright yellowish green to orange-green, not glaucous, distinctly lineate, lanceolate-acuminate, ± 30 cm long; margin reddish brown, horny, with pungent, deltoid, reddish brown teeth. Racemes conical, ± dense, simple, 75–100 cm high. Flowers salmon-pink, 45–50 mm long; stamens and stigma well exserted. Jan.–Mar. or June–Nov. Karroid scrub, AP, KM, LB, SE (Ladismith to E Cape: Grahamstown).

plicatilis (L.) Mill. FAN ALOE, BERGAALWYN, WAAIERAALWYN, FRANSCHHOEKAALWYN Small, stout, succulent tree, 3–5 m, branching dichotomously, without persistent dried leaves. Leaves distichous, dull green to glaucous-green, without spots, broadly linear to lorate, apex rounded, ± 30 cm long; margins minutely dentate in upper third or almost entire. Racemes cylindric, lax, simple, to 50 cm long. Flowers scarlet, to 55 mm long; stamens and stigma exserted. Aug.–Oct. Rocky sandstone slopes, NW, SW (Tulbagh to Jonkershoek).•

succotrina All. BERGAALWYN Succulent shrub with stems short or to 2 m, simple or dichotomously branched, erect or procumbent, with persistent dried leaves. Leaves dull green to grey-green, obscurely lineate, sometimes with few white spots, lanceolate-attenuate, to 50 cm long; margins narrow, dull white, with firm, white teeth. Racemes cylindric, ± dense, mostly simple, to 1 m long. Flowers red with green tips, ± 40 mm long; stamens and stigma exserted. June–Sept. Sandstone rocks and cliffs, SW (Cape Peninsula to Hermanus).•

A.' Tangled shrubs or plants with decumbent or creeping stems
D. Shrubs with slender, often tangled stems

ciliaris Haw. CLIMBING ALOE, RANKAALWYN Succulent shrub with slender stems to 5 m, repeatedly branched, scandent, leaves only terminal. Leaves green, without spots, lanceolate-deltoid to linear-lanceolate, 7–15 cm long; sheath auriculate with ciliate margins, green-lineate; margins with white, cartilaginous teeth. Racemes cylindric, dense to ± lax, ascending, simple, to 30 cm

long. Flowers bright coral-red to scarlet with yellow-green tips, 2–3 cm long; stamens and stigma exserted. Nov.–Apr. Dry thickets, SE (Uitenhage to E Cape: Kouga).

commixta A.Berger Succulent shrub to 1 m, slender, branched, suberect to erect. Leaves dull green, obscurely lineate beneath, narrowly lanceolate-acuminate, to 20 cm long; sheath not auriculate and without ciliate margins, green-striatulate; margins with firm, deltoid, white teeth. Racemes subcapitate, dense, simple, 30–35 cm long. Flowers reddish in bud, yellowish to orange at maturity, up to 40 mm long; stamens and stigma exserted. Aug.–Sept. Rocky slopes, SW (Cape Peninsula).•

decumbens (Reynolds) Van Jaarsv. (= *Aloe gracilis* Haw. var. *decumbens* Reynolds) Succulent perennial with slender, decumbent stems to 1 m. Leaves bright green, faintly striate, lanceolate-deltoid, 9–17 cm long; margins with firm, white teeth. Racemes cylindric, ± lax, simple, 30–42 cm long. Flowers scarlet, tipped yellowish green in bud, 28–33 mm long; stamens and stigma slightly exserted. Jan.–Dec. Cliffs and steep slopes, LB (Langeberg).•

gracilis Haw. SCRAMBLING ALOE, RANKAALWYN Succulent shrub to 2 m, with slender branches from base. without persistent dried leaves. Leaves dull green, without spots, narrowly lanceolate, to 25 cm long; sheath not auriculate and without ciliate margins, faintly striated, pale green; margins with firm, white teeth. Racemes cylindric, slightly conical, ± dense, simple or branched, 20–30 cm long. Flowers bright red to scarlet, yellowish at mouth, 40–45 mm long; stamens and stigma included or shortly exserted. May–Aug. Partly shaded slopes at ecotone between forest and fynbos, SE (Port Elizabeth).•

juddii Van Jaarsv. Succulent perennial to 60 cm, with slender, erect to decumbent branches. Leaves dark green with reddish tips, faintly striate, triangular-ovate to triangular-lanceolate, 5–7.5 cm long; margins with firm, white teeth. Racemes cylindric, ± lax, simple, 35–48 cm long. Flowers yellowish green in bud, orange-red with yellowish green tips when mature, 40 mm long; stamens and stigma not exserted. Nov. Rocky slopes in fynbos, SW (Baardskeerdersbos).•

D.' Plants with decumbent or creeping stems

arenicola Reynolds BONT-O-T'KORRIE, STRANDVELDAALWYN Succulent shrublet with creeping stems to 1 m, simple or branched, with persistent dried leaves. Leaves blue-green, with copious white, irregularly scattered, oblong spots on both surfaces, lanceolate-attenuate, to 20 cm long; margins whitish, with tiny teeth. Racemes capitate, subcorymbose, dense, simple or occasionally branched, to 50 cm long. Flowers red, paler toward mouth, 40 mm long; stamens and stigma exserted. July–Jan. Coastal sandveld, NW (Namaqualand to Lambert's Bay). **gce**

comptonii Reynolds KLEINKAROO-AALWYN Acaulescent or short-stemmed succulent, stems rarely to 1 m, with persistent dried leaves; rosettes usually in dense colonies. Leaves glaucous-green, with reddish tinge, without lines or spots, lanceolate-attenuate, to 30 cm long, with up to 6 spines at tip of keel; margins with pale brown teeth from white base. Racemes subcapitate, rounded or broadly conical, dense, branched, 80–100 cm long. Flowers dull scarlet, 35–40 mm long; stamens and stigma well exserted. Aug.–Dec. Rocky flats, slopes and cliffs, KM, SE (Montagu to Uniondale and E Cape: Jansenville).

distans Haw. STRANDAALWYN Sprawling succulent shrublet, branched at base with stems to 3 m, with persistent dried leaves. Leaves glaucous green, occasionally with few, scattered, whitish, subtuberculate spots above, spots more numerous and mostly in lower half beneath, lanceolate, to 15 cm long, with 2–4 spines at tip of keel; margins with deltoid, golden-yellow teeth. Racemes capitate, dense, branched, 40–60 cm long. Flowers dull scarlet, ± 40 mm long; stamens and stigma slightly exserted. Nov.–Dec. Coastal granite outcrops, SW (St Helena Bay to Saldanha Bay).•

mitriformis Mill. (= *A. perfoliata* auct.) MITRE ALOE, KRANSAALWYN Sprawling, succulent shrublet with creeping branches to 2 m, with persistent dried leaves. Leaves blue-green, without spots, ovate-lanceolate, to 20 cm long, with 4–6 spines at tip of keel; margins with small, stout, pale to whitish, deltoid teeth, turning yellow to dark brown on old leaves. Racemes capitate, dense, branched, 40–60 cm long. Flowers dull to bright red, 40–45 mm long; stamens and stigma exserted. Aug.–Feb. Rocky slopes and cliffs, NW, SW (Bokkeveld Mtns to Kleinmond).•

A." Plants acaulescent or stems short
E. Rosettes usually solitary, only occasionally in groups
F. Inflorescence usually simple

longistyla Baker KAROO ALOE, KAROO-AALWYN, RAMENAS Acaulescent, succulent perennial, rosettes single or occasionally 2 or 3, dense and compact. Leaves grey-green, waxy, without spots, lanceolate, 120–150 mm long, both surfaces with soft to firm white spines; margin with firm,

horny, deltoid, white teeth. Racemes broadly conical, dense, simple, 15–20 cm long. Flowers pale salmon-pink to coral-red, ± 55 mm long; stamens and stigma well exserted. July–Aug. Stony or sandy flats and gentle slopes, usually in shade of small bushes, KM (Little Karoo: Calitzdorp to Grahamstown).

micracantha Haw. FYNBOS GRASS ALOE, WATERAALWYN Acaulescent or short-stemmed, succulent perennial, simple or occasionally branched. Leaves deep green to yellowish green, with copious white, subtuberculate and subspinulescent spots, narrowly deltoid, acuminate, to 50 cm long; margin cartilaginous, armed with firm, white teeth. Inflorescence simple, 45–50 cm high, erect, with capitate, somewhat corymbose, dense racemes. Flowers salmon-pink, ± 38 mm long; stamens and stigma exserted. Dec.–Jan. Well-drained, sandy or stony areas, SE (Langkloof to E Cape: Bathurst).

microstigma Salm-Dyck KAROO-AALWYN Acaulescent or short-stemmed, succulent perennial, to 50 cm, with persistent dried leaves; rosettes usually single, sometimes in small groups. Leaves reddish green, both surfaces usually copiously white-spotted, obscurely lineate, lanceolate-deltoid, up to 30 cm long, without spines or prickles; margin reddish brown, cartilaginous, with pungent, deltoid, reddish brown teeth. Racemes conical to cylindric, bicoloured, ± dense, erect to arcuate-erect, simple, 60–80 cm high. Flowers dull red in bud, yellowing with age, occasionally uniformly yellow or red, 25–30 mm long; stamens and stigma exserted. May–July. Dry karroid slopes, NW, KM (Ceres and Little Karoo to E Cape: Middelburg).

F.' Inflorescence usually branched

buhrii Lavranos Acaulescent, succulent perennial, sometimes suckering to form dense colonies. Leaves yellow-green to glaucous-green with reddish tinge, distinctly striate, with irregular, white, H-shaped spots, lanceolate-deltoid, to 40 cm long; margins reddish, smooth to minutely small-toothed. Racemes subcapitate, lax, with spreading branches, to 60 cm long. Flowers orange-red or rarely yellow, green-tipped in bud, 25–27 mm long; stamens and stigma exserted. July. Rocky slopes, NW (Bokkeveld Escarpment).•

kouebokkeveldensis Van Jaarsv. & A.B.Low Acaulescent, succulent perennial, usually solitary, rarely suckering to form small colonies. Leaves grey-white, often bluish tinged, becoming slightly reddish with drought stress, obscurely striated and irregularly spotted with pale, elongated H-shaped, confluent spots, lanceolate to ± acuminate, tapering to mucronate apex, 40–48 cm long; margins with small pinkish white teeth. Racemes capitate, lax, branched, 1–1.4 m high. Flowers orange-red, 22–23 mm long, with globose base; stamens and stigma exserted. Nov.–Dec. Quartzitic sandstone cliffs and steep slopes in fynbos, NW (Cold Bokkeveld Mtns).•

striata Haw. CORAL ALOE, MAKAALWYN, STREEPAALWYN Acaulescent or short-stemmed, succulent perennial to 75 cm, with persistent dried leaves; rosettes usually solitary. Leaves glaucous to reddish tinged, with distinct or faint longitudinal striations, broadly lanceolate-attenuate, spreading-incurved, to 50 cm long; margins pale pink to almost red, spineless. Racemes capitate to conical, lax, branched, to 1 m high. Flowers red, ± 30 mm long, with globose base; stamens and stigma exserted. Aug.–Oct. Rocky slopes in varied habitats, NW, KM, SE (Worcester Karoo to E Cape: Queenstown).

E.' Rosettes usually suckering to form dense groups
G. Inflorescence usually simple

bowiea Schult. & Schult.f. COEGA ALOE, KLEINAALWYN Acaulescent, grass-like succulent, suckering to form dense colonies. Leaves pale glaucous-green, minutely spotted below, distinct longitudinal lines at broad base, narrowly linear-subulate, 9–11 cm long; margins with small, soft, white teeth. Racemes mostly simple, lax, cylindric, to 25 cm high. Flowers greenish white, 8–15 mm long; stamens and stigma exserted. Dec.–Mar. Karroid thickets, SE (Uitenhage to Port Elizabeth).•

brevifolia Mill. KLEINDUINE-AALWYN, AANTEELAALWYN Acaulescent, succulent perennial, suckering from base to form dense colonies. Leaves glaucous, without spots, lanceolate-deltoid, ± 60–150 mm long, with few soft spines in midline or scattered in upper third; margin with firm, deltoid, whitish teeth. Racemes simple, conical, lax at base denser distally, 40–60 cm high. Flowers pale to flame-scarlet, ± 38–40 mm long; stamens and stigma exserted. Oct.–Dec. Shales and coastal limestone, SW, AP, LB (Botrivier to Riversdale).•

claviflora Burch. AANTEELAALWYN, KANONAALWYN, KRAALAALWYN Acaulescent, succulent perennial, forming dense, often hollow, circular colonies; rosettes secund. Leaves grey-green, up to 200 mm long, with few spines along keel apex; margins with sharp, brown teeth. Racemes cy-

lindric, dense, usually simple, ± horizontal. Flowers bright red, yellowing with age, club-shaped; stamens and stigma well exserted. Aug.–Sept. Usually on calcrete, margins of thornveld, KM (Namibia to Oudtshoorn and S Free State).

glauca Mill. BLOU-AALWYN Acaulescent or short-stemmed, succulent perennial, often suckering from base to form colonies. Leaves blue-grey, lanceolate, without spots, obscurely lineate, 30–40 cm long, lower surface often with small, scattered spines towards tip; margins with pungent, deltoid, reddish brown teeth. Racemes cylindric, dense, simple, 60–80 cm high. Flowers pink to pale orange, slightly greenish tipped, ± 40 mm long; stamens and stigma exserted. July–Oct. Clay slopes in renosterveld and karroid vegetation, NW, SW, LB (Namaqualand to Swellendam and S Karoo).

haemanthifolia A.Berger & Marloth Acaulescent, succulent perennial, usually suckering to form dense colonies. Leaves distichous, dull glaucous-green, without spots, lorate, apex obtuse to rounded, to 18 cm long; margins reddish, minutely crenate at apex. Racemes ascending, capitate, ± dense, to 45 cm high. Flowers scarlet, ± 38 mm long; stamens not exserted; stigma slightly exserted. Sept.–Dec. Sandstone ledges and cliffs, NW, SW (Hex River Mtns to Jonkershoek).•

humilis (L.) Mill. DWARF HEDGEHOG ALOE, KRIMPVARKIEAALWYN Acaulescent, succulent perennial, suckering to form dense colonies. Leaves glaucous-green with dewy bloom, without spots, obscurely linear-veined, ovate-lanceolate, long-acuminate, ± 10 cm long, surface tuberculate and with irregularly arranged, soft, white prickles; margins with deltoid, soft, white teeth. Racemes suberect, cylindric, ± dense, simple, 25–35 cm high. Flowers scarlet, occasionally orange, 35–42 mm long; stamens and stigma scarcely exserted. Aug.–Sept. Coastal hills in renosterveld or dry thickets, KM, LB, SE (Mossel Bay to E Cape: Queenstown and Karoo).

pictifolia D.S.Hardy Succulent perennial, with stem 20–30 cm, branching at base, creeping or pendent, with persistent dried leaves. Leaves blue-grey-green, with numerous white spots on both surfaces, narrowly lanceolate-acuminate, 12–17 cm long, lower surface with prickles on keel near tip; margins with small, pungent, red-brown teeth. Racemes cylindric, ± dense, ascending, simple, ± 20 cm high. Flowers scarlet, with greenish tips, 15–18 mm long; stamens and stigma exserted. June–Aug. Steep rocky outcrops and cliffs, SE (Humansdorp District).•

G.' Inflorescence usually branched

falcata Baker VANRHYNSDORPAALWYN Acaulescent or short-stemmed succulent, suckering to form dense colonies. Leaves green to greyish green, without spots, lanceolate-acuminate, ± 300 mm long, with ± 6 spines along tip of keel; margin with pale to dark reddish brown, horny, deltoid teeth. Racemes cylindric, lax, to 60 cm high, with ascending branches. Flowers dull red to pale scarlet, rarely yellow, greenish tipped, ± 40 mm long; stamens and stigma exserted. Dec. Rocky slopes, NW (Richtersveld to Klawer). **gce**

framesii L.Bolus BITTER ALOE, BITTERAALWYN Acaulescent or procumbent-stemmed succulent, freely branching to form dense groups. Leaves dull grey-green to slightly bluish green, occasionally without spots, usually copiously white-spotted on both surfaces, lanceolate-attenuate, 30–35 cm long; margin with pungent, deltoid, reddish brown teeth. Racemes dense, conic, mostly branched, to 70 cm high, branches ascending. Flowers usually orange-red with greenish yellow tips, ± 35 mm long; stamens and stigma exserted. June–July. Coastal rock outcrops, NW, SW (Port Nolloth to Saldanha Bay). **gce**

maculata All. (= *Aloe saponaria* (Aiton) Haw.) SOAP ALOE, BONTAALWYN, SEEPAALWYN Acaulescent or stalked, succulent perennial to 50 cm, rosettes solitary or in dense colonies. Leaves pale to darker green, with numerous, dull, white spots in irregular broken, wavy, transverse bands; paler green and usually without spots beneath, obscurely lineate, lanceolate, to 25–30 cm long, with dried, twisted apex; margin with pungent, deltoid, horny, brown teeth. Racemes dense, capitate-corymbose, 40–100 cm, with ascending branches. Flowers red, orange or yellow, perianth with basal swelling, 35–45 mm long; stamens and stigma exserted. June–July or Sept.–Jan. Rocky outcrops, SW, AP, LB, SE (Cape Peninsula to Swaziland and Mpumalanga).

variegata L. PARTRIDGE BREAST ALOE, VARIEGATED ALOE, KANNIEDOOD Acaulescent, succulent perennial, suckering to form dense groups. Leaves green or brownish, mottled white, lanceolate-deltoid, keeled, 10–15 cm long, without spines or prickles, 3-ranked; margins white, horny, with closely spaced, small teeth. Racemes conical, lax, usually branched, ± 30 cm high. Flowers dull pink to red, rarely yellow, 35–45 mm long; stamens not or very shortly exserted, stigma exserted. July–Sept. Stony flats, usually under small bushes, NW, KM (S Namibia and W Karoo to Ladismith and Uniondale, E Cape and Kimberley).

*ASPHODELUS L. ASPHODEL 12 spp., Mediterranean to W Asia

***fistulosus** L. HOLLOW-STEMMED ASPHODEL Tufted annual to 50 cm; roots fibrous. Leaves many, semi-terete, hollow, ± undulate. Flowers in a panicle with ascending branches, nodding, pale pinkish white. Fruits subglobse. Aug.–Sept. Road verges, SW (Mediterranean weed, Velddrif to Hopefield).

ASTROLOBA Uitewaal (= *POELLNITZIA*) 8 spp., W and E Cape, Karoo

bullulata (Jacq.) Uitewaal Caulescent succulent to 30 cm. Leaves dark green, pungent, usually with fairly prominent tubercles, scattered or in rows. Flowers in lax racemes, erect, greenish brown with yellow tepals. Nov.–June. Karroid scrub, KM (W Karoo to Witteberg). **gce**

corrugata N.L.Mey. & Gideon F.Sm. (= *Astroloba rugosa* Roberts Reinecke *ms*.) Caulescent succulent to 20 cm. Leaves not pungent, with tubercles in longitudinal rows. Flowers in lax racemes, erect, white or green tinged pink, midribs green, outer tepals sometimes slightly inflated. Oct.–Feb. Clay flats, NW, KM (Worcester to Ladismith).•

foliolosa (Haw.) Uitewaal Caulescent succulent to 20 cm. Leaves smooth and shiny green, not pungent. Flowers in lax racemes, erect, greenish white or pale cream-coloured with white or cream-coloured tepals, midribs green. June–Mar. Karroid flats, KM, SE (Ladismith to Uitenhage and Karoo).

herrei Uitewaal Caulescent succulent to 20 cm. Leaves light green, not pungent, smooth and finely striate. Flowers in lax racemes, erect, white with yellow tepals, midribs pale green, outer tepals sometimes slightly inflated below. June–Oct. Karroid flats and slopes, KM, SE (Prince Albert to Uniondale).•

rubriflora (L.Bolus) Gideon F.Sm. & J.C.Manning (= *Poellnitzia rubriflora* (L.Bolus) Uitewaal) Sprawling caulescent succulent to 45 cm. Leaves smooth, pungent. Flowers secund in horizontal racemes, erect, orange-red with greenish tepals. Dec.–Apr. Rocky karroid flats and low hills, NW, SW (Robertson to Bonnievale).•

spiralis (L.) Uitewaal Caulescent succulent to 20 cm. Leaves light to dark green, not pungent, smooth sometimes striate. Flowers in lax racemes, erect, white with yellow tepals, midribs pale green, outer tepals inflated below. Dec.–May. Karroid flats and lower slopes, KM (Little Karoo and E Cape).

sp. 1 (*Astroloba hallii* Roberts Reinecke *ms.*) Caulescent succulent to 15 cm. Leaves light green with dark veins, pungent, with inconspicuous whitish tubercles. Flowers in lax racemes, erect, greenish white with bright to creamy yellow tepals. Nov.–May. Shaly ridges, KM (Laingsburg and Prince Albert). **gce**

sp. 2 (*Astroloba smutsiana* Roberts Reinecke *ms*.) Caulescent succulent to 30 cm. Leaves light green with reddish brown tinge, not pungent, smooth and finely striate, sometimes with elongate, raised shiny patches. Flowers in lax racemes, erect, greenish cream-coloured. Jan.–Mar. Shaly ridges, KM (Little Karoo).•

BULBINE Wolf BULBINE, KOPIEVA ± 50 spp., southern and tropical Africa

A. Rootstock a rhizome with wiry or fleshy roots

abyssinica A.Rich. (= *Bulbine asphodeloides* (L.) Willd.) Geophyte, 40–60 cm, forming large tufts, rootstock a rhizome. Leaves linear. Flowers in a dense raceme on long pedicels, yellow. Capsules globose, spreading. Mainly Aug.–Nov. Stony flats and slopes, KM, SE (W Karoo and Worcester to tropical Africa).

annua (L.) Willd. Annual, 15–40 cm, roots wiry. Leaves many in a basal cluster, terete. Flowers in a dense raceme on long pedicels, yellow. Capsules globose, spreading. Sept.–Dec. Sandy soils, SW, LB (Saldanha to Riversdale).•

cremnophila Van Jaarsv. Dwarf perennial to 30 cm, roots fleshy, grey. Leaves rosulate, fleshy, narrowly lanceolate, glaucous. Flowers in a lax raceme, yellow. Capsules ovoid, erect. Aug.–Feb. Sandstone cliff faces, SE (Humansdorp).•

frutescens (L.) Willd. (incl. **B. alba** Van Jaarsv.) RANKKOPIEVA Shrublet with wiry roots, 20–60 cm. Leaves subterete. Flowers in a dense, elongate raceme, yellow, orange or white. Capsules subglobose, spreading-upcurved. Sept.–Apr. Dry areas, AP, KM, SE (throughout southern Africa).

lagopus (Thunb.) N.E.Br. Geophyte to 40 cm, forming tufts, roots wiry. Leaves linear. Flowers in a dense, elongate raceme, yellow. Capsules subglobose, erect. July–Dec. Rocky slopes, NW, SW, AP, KM, LB (Gifberg to Lesotho).

latifolia (L.f.) Roem. & Schult. Geophyte, 30–60 cm, rootstock a thick rhizome with thin wiry roots. Leaves in a rosette, broadly lanceolate. Flowers in a dense, elongate raceme, yellow. Capsules globose, erect. Mainly Aug.–Nov. Rocky slopes, SE (Uniondale to Mpumalanga).

A.' Rootstock a tuber
B. Leaves dry or emergent at flowering

alooides (L.) Willd. Geophyte, 20–40 cm, often clumped, rootstock a tuber with swollen roots. Leaves emergent at flowering, lanceolate, margins often ciliate. Flowers in a crowded raceme, yellow. Capsules globose, spreading. Mar.–May. Rocky slopes, NW, SW (Namaqualand to Darling). **gce**

cepacea (Burm.f.) Wijnands (= *Bulbine tuberosa* (Mill.) Oberm., *B. pugioniformis* (Jacq.) Link; incl. **B. bachmanniana** Schinz) Geophyte, 20–40 cm, rootstock a large flat-based tuber. Leaves often dry at flowering, narrowly lanceolate-tubular, surrounded at base by fibrous sheaths. Flowers in a dense raceme, yellow. Capsules oblong, suberect. Mar.–May. Stony and sandy flats, NW, SW, LB (Clanwilliam to Riversdale).•

favosa (Thunb.) Schult. & Schult.f. (= *Bulbine dubia* Schult. & Schult.f.) Geophyte, 15–50 cm, rootstock a tuber. Leaves dry at flowering, few, linear to filiform. Flowers in a lax raceme, yellow, fragrant. Capsules globose, erect. Mainly Mar.–May. Sandy and limestone flats and slopes, NW, SW (Piketberg to Riviersonderend Mtns).•

filifolia Baker (= *Bulbine tenuifolia* (Baker ex Kuntze) Baijnath *ms*.; incl. **B. foleyi** E.Phillips, **B. melanovaginata** G.Will.) Geophyte, 8–40 cm, rootstock a tuber. Leaves, usually dry at flowering, linear to filiform, enclosed below by a long, softly or stiffly fibrous neck. Flowers in a long, dense raceme, usually yellow, fragrant. Capsules globose, ascending. Oct.–Feb. Mainly shale flats and slopes, NW, SW, AP, KM, SE (W Karoo and Clanwilliam to northern provinces).

flexuosa Schltr. Geophyte with wiry peduncle, 10–20 cm, rootstock a tuber. Leaf often dry at flowering, solitary, filiform. Flowers in a lax, flexuose raceme, yellow, pedicels elongating in fruit and persistent. Capsules obovoid, erect. Apr. Dry rocky slopes, NW (S Namaqualand to Pakhuis Mtns). **gce**

B.' Leaves fully developed at flowering

diphylla Schltr. ex Poelln. Geophyte, 10–15 cm, rootstock a tuber. Leaves 2 or 3, unequal, ovoid, fleshy, distinctly cauline. Flowers in a lax raceme, yellow. June–Sept. Sandstone and granite outcrops, NW (S Namaqualand to Pakhuis Mtns). **gce**

esterhuyseniae Baijnath Geophyte to 5 cm, rootstock a tuber. Leaves filiform. Flowers few in an umbel-like raceme, yellow. Capsules globose, spreading. Apr. Sandstone outcrops, NW (Cedarberg to Cold Bokkeveld Mtns).•

longifolia Schinz Similar to **B. praemorsa** but much smaller, 15–20 cm. Leaves few, narrowly lanceolate, bright green. Flowers in a lax raceme. Capsules ovoid, suberect. Aug.–Oct. Rocky slopes, NW, SW, AP, KM (Elandskloof Mtns to Swartberg and S Karoo). **gce**

meiringii Van Jaarsv. Dwarf geophyte to 30 cm, clustered, rootstock a small tuber with fleshy roots. Leaves slender and fleshy, semi-terete, surrounded at base by a short fibrous neck. Flowers in a lax raceme, yellow. Capsules ovoid, erect. June–Sept. Rocky sandstone ledges, KM (Swartberg).•

mesembryanthemoides Haw. WATERGLAS, WATERKANNETJIES Geophyte, 8–20 cm, rootstock a tuber. Leaves 2, short, erect, succulent, truncate and transparent across apex. Flowers few in a lax raceme, yellow, tepals reflexed. Capsules ovoid, spreading. Aug.–Nov. Rocky slopes and flats, clay or sandstone, succulent karoo and fynbos, NW, KM, SE (Namaqualand to Uitenhage and E Cape).

monophylla Poelln. Geophyte, 15–25 cm, rootstock a tuber. Leaf solitary, fleshy and terete. Flowers in a slender raceme, yellow. Capsules globose, suberect. Aug.–Sept. Sandy flats, NW (near Porterville).•

praemorsa (Jacq.) Spreng. Geophyte, 40–60 cm, rootstock a small tuber. Leaves thick and fleshy, narrowly channelled, surrounded at base by a short fibrous neck. Flowers in a lax raceme, yellow to salmon. Capsules oblong, erect. June–Sept. Mostly rocky sandstone slopes, NW, SW, AP, KM (Namaqualand to Bredasdorp). **gce**

ramosa Van Jaarsv. Branching geophyte to 50 cm, forming clusters, stems globose below with fleshy roots. Leaves linear-lanceolate, bright green. Flowers in a lax raceme, yellow. Capsules ovoid, erect. Nov. Sandstone cliff faces, KM (Calitzdorp: Badspoort).•

succulenta Compton (incl. **B. navicularifolia** G.Will.) Geophyte, 10–20 cm, rootstock a woody tuber. Leaves several, short and fleshy, with a basal collar of stiff, stout fibres. Flowers in a lax raceme, yellow. Capsules ovoid, spreading. July–Sept. Succulent karoo, NW, KM (W Karoo and Bokkeveld Mtns to Witteberg). **gce**

torta N.E.Br. Geophyte, 8–25 cm, rootstock a tuber. Leaves several, coiled. Flowers in a lax or dense raceme, yellow, tepals reflexed. Capsules globose, suberect. July–Sept. Sandstone outcrops, NW (Namaqualand and W Karoo to Cedarberg). **gce**

BULBINELLA Kunth BULBINELLA, KATSTERT ± 23 spp., winter-rainfall southern Africa, New Zealand

A. Leaves bright green, broad, to 65 mm wide; roots cylindrical, orange-yellow

elata P.L.Perry Rhizomatous geophyte to 1 m. Leaves linear, flat. Flowers in a long, slender raceme, cream-coloured. July–Aug. Clay and granite soils, NW, SW (Pakhuis Mtns to Mamre and Riebeek-Kasteel).•

latifolia Kunth Like **B. nutans** but leaves broader, to 65 mm wide and raceme narrower, to 45 mm wide. Flowers deep yellow or orange. Aug.–Oct. Seasonally damp sandstone or granite, rarely dolerite, NW (Namaqualand to Cedarberg). **gce**

nutans (Thunb.) T.Durand & Schinz Rhizomatous geophyte to 1 m. Leaves linear, channelled. Flowers in a conical raceme, yellow or cream-coloured. July–Oct. Damp peaty soils, NW, SW, LB (Loeriesfontein and W Karoo to Swellendam). **gce**

A.' Leaves dark green to glaucous, narrower; roots variously thickened, white
*B. Leaves all subequal; plants mostly < 50 cm (see also **B. caudafelis**)*

calcicola J.C.Manning & Goldblatt Rhizomatous geophyte to 80 cm. Leaves linear, 1.5–2 mm wide, dry at flowering. Flowers in a narrowly cylindrical raceme ± 10 mm diam. on pedicels 3–4 mm long, yellow with orange tips. Nov.–Dec. Calcrete and limestone pavements, SW (Saldanha coast).•

chartacea P.L.Perry Rhizomatous geophyte to 40 cm, with papery cataphylls. Leaves few, filiform. Flowers in a narrowly conical raceme, yellow. Feb.–Apr. Sandstone in fynbos, NW, SW (Olifants River Mtns to McGregor).•

divaginata P.L.Perry Rhizomatous geophyte to 45 cm. Leaves filiform. Flowers in a narrowly cylindrical raceme, yellow. Mar.–June. Mainly clay soils in renosterveld, NW, SW (Namaqualand to False Bay). **gce**

elegans P.L.Perry Rhizomatous geophyte to 60 cm, cataphylls netted. Leaves filiform, margins finely and irregularly toothed. Flowers in a compact, cylindrical raceme, yellow to white with pink tinge. Mainly Aug.–Sept. Various soils, NW, KM (Bokkeveld Escarpment and W Karoo to Witteberg). **gce**

trinervis (Baker) P.L.Perry Rhizomatous geophyte to 40 cm. Leaves filiform. Flowers in a narrowly cylindrical raceme, white to pinkish. Mainly Mar.–Apr. Rocky sandstone slopes, SW, KM, LB, SE (Malmesbury to Baviaanskloof Mtns).•

triquetra (L.f.) Kunth Rhizomatous geophyte to 35 cm. Leaves filiform, margins finely toothed. Flowers in a subcorymbose to narrowly conical raceme, yellow. Mainly Sept.–Nov. Damp sand and granite, NW, SW (Bokkeveld Mtns and W Karoo to Bredasdorp). **gce**

B.' Leaves solitary or inner smaller; plants usually > 50 cm; roots wiry basally, swollen apically

barkerae P.L.Perry Rhizomatous geophyte to 60 cm. Leaves linear, channelled, margins ciliate. Flowers in a narrow, cylindrical raceme, white, with musty odour. Sept.–Oct. Shale flats in renosterveld, SW, AP, LB (Botrivier to Riversdale).•

caudafelis (L.f.) T.Durand & Schinz Rhizomatous geophyte to 80 cm. Leaves linear, channelled, margins sometimes finely toothed. Flowers in a narrowly conical raceme, white with pink tinge. Aug.–Dec. Sandstone, granite or clay, NW, SW, AP, KM, LB, SE (Namaqualand to Avontuur). **gce**

eburniflora P.L.Perry Rhizomatous geophyte to 75 cm. Leaves linear, channelled, margins finely toothed. Flowers in a cylindrical raceme, ivory or pale straw-coloured, with musty odour. Aug.–Sept. Clay and sand, NW (Bokkeveld Escarpment).•

graminifolia P.L.Perry Rhizomatous geophyte to 65 cm. Leaves linear, channelled, margins finely toothed. Flowers in a narrowly cylindrical raceme, white. July–Aug. Clay in renosterveld, NW (Namaqualand to Citrusdal). **gce**

potbergensis P.L.Perry Rhizomatous geophyte to 60 cm, cataphylls netted. Leaf solitary, linear, leathery. Flowers in a narrowly conical raceme, yellow. Sept. Silcrete, SW (Potberg).•

punctulata Zahlbr. Rhizomatous geophyte to 1 m, cataphylls netted. Leaves few, linear, channelled. Flowers in a cylindrical raceme, yellow. Aug.–Oct. Rocky sandstone, often in wet places, NW (Gifberg to Twenty-Four Rivers Mtns).•

GASTERIA Duval. GASTERIA, BONTAALWYN ± 16 spp., dry areas of southern Africa

*A. Leaves distichous (see also **G. carinata**, **G. nitida**)*

brachyphylla (Salm-Dyck) Van Jaarsv. Acaulescent succulent to 1 m. Leaves distichous, lanceolate to oblong, smooth, margins crenulate. Flowers in an inclined, usually simple raceme, nodding, pink and green, inflated below. July–Feb. Succulent karoo, KM, SE (Barrydale to Willowmore).•

disticha (L.) Haw. BEESTONGBLAAR Acaulescent succulent to 90 cm. Leaves distichous, oblong, surface rough, margins toothed. Flowers in an inclined, usually simple raceme, nodding, pink and green, inflated below. July–Feb. Shale soils, NW, KM (Worcester to Great Karoo).

glomerata Van Jaarsv. Acaulescent succulent to 20 cm. Leaves distichous, oblong, rough to tuberculate, margins smooth. Flowers in a suberect raceme, nodding, red and green, inflated at base. Sept. Vertical sandstone cliffs, SE (Patensie).•

pillansii Kensit Acaulescent succulent to 1.5 m. Leaves distichous, oblong, surface rough to tuberculate, margins toothed. Flowers in an inclined raceme, nodding, pink and pale green, barely inflated below. Nov.–Apr. Rocky sandstone outcrops, NW (Namaqualand to Clanwilliam). **gce**

rawlinsonii Oberm. Caulescent succulent with long, nodding leafy stems to 1 m. Leaves distichous, rough, margins sparsely toothed. Flowers in a suberect raceme, nodding, pink or white and green, much inflated below. Aug.–Oct. Rock outcrops, SE (Baviaanskloof Mtns).•

retusa (Van Jaarsv.) Van Jaarsv. (= *Gasteria carinata* var. *retusa* Van Jaarsv.) Acaulescent succulent to 90 cm. Leaves distichous, oblong, tuberculate, apex truncate or retuse, margins often undulate. Flowers in an inclined raceme, nodding, pink and green, inflated below. July–Nov. Renosterveld on clay, NW, SW, LB (Breede River Valley: Worcester to Heidelberg).•

A.' Leaves in a rosette

acinacifolia (J.Jacq.) Haw. Acaulescent succulent to 1 m. Leaves in a spiral rosette, smooth, margins and keels toothed. Flowers in an inclined, usually branched raceme, nodding, pink and green, elongate, barely inflated below. Sept.–Dec. Coastal dune thicket, SE (Knysna to Port Alfred).

carinata (Mill.) Duval (= *Gasteria thunbergii* N.E.Br.) Acaulescent succulent to 90 cm. Leaves in a rosette or distichous, triangular, often channelled, smooth to tuberculate, margins toothed. Flowers in an inclined raceme, nodding, pink and green, barely inflated below. July–Nov. Renosterveld on clay and limestone, AP, LB, SE (Bredasdorp to Great Brak River).•

ellaphieae Van Jaarsv. Acaulescent succulent to 40 cm. Leaves in a rosette, triangular, tuberculate. Flowers in an inclined, simple or branched raceme, nodding, reddish, inflated below. Jan.–Feb. Sandstone outcrops, SE (Patensie).•

glauca Van Jaarsv. Acaulescent succulent to 70 cm, clump-forming. Leaves in a rosette, linear-triangular, tuberculate-asperulous. Flowers in an inclined raceme, nodding, reddish, inflated below. Dec.–Jan. Sandstone cliffs, SE (Kouga Mtns: Guerna Kop).•

nitida (Salm-Dyck) Haw. (= *Gasteria armstrongii* Schönland) Acaulescent succulent to 1 m. Leaves in a spiral or distichous rosette, smooth, triangular, margins and keels smooth. Flowers in an inclined, simple or branched raceme, nodding, reddish, inflated below. Dec.–Feb. Grassy fynbos and renosterveld, often on sandstone soils, SE (Uniondale to Great Fish River Mouth).

polita Van Jaarsv. Like **G. acinacifolia** but smaller, up to 60 cm in flower, and usually solitary; raceme usually unbranched and flowers smaller, 35 mm long. Oct.–Nov. Slopes and embankments in forests, SE (Plettenberg Bay).•

pulchra (Aiton) Haw. Acaulescent succulent to 1.5 m. Leaves smooth, linear-triangular, in a spiral rosette, margins and keels toothed. Flowers in an inclined, usually branched raceme, nodding, reddish, inflated below. July–Nov. Valley bushveld, SE (Hankey to Humansdorp).•

vlokii Van Jaarsv. Acaulescent succulent to 60 cm. Leaves in a rosette, lanceolate to triangular, surfaces rough, margins toothed. Flowers in an inclined raceme, nodding, reddish and green, hardly inflated below. Jan.–Feb. Sandstone soils in fynbos, KM (Swartberg to Willowmore).•

HAWORTHIA Duval HAWORTHIA ± 70 spp., dry parts of southern Africa

A. Peduncle robust, freely branching; perianth tube straight, hexangular or rounded-hexangular at base, abruptly joined to pedicel; capsules rounded

kingiana Poelln. Acaulescent succulent to 15 cm diam. Leaves erect, pungent, bright green with poorly defined whitish tubercles. Flowers white. Nov.–Dec. Sparse grasslands in valley bushveld and renosterveld, LB, SE (Herbertsdale to Mossel Bay).•

marginata (Lam.) Stearn Acaulescent succulent. Leaves silver-green to yellowish, deltoid, pungent, smooth. Flowers white. Nov.–Dec. Shale or sandstone flats in renosterveld, SW, LB (Robertson to Riversdale).•

minima (Aiton) Haw. (= *Haworthia poellnitziana* Uitewaal) Acaulescent succulent, forming clumps to 25 cm diam. Leaves erect to 10 cm, blue-green with white tubercles. Flowers white with pinkish tips. Nov.–Dec. Coastal renosterveld, SW, AP, LB (Bredasdorp to Hartenbos).•

pumila (L.) Duval (= *Haworthia maxima* (Haw.) Duval) VRATJIESAALWEE Acaulescent succulent to 15 cm diam., rosettes solitary. Leaves brown to olive-green with large whitish to brown tubercles. Flowers yellow with green veins, tipped with brown. Nov.–Dec. Karroid scrub, NW, KM (Worcester to Montagu and W Karoo). **gce**

A.' Peduncle slender, lax, usually unbranched; perianth tube curved; capsules oblong
B. Perianth tube obcapitate, hexangular or rounded-hexangular at base, substipitate

attenuata (Haw.) Haw. (= *Haworthia radula* (Jacq.) Haw.) Acaulescent succulent to 15 cm diam., forming clumps. Leaves erect, attenuate, green to brownish, with small to large banded tubercles. Flowers white. Nov.–Dec. Clearings in valley bushveld, SE (Patensie to Kei River).

fasciata (Willd.) Haw. Acaulescent or caulescent succulent, forming dense rosettes, often in clumps. Leaves green, fairly broad, incurved, with white, banded tubercles. Flowers white. Oct.–Nov. Grassy fynbos, SE (Humansdorp to Port Elizabeth).•

longiana Poelln. Acaulescent succulent, forming robust rosettes. Leaves often curving sideways from base, slender, rigid, light green, nearly smooth. Flowers white. Nov.–Dec. Grassy fynbos, steep rocky conglomerate slopes in grassy fynbos, SE (Humansdorp to Uitenhage).•

scabra Haw. (= *Haworthia starkiana* Poelln.) Acaulescent succulent with forming few-leaved rosettes. Leaves dark brownish green, smooth or scabrid and tubercled, thick and short. Flowers white. Nov.–Dec. Quartzite patches in fynbos and bush thicket, KM, LB, SE (Ladismith to Uniondale).•

sordida Haw Acaulescent succulent, forming large dark green rosettes. Leaves dark green, finely tuberculate, slightly viscous. Flowers white, on wiry peduncles. Nov.–Dec. Rocky karroid slopes, SE (Kirkwood to Steytlerville).

venosa (Lam.) Haw. KLEINKANNIEDOOD Acaulescent or sometimes caulescent succulent. Leaves dark green, short and spreading, reticulate patterned. Flowers white. Nov.–Dec. Rocky slopes among grass in renosterveld. SW, LB (Namibia and Karoo to Breede River Valley).

viscosa (L.) Haw. KOEDOEKOS Caulescent or acaulescent succulent, forming clumps. Leaves brownish, trifarious, recurved and pungent. Flowers white. Oct.–Nov. Rocky karroid slopes, KM, LB (Little Karoo to Baviaanskloof Mtns, E Cape and Karoo).

B.' Perianth tube obclavate, triangular or rounded-triangular at base

arachnoidea (L.) Duval (= *Haworthia aranea* (Berger) M.B.Bayer, *H. aristata* auct. non Haw.) SPINNEKOPBOLLETJIE Acaulescent succulent, forming compact rosettes to 10 cm diam. Leaves uni-

formly green with long white spines. Flowers white. Nov.–Dec. Rocky slopes and under bushes, NW, SW, KM, LB (Namaqualand and W Karoo to Worcester and Little Karoo). **gce**

bayeri J.D.Venter & S.A.Hammer Solitary, acaulescent succulent. Leaves abruptly recurved, dark green, translucent along veins, often scabrid. Flowers white. Sept.–Oct. Dry mountain fynbos or renosterveld, KM, SE (Little Karoo to Uniondale).•

blackburniae W.F.Barker (= *Haworthia graminifolia* G.G.Sm.) Acaulescent succulent forming clumps, roots fusiform, stem fibrous. Leaves slender, elongate, 5–30 cm long, canaliculate, grey-green, smooth or slightly toothed. Flowers white. Nov.–Dec. Steep, rocky, southern slopes in transitional karroid veld, KM (Swartberg and Little Karoo Mtns).•

chloracantha Haw. Acaulescent succulent, rosettes usually clustered. Leaves pale to deep green, erect, firm, 3–6 cm long, with short, open spaced teeth. Flowers white. Sept.–Oct. Valley bushveld, rocky grassy patches, LB (Gourits Valley to Great Brak River).•

cymbiformis (Haw.) Duval Acaulescent succulent, forming clumps. Leaves soft, fleshy, spineless. Flowers white. Nov.–Dec. Cliffs and rock faces, SE (Baviaanskloof Mtns to Port Elizabeth).•

emelyae Poelln. (= *Haworthia comptoniana* G.G.Sm.) Acaulescent succulent to 12 cm diam., rosettes withdrawn to ground level. Leaves few, abruptly recurved, opaque, dark green with pinkish flecks, scabrid above to spinescent. Flowers white. Aug.–Sept. Under low shrubs in karroid veld, KM, LB, SE (W Karoo to Little Karoo and Uniondale). **gce**

floribunda Poelln. Acaulescent succulent with small, erect rosettes to 3 cm diam. Leaves few, lanceolate, twisted, dark green, margins denticulate. Flowers white. Sept.–Oct. Grassy coastal fynbos, LB (Heidelberg to Gourits River).•

gracilis Poelln. Acaulescent succulent with small, proliferous rosettes. Leaves grey-green, translucent, toothed. Flowers white. Oct.–Nov. Karroid valley bushveld to fynbos, SE (Humansdorp to Grahamstown).

heidelbergensis G.G.Sm. Acaulescent succulent with tiny rosettes. Leaves fleshy, tapering to slender points, brownish green, pellucid on upper surface, slightly serrate. Flowers white. Aug.–Sept. Rocky slopes under shrubs in renosterveld, SW, LB (Bredasdorp to Heidelberg).•

herbacea (Mill.) Stearn (= *Haworthia translucens* (W.T.Aiton) Haw.) Acaulescent succulent to 7 cm diam., rosettes usually solitary. Leaves firm, incurved, mottled yellow-green, with white teeth. Flowers beige, bud-tips curved upward. Sept.–Oct. Karroid broken veld, under shrubs, SW, LB (Worcester to McGregor).•

maculata (Poelln.) M.B.Bayer Acaulescent succulent to 8 cm diam., rosettes solitary. Leaves purplish, speckled, slightly dentate. Flowers narrow, yellowish. Sept.–Oct. Dry rocky slopes in mountain fynbos, NW, SW (Hex River Valley to Worcester).•

magnifica Poelln. Acaulescent succulent to 8 cm diam., rosettes dark. Leaves dark green, opaque, flat above and rough, apices usually abruptly recurved and tapering to point, slightly tubercled. Flowers white, green on tepal keels. Apr.–May. Rock outcrops in renosterveld, KM, LB (Heidelberg to Gourits River Valley).•

maraisii Poelln. Acaulescent succulent to 5 cm diam., rosettes dark. Leaves dark green, opaque, flat above and rough, apices usually abruptly recurved and triangular, slightly dentate. Flowers white, green on tepal keels. Apr.–May. Rock outcrops in renosterveld, SW, KM, LB (Worcester to Heidelberg and Bredasdorp).•

marxii S.D.Gildenhuys Solitary, acaulescent succulent. Leaves abruptly recurved, dark green, translucent along veins, often scabrid. Flowers white, upper tepals not recurved. Jan.–Mar. Dry mountain fynbos or renosterveld, KM (Witteberg: Rooinek Pass).•

mirabilis (Haw.) Haw. Acaulescent succulent to 10 cm diam. Leaves translucent, brownish, triangular, abruptly recurved, with pellucid tips above, often slightly dentate and spotted beneath. Flowers white. Feb.–Mar. Rocky slopes in renosterveld and coastal fynbos, SW, AP (Caledon to Bredasdorp).•

monticola Fourcade (= *Haworthia divergens* M.B.Bayer) Acaulescent succulent, forming clumps. Leaves small, slender, erect to incurved at tips, dark green to reddish, with white teeth. Flowers white. Aug.–Sept. Rocky southern slopes in fynbos, KM, SE (Outeniqua foothills, and Oudtshoorn to Uniondale).•

mucronata Haw. (= *Haworthia habdomadis* Poelln., *H. rycroftiana* M.B.Bayer, *H. unicolor* Poelln.) Acaulescent succulent to 15 cm diam. Leaves pale to bright emerald-green, fleshy, smooth or spinescent, often solitary. Flowers white. Aug.–Sept. Karroid or marginal fynbos vegetation, KM, LB (Little Karoo, Anysberg to Uniondale).•

mutica Haw. Acaulescent succulent, forming solitary rosettes. Leaves short, abruptly recurved, round at tips, purple-brown, glaucous. Flowers white. Aug.–Sept. Shale rocks in coastal renosterveld, SW, LB (Bredasdorp to Heidelberg).•

nortieri G.G.Sm. Acaulescent succulent with small rosettes to 5 cm diam. Leaves light green, mottled. Flowers greyish. Sept.–Oct. Rock outcrops in dry mountain fynbos, NW (S Namaqualand to Ceres). **gce**

outeniquensis M.B.Bayer Acaulescent succulent with dense, many-leaved rosettes to 4 cm diam. Leaves elongate, slender, margins whitish cartilaginous and densely spiny. Flowers white. Oct.–Nov. Rocky N slopes in fynbos, SE (Outeniqua Mtns).•

parksiana Poelln. Acaulescent succulent with small, compact rosettes to 3 cm diam. Leaves abruptly recurved, dark green, rough. Flowers white. Oct.–Nov. Under shrubs, among lichens and leaf debris in renosterveld, LB (Great Brak River).•

pubescens M.B.Bayer Acaulescent succulent with small, solitary rosettes to 4 cm diam. Leaves dark green, finely pubescent, erect and incurved. Flowers white. Sept.–Oct. Quartzite rocks in dry mountain fynbos, NW (Worcester-Robertson Karoo).•

pulchella M.B.Bayer Acaulescent succulent, usually with solitary, compact rosettes. Leaves bright green, reticulate, sharply spiny, erect. Flowers white. Oct.–Nov. Rock cracks and crevices in dry mountain fynbos, KM (W Little Karoo).•

pygmaea Poelln. Acaulescent succulent with solitary rosettes to 10 cm diam. Leaves grey-green, abruptly recurved, often scabrid to papillate, flat above, obtuse. Flowers white. Sept.–Oct. Sparse grasslands in coastal renosterveld, LB (Mossel Bay).•

reticulata (Haw.) Haw. Acaulescent succulent, forming clumps. Leaves usually glabrous, turgid below, yellowish green with pink flush, mottled reticulate. Flowers pinkish, bud tips upturned. Aug.–Sept. Karroid broken veld, rocky slopes, NW, SW (Worcester and Robertson Karoo).•

retusa (L.) Duval Acaulescent succulent, usually with solitary rosettes to 15 cm diam. Leaves yellowish green to brown, somewhat translucent, smooth, abruptly recurved, flat above. Flowers white. Aug.–Sept. Sparse grasslands and rock outcrops in coastal renosterveld, LB (Swellendam to Mossel Bay).•

serrata M.B.Bayer Acaulescent succulent with solitary rosettes. Leaves narrowly lanceolate, erect, incurved, white-toothed. Flowers white. Sept.–Oct. Sparsely grassed rocky slopes in coastal renosterveld, LB (Heidelberg).•

truncata Schönland (= *Haworthia maughanii* Poelln.) PERDETANDE Acaulescent succulent. Leaves distichous or multifarious, withdrawn to ground-level, grey-green, truncate, windowed, spineless, rarely piliferous. Flowers white. Dec.–Jan. Rocky sites in karroid veld, KM, LB (Calitzdorp to Oudtshoorn).•

turgida Haw. Acaulescent succulent with proliferous rosettes borne at ground level. Leaves turgid, pale yellowish green, mottled translucent, spreading and flat above, smooth. Flowers white. Aug.–Sept. Rock crevices in sandstone or shale in fynbos, renosterveld, or karroid veld, SW, AP, LB (Bredasdorp to Mossel Bay).•

variegata L.Bolus Acaulescent succulent, forming dense clumps. Leaves dark green and variegated, fairly slender, toothed. Flowers white. Sept.–Oct. Limestone slopes in coastal fynbos, SW, AP (Bredasdorp to Riversdale).•

vlokii M.B.Bayer Acaulescent succulent with small, dense rosettes. Leaves opaque, with small, rounded, white dots, margins spinescent. Flowers white. Sept.-Oct. Rock cracks in fynbos, KM (De Rust).•

wittebergensis W.F.Barker Acaulescent succulent. Leaves erect, subulate, dark green to purple with small, white spines. Flowers white. Nov.–Dec. Rock crevices in light shade in dry fynbos, KM (Witteberg and W Karoo). **gce**

zantneriana Poelln. Acaulescent succulent with soft, green rosettes. Leaves with pale mottled markings. Flowers white. Oct.–Nov. Rocky slopes in dry mountain fynbos, KM, SE (Little Karoo to Baviaanskloof).•

KNIPHOFIA Moench RED-HOT POKER, VUURPYL 65 spp., sub-Saharan Africa, S Arabia

A. Bracts ovate-oblong

citrina Baker Rhizomatous perennial, 40–65 cm, forming clumps. Leaves strap-shaped, coarsely fibrotic. Flowers in globose racemes, yellow. Mar.–May. Grasslands, SE (Humansdorp to Grahamstown).

uvaria (L.) Oken Rhizomatous perennial, 50–120 cm, in small clumps. Leaves strap-shaped, fibrotic. Flowers in oblong to globose racemes, orange to greenish yellow. Mostly Oct.–Dec. Seeps,

marshes and streams on sandstone slopes, NW, SW, KM, LB, SE (Kamiesberg, Bokkeveld Mtns to Barkly East).

A.' Bracts linear-lanceolate

praecox Baker Rhizomatous perennial, 1.5–2 m, forming clumps. Leaves strap-shaped, margins finely serrate. Flowers in cylindrical racemes, reddish, opening yellow to yellow-green. Nov.–Jan. Stream banks and wet hollows, SE (George to Komga).

sarmentosa (Andrews) Kunth Rhizomatous perennial to 60 cm. Leaves greyish, strap-shaped. Flowers in ovoid to cylindrical racemes, reddish, opening buff, bracts prominent. June–Oct. Mountain streams and moist hollows, NW, KM (Hex River Mtns to W Karoo). **gce**

tabularis Marloth Rhizomatous perennial, 60–120 cm. Leaves strap-shaped, somewhat fleshy. Flowers in laxly cylindrical racemes, red to orange, blackish at tips, bracts not prominent. Dec.–Jan. Wet sandstone cliffs, NW, SW (Tulbagh to Kogelberg and Cape Peninsula).•

TRACHYANDRA Kunth CAPE SPINACH, WILDEBLOMKOOL 52 spp., southern and tropical E Africa and Madagascar, mainly W Cape

A. Stem base without membranous sheaths
B. Plants glandular-hairy; fruits ornamented

gerrardii (Baker) Oberm. Rhizomatous perennial to 60 cm, roots many, wiry but thickened near tips. Leaves many, linear, triquetrous, soft, roughly glandular-hairy. Flowers in a much-branched, roughly glandular-hairy raceme, white. Fruits on long, spreading pedicels, globose, 10 mm long, densely covered with glandular protuberances. Oct.–Feb. Grassy slopes, SE (Port Elizabeth to Mpumalanga).

sabulosa (Adamson) Oberm. Rhizomatous perennial to 60 cm, roots many, wiry. Leaves many, linear, triquetrous, soft and usually roughly hairy. Flowers in a roughly glandular-hairy, trailing, unbranched raceme, white. Fruits obscurely stalked, 7–9 mm long, densely covered with branched protuberances, on long, spreading pedicels. Sept.–Oct. Coastal sand flats, SW, AP (Hopefield to Cape Agulhas).•

scabra (L.f.) Kunth Like **T. sabulosa** but fruits conspicuously stalked, 5 mm long, sparsely covered with simple protuberances. Sept.–Dec. Coastal sand flats, NW, SW (Klawer to Cape Peninsula).•

B.' Plants glabrous or pubescent but not glandular

adamsonii (Compton) Oberm. Sparsely branched, subwoody shrub to 1 m, roots many, slender. Leaves lanceolate, succulent. Flowers in an unbranched raceme, white. Aug.–Sept. Quartzite slopes in karroid scrub, NW (Olifants River Valley and Richtersveld). **gce**

affinis Kunth Rhizomatous perennial to 80 cm, roots many, wiry. Leaves lanceolate to linear, usually pubescent. Flowers in a sparsely branched raceme with pubescent peduncle, often developing axillary plantlets, white. Mostly Aug.–Dec. Grassy coastal flats and lower slopes, AP, KM, SE (Still Bay to S KwaZulu-Natal).

brachypoda (Baker) Oberm. Rhizomatous perennial to 60 cm, often on cliffs, roots many, wiry. Leaves linear to filiform. Flowers in a slender, sparsely branched raceme, white. Fruits 5 mm long, on short pedicels. Nov.–Apr. Seasonally marshy, sandy flats and lower slopes, SW (Mamre to Cape Peninsula).•

esterhuyseniae Oberm. Rhizomatous perennial to 50 cm, roots slender. Leaves 1 or 2, stiff, subterete. Flowers in a slender, congested raceme, white. Fruits on short pedicels, 1-seeded. Dec.–Feb. Sandstone seeps, 600–1 000 m, NW, SW (Porterville Mtns to Kogelberg and Riviersonderend Mtns).•

gracilenta Oberm. Rhizomatous perennial to 40 cm, roots many, slender. Leaves tufted, filiform, velvety. Flowers in an unbranched raceme, white. Sept. Shale slopes in karroid scrub, NW (Gifberg to Swartruggens).•

hirsuta (Thunb.) Kunth Rhizomatous perennial to 60 cm, roots wiry. Leaves in a fan, lanceolate, soft, usually velvety. Flowers in a sparsely branched raceme, peduncle usually pubescent, white. Sept.–Dec. Mostly shale slopes and flats in renosterveld, NW, SW, AP (Piketberg to Agulhas).•

tabularis (Baker) Oberm. Rhizomatous perennial to 1.2 m, roots wiry. Leaves lanceolate to linear, fibrotic. Flowers congested in a sparsely branched, ascending raceme, white. Fruits 9 mm long. Sept.–Feb. Sandy flats and lower slopes, strandveld and lowland fynbos, SW (Yzerfontein to Kleinrivier Mtns).•

A.' Stem base with membranous sheaths
C. Raceme simple or few-branched

arenicola J.C.Manning & Goldblatt Rhizomatous perennial to 1 m, roots many, thickened. Leaves few, lanceolate and falcate, leathery. Flowers in a slender, sparsely branched raceme, imbricate, white, bracts hairy. July–Sept. Sandy coastal flats, NW (Richtersveld to Klawer, Swartruggens). **gce**

chlamydophylla (Baker) Oberm. Rhizomatous perennial to 70 cm, often in clumps, roots many, thick. Leaves clumped, linear, erect. Flowers congested in an unbranched raceme, white. Fruits on very long, deflexed pedicels. Aug.–Oct. Clay flats and slopes in renosterveld, SW (Darling to Somerset West and Worcester).•

ciliata (L.f.) Kunth Rhizomatous perennial to 50 cm, roots many, rather fleshy and swollen. Leaves straggling, channelled, soft and spongy, usually hairy. Flowers in sprawling, elongate, usually hairy raceme with conspicuous bracts, white. Fruits on long, deflexed pedicels. June–Sept. Damp, sandy, coastal flats, NW, SW, LB, SE (Namibia to Grahamstown). **gce**

falcata (L.f.) Kunth Rhizomatous perennial to 1 m, roots many, thickened. Leaves few, lanceolate and falcate, leathery. Flowers in a stout, unbranched or sparsely branched raceme with lower bract amplexicaul, imbricate, white, bracts conspicuous, usually hairy. July–Oct. Sandy or clay flats and slopes, karroid scrub, NW, SW, KM (Namibia to Worcester and W Karoo). **gce**

filiformis (Aiton) Oberm. Rhizomatous perennial to 60 cm, slender, roots swollen. Leaves few, linear, often mottled near base. Flowers in a lax, usually unbranched raceme, white. Fruits on very long, spreading pedicels. Aug.–Oct. Damp, sandy flats near sea level, NW, SW, AP (Elands Bay to Bredasdorp).•

hirsutiflora (Adamson) Oberm. Rhizomatous perennial to 60 cm, roots many, ± fleshy and swollen. Leaves linear, tough, scabrid. Flowers congested in a hairy, subcorymbose, unbranched raceme on long hairy pedicels, white to grey. Fruits densely hairy. Mostly Sept.–Oct. Sandy flats and lower slopes, NW, SW (Piketberg to Caledon).•

hispida (L.) Kunth Rhizomatous perennial to 30 cm, roots few, fleshy and swollen. Leaves few, lanceolate, pubescent. Flowers in a subcorymbose, unbranched raceme, white, peduncle pubescent. Fruits on very long, spreading, pubescent pedicels. June–Sept. Shale slopes in renosterveld, NW, SW, AP, LB (Piketberg to Albertinia).•

montana J.C.Manning & Goldblatt Rhizomatous perennial to 20 cm, roots slender with fusiform, apical swelling. Leaves 1 or 2, lanceolate, tough, scabrid. Flowers in an unbranched, inclined raceme on hairy pedicels, white, peduncle pubescent. Fruits densely scabridulous. Oct.–Nov. Sandy slopes, SW (Riviersonderend Mtns: Jonaskop).•

C.' Raceme divaricately much-branched

divaricata (Jacq.) Kunth Like **T. revoluta** but stouter and glabrous, leaves somewhat fleshy and fruits larger, ± 10 mm long. July–Sept. Littoral dunes and sand flats, NW, SW, AP, SE (Namaqualand to Port Alfred).

flexifolia (L.f.) Kunth Rhizomatous perennial to 30 cm, roots few, thickened. Leaves few to many, linear, often undulate, usually hairy. Flowers in a branched raceme, nodding, white, base of peduncle pubescent. Fruits on short, erect pedicels. May–Sept. Sandy and shale flats and slopes, NW, SW (Namaqualand to Bredasdorp). **gce**

jacquiniana (Roem. & Schult.) Oberm. ANYSBLOM Rhizomatous perennial to 50 cm, roots few, bulbous. Leaves many, linear, undulate when young, often softly hairy. Flowers in a panicle with many ascending branches, nodding, white. Fruits narrowly ovoid. July–Sept. Stony clay slopes in karroid scrub, NW, KM (Namaqualand to Montagu). **gce**

muricata (L.f.) Kunth Like **T. revoluta** but leaves few to several, lanceolate and not sheathed individually by cataphylls. July–Oct. Stony clay slopes in karroid scrub and renosterveld, NW, SW (S Namibia to Caledon). **gce**

oligotricha (Baker) Oberm. Rhizomatous perennial to 30 cm, roots few, spreading. Leaves few to many, linear, often undulate, usually hairy. Flowers mostly in a simple raceme, nodding, white, base of peduncle pubescent. Fruits on short, erect pedicels. May–Sept. Seasonally wet sandy or loamy flats, NW, SW (Piketberg to Cape Flats).•

paniculata Oberm. Rhizomatous perennial to 30 cm, roots few, bulbous. Leaves few, lanceolate, usually hairy. Flowers in a panicle, nodding, white. Fruits globose. Sept.–Oct. Stony clay slopes, karroid scrub, NW (Richtersveld to Olifants River Valley). **gce**

patens Oberm. Rhizomatous perennial to 30 cm, roots few, thickened. Leaves few to many, filiform, sometimes hairy. Flowers in a branched raceme, white, base of peduncle hairy. Fruits on long, spreading pedicels. Aug.–Oct. Stony clay slopes, karroid scrub, NW (Springbok to Worcester). **gce**

revoluta (L.) Kunth Rhizomatous perennial to 90 cm, roots many, ± swollen. Leaves many, linear, scabrid, sheathed individually by cataphylls. Flowers in a divaricate panicle, nodding, white, tepals recurved, base of peduncle scabrid. Sandy flats, NW, SW, AP, SE (Richtersveld to Port Alfred).

tortilis (Baker) Oberm. Rhizomatous perennial to 20 cm, roots few, bulbous. Leaves few, lanceolate or linear-lanceolate, undulate. Flowers in a compact, branched raceme, nodding, white. Fruits on spreading pedicels. July–Sept. Sandy and clay flats, karroid scrub, NW (Springbok to Eendekuil). **gce**

BEHNIACEAE = **AGAVACEAE**

COLCHICACEAE

1. Flowers all bracteate:
   2. Flowers few, erect on short pedicels, usually in a head overtopped by green or petaloid bracts; styles ± erect . . . . . **Colchicum**
   2.' Flowers several, racemose, nodding on long pedicels; styles slender and spreading . . **Ornithoglossum**
1.' Some or all flowers ebracteate:
   3. Leaves > 3; flowers pedicellate, lower subtended by a slender bract; tepals orange or yellow; capsule long and cylindrical. . . . . **Baeometra**
   3.' Leaves 3, uppermost sometimes reduced; flowers sessile, all ebracteate; tepals white, cream-coloured or pink to maroon; capsule ± oblong . . . . . **Wurmbea**

ANDROCYMBIUM Willd. = **COLCHICUM**

COLCHICUM L. (= *ANDROCYMBIUM*) CUP-AND-SAUCER, PATRYSBLOM

± 150 spp., Africa, Europe and Asia

A. Leaves grading into bracts; bracts green, leaf-like
B. Leaves distichous; flowers concealed by bracts

eucomoides (Jacq.) J.C.Manning & Vinnersten (= *Androcymbium eucomoides* (Jacq.) Willd.; incl. **A. austrocapense** U.Müll.-Doblies & D.Müll.-Doblies, **A. eghimocymbion** U.Müll.-Doblies & D.Müll.-Doblies, **A. undulatum** U.Müll.-Doblies & D.Müll.-Doblies) Acaulescent, cormous geophyte. Leaves lanceolate-attenuate, prostrate. Flowers enclosed in greenish leaf-like bracts, tepals auriculate below. Aug.–Sept. (Oct.). Stony and clay flats, NW, SW, AP, KM, LB, SE (Tanqua Karoo to Peninsula to E Cape). **gce**

longipes (Baker) J.C.Manning & Vinnersten (= *Androcymbium longipes* Baker) Acaulescent, cormous geophyte. Leaves spreading, narrowly lanceolate, channelled. Flowers enclosed in leaf-like, green bracts, tepals with very long claws, auriculate below. Apr.–Jan. Moist slopes and stony grasslands, KM, SE (Ladismith to E Cape).

B.' Leaves tristichous or spiral; flowers exposed

cuspidatum (Baker) J.C.Manning & Vinnersten (= *Androcymbium cuspidatum* Baker) Acaulescent, cormous geophyte. Leaves tristichous, lanceolate, prostrate. Flowers 1 or 2, surrounded by inconspicuous green, leaf-like bracts, exposed, tepals auriculate below. July–Aug. Stony flats, NW, KM, SE (W Karoo and Cedarberg to Uniondale). **gce**

dregei (C.Presl.) J.C.Manning & Vinnersten (= *Androcymbium dregei* Presl.) Short-stemmed, cormous geophyte. Leaves sublinear. Flowers 1 or 2, often with aerial pedicels, subtended by green, leaf-like, linear bracts, tepals plane. June–Aug. Sheltered rocky slopes, NW, KM (Namaqualand to Montagu). **gce**

hughocymbion (U.Müll.-Doblies & D.Müll.-Doblies) J.C.Manning & Vinnersten (= *Androcymbium hughocymbion* U.Müll.-Doblies & D.Müll.-Doblies) Plants acaulescent. Leaves tristichous, prostrate, lowermost narrowly lanceolate-attenuate, aristate. Flowers surrounded by inconspicuous green, leaf-like bracts, exposed, tepals auriculate below. June–July. Stony flats and slopes, NW, SW (Worcester to Potberg).•

A.' Leaves abruptly differentiated from bracts
C. Leaves apically coiled; bracts pale green

volutare (Burch.) J.C.Manning & Vinnersten (=*Androcymbium volutare* Burch.) Acaulescent, cormous geophyte. Leaves linear, coiled at tips. Flowers concealed among large, pale green, reticulate bracts with smooth margins, tepals auriculate below, filaments purple, anthers 4–5 mm long. July–Aug.(–Sept.). Clay flats and washes, KM (W and Upper Karoo to Little Karoo).

C.' Leaves flat; bracts ± coloured

capense (L.) J.C.Manning & Vinnersten (= *Androcymbium capense* K.Krause, *A. ciliolatum* Schltr. & K.Krause, *A. fenestratum* Schltr. & K.Krause, *A. hantamense* Engl.) Acaulescent, cormous geophyte. Leaves lanceolate, margins ciliate, sometimes undulate. Flowers enclosed in large white bracts, sometimes striped green, inner smaller with ciliate margins, tepals auriculate below; filaments green or purple, anthers yellow, ± 2 mm long; styloids with median longitudinal crest. June–Aug. Clay or loam flats, NW, SW, LB (Namaqualand and W Karoo to Swellendam). **gce**

coloratum J.C.Manning & Vinnersten (= *Androcymbium burchellii* Baker, *A. latifolium* Schinz, *A. pulchrum* Schltr. & K.Krause) ROOIPATRYSBLOM Acaulescent, cormous geophyte. Leaves ovate, prostrate, sometimes ciliate. Flowers enclosed in large, red to purple or green and white bracts, tepals with very short limbs, auriculate below; filaments purple, twice as long as tepal limbs, anthers 6–8 mm long. July–Aug. Gravelly flats, NW, KM (W Karoo and Bokkeveld Plateau to Little Karoo). **gce**

irroratum (Schltr. & K.Krause) J.C.Manning & Vinnersten (= *Androcymbium irroratum* Schltr. & K.Krause) Acaulescent, cormous geophyte. Leaves ovate-lanceolate, margins minutely denticulate. Flowers enclosed in erect, oblong-rhombic, conduplicate, green bracts with hyaline margins, tepals auriculate below; filaments purple, anthers 3–4 mm long. Aug.–Sept. Gravelly or sandy flats and washes, NW (Namaqualand and W Karoo to W Coast). **gce**

orienticapense U.Müll.-Doblies & D.Müll.-Doblies) J.C.Manning & Vinnersten (= *Androcymbium melanthioides* auct. in part; *A. orienticapense* U.Müll.-Doblies & D.Müll.-Doblies) BOBBEJAANSKOEN Short-stemmed, cormous geophyte. Leaves linear, channelled. Flowers on an aerial stem, enclosed by large white bracts veined with green, tepals auriculate below. Mainly June–Aug. Grasslands, SE (Knysna to E Cape).

praeirroratum (U.Müll.-Doblies & D.Müll.-Doblies) J.C.Manning & Vinnersten (= *Androcymbium praeirroratum* U.Müll.-Doblies & D.Müll.-Doblies) Acaulescent, cormous geophyte. Leaves ovate-lanceolate, margins smooth. Flowers enclosed in erect, conduplicate, rhombic green bracts flushed red or purple basally, margins minutely ciliolate, tepals auriculate below, filaments purple, anthers 4–7 mm long. Gravelly or sandy flats and washes, NW (Bokkeveld Mtns and W Karoo). **gce**

[**Species excluded** No authentic material found and possibly conspecific with one of the above: **C. cedarbergense** (U.Müll.-Doblies & D.Müll.-Doblies) J.C.Manning & Vinnersten (= *Androcymbium cedarbergense* U.Müll.-Doblies & D.Müll.-Doblies), **C. worsonense (**U.Müll.-Doblies & D.Müll.-Doblies) J.C.Manning & Vinnersten (= *A. worsonense* U.Müll.-Doblies & D.Müll.-Doblies)]

BAEOMETRA Salisb. ex Endl.• BEETLE-LILY 1 sp., W Cape

uniflora (Jacq.) G.J.Lewis Cormous geophyte to 25 cm. Leaves lanceolate and channelled, spirally arranged. Flowers usually pedicellate, orange, styles free, hooked. Aug.–Oct. Mainly rocky sandstone and granite slopes, SW, AP, LB (Malmesbury to Riversdale).•

ORNITHOGLOSSUM Salisb. SNAKE-LILY 8 spp., W Cape to S tropical Africa

A. Flowers zygomorphic-asymmetric

gracile B.Nord. Cormous geophyte, 2–10 cm. Leaves short, lanceolate, undulate to crisped. Flowers nodding, zygomorphic, dull greenish, filaments often with a hump-like swelling in the middle, 10–12 mm long. Apr.–May. Rocky sandstone slopes, NW (Gifberg to Botterkloof).•

undulatum Sweet Cormous geophyte, 5–20 cm. Leaves lanceolate, margins sometimes crisped. Flowers nodding, zygomorphic, white to pink with purple or maroon tips, filaments filiform, 15–25 mm long. Apr.–July. Rocky sandstone slopes, NW, KM, LB, SE (S Namibia to Somerset East).

A.' Flowers actinomorphic

parviflorum B.Nord. SLANGKOP Cormous geophyte, 6–30 cm. Leaves linear-lanceolate. Flowers nodding, green with maroon margins or red to brown, filaments thickened below, 2–5 mm long. June–Oct. Stony slopes, NW, KM (Namaqualand to Worcester, W Karoo). **gce**

viride (L.f.) Aiton EENDJIES, SLANGKOP Like **O. parviflorum** but nectary a small round pocket or mouth-like flap much narrower than tepal claw. July–Oct. Mostly deep sandy soils, NW, SW, AP, LB (Clanwilliam to Riversdale).•

vulgare B.Nord. Like **O. parviflorum** but flowers larger, filaments 5–13 mm long. Aug.–Oct. Stony slopes, KM (Little Karoo to tropical Africa).

WURMBEA Thunb. (= *NEODREGEA*, *ONIXOTIS*) SPIKE-LILY 39 spp., Africa, Australia

A. Perianth tube lacking or vestigial

glassii (C.H.Wright) J.C.Manning & Vinnersten (= *Neodregea glassii* C.H.Wright) MOSQUITO-LILY Cormous geophyte to 4 cm. Leaves 3, lanceolate, the uppermost small and subtending the lowest flower. Flowers minute, sessile in short spikes, yellow, tepals attenuate, free, styles free, hooked. May–June. Mainly clay slopes in renosterveld, SW, LB, SE (Somerset West to E Cape).

minima B.Nord. Cormous geophyte, 2–5 cm. Leaves lanceolate. Flowers white, rotate, tube vestigial. Oct. Rocky slopes, NW (Cedarberg to Porterville Mtns).•

punctata (L.) J.C.Manning & Vinnersten (= *Onixotis punctata* (L.) Mabb. HANEKAM-METJIE Cormous geophyte, 10–20 cm. Leaves lanceolate, margins ciliate, uppermost about halfway up the stem. Flowers sessile in short spikes, white to pink, tepals free, styles free, filiform. July–Sept. Rocky and clay slopes, NW, SW, AP, KM, LB (Bokkeveld Mtns to Swellendam and Agulhas).•

stricta (Burm.f.) J.C.Manning & Vinnersten (= *Onixotis stricta* (Burm.f.) Wijnands, *O. triquetra* (L.f.) Mabb.) RYSBLOMMETJIE, WATER-PHLOX Cormous geophyte, 20–50 cm. Leaves subterete, triangular in section, upper 2 leaves set just below spike. Flowers sessile in elongate spikes, pink, tepals free, styles shortly united, filiform. Aug.–Oct. Marshes and pools, NW, SW (Namaqualand to Cape Peninsula, Worcester, Elim). **gce**

A.' Perianth tube present
B. Perianth tube longer than tepals

capensis Thunb. Cormous geophyte, 5–10 cm. Leaves linear. Flowers few, cream-coloured and brown-speckled with median dark spot, tepals erect, tube slightly longer than tepals, 4–5.5 mm long, styles hooked. Aug.–Sept. Stony slopes, NW, SW (Clanwilliam to Stellenbosch).•

dolichantha B.Nord. Cormous geophyte, 10–30 cm. Leaves lanceolate, channelled. Flowers white or cream-coloured with median purple mark, fragrant, tube much longer than tepals, 8–17 mm long. Sept.–Oct. Mostly sand or clay, NW (Bokkeveld Escarpment to Piketberg).•

inusta (Baker) B.Nord. Cormous geophyte, 5–20 cm. Leaves linear. Flowers greenish or cream-coloured with purple margins and median spot, fragrant, tube longer than tepals, 4.5–7 mm long. Sept.–Nov. Damp flats, NW, SW (Tulbagh to Bredasdorp).•

B.' Perianth tube as long as or shorter than tepals
C. Flowers pink to reddish or purple

compacta B.Nord. Cormous geophyte, 5–18 cm. Leaves lanceolate, falcate. Flowers in dense spikes, pink, tube as long as tepals, 2–5 mm long, filaments ± as long as tepals. June–July. KM (Montagu).•
marginata (Desr.) B.Nord. SWARTKOPPIE Cormous geophyte, 6–22 cm. Leaves lanceolate. Flowers rotate, red or purple with darker margins, foul-scented, tube shorter than tepals, 2–3 mm long, filaments very short. Sept.–Oct. Mostly clay or loam, SW, AP, LB (Hopefield and Gouda to Albertinia).•
recurva B.Nord. Cormous geophyte, 5–20 cm. Leaves narrowly lanceolate. Flowers red to purplish brown, tepals recurved, tube shorter than tepals, 2–3 mm long, filaments very short. Sept.–Oct. NW, SW (Tulbagh to Somerset West).•

C.' Flowers whitish

elongata B.Nord. Cormous geophyte, 7–20 cm. Leaves linear. Flowers greenish white to cream-coloured with dark margins, slightly fragrant, tube shorter than tepals, 1.5–2.5 mm long. Sept.–Oct. Rocky sandstone slopes, NW, SW (Cedarberg to Moorreesburg).•
hiemalis B.Nord. Cormous geophyte, 4–15 cm. Leaves linear. Flowers white with dark margins, tube ± as long as tepals, 2–4 mm long. May–Aug. Damp sandy slopes, SW (Cape Peninsula).•
monopetala (L.f.) B.Nord. Cormous geophyte, 5–25 cm. Leaves narrowly lanceolate, channelled. Flowers greenish or cream-coloured with dark margins in upper two-thirds, tube slightly shorter than tepals, 2–3.5 mm long, thick, with tepals well separated, filaments very short. Aug.–Nov. Sandstone and granite slopes, NW, SW (Piketberg to Caledon).•
robusta B.Nord. Cormous geophyte, 15–25 cm. Leaves lanceolate. Flowers white, tepals with purple margins, tube slightly shorter than tepals, 3–5 mm long, filaments ± as long as tepals. July–Sept. Clay and granite slopes in renosterveld, NW, SW (Piketberg to Malmesbury).•
spicata (Burm.f.) T.Durand & Schinz (= *Wurmbea ustulata* B.Nord.) WITKOPPIE Cormous geophyte, 5–20 cm. Leaves narrowly lanceolate. Flowers white to cream-coloured, sometimes with dark margins, tube shorter than tepals, 3–6 mm long. Aug.–Nov. Mostly clay and granite slopes in renosterveld, NW, SW, KM, LB (Bokkeveld Mtns to Swellendam).•
variabilis B.Nord. Cormous geophyte, 5–20 cm. Leaves ovate. Flowers cream-coloured, tepals with conspicuous median dark mark, strongly bitter-scented, tube shorter than tepals, 3–6(–8) mm long. Aug.–Oct. NW, SW, KM, LB, SE (Clanwilliam to Port Elizabeth, W Karoo). **gce**

COMMELINACEAE

1. Flowers actinomorphic; inflorescences not enclosed in spathes; fertile stamens 6; filaments densely bearded ..... **Cyanotis**
1.' Flowers zygomorphic; inflorescences consisting of 1 or 2 cymes enclosed in folded or obliquely funnel-shaped spathes; fertile stamens (2)3; filaments smooth ..... **Commelina**

COMMELINA L. WANDERING JEW ± 230 spp., cosmopolitan

africana L. Scrambling perennial to 50 cm from a woody rootstock. Leaves oblong to linear, sometimes hairy. Flowers yellow, spathes folded, dry inside. Nov.–June. Near streams or lower slopes, SW, AP, LB, SE (Cape Peninsula to Arabia and Madagascar).
benghalensis L. BLOUSELBLOMMETJIE Spreading, hairy annual to 30 cm. Leaves ovate. Flowers blue, spathes obliquely fused, mucilaginous inside. Nov.–Apr. Shady and damp sites, often weedy, SE (Old World, naturalized in New World).
eckloniana Kunth Sparsely white-hairy perennial with annual stems to 35 cm from a knobbly rootstock. Leaves linear, hairy. Flowers blue, spathes obliquely fused, mucilaginous inside. Nov.–Feb. SE (Humansdorp to Ethiopia).

CYANOTIS D.Don. DOLLS' POWDER PUFF ± 50 spp., palaeotropics

speciosa (L.f.) Hassk. BLOUPOEIERKWASSIE Tufted, spreading, hairy perennial, 15–50 cm, rhizome geniculate. Leaves lanceolate, hairy beneath. Flowers blue to mauve. Nov.–May. Grasslands, LB, SE (Riversdale to S Tanzania, Madagascar).

CYPERACEAE

by C. Archer with M. Muasya

1. Plants functionally dioecious ..... **Scirpoides dioecus**
1.' Plants hermaphroditic to monoecious:
2. Spikelets unisexual or bisexual; florets all unisexual or functionally unisexual; some empty glumes and/or spikelet bracts present:
3. Spikelets solitary, pseudolateral; composed of numerous male florets and one terminal female floret ..... **Chrysitrix**
3.' Not as above:
4. Female spikelet not enclosed by perigynium (modified bract):
5. Bisexual, male and female spikelets clustered together; nutlet borne on stalk or gynophore ..... **Scleria**
5.' Male spikelets borne at upper nodes of inflorescence, female spikelets borne at lower nodes; nutlet not borne on stalk or gynophore ..... **Tetraria crinifolia**
4.' Female spikelet partially or wholly enclosed by perigynium:
6. Perigynium entire or split unevenly in one or two places; rachilla present within perigynium, usually bearing exserted male florets ..... **Schoenoxiphium**
6.' Perigynium entire, bottle-shaped, frequently apex rostrate, 2-toothed; rudimentary rachilla occasionally present within perigynium ..... **Carex**
2.' Spikelets, at least aerial ones, bisexual; florets all bisexual, or bisexual and unisexual or functionally unisexual together; some empty glumes and/or spikelet bracts may be present:
7. Glumes distichous:
8. Spikelets with 0–2 empty glumes and/or bracts at base; nutlets not accompanied by bristles:
9. Stigmas 3 (may be very short), or if 2, nutlet dorsiventrally compressed . . . **Cyperus** (if annual = **Isolepis**; if gynophore present = **Ficinia**):
a. Glumes of spikelet disarticulating in age sequence from base, rachilla persistent ..... ***Cyperus* group**
a.' Entire spikelet with rachilla disarticulating from cushion above spikelet bract ..... ***Mariscus* group**
9.' Stigmas 2, nutlet laterally compressed:
10. Inflorescence digitate or anthelate to compound-anthelate ..... **Pycreus**
10.' Inflorescence capitate (occasionally with accessory capitula) ..... **Kyllinga**
8.' Spikelets with 3 or more empty glumes and/or bracts at base; nutlets sometimes accompanied by bristles:
11. Bristles present:
12. Spikelets of 2 kinds, subterranean female and aerial bisexual; bristles 3 ..... **Trianoptiles**
12.' Spikelets all aerial, bisexual; bristles 6 ..... **Carpha**
11.' Bristles absent, or if present, minute:
13. Rachilla of spikelets between bisexual florets elongated, thickened and curved ..... **Schoenus**
13.' Rachilla of spikelet elongated and sometimes curved above uppermost bisexual floret ..... **Epischoenus**
7.' Glumes subdistichous to spirally arranged:
14. Spikelets with 3 or more empty glumes and/or bracts at base:
15. Stigmas 2 ..... **Rhynchospora**
15.' Stigmas 3 or more:
16. Leaves mostly reduced to sheaths, uppermost leaf cylindrical and similar to culms ..... **Neesenbeckia**
16.' Leaves not as above:
17. Nutlet long-clawed ..... **Capeobolus**
17.' Nutlet sessile or shortly clawed:
18. Large robust plants; culm nodose, rounded and hollow; inflorescence a panicle . . **Cladium**
18.' Plants variable in height and robustness; culm variable, if nodose then triangular in cross section and solid; inflorescence variable ..... **Tetraria**
14.' Spikelets with 0–2 empty glumes and/or bracts at base:
19. Stamens 6 ..... **Cyathocoma**
19.' Stamens 1–3:
20. Style-base enlarged:
21. Inflorescence a single spikelet (occasionally with accessory spikelets); inflorescence bracts scale-like; style-base persisting ..... **Eleocharis**
21.' Inflorescence seldom a single spikelet, if rarely so (in depauperate specimens), then inflorescence bracts not scale-like and style-base not persisting:
22. Mouth of leaf sheath glabrous; style-base not persisting on nutlet ..... **Fimbristylis**

22.' Mouth of leaf sheath pilose; style-base persisting as button-like structure on nutlet ..... **Bulbostylis**
20.' Style-base not enlarged:
23. Nutlet borne on gynophore:
24. Ligule usually well developed, papyraceous ..... **Ficinia**
24.' Ligule not well developed ..... **Ficinia nodosa**, **Isolepis marginata**
23.' Nutlet not borne on gynophore:
25. Culms nodose, leaf-bearing, usually markedly 3(–5)-angled:
26. Inflorescence anthelate to compound-anthelate, occasionally capitate or reduced to single spikelet but if so with at least 2 leaf-like involucral bracts ..... **Bolboschoenus**
26.' Inflorescence paniculate or occasionally capitate, but if so with only 1 involucral bract ..... **Fuirena**
25.' Culms with ± basal nodes:
27. Leaf-blades well developed ..... **Isolepis** (if leaf sheath sticky = **Ficinia filiformis**)
27.' Leaf-blades reduced to sheaths (sometimes a very short blade developed):
28. Inflorescence pseudo-lateral:
29. Inflorescence either a lateral sessile cluster of relatively few spikelets, or if clusters stalked then clusters ± digitate ..... **Schoenoplectus**
29.' Inflorescence either a dense ± spherical sessile cluster of spikelets, or if stalked then clusters ± spherical ..... **Scirpoides**
28.' Inflorescence terminal:
30. Inflorescence paniculate, of many spikelets ..... **Pseudoschoenus**
30.' Inflorescence capitate, of (1–)several spikelets:
31. Dwarf annuals or slender perennials up to 200 mm tall (usually less, occasionally to 1 m in **I. costata**), stem < 3 mm diam.;); spikelets < 3 mm diam. ..... **Isolepis**
31.' Densely tufted robust perennials 400–800 mm tall; spikelets ± 7 mm diam. ..... **Hellmuthia**

BOLBOSCHOENUS (Asch.) Palla ± 12 spp., cosmopolitan

maritimus (L.) Palla (= *Scirpus maritimus* L.) SNYGRAS, SNYRUIGTE Robust or slender perennial to 1.2 m. Spikelets golden to dark brown. Oct.–Mar.(–June). Marshy flats near water, mainly coastal, below 300 m, NW, SW, AP, LB, SE (Clanwilliam to East London, sporadic in interior, pantropical to nearly cosmopolitan).

[A putative hybrid between the above and **B. glaucus** (Lam.) S.G.Sm. has been recorded along the margins of the range of **B. maritimus**]

BULBOSTYLIS Kunth ± 200 spp., cosmopolitan

contexta (Nees) M.Bodard Tufted perennial, 10–25 cm. Spikelets brown. July–Jan. Flats and lower sandstone slopes below 1 300 m, LB, SE (Langeberg to Van Staden's Mtns and to tropical Africa).
humilis (Kunth) C.B.Clarke (incl. **B. breviculmis** Kunth, **B. striatella** C.B.Clarke) Densely tufted annual, 5–10 cm. Spikelets greenish to pale brown. July–Oct. Rock ledges inland and littoral sand below 500 m, NW, SW, SE (Ceres to Cape Peninsula, southern Africa and just into tropical Africa).

CAPEOBOLUS Browning• 1 sp., W and E Cape

brevicaulis (C.B.Clarke) Browning (= *Costularia brevicaulis* C.B.Clarke) Densely tufted perennial, 8–20 cm. Spikelets hidden among leaves, greenish. Oct.–Mar. Rocky slopes in mountain fynbos below 1 600 m, SW, LB, SE (Cape Peninsula to Humansdorp).•

CAREX L. ± 1 780 spp., cosmopolitan

*__acutiformis__ Ehrh. Tufted perennial to 1 m. Spikelets blackish. Sept.–Feb. Marshes below 300 m, LB, SE (widespread and sporadic in S Africa, indigenous to Europe).
aethiopica Schkuhr Tufted perennial to 1.2 m. Spikelets greenish brown to reddish brown. Sept.–Dec. Shady areas near water in forests below 750 m, SW, AP, LB, SE (Cape Peninsula to E Cape).
clavata Thunb. Tufted perennial to 1.7 m. Spikelets shiny brown. Sept.–Nov. Marshy flats and lower slopes below 100 m, SW, AP, LB, SE (Malmesbury to E Cape).

cognata Kunth Tufted perennial to 80 cm. Spikelets green. Nov.–Dec. Moist flats and slopes below 100 m, SW, SE (sporadic from Cape Peninsula to northern S Africa, Namibia, Botswana, also tropical Africa).

ecklonii Nees Tufted perennial to 70 cm. Spikelets greenish brown. Oct.–Apr. Coastal flats, SW, AP, SE (sporadic from Cape Peninsula to E Cape, worldwide).

glomerabilis V.I.Krecz. (= *Carex vulpina* auct.) FOXTAIL SEDGE Perennial to 70 cm. Spikelets brown. Aug.–May. Marshy flats generally at low altitude, SW, AP, LB, SE (Cold Bokkeveld Mtns to Cape Peninsula to northern S Africa).

CARPHA R.Br. 16 spp., nearly cosmopolitan [under revision: to be transferred to ASTEROCHAETE Nees]

capitellata (Nees) Boeck. (= *Asterochaete capitellata* Nees; incl. **Carpha bracteosa** C.B.Clarke) Perennial to 50 cm. Spikelets straw-coloured. Oct.–Dec. Marshy flats or slopes below 1 700 m, NW, SW, ?AP, LB, SE (Ceres to Cape Peninsula to Mpumalanga).

glomerata (Thunb.) Nees VLEIBIESIE, VLEIRIET Robust, tufted perennial to nearly 2 m. Spikelets golden-brown. Aug.–Jan. Marshy flats, slopes and watercourses below 1 500 m, NW, SW, KM, LB, SE (Citrusdal to Cape Peninsula to S KwaZulu-Natal).

schlechteri C.B.Clarke Tufted perennial to 80 cm. Spikelets golden-brown. Dec.–Jan. Slopes near watercourses, ± 1 400 m, NW (Skurweberg).•

CHRYSITRIX L. 4 spp., W Cape and Australasia

capensis L. KWASBIESIE Sparsely tufted perennial with flattened stems, 16–40 cm. Spikelets rusty brown. Apr.–Nov. Slopes and wet flats, NW, SW, LB, SE (Cape Peninsula to Ceres and to Humansdorp).•

dodii C.B.Clarke Densely tufted perennial, 30–40 cm. Spikelets brownish. Oct.–Feb. Mid to upper slopes, SW, SE (Cape Peninsula to Humansdorp).•

junciformis Nees Perennial to 30 cm. Spikelets brownish. Apr.–Dec. Upper slopes, NW, SW, ?LB (Cedarberg to Riversdale).•

CLADIUM P.Browne ± 3 spp., nearly cosmopolitan but especially Australia

mariscus (L.) Pohl SAW-GRASS Stout perennial to nearly 3 m. Spikelets brown. Dec.–Mar. Marshy flats and watercourses below 100 m, SW, AP, SE (Cape Peninsula to Port Elizabeth, sporadic throughout southern Africa and nearly cosmopolitan).

CYATHOCOMA Nees (= *MACROCHAETIUM*) 3 spp., W Cape to KwaZulu-Natal (and Mozambique?)

ecklonii Nees (= *Macrochaetium ecklonii* (Nees) Levyns) Robust perennial to 1.25 m. Spikelets pale yellow-brown. Nov.–Apr. Seeps on mountain slopes below 1 500 m, NW, SW (Cedarberg to Tulbagh).•

hexandra (Nees) Browning (= *Macrochaetium hexandrum* (Nees) Pfeiff.) Robust perennial, 50–150 cm. Spikelets dark red. Aug.–Mar. Marshes and watercourses on mountain slopes below 800 m, SW, AP, LB, SE (Cape Peninsula to Humansdorp).•

CYPERUS L. (= *MARISCUS*) MATJIESGOED ± 695 spp., cosmopolitan

***Cyperus* group**

Glumes of spikelet disarticulating in age sequence from base, rachilla persistent

albostriatus Schrad. Tufted perennial, 20–50 cm. Spikelets pale brown. Jan.–Apr. Forest floors below 300 m, SW, SE (Cape Peninsula and Uitenhage to northern S Africa and just to tropical Africa).

brevis Boeck. Rhizomatous perennial to 45 cm. Spikelets brown and red. Oct.–May. Coastal dunes, SE (Riversdale to KwaZulu-Natal and Mozambique).

denudatus L.f. Leafless perennial to 60 cm, rhizome woody. Spikelets greenish brown. June–Jan. Stream banks, NW, SW, AP, SE (W Cape to tropical Africa).

dives Delile (= *Cyperus immensus* C.B.Clarke) Robust tufted perennial to 1.2 m. Glumes golden. Nov.–Mar. Marshy coastal flats and roadside ditches below 50 m, SW, SE (Stellenbosch, Port Elizabeth to tropical Africa).

*__eragrostis__ Lam. Tufted perennial to 1 m. Inflorescence comprising digitate clusters of over 40 spikelets each, green. Jan.–Apr. Disturbed wetlands, roadside ditches below 200 m, SW (Cape Peninsula, Stellenbosch, perhaps more widespread, weed from N America, widely naturalized).

*__esculentus__ L. YELLOW NUTSEDGE, GEEL UINTJIE Tuberous perennial to 60 cm. Glumes yellow-brown. Dec.–Feb. Disturbed places, NW, SW, SE (Clanwilliam, Paarl, Cape Peninsula, Tsitsikamma Mtns, widespread weed of cultivation [under-represented in herbarium collections]).

fastigiatus Rottb. Stout perennial to 1.2 m. Spikelets reddish to golden-brown. Oct.–Feb.(–Apr.) Marshy flats or lower slopes along watercourses below 1 000 m, NW, SW, AP, LB, SE (Piketberg and Ceres to Uitenhage, E Cape to northern S Africa).

laevigatus L. (= *Juncellus laevigatus* (L.) C.B.Clarke) RIVIERKWEEK Rhizomatous to tufted perennial, 10–60 cm. Spikelets light brown or purplish. Oct.–Apr. Damp brackish areas, sea level to 1 400 m, NW, SW, AP, KM, LB, SE (Clanwilliam to Humansdorp, widespread in southern Africa and worldwide).

longus L. WATERBIESIE, DOOIWORTEL, WATERKWEEK Stout perennial to 1 m. Spikelets dark reddish brown with pale margins. Oct.–Apr. Damp flats and watercourses below 1 000 m, NW, SW, AP, KM, LB, SE (Clanwilliam to Avontuur, widespread in southern and tropical Africa and Europe).

marginatus Thunb. MATJIESGOED Leafless perennial to 60 cm. Spikelets chestnut-brown with pale margins. Sept.–Feb. Rock crevices in seasonal watercourses, NW, SW (Clanwilliam, Ceres and Robertson, widespread in southern Africa to Angola).

pulcher Thunb. Perennial to 40 cm. Spikelets reddish brown. Oct.–Feb.(–Apr.). Marshes and watercourses, SE (Uitenhage to KwaZulu-Natal).

*__rotundus__ L. PURPLE NUTSEDGE, ROOI UINTJIE Tuberous perennial to 15 cm. Spikelets red. Mar. Disturbed places, KM (Oudtshoorn, widespread weed of cultivation [under-represented in herbarium collections]).

rubicundus Vahl Tufted perennial to 20 cm. Spikelets red and straw-coloured. Dec.–Apr. Limestone flats below 400 m, SE (Port Elizabeth, also widespread in Old World).

rupestris Kunth Mat-forming perennial to 15 cm. Spikelets dark reddish brown. Feb. Shallow soils. SW (Cape Peninsula, also E Cape to northern S Africa).

semitrifidus Schrad. Sparsely tufted, low perennial, 8–25 cm. Spikelets reddish brown. Dec.–Apr. Damp flats or lower slopes on shallow soils, SE (Uitenhage to northern S Africa).

sphaerospermus Schrad. Tufted perennial to 60 cm. Spikelets golden- to reddish brown. Oct.–Mar. Marshes and watercourses below 600 m, NW, SW, LB, SE (Clanwilliam to Uitenhage, widespread in southern Africa, just reaching tropical Africa, where taxonomic boundary with *C. haspan* may be ambiguous).

textilis Thunb. UMBRELLA SEDGE, MAT SEDGE, MATJIESGOED Stout, tufted, leafless perennial to 1.2 m. Spikelets pale rust-red. Oct.–Mar. Marshes and watercourses below 150 m, NW, SW, AP, KM, LB, SE (Piketberg to S KwaZulu-Natal).

usitatus Burch. INDIAN GRASS, BOESMANUINTJIE, HOENDERGRAS Tuberous perennial to 25 cm. Spikelets dark red. Dec.–Apr. Mid to upper slopes below 250 m, SW, LB, SE (Paarl to Port Elizabeth, also widespread in central southern Africa and just into tropical Africa).

Mariscus group

Entire spikelet with rachilla disarticulating from cushion above spikelet bract

capensis (Steud.) Endl. (= *Mariscus capensis* (Steud.) Schrad.) Perennial to 20 cm. Spikelets green. Dec.–Apr. Grassy slopes, SE (Port Elizabeth to northern S Africa).

congestus Vahl (= *Mariscus congestus* (Vahl) C.B.Clarke) HEDGEHOG SEDGE Sparsely tufted perennial, 20–90 cm. Spikelets reddish. Dec.–Apr. Damp flats and watercourses on slopes to 600 m, NW, SW, AP, KM, SE (widespread in southern Africa, Mediterranean, Australia, S Atlantic islands).

durus Kunth (= *Mariscus durus* (Kunth) C.B.Clarke) Tufted perennial to 95 cm. Spikelets dark red. Sept.–Oct. Marshy coastal flats, SE (Knysna to E Cape and (doubtfully) S tropical Africa).

solidus Kunth (= *Mariscus solidus* (Kunth) Vorster, incl. *M. involutus* C.B.Clarke) Robust perennial to 1.5 m. Spikelets dark red. Oct.–Jan. Moist places along watercourses at low altitude, SE (Uitenhage to northern S Africa and ?tropical Africa).

tabularis Schrad. (= *Mariscus tabularis* (Schrad.) C.B.Clarke) Perennial to 60 cm. Spikelets dark red. Sept.–Dec. Damp flats and watercourses below 200 m, NW, SW, SE (Namaqualand to E Cape).

thunbergii Vahl (= *Mariscus riparius* Schrad., *M. thunbergii* (Vahl) Schrad.) SNYRUIGTE Robust perennial to 1.5 m. Spikelets dull red-brown. June–Dec. Along watercourses below 500 m, NW, SW, AP, LB, SE (Namaqualand to E Cape).

uitenhagensis (Steud.) C.Archer & Goetgh. (= *Mariscus uitenhagensis* Steud.) Sparsely tufted perennial, 5–25 cm. Spikelets green. Oct.–Mar. Grassy slopes below 50 m, SE (Uitenhage, widespread in southern Africa).

ELEOCHARIS R.Br. ± 255 spp., nearly cosmopolitan

limosa (Schrad.) Schult. Perennial, stems 20–60 cm. Spikelets brown. Aug.–Dec. Pools or marshes, SW, AP, SE (Namibia to Cape Peninsula, KwaZulu-Natal to ?northern S Africa, Madagascar).

schlechteri C.B.Clarke Perennial, stems to 6 cm. Spikelets pale brown. Nov.–Dec. Marshes, SW (Cape Peninsula to Caledon).•

[**Species excluded E. lepta** C.B.Clarke (= *Scirpus leptus* (C.B.Clarke) Levyns), identity uncertain, type material young and incomplete]

EPISCHOENUS C.B.Clarke• 8 spp., W Cape

adnatus Levyns Densely tufted perennial to over 1 m. Spikelets brown. Feb.–Aug. Damp mountain slopes, SW, AP, LB, SE (Worcester to Humansdorp).•

cernuus Levyns Slender tufted perennial to 50 cm. Spikelets brown. Oct.–Nov. Mountain slopes, NW, SW (Clanwilliam to Caledon).•

complanatus Levyns Tufted perennial, 20–65 cm. Spikelets pale brown. Dec.–Mar. Upper slopes, NW, SW (Tulbagh to Caledon).•

dregeanus (Boeck.) Levyns (= *Tetraria dregeana* (Boeck.) C.B.Clarke) Tufted perennial, 20–70 cm. Spikelets pale (golden?) brown. Dec.–Apr. Middle to upper slopes, NW, SW (Cedarberg to Franschhoek Mtns).•

gracilis Levyns Tufted perennial, 20–90 cm. Spikelets pale brown. Dec.–Mar. Mountain slopes, NW, SW, LB, SE (Cedarberg to George).•

lucidus (C.B.Clarke) Levyns Tufted perennial to 60 cm. Spikelets brown and white. Dec. Upper slopes, NW, SW (Cold Bokkeveld to Bain's Kloof Mtns and Worcester).•

quadrangularis (Boeck.) C.B.Clarke Tufted perennial, 30–75 cm. Spikelets dark brown. Nov.–May. Mountain slopes, SW, LB, SE (Cape Peninsula to Port Elizabeth).•

villosus Levyns Tufted perennial to 1 m. Spikelets brown. Jan.–Feb. Coastal flats to upper slopes, SW (Cape Peninsula to Caledon).•

FICINIA Schrad. ± 75 spp., tropical and southern Africa, mainly W Cape

acuminata (Nees) Nees (incl. **F. involuta** Nees, **F. elongata** Boeck.) Tufted perennial, 20–70 cm. Spikelets reddish. Aug.–Dec. Rock crevices and shade of boulders near watercourses on mountain slopes, below 1 700 m, NW, SW, AP, KM, SE (Cedarberg to Uniondale).•

anceps Nees Fairly robust perennial, 10–25 cm. Spikelets dull red. Apr.–Nov. Rock crevices, below 400 m, SW (Cape Peninsula).•

angustifolia (Schrad.) Levyns (= *Ficinia longifolia* (Nees) C.B.Clarke) Mat-forming perennial to 45 cm. Spikelets chestnut-brown or grey. Oct.–Feb. Moist rock ledges below 1 500 m, NW, SW, SE (Cedarberg to Humansdorp, also Mpumalanga).

anysbergensis Muasya Tufted perennial 27–60 cm. Spikelets dark brown. Nov.–May. Rocky areas, 600–1 200 m, fynbos, LB, KM, ?SE (Little Karoo Mtns, Langeberg and Outeniqua Mtns).•

arenicola T.H.Arnold & Gordon-Gray Loosely tufted, erect perennial to 30 cm. Spikelets green, tinged red. Aug.–Nov. Coastal sand or clay flats, SE (Mossel Bay to E Cape).

argyropa Nees Compact, tufted perennial to 25 cm. Spikelets reddish. July–Oct. Sandy flats, mostly near coast, NW, SW, AP, LB (Namaqualand to Riversdale). **gce**

bergiana Kunth Stiff-leaved perennial to 25 cm. Spikelets brown. June–July. Lower to middle slopes, SW, LB (Cape Peninsula to E Cape).

brevifolia Nees ex Kunth (= *Ficinia composita* (Nees) Nees nom. illegit.) Densely tufted, robust perennial, 30–60 cm. Spikelets dark brown. Aug.–Dec. Watercourses on mountain slopes below 1 200 m, NW, SW, AP, KM, LB (Namaqualand to Riversdale).

bulbosa (L.) Nees Tufted perennial to 30 cm. Spikelets chestnut-brown. Feb.–Sept. Sandy flats and slopes below 1 000 m, strandveld, coastal and mountain fynbos, NW, SW, AP, LB, SE (Cedarberg to E Cape).

capillifolia (Schrad.) C.B.Clarke Loosely tufted, sprawling perennial, 20–30 cm. Spikelets chestnut-brown. Sept.–Nov. Upper slopes, NW, SW, SE (Cedarberg to Humansdorp).•

capitella (Thunb.) Nees Compact, tufted perennial, 5–25 cm. Spikelets reddish. July–Nov. Flats and slopes below 1 700 m, NW, SW (W Karoo, Ceres to Caledon). **gce**

cedarbergensis T.H.Arnold & Gordon-Gray Relatively robust perennial to 60 cm. Spikelets brown. Sept.–Apr. Upper slopes below 1 100 m, NW (Cedarberg).•

compacta (C.B.Clarke) T.H.Arnold Stiff, tufted perennial to 30 cm. Spikelets dark brown. Oct.–Dec. Upper slopes, SW (Worcester).•

deusta (P.J.Bergius) Levyns Relatively robust perennial to 40 cm. Spikelets large, dark. Mar.–Aug. Mountain slopes below 1 700 m, NW, SW, AP, KM, LB, SE (Namaqualand to Humansdorp). **gce**

distans C.B.Clarke Tufted perennial to 60 cm. Spikelets dark red. Dec.–Apr. Watercourses below 60 m, NW, SW (Ceres to Hermanus Mtns).•

dunensis Levyns Sparsely tufted perennial to 20 cm. Spikelets reddish. Aug.–Oct. Coastal dunes or mountain slopes, NW, SW, AP, SE (Cedarberg to Port Elizabeth).•

dura Turrill Perennial to 27 cm. Spikelets green to brown. Apr. Lower slopes below 100 m, SW, AP (Stanford to Bredasdorp).•

ecklonea (Steud.) Nees (= *Scirpus eckloneus* Steud.) Stiff perennial, 30–45 cm. Spikelets in dense brown heads. Oct.–Dec. Sandy slopes below 1 000 m, coastal fynbos, SW, AP (Malmesbury to Albertinia).•

elatior Levyns Perennial to 40 cm. Spikelets reddish. Aug.–Dec. Flats near streams and pools below 100 m, SW, AP (Moorreesburg and Cape Peninsula to Bredasdorp).•

esterhuyseniae Muasya Small, tufted or mat-forming perennial to 10 cm. Spikelets reddish to dark brown. Sept.–May. Sheltered rock crevices on upper slopes, 800–1 700 m, NW, SW (Cedarberg to Cape Peninsula and Swellendam).•

fascicularis Nees Perennial with slender stems, 30–60 cm. Spikelets dull brown. Oct.–Nov. Middle to upper slopes below 2 000 m, damp places in mountain fynbos and forests, SW, KM, SE (Caledon to KwaZulu-Natal).

fastigiata (Thunb.) Nees Slender tufted perennial, 25–40 cm. Spikelets grey-green. Apr.–Oct. Flats and lower slopes, SW (Cape Peninsula).•

filiformis (Lam.) Schrad. (= *Ficinia tenuifolia* Kunth) Perennial, 25–45 cm, leaf sheaths sticky. Spikelets light brown, nutlet lacks gynophore. Apr.–Nov. Lower slopes, SW, KM (Cape Peninsula to Ladismith).•

grandiflora T.H.Arnold & Gordon-Gray Perennial, 35–70 cm. Spikelets maroon and white. July–Oct. Sandstone or granite slopes below 800 m, SW (Du Toitskloof to Hottentots Holland Mtns).•

gydomontana T.H.Arnold Perennial to 40 cm. Spikelets light to dark reddish. Oct.–Jan. Upper slopes below 2 000 m, NW (Cold Bokkeveld to Hex River Mtns).•

indica (Lam.) Pfeiff. (= *Ficinia striata* (Thunb.) Kunth) Perennial, 10–40 cm. Spikelets chestnut-brown. July–Nov. Flats and lower slopes, NW, SW, AP, SE (Namaqualand to E Cape).

ixioides Nees Tufted perennial, 5–25 cm. Spikelets chestnut-brown. Aug.–Jan. Upper slopes, NW, SW, SE (Cedarberg to Tsitsikamma Mtns).•

laciniata (Thunb.) Nees Perennial to 20 cm. Spikelets pale brown. July–Oct. Coastal flats below 300 m, AP, LB, SE (Elim to KwaZulu-Natal).

laevis (Vahl) Nees Relatively robust perennial to 25 cm. Spikelets brown. Oct. Sandy soils, NW, SW (Namaqualand to E Cape).

lateralis (Vahl) Kunth Relatively robust, tufted perennial, 15–25 cm. Spikelets brown. Mar.–Aug. Coastal sands, SW, AP, SE (Cape W Coast to E Cape).

latifolia T.H.Arnold & Gordon-Gray Relatively robust perennial to 15 cm. Spikelets greenish. Apr. Sand over coastal limestone below 100 m, AP (Bredasdorp).•

levynsiae T.H.Arnold & Gordon-Gray Relatively robust perennial to 15 cm. Spikelets dark brown. Oct.–Jan. Middle to upper slopes, NW, SW (Ceres to Hottentots Holland Mtns).•

macowanii C.B.Clarke Slender perennial, 30–60 cm. Spikelets white-edged. Oct.–May. Lower slopes, SW, LB (Caledon to Swellendam).•

micrantha C.B.Clarke Slender, tufted perennial to 12 cm. Spikelets white. Oct.–Jan. Middle slopes, SW (Cape Peninsula to Caledon).•

minutiflora C.B.Clarke Very slender perennial, 5–15 cm. Spikelets pale brown and white. Oct.–Mar. Middle slopes, SW (Hottentots Holland Mtns and Kogelberg).•

monticola Kunth Relatively robust perennial, 15–40 cm. Spikelets dark maroon and white. June–Nov. Middle to upper slopes below 1 500 m, SW, LB (Worcester to Caledon and Langeberg).•

mucronata C.B.Clarke Slender, tufted perennial to 15 cm. Spikelets light brown. Sept.–Nov. Rocky upper slopes below 1 500 m, NW (Cedarberg).•

nigrescens (Schrad.) J.Raynal (= *Ficinia bracteata* Boeck.) Tufted perennial, 7–40 cm. Spikelets brown. May–Oct. Flats to upper slopes below 2 000 m, NW, SW, AP, KM, LB, SE (S Namibia to E Cape).

nodosa (Rottb.) Goetgh., Muasya & D.A.Simpson (= *Scirpoides nodosus* (Rottb.) Soják, *Scirpus nodosus* Rottb.) VLEIBIESIE Tufted perennial with rigid stems to 100 cm. Spikelets in dense, brown heads. Dec.–Mar. Damp sandy coastal flats and lower slopes to 500 m, SW, AP, LB, SE (Namaqualand to KwaZulu-Natal, widespread in southern hemisphere).

oligantha (Steud.) J.Raynal (= *Ficinia filiformis* auct. non (Lam.) Schrad.; incl. **F. capillaris** (Nees) Levyns) Slender, tufted perennial to 25 cm. Spikelets brown. Sept.–Jan. Lower slopes, especially on shale, NW, SW, AP, LB, SE (Clanwilliam to Knysna).•

pallens (Schrad.) Nees Relatively robust tufted perennial, 15–30 cm. Spikelets yellow-green tinged with red. Mar.–July. Flats and lower slopes below 300 m, SW (Cape Peninsula to Caledon).•

paradoxa (Schrad.) Nees Densely tufted perennial, 10–35 cm. Spikelets light brown. May–Nov. Flats to upper slopes, SW, AP, LB (Cape Peninsula to Albertinia).•

petrophila T.H.Arnold & Gordon-Gray Stiff-leaved, tufted perennial to 30 cm. Spikelets yellow and reddish. Oct.–Jan. Rock crevices at high altitude, KM (Anysberg).•

pinguior C.B.Clarke Relatively robust perennial to 60 cm. Spikelets brown. Mar.–June. Flats and lower slopes below 700 m, SW (Cape Peninsula to Caledon).•

polystachya Levyns (= *Ficinia angustifolia* C.B.Clarke) Perennial to 30 cm. Spikelets dark brown. Oct.–Jan. Moist rock ledges and bogs above 1 000 m, NW, SW (Ceres to Jonkershoek Mtns).•

praemorsa Nees Tufted perennial to 40 cm. Spikelets yellow to brown. Jan.–Dec. Limestone flats below 600 m, AP (Stanford to Hartenbos).•

pygmaea Boeck. (= *Ficinia limosa* Levyns) Tufted perennial, 3–40 cm. Spikelets light brown. Aug.–Nov. Coastal dunes below 100 m, NW, SW, AP (Lambert's Bay to Bredasdorp).•

quinquangularis Boeck. Perennial to 25 cm. Spikelets chestnut-red. Mar.–May. Rocky mountain slopes and plateaus below 1 500 m, LB, SE (Swellendam to Humansdorp).•

radiata (L.f.) Kunth (= *Sickmannia radiata* (L.f.) Nees) STERGRAS Robust tufted perennial, 5–25 cm. Spikelets yellow, in heads with broad, yellow radiate bracts. Sept.–Nov. Flats and slopes, NW, SW, AP (Ceres to Still Bay).•

ramosissima Kunth Erect, branched perennial to 20 cm. Spikelets light brown. July–Sept. Lower slopes and rock crevices in shade, SW, AP, KM, SE (Cape Peninsula to E Cape).

repens (Nees) Kunth Rhizomatous perennial to 15 cm. Spikelets brown. Oct.–Feb. Salt flats, AP, LB, SE (Bredasdorp to E Cape).

rigida Levyns Stiff perennial to 35 cm. Spikelets brown. Jan.–Mar. Sandy lower slopes, SW (Cape Peninsula to Kleinmond).•

secunda (Vahl) Kunth Perennial to 60 cm. Spikelets chestnut-red. Mar.–Oct. Sandy flats below 1 000 m, NW, SW, AP, LB (Namaqualand to Mossel Bay). **gce**

stolonifera Boeck. (incl. **F. contorta** (Nees) Pfeiff., **F. pusilla** C.B.Clarke, **F. thyrsoidea** Pfeiff.) Perennial, 7–15 cm. Spikelets brown. Sept.–Dec. Flats to upper mountain slopes, NW, SW, LB, SE (Cape Peninsula to tropical Africa).

trichodes (Schrad.) Benth. & Hook.f. Much-branched, sprawling perennial to 45 cm long. Spikelets light brown. June–Sept. Rocky lower to middle slopes, SW, SE (Saldanha to E Cape).

trispicata (L.f.) Druce (= *Ficinia leiocarpa* Nees, *F. sylvatica* Kunth) Tufted perennial, 20–60 cm. Spikelets white to light brown. Sept.–Nov. Lower slopes below 1 000 m in forests, LB, SE (Swellendam to E Cape).

tristachya (Rottb.) Nees Tufted perennial to 20 cm. Spikelets brown. Mar.–May. Flats and lower slopes, SW, AP, LB, SE (Cape Peninsula to E Cape).

truncata (Thunb.) Schrad. Robust, grey-green, tufted perennial. Spikelets chestnut-brown. June–Oct. Limestone hills below 200 m, AP, SE (Bredasdorp to E Cape).

zeyheri Boeck. Slender, tufted perennial, 15–30 cm. Spikelets brown. Aug.–Oct., after fire. Sandy soil in mountain seeps below 1 700 m, in fynbos, SW, LB, SE (Cape Peninsula to Uniondale).•

[**Species excluded Scirpus lucida** C.B.Clarke, a putative interspecific hybrid between **F. cedarbergensis** & **F. ixioides** subsp. **glabra**]

FIMBRISTYLIS Vahl. ± 300 spp., cosmopolitan

bisumbellata (Forssk.) Bubani Annual, 10–30 cm. Spikelets small, brown. Aug.–Dec. Lower slopes, ?NW (Namibia, Clanwilliam and southern to tropical Africa).

complanata (Retz.) Link Perennial, 15–60 cm. Spikelets reddish. Oct.–Nov. Lower slopes below 100 m, SE (George to northern S Africa and nearly worldwide).

squarrosa Vahl Annual, 5–20 cm. Spikelets greyish. Jan.–June. Lower slopes, NW (Clanwilliam and southern Africa, also worldwide in tropics and subtropics).

FUIRENA Rottb. ± 60 spp., nearly cosmopolitan

coerulescens Steud. Perennial, 20–40 cm. Spikelets pubescent, blue-green. Sept.–Mar. Marshy flats and lower slopes below 100 m, SW, AP, SE (Cape Peninsula to northern S Africa, sporadic in S tropical Africa).

hirsuta (P.J.Bergius) P.L.Forbes (= *Fuirena hottentotta* (L.) Druce) Perennial with (usually) pubescent sheaths on stems, 30–50 cm. Spikelets pubescent, blue-green. Oct.–Feb. Marshy flats and watercourses on lower slopes to 1 000 m, NW, SW, AP, LB, SE (Bokkeveld Mtns to Mpumalanga and Mozambique).

HELLMUTHIA Steud. 1 sp., W & E Cape

membranacea (Thunb.) R.W.Haines & Lye (= *Scirpus membranaceus* Thunb.) BIESIE Reed-like, tufted perennial to 1 m. Spikelets dark brown, clustered. May–Oct. Coastal sands below 500 m, SW, AP, SE (Saldanha to Alexandria).

ISOLEPIS R.Br. ± 75 spp., cosmopolitan

antarctica (L.) Roem. & Schult. Annual, 8–20 cm. Spikelets straw-coloured and dark red. Oct.–Nov. Damp flats and slopes to 800 m, SW, AP, LB (Cape Peninsula to Langeberg).•

brevicaulis (Levyns) J.Raynal (= *Scirpus burchellii* C.B.Clarke) Small, tufted annual to 5 cm. Spikelets pale or green. Sept.–Nov. Near pools on gravel flats, NW, SW, LB (Namaqualand to Riversdale). **gce**

bulbifera (Boeck.) Muasya (= *Scirpus bulbiferus* Boeck., *S. delicatulus* Levyns) Submerged aquatic to 20 cm. Spikelets green and red. Nov.–Jan. Seasonal pools, SW (Cape Peninsula).• EXTINCT

capensis Muasya (incl. **Scirpus dregeanus** C.B.Clarke) Like **I. marginata** but only 2–4 cm. Spikelets red to brown. Sept.–Oct. Lower slopes, NW, SW (Namaqualand to Riviersonderend Mtns). **gce**

cernua (Vahl) Roem. & Schult. (= *Isolepis verrucosula* (Steud.) Nees) Densely tufted annual to 14 cm. Spikelets straw-coloured or reddish, with green keels. Sept.–Mar. Marshes and watercourses, NW, SW, AP, SE (Namaqualand to Port Elizabeth, cosmopolitan).

diabolica (Steud.) Schrad. Stoloniferous perennial to 30 cm. Spikelets straw-coloured and dark red. Sept.–Nov. Marshes and watercourses below 300 m, NW, SW, SE (Bokkeveld Mtns to KwaZulu-Natal and Free State).

digitata Schrad. Flaccid, tufted perennial, 15–35 cm. Spikelets green. Sept.–Jan. Attached to rocks in streams below 1 000 m, NW, SW, LB (Clanwilliam to Riversdale).•

fluitans (L.) R.Br. WATERBIESIE, WATERGRAS Aquatic branching perennial, 15–30 cm. Spikelets green. Jan.–June. Pools and watercourses on flats or slopes, LB, SE (Riversdale to Mossel Bay, widespread in the Old World).

hemiuncialis (C.B.Clarke) J.Raynal. Tufted annual, 2–7 cm. Spikelet reddish, 1 or occasionally 2. Aug.–Oct. Sandy depressions and stream beds below 1 000 m, NW (Namibia to Swartruggens). **gce**

hystrix (Thunb.) Nees BIESIE Small, densely tufted annual, 2–10 cm. Spikelets green, apices recurved. Aug.–Nov. Damp flats, sometimes to 1 600 m, NW, SW (Namaqualand to Cape Peninsula, Australia).

incomtula Nees Tufted annual, 2–8 cm. Spikelets green with white or red edges. Aug.–Oct. Muddy flats or sandy pockets in sandstone, NW, SW, SE (Namaqualand to Port Elizabeth). **gce**

inconspicua (Levyns) J.Raynal Minute, tufted, turf-forming annual, 2–3 cm. Spikelets reddish. Aug.–Sept. Low-lying wet sites, SW (Cape Peninsula and Cape Flats).•

karroica (C.B.Clarke) J.Raynal Small, tufted annual to 3 cm. Spikelets straw-coloured. Oct.–Feb. Watercourses, KM (Namibia, Namaqualand and W Karoo to Witteberg, E Cape: Cradock District).

leucoloma (Nees) C.Archer (= *Cyperus leucoloma* Nees) Tufted annual, 2–5 cm. Spikelets flattened, glumes dark red and white. Oct.–Nov. Mountain slopes to 1 000 m, NW, SW (Cedarberg to Cape Peninsula).•

levynsiana Muasya & D.A.Simpson (= *Cyperus tenellus* L.f., *Isolepis tenella* (L.f.) Muasya & D.A. Simpson) Small annual to 15 cm. Spikelets flattened, green or reddish. Sept.–Jan. Lower slopes, NW, SW, AP, LB, SE (Namaqualand to E Cape, *Australia, *New Zealand, *Tristan da Cunha).

ludwigii (Steud.) Kunth Stoloniferous, turf-forming perennial to 10 cm. Spikelets straw-coloured to brown-red. Sept.–Dec. Damp, often disturbed flats near water, mostly below 1 000 m, SW, LB, SE (Cape Peninsula to E Cape).

marginata (Thunb.) A.Dietr. (= *Isolepis cartilaginea* R.Br.) Annual, 5–15 cm. Spikelets straw-coloured and dark red. Sept.–Dec. Dunes, flats and slopes in seasonally damp sandy soil, to 1 200 m, NW, SW, AP, LB, SE (Namaqualand to E Cape, also *Australia).

minuta (Turrill) J.Raynal Annual to 3 cm. Spikelets green-keeled. Nov. Moist sandstone soil, common after fire, NW (Grootwinterhoek Mtns to Ceres).•

namaquana Muasya & J.Viljoen Tufted annual to 30 cm. Spikelets green and red. Nutlets colliculate. Aug.–Nov. Seasonal seepages, NW (Namaqualand and Gifberg). **gce**

natans (Thunb.) A.Dietr. (= *Scirpus rivularis* (Schrad.) Boeck.) Tufted annual with flattened stems, 5–25 cm. Spikelets dark brown. Oct.–Nov. Marshes and pools below 400 m, NW, SW, LB, SE (Cedarberg to Cape Peninsula to Tanzania).

prolifera (Rottb.) R.Br. Moderately robust perennial, stems to 50 cm. Spikelets light brown. Oct.–Mar. Streamsides and seeps below 1 000 m, NW, SW, AP, KM, LB, SE (Namaqualand to KwaZulu-Natal, Australasia, St Helena).

pusilla Kunth (= *Scirpus nanodes* Levyns) Slender annual to 5 cm. Spikelets reddish with green keels. Oct.–Dec. Damp mountain slopes, seasonal pools, NW, SW (Bokkeveld Mtns and Cold Bokkeveld to Cape Peninsula).•

rubicunda (Nees) Kunth (= *Scirpus globiceps* C.B.Clarke) Often submerged perennial with branching stems to 30 cm. Spikelets red. May–Oct. Seasonal pools on flats or lower slopes, SW (Langebaan to Cape Peninsula and Riviersonderend).•

sepulcralis Steud. (= *Scirpus chlorostachyus* Levyns) Annual to 6 cm. Spikelets dark red. Aug.–Feb. Seasonally moist places, SW, SE (Namaqualand to northern S Africa, Botswana, E Africa, Australia).

sororia Kunth Tufted annual to 15 cm. Spikelets pale, often with red markings. Nutlets reticulate. Sept.–Dec. Seasonally moist places below 600 m, KM, LB, SE (Touwsberg and Mossel Bay to Uitenhage).•

striata (Nees) Kunth Branching aquatic perennial. Spikelets green or reddish. Aug.–Dec. Pools at lower altitudes, NW, SW, SE (Namaqualand to Riviersonderend and Uitenhage). **gce**

tenuissima (Nees) Kunth Slender, branching aquatic to 60 cm. Spikelets minute, dark red and green. Dec.–Apr. Rivers or pools, NW, SW, SE (Ceres to Cape Peninsula to KwaZulu-Natal, Madagascar).

trachysperma Nees Tufted annual to 12 cm. Spikelets green and brown. Nutlets aculeate-tuberculate. Seasonally wet places, SW (Namibia and Namaqualand to Cape Peninsula, also Australia).

venustula Kunth (= *Scirpus venustulus* (Kunth) Boeck.) Rhizomatous perennial, 5–25 cm. Spikelets dark red. Sept.–Nov. Coastal flats in damp soil or shallow pools, SW (Cape Peninsula to Caledon).•

KYLLINGA Rottb. ± 73 spp., nearly cosmopolitan in warm, moist regions

alata Nees Tufted perennial, 9–25 cm. Spikelets golden. Oct.–Mar. Grassy flats and slopes below 100 m, LB, SE (Swellendam, Knysna, Port Elizabeth to tropical Africa).

erecta Schumach. Rhizomatous perennial, 10–30 cm. Spikelets golden-brown. Jan.–Mar. Grassy flats and lower slopes below 100 m, LB, SE (Swellendam, George, E Cape to tropical Africa and Mascarene Islands).

melanosperma Nees Slender perennial to 45 cm. Spikelets olive-green. Nov.–Jan. Lower slopes, SE (Humansdorp to northern S Africa, widespread in palaeotropics).

MARISCUS Vahl = **CYPERUS**

NEESENBECKIA Levyns• 1 sp., W Cape

punctoria (Vahl) Levyns (= *Tetraria punctoria* (Vahl) C.B.Clarke) Rigid, robust, tufted perennial to 2 m. Spikelets light brown. Year round. Streamsides on lower slopes to 800 m, SW (Tulbagh and Paarl Districts, Cape Peninsula to Riviersonderend Mtns and Potberg).•

PSEUDOSCHOENUS (C.B.Clarke) Oteng-Yeb. 1 sp., southern Africa

inanis (Thunb.) Oteng-Yeb. (= *Scirpus inanis* (Thunb.) Steud., *S. spathaceus* Hochst.) Rhizomatous perennial with stout, reed-like stems to 1 m. Spikelets pale brown. Nov.–Dec. Streamsides at high altitudes to 1 500 m, NW, KM, SE (Namibia to Cedarberg, Swartberg and Baviaanskloof Mtns, ?Tsitsikamma Mtns, Karoo to Lesotho).

PYCREUS P.Beauv. ± 118 spp., nearly cosmopolitan

mundii Nees Creeping perennial, 20–60 cm. Spikelets brown. Oct.–Apr. Edges of pools and watercourses on flats and lower slopes, SW, AP, SE (Cape Peninsula to Port Elizabeth, S to tropical Africa, Mediterranean region, Mascarenes).

nitidus (Lam.) J.Raynal (= *Pycreus lanceus* (Thunb.) Turrill) WATERBIESIE Tufted perennial, 20–50 cm. Spikelets dark red. Oct.–Apr. Marshy flats and lower slopes, NW, SW, LB, SE (Clanwilliam to E Cape and to northern S Africa, widespread).

polystachyos (Rottb.) P.Beauv. Tufted perennial, 30–60 cm. Spikelets yellow-green. Dec.–Apr. Damp lower slopes, NW, SW, AP, LB, SE (Clanwilliam to Cape Peninsula to Port Elizabeth, pantropical).

RHYNCHOSPORA Vahl ± 350 spp., nearly cosmopolitan

brownii Roem. & Schult. Tufted perennial, 30–70 cm. Spikelets brown. Dec.–Jan. Seeps at lower altitudes, SW, SE (Cape Peninsula, Riviersonderend Mtns, Tsitsikamma Mtns to Humansdorp, also widespread in eastern southern Africa and nearly worldwide in warmer regions).

SCHOENOPLECTUS (Rchb.) Palla ± 65 spp., southern and tropical Africa

decipiens (Nees) J.Raynal Rhizomatous perennial to 30 cm. Spikelets black and straw-coloured. Oct.–Apr. Marshes below 550 m, KM, LB, SE (Riversdale and Ladismith to Uitenhage, E Cape, widespread in southern Africa).

leucanthus (Boeck.) J.Raynal (= *Scirpus leucanthus* Boeck., *S. supinus* auct.) Small tufted annual, 2–6 cm. Spikelets straw-coloured. Oct.–Jan. River banks and pool margins, NW, SE (Namibia to Worcester, Uitenhage and Karoo to Botswana).

paludicola (Kunth) J.Raynal (= *Scirpus paludicola* Kunth) STEEKBIESIE, STEEKRIETJIE Tufted perennial, 30–50 cm. Spikelets chestnut-brown. (June–)Oct.–Feb. Marshes below 500 m, LB, SE (Swellendam to Mpumalanga, Madagascar).

scirpoides (Schrad.) Browning (= *Scirpus litoralis* auct.) PAPGRAS, STEEKBIESIE Reed-like perennial with soft round stems to 3 m. Spikelets brown. Nov.–Jan. Marshes and river banks, mostly coastal areas below 200 m, ?NW, SW, AP, SE (Namibia, Olifants River Mouth [sight record], Cape Peninsula to Mozambique).

*__triqueter__ (L.) Palla (= *Scirpus triqueter* L.) Perennial with triangular stems, to 1.5 m. Spikelets brown. Nov.–Jan. Edges of pools near the coast, SW, AP, SE (Langebaan to Bredasdorp and George, also sporadic in rest of S Africa, introduced from Eurasia).

SCHOENOXIPHIUM Nees ± 8 spp., tropical and southern Africa

altum Kukkonen Tufted perennial, 50–70 cm. Spikelets green. Mar.–Apr.(–July). Forests, SW, SE (Swellendam to Knysna).•

ecklonii Nees (= *Carex zeyheri* C.B.Clarke) Tufted perennial to 30 cm. Inflorescence bracts not sheathing. Spikelets gold. June–Oct. Open, bushy slopes, SW, KM, SE (Cape Peninsula to Uitenhage).•

lanceum (Thunb.) Kük. (= *Scirpus capense* Nees, *S. sickmannianum* Kunth) Tufted perennial to 1.2 m. Spikelets dull gold. June–Nov. Shady lower slopes, SW, LB, SE (Cape Peninsula to Humansdorp).•

lehmannii (Nees) Steud. Tufted perennial, 20–40 cm. Spikelets green to brownish. Oct.–Jan. Shady forested slopes, SW, SE (Cape Peninsula to E Cape to Tanzania).

sparteum (Wahlenb.) C.B.Clarke (provisionally incl. **S. caricoides** C.B.Clarke, **S. schimperianum** (Boeck.) C.B.Clarke) Tufted perennial to 40 cm. Spikelets green. May–Nov. Damp, shady slopes, SW, SE (Malmesbury to Humansdorp, widespread in southern Africa).

SCHOENUS L. ± 108 spp., cosmopolitan

nigricans L. Tufted perennial, 20–50 cm. Spikelets brown. May–Oct. Marshes and watercourses on flats and lower slopes below 200 m, SW, AP, SE (Cape Peninsula to E Cape, ± worldwide temperate and subtropics).

SCIRPOIDES Ség. ± 5 spp., nearly cosmopolitan

dioecus (Kunth) Browning (= *Scirpus dioecus* (Kunth) Boeck.) BIESIE Reed-like perennial with robust stems to 50 cm. Spikelets light brown in dense heads. Sept.–Dec. River banks and seasonal pans to 1 000 m, NW, SW, AP, KM, LB, SE (Namibia to Baviaanskloof, widespread in interior S Africa).

thunbergii (Schrad.) Soják (= *Scirpus thunbergianus* (Nees) Levyns) Tufted perennial with flattened stems, 15–70 cm. Spikelets in dense clusters, brown. Oct.–May. Damp flats near the coast to 300 m, NW, SW, SE (Clanwilliam to Cape Peninsula to E Cape).

SCIRPUS see **BOLBOSCHOENUS, ISOLEPIS, FICINIA, PSEUDOSCHOENUS, SCHOENOPLECTUS** and **SCIRPOIDES**

SCLERIA P.J.Bergius ± 260 spp., pantropical

natalensis C.B.Clarke SNYGRAS Tufted perennial to 85 cm. Spikelets light brown. May–June. Damp places in coastal forests below 300 m, SE (Knysna and Humansdorp to KwaZulu-Natal).

TETRARIA P.Beauv. ± 55 spp., Africa and Australasia, mainly S Africa

bolusii C.B.Clarke Slender stems to 30 cm. Spikelets chestnut-red. July–Aug. Below 1 200 m, SW, ?LB (Cape Peninsula and ?Langeberg).•

brachyphylla Levyns Densely tufted perennial to 60 cm. Spikelets reddish. July–Nov. Sandy coastal dunes and lower slopes below 200 m, SW, AP, SE (Cape Peninsula to Plettenberg Bay).•

bromoides (Lam.) Pfeiff. (= *Tetraria rottboellii* (Schrad.) C.B.Clarke) BERGPALMIET Robust tufted perennial to over 1.5 m. Spikelets pinkish to dark brown. Oct.–Feb. Dry mountain fynbos up to 1 500 m, NW, SW, AP, LB, SE (Porterville to Cape Peninsula to Uitenhage).•

burmanii (Vahl) C.B.Clarke Tufted perennial, 10–30 cm. Spikelets rusty brown. Nov.–Apr. Mountain slopes, SW, AP, SE (Bain's Kloof to Potberg to Uitenhage).•

capillacea (Thunb.) C.B.Clarke Tufted perennial, 30–80 cm. Spikelets dark brown. Mainly Oct.–Nov. Mountain slopes to 1 500 m, dry to moist mountain fynbos, SW, AP, LB, SE (Cape Peninsula to E Cape).

compacta Levyns Densely tufted perennial to 60 cm. Spikelets yellow-brown. Aug.–Nov. Lower slopes, SW (Villiersdorp to Kleinmond).•

compar (L.) T.Lestib. Perennial, 30–90 cm. Spikelets viscid, light to dark brown. Apr.–June. Sandy lower slopes and coastal fynbos, NW, SW, AP, LB, SE (Cedarberg to Cape Peninsula to Tsitsikamma Mtns).•

crassa Levyns Robust, tufted perennial to 60 cm. Spikelets brown. Apr.–June. Lower mountain slopes, SW (Hottentots Holland Mtns to Hangklip).•

crinifolia (Nees) C.B.Clarke Tufted perennial to 30 cm. Spikelets dark red-brown. Aug.–Oct. Sandstone slopes to 1 600 m, NW, SW (Clanwilliam to Caledon Swartberg).•

cuspidata (Rottb.) C.B.Clarke Tufted perennial, 30–60 cm. Spikelets dark brown. Aug.–Nov. Mountain slopes, NW, SW, AP, SE (Cedarberg to Cape Peninsula to Mpumalanga).

exilis Levyns Tufted perennial, 20–30 cm. Spikelets brown. Apr.–June. Flats and slopes, SW (Du Toitskloof Mtns to Kleinmond).•

eximia C.B.Clarke Relatively robust perennial, 30–90 cm. Spikelets rusty brown. May–Aug. Rocky flats to 1 200 m, SW (Cape Peninsula to Caledon).•

fasciata (Rottb.) C.B.Clarke (incl. **T. pleosticha** C.B.Clarke) Tufted perennial, 30–80 cm. Spikelets light grey-brown. Nov.–May. Sandy lower or middle slopes to 1 400 m, SW, LB, SE (Cape Peninsula to Humansdorp).•

ferruginea C.B.Clarke Tufted perennial to 60 cm. Spikelets rusty brown. Mar.–July. Mountain slopes above 1 200 m, NW, SW (Cedarberg to Hex River Mtns and Bain's Kloof Mtns).•

fimbriolata (Nees) C.B.Clarke Tufted perennial, 30–45 cm. Spikelets brown. Jan.–Apr. Sandy flats and lower slopes and mountain fynbos to 1 200 m, SW, AP, KM, LB, SE (Cape Peninsula to Uitenhage).•

flexuosa (Thunb.) C.B.Clarke (= *Tetraria aristata* (Boeck.) C.B.Clarke) Tufted perennial, 45–75 cm. Spikelets dark brown. Jan.–May. Flats to middle slopes, NW, SW, LB (Ceres to Cape Peninsula to Riversdale).•

fourcadei Turrill & Schönland Tufted perennial to 80 cm. Spikelets reddish to dark brown. Jan.–May. Mountain slopes up to 1 800 m, NW, SW, KM, LB, SE (Hex River Mtns to Great Winterhoek Mtns).•

graminifolia Levyns Densely tufted perennial to 40 cm. Spikelets light brown. July–Nov. Lower slopes, SW (Cape Peninsula).•

involucrata (Rottb.) C.B.Clarke Robust, reed-like perennial to 2 m. Spikelets light brown. Jan.–Apr. Moist sandstone slopes to 2 000 m, NW, SW, AP, KM, LB, SE (Ceres to Humansdorp).•

ligulata (Boeck.) C.B.Clarke (incl. **T. autumnalis** Levyns) Tufted perennial to 40 cm. Spikelets dull brown. Apr.–June. Damp lower slopes to 1 000 m, SW (Cape Peninsula).•

maculata Schönland & Turrill Tufted perennial, 30–45 cm. Spikelets dark brown with pale margins. Dec.–Feb. Seeps in fynbos on high peaks, above 1 200 m, NW, SW, KM (Cedarberg to Kammanassie Mtns).•

microstachys (Vahl) Pfeiff. Tufted perennial to 25 cm. Spikelets brown or pale. Dec.–Feb. Sandy flats and slopes to 600 m, SW, LB, SE (Tulbagh to Cape Peninsula to Humansdorp).•

nigrovaginata (Nees) C.B.Clarke Tufted perennial, 20–45 cm. Spikelets brown. Jan.–Apr. Sandy mountain slopes and plateaus to 1 200 m, NW, SW, KM (Namaqualand to Cape Peninsula to Witteberg). **gce**

paludosa Levyns Densely tufted perennial to 100 cm. Spikelets reddish. Aug.–Nov. Marshy lower slopes, SW (Cape Peninsula).•

picta (Boeck.) C.B.Clarke Tufted perennial, 20–40 cm. Spikelets shining, brown. Dec.–May, after fire. Moist sands above 1 200 m, NW, SW, KM, LB (Cedarberg to Caledon Swartberg, Langeberg and Groot Swartberg).•

pillansii Levyns Slender tufted perennial to 25 cm. Spikelets greenish. Jan.–Feb. Lower slopes, SW, AP, LB, SE (Worcester to Humansdorp).•

pubescens Schönland & Turrill Densely tufted perennial to 12 cm, flowering stems shorter than leaves. Spikelets light brown. Oct.–Apr. Rocky sandstone slopes above 1 200 m, NW, SW, SE (Cedarberg to Du Toitskloof, Riviersonderend Mtns, Uitenhage).

pygmaea Levyns Tufted perennial to 15 cm. Spikelets yellow-brown. Feb.–Apr. Sandstone slopes below 1 200 m, SW, AP, LB, SE (Cape Peninsula to Langkloof).•

robusta (Kunth) C.B.Clarke (incl. **T. compressa** Turrill) Robust perennial to 1.8 m. Spikelets dull brown. Feb.–Mar. Mountain slopes, LB, SE (Langeberg to Groot Winterhoek Mtns to KwaZulu-Natal).•

secans C.B.Clarke BERGKLAPPER Robust, tufted perennial to 2.5 m. Spikelets dusky brown. Apr.–May. Marshy forest margins below 200 m, LB, SE (Langeberg, Tsitsikamma Mtns, Groot Winterhoek Mtns.).•

sylvatica (Nees) C.B.Clarke Tufted perennial, 15–40 cm. Spikelets shining brown. May–Dec. Flats and lower slopes, SW, AP, SE (Cape Peninsula to George).•

thermalis (L.) C.B.Clarke BERGPALMIET Robust, tufted perennial to over 2 m. Spikelets dusky brown. June–Oct. Rocky flats and slopes below 1 100 m, SW, AP, LB, SE (Cape Peninsula to Outeniqua Mtns).•

triangularis (Boeck.) C.B.Clarke (incl. **T. macowaniana** B.L.Burtt) Tufted perennial to 60 cm. Spikelets rusty brown. Feb.–Apr. High altitudes, NW, SW, LB, SE (Cedarberg to Cape Peninsula to KwaZulu-Natal).
ustulata (L.) C.B.Clarke Tufted perennial, 45–90 cm. Spikelets shiny brown. Jan.–May. Sandy flats, lower slopes and plateaus to 1 200 m, NW, SW, AP, LB, SE (Namaqualand to Cape Peninsula to Outeniqua Mtns). **gce**
vaginata Schönland & Turrill Tufted perennial, 10–30 cm. Spikelets reddish with papery margins. Sept.–Apr. Rocky upper slopes to 2 000 m, NW, SW, KM (Cedarberg, Hex River Mtns, Touwsberg).•
variabilis Levyns Tufted perennial, 20–40 cm. Spikelets dull brown. Apr.–June. Flats, SW (Cape Peninsula).•

[**Species excluded T. gracilis** Turrill, identity uncertain, type material young and incomplete]

TRIANOPTILES Fenzl• 3 spp., W Cape

capensis (Steud.) Harv. Grass-like annual, 6–25 cm. Spikelets greenish. Aug.–Nov. Damp flats or lower slopes, NW, SW, LB, SE (Ceres to Cape Peninsula to Knysna).•
solitaria (C.B.Clarke) Levyns Grass-like annual, 10–30 cm. Spikelets greenish. Aug.–Oct. Damp flats, NW, SW (Cold Bokkeveld Mtns, Paardeberg and Cape Flats, *Australia).•
stipitata Levyns Like **T. capensis** but ovary stalked. Aug.–Oct. Sandy flats and plateaus, NW, SW (Gifberg to Cape Peninsula and Hottentots Holland Mtns).•

DIOSCOREACEAE

DIOSCOREA L. YAM 400 spp., pantropical and warm temperate

A. Stems divaricate, rigid

elephantipes (L'Hér.) Engl. ELEPHANT'S FOOT, HOTTENTOTSBROOD Perennial with exposed, armour-plated tuber, stems divaricate, twisting to the left, to 90 cm. Leaves heart-shaped. Male flowers in erect, spiny racemes, female flowers in spinescent, nodding to spreading spikes, yellowish green. Nov.–Feb. Dry rocky slopes, NW, SE (Richtersveld through W Karoo and S Karoo to Uniondale and Graaff-Reinet).
hemicrypta Burkill Perennial with half-exposed and armour-plated tuber, base broadly lobed, stems divaricate, erect or twisting to the left, to 1.2 m. Leaves broadly ovate. Male flowers in erect racemes, female flowers in spreading spikes, yellowish. Jan.–Apr. Dry stony slopes, NW, KM (Clanwilliam to Little Karoo). **gce**

A.' Stems twining

burchellii Baker Perennial vine with branched tuber, stems twisting to the left, ribbed and warty, to 2 m. Leaves lanceolate to sagittate. Male flowers in nodding racemes, female flowers in nodding spikes, cream-coloured. Apr.–June. Damp sandstone slopes, SE (George to Humansdorp).•
cotinifolia Kunth Perennial with tubers on slender roots from small crown, stems twisting to the right. Leaves ovate to heart-shaped. Male flowers in erect racemes, female flowers in nodding spikes, white. Oct.–Dec. Coastal bush, SE (Van Staden's River to Mpumalanga).
mundii Baker Perennial vine with branched, gnarled tuber, stems twisting to the left, to 5 m. Leaves heart-shaped. Male flowers in erect racemes, female flowers in nodding spikes, greenish. Apr.–Aug. Coastal bush or forests, SE (George to Nature's Valley).•
sylvatica Eckl. Perennial with large, lobed tuber sometimes partly exposed, with corky armour, stems twisting to the left, to 6 m. Leaves heart-shaped to sagittate. Male flowers in ± erect racemes, female flowers in nodding spikes, yellowish green. Nov.–Mar. Bush or forests, SE (Plettenberg Bay to tropical Africa).

ERIOSPERMACEAE = **RUSCACEAE**

HAEMODORACEAE

1. Ovary superior; stamens equal; leaves plicate ..... **Wachendorfia**
1.' Ovary inferior; 1 stamen shorter and with a larger anther; leaves flat or ribbed ..... **Dilatris**

DILATRIS P.J.Bergius• BLOODROOT, ROOIWORTEL 4 spp., W Cape

corymbosa P.J.Bergius Rhizomatous geophyte, 40–60 cm, stems grey-hairy. Leaves narrowly sword-shaped. Flowers in a corymbose panicle, enantiostylous, mauve, tepals ovate, long stamens ± as long as tepals, with anthers half as long as anther of short stamen. Aug.–Jan. Sandstone slopes and flats, NW, SW (Tulbagh to Hottentots Holland Mtns).•

ixioides Lam. Rhizomatous geophyte, 20–40 cm, stems grey-hairy. Leaves linear. Flowers in a corymbose panicle, enantiostylous, mauve, tepals ovate, long stamens twice as long as tepals, with anthers one-fourth as long as anther of short stamen. Sept.–Feb. Rocky sandstone slopes, NW, SW, LB, SE (Bokkeveld Mtns to George).•

pillansii W.F.Barker Rhizomatous geophyte, 20–45 cm, stems grey-hairy. Leaves linear. Flowers in a corymbose panicle, enantiostylous, mauve, tepals ovate, long stamens shorter than tepals, with anthers two-thirds as long as anther of short stamen. Aug.–Jan. Rocky sandstone slopes, NW, SW, AP, LB (Cedarberg to Agulhas).•

viscosa L.f. (= *Dilatris paniculata* L.f.) Rhizomatous geophyte, 45–60 cm, stems reddish glandular-hairy. Leaves sword-shaped. Flowers in a corymbose panicle, enantiostylous, dull orange or yellow, tepals linear-oblanceolate, long stamens slightly longer than tepals, with anthers less than half as long as anther of short stamen. Aug.–Dec. Marshy places on mountain slopes and plateaus, NW, SW, LB (Ceres to Cape Peninsula to Riversdale).•

WACHENDORFIA Burm. BUTTERFLY-LILY, ROOIKANOL 4 spp., winter-rainfall S Africa gce

brachyandra W.F.Barker Rhizomatous geophyte, 20–65 cm. Leaves narrow, glabrous. Flowers enantiostylous, in a lax panicle, apricot-yellow, stamens and style half as long as tepals, bracts scarious. Aug.–Dec. Damp sandstone or granite, SW (Hermon to Cape Peninsula to Elim).•

multiflora (Klatt) J.C.Manning & Goldblatt (= *Wachendorfia parviflora* W.F.Barker) Rhizomatous geophyte, 10–30 cm. Leaves narrow, softly hairy. Flowers enantiostylous, in a dense, rounded panicle, dull yellow to brownish purple, bracts green. Aug.–Sept. Sandstone and granitic soils, NW, SW, KM (Namaqualand to Cape Peninsula and Robertson). **gce**

paniculata Burm. KOFFIEPIT Rhizomatous geophyte, mostly 20–70 cm. Leaves narrow, usually hairy. Flowers enantiostylous, in a lax to dense panicle, apricot-coloured to yellow, bracts scarious. Mostly Aug.–Nov. Mainly sandstone soils, NW, SW, AP, KM, LB, SE (Bokkeveld Mtns and Gifberg flats to Port Elizabeth). **gce**

thyrsiflora Burm. Rhizomatous geophyte, 1–2 m. Leaves broad and glabrous. Flowers enantiostylous, in a crowded, cylindrical panicle, golden-yellow, bracts scarious. Sept.–Dec. Permanent marshes and streams. NW, SW, AP, LB, SE (Clanwilliam to Cape Peninsula to Humansdorp).•

HEMEROCALLIDACEAE

CAESIA R.Br. BLUE GRASS-LILY ± 12 spp., S Africa, Madagascar, Australia

capensis (Bolus) Oberm. Rhizomatous geophyte to 8 cm, forming compact cushions. Leaves linear. Flowers hidden in leaves, raised on long pedicels, blue, filaments smooth. Mainly Oct.–Jan. Sandstone rocks at high elevations, NW, SW, KM (Grootwinterhoek Mtns and Du Toit's Peak to Seweweekspoort).•

contorta (L.f.) T.Durand & Schinz Rhizomatous geophyte, 15–30 cm, not clumped, with spreading, wiry roots. Leaves strap-shaped to linear, with flattened pseudopetiole. Flowers in lax, sprawling racemes, blue, nodding, open afternoon only, filaments scabrid and striped blue and white. Capsules nodding. Nov.–Mar. Mainly stony sandstone slopes, NW, SW, AP, KM, LB, SE (Namaqualand to KwaZulu-Natal).

sabulosa Boatwr. & J.C.Manning Rhizomatous geophyte, 20–40 cm, forming large clumps, with stiff, palisade-like roots. Leaves strap-shaped to linear, with flattened pseudopetiole. Flowers in erect racemes, blue, mauve or pink, nodding, open all day, filaments scabrid and striped yellow, blue and white. Capsules erect. Nov.–Feb. Deep acid and coastal sands, NW, SW (Namaqualand coast to Silverstroomstrand, Bokkeveld and Cedarberg). **gce**

HYACINTHACEAE

with D.A. Snijman, **Lachenalia** by G.D. Duncan

1. Bracts (at least lower) spurred; leaves often dry at flowering; seeds with loose testa (subfamily URGINEOIDEAE):
  2. Flowers long-lived, tepals persistent in fruit, free; inflorescence branched and voluble, somewhat fleshy ..... **Bowiea**
  2.' Flowers short-lived, tepals caducous, cohering above when faded, circumscissile below, often connate below; inflorescence simple or rarely branched but then wiry ..... **Drimia**
    a. Anthers subsessile or filaments up to 2.5 mm long, often included in perianth; flowers mostly nodding, often campanulate:
      b. Flowers 1 or 2, cylindric; anthers subsessile, inserted in middle of perianth tube, opening by longitudinal slits ..... ***Litanthus* group**
      b.' Flowers several, urn-shaped or cup-shaped; anthers connivent over ovary, inserted near base of perianth tube, opening by pores or by longitudinal slits ... ***Rhadamanthus* group**
    a.' Anthers exserted and filaments longer than 1 mm:
      c. Raceme erect, firm; perianth tubular below, tepals united for ± a third of their length, recurved above; stamens usually connivent around style; capsules large, ± 10 mm long, conspicuously 3-angled or -winged ..... ***Drimia* group**
      c.' Raceme usually flexuose or wiry; perianth campanulate or stellate, tepals free or shortly united below, spreading or recurved; stamens erect or spreading, rarely connivent around style; capsules smaller, obscurely 3-lobed:
        d. Leaf bases enclosed in an elongated, transversely ridged and banded sheath; tepals free; stamens clustered around ovary, with basifixed anthers; style declinate ..... ***Tenicroa* group**
        d.' Leaf bases without an elongate, banded sheath; tepals free or united below; anthers usually dorsifixed; style straight or declinate:
          e. Raceme simple, deciduous; pedicels erect or spreading in fruit ..... ***Urginea* group**
          e.' Raceme branched, persistent; pedicels erect or deflexed in fruit ..... ***Schizobasis* group**
1.' Bracts not spurred; leaves mostly green at flowering; seeds with adherent testa:
  3. Stigma ± trifid or capitate; seeds flattened or angled, rarely globose but then stigma trifurcate (subfamily ORNITHOGALOIDEAE):
    4. Flowers nodding in secund raceme, greenish or brown; tepals fused below for at least half their length into an elongate tube; filaments inserted at top of tube, membranous, included ..... **Dipcadi**
    4.' Flowers spreading or nodding but then tepals free or shortly fused below:
      5. Tepals thick-textured, ± oblong, whitish or yellowish with distinct, broad, green to brown longitudinal band on adaxial surface associated with 3–5 medially aggregated veins ..... **Albuca**
        a. Tepal whorls dimorphic, inner ± erect and cucullate or apically hinged ..... ***Albuca* group**
        a.' Tepal whorls ± monomorphic:
          b. Style longer than ovary and stamens; stigma capitate, mop-like ..... ***Osmyne* group**
          b.' Style shorter than ovary and stamens; stigma small, papillate ..... ***Namibiogalum-Stellarioides* group**
      5.' Tepals usually ovate or lanceolate, thick- or thin-textured, unicoloured or with narrow, indistinct green or brownish keel on adaxial surface not associated with medially aggregated veins ..... **Ornithogalum**
  3.' Stigma minute and penicillate; seeds ellipsoid or globose to pear-shaped (subfamily HYACINTHOIDEAE):
    6. Ovary stipitate, mushroom-shaped; ovules 2 in each locule, apparently basal; leaves often spotted; inflorescences often several and apparently axillary ..... **Ledebouria**
    6.' Ovary usually sessile, subglobose or ovoid; ovules 2 to several in each locule, axillary; inflorescence solitary and obviously central:
      7. Filaments inserted in 2 series at different levels, never fused below; lower bracts often reduced; plants with a well-developed, tubular, membranous cataphyll ..... **Lachenalia**
        a. Floral tube well-developed ± as long as tepals or longer. ..... ***Polyxena* group**

a.' Floral tube obsolete, much shorter than tepals ..... ***Lachenalia* group**
7.' Filaments inserted in 1 series, either at the same level or obliquely, often fused below; bracts always well developed; plants without a prominent membranous cataphyll:
8. Leaves 2, spreading or prostrate; inflorescence not distinctly pedunculate:
9. Leaves firm and glossy with impressed longitudinal striations; bulb tunics decaying above into a neck of narrow, flat, papery segments; bracts usually shorter than flowers ..... **Daubenya**
9.' Leaves coriaceous or somewhat succulent and matte, smooth, pustulate or setose; bulb tunics not decaying above into narrow segments; bracts usually as long as or longer than flowers ..... **Massonia**
a. Inflorescence subspicate; pedicels up to 4 mm long; flowers campanulate ..... ***Whiteheadia* group**
a.' Inflorescence capitate, pedicels > 4 mm long; flowers tubular ... ***Massonia* group**
8.' Leaves several, usually ascending; inflorescence distinctly pedunculate:
10. Flowers bright blue; leaves convolute; capsules obovoid or turbinate and firm-textured ..... **Spetaea**
10.' Flowers pink or whitish or greenish, sometimes mottled with pink to purple; leaves flat or channelled; capsules ovoid and three-lobed or -winged, firm-textured or papery:
11. Inflorescence topped by a coma of leafy bracts longer than the flowers; flowers campanulate with stamens inserted near base of tepals ..... **Eucomis**
11.' Inflorescence not topped by a coma of leafy bracts; flowers tubular with stamens inserted obliquely near middle of tube ..... **Veltheimia**

ALBUCA L. SLIME-LILY, SLYMLELIE, TAMARAK ± 60 spp., W Cape to Arabia (= *ORNITHOGALUM* in part)

***Albuca* group**

A. Inner tepals with a hinged fleshy flap at apex, flowers nodding; outer stamens sterile
B. Leaves glandular, hairy or ciliate (but see ***A. villosa****)*

ciliaris U.Müll.-Doblies (= *Albuca navicula* U.Müll.-Doblies, *Ornithogalum fimbrifolium* J.C.Manning & Goldblatt) Bulbous geophyte to 20 cm, bulb depressed-globose. Leaves 5–20, short, not clasping, flat or boat-shaped, narrowly oblong, often twisted, margins coarsely ciliate. Flowers few, dull greenish, outer stamens sterile. Sept.–Oct. Rocky and sandy slopes and flats, NW (Richtersveld to Clanwilliam). **gce**

hallii U.Müll.-Doblies (= *Albuca brucebayeri* U.Müll.-Doblies, *Ornithogalum hallii* (U.Müll.-Doblies) J.C.Manning & Goldblatt) Bulbous geophyte, 10–20 cm, outer bulb tunics thinly leathery. Leaves 3–6, linear, glandular, corkscrewed above, obtuse. Flowers yellow with green keels, outer stamens sterile. Mar.–May. Stony slopes, NW, KM (Vredendal, Little Karoo).•

namaquensis Baker) (= *Ornithogalum namaquense* (Baker) J.C.Manning & Goldblatt) GROWWE-TAMARAK Bulbous geophyte to 30 cm, bulb tunics membranous. Leaves 4–20, channelled or rolled, usually coiled above, not clasping below, scabrid or hairy, not glandular. Flowers yellow with green keels, outer stamens sterile. Sept.–Oct. Stony sandstone slopes, NW, SW, KM, SE (Namibia to E Cape).

spiralis L.f. (= *Ornithogalum circinatum* J.C.Manning & Goldblatt) Bulbous geophyte, 20–40 cm. Leaves few to many, linear, channelled or rolled, often spirally twisted above, clasping below, glandular-hairy and peduncle also glandular-hairy below. Flowers green, outer tepals with cream-coloured to yellow margins, sweetly fragrant, outer stamens sterile. Aug.–Oct. Sandy and stony slopes, NW, SW (Namaqualand to Cape Peninsula). **gce**

B.' Leaves hairless

acuminata Baker (= *Albuca convoluta* E.Phillips, *Ornithogalum acutum* J.C.Manning & Goldblatt) Bulbous geophyte, 20–30 cm, bulb scales becoming fibrous above. Leaves 2–10, channelled, slender, clasping below. Flowers yellow to green with green keels, outer stamens sterile. Sept.–Oct. Stony flats and slopes, NW, SW, KM, LB, SE (Richtersveld to Port Alfred).

canadensis (L.) F.M.Leight. (= *Albuca altissima* Dryand., *A. maxima* Burm.f., *Ornithogalum canadense* L., *O. maximum* (Burm.f.) J.C.Manning & Goldblatt) WITTAMARAK Bulbous geo-

phyte, 60–150 cm, bulb tunics slightly fibrous above. Leaves lanceolate, channelled, fleshy, clasping and often inflated below. Flowers many on a crowded raceme, white to cream-coloured with green keels, outer stamens sterile, filaments oblanceolate, septa crested. Aug.–Oct. Rocky sandstone or granitic soils, NW, SW, KM, LB (Richtersveld to Riversdale). **gce**

cooperi Baker (= *Albuca karooica* U.Müll.-Doblies, *Ornithogalum cooperi* (Baker) J.C.Manning & Goldblatt) Bulbous geophyte, 30–60 cm, bulb tunics fibrous above. Leaves 2 or 3(4), slender, channelled, conspicuously clasping and warty beneath. Flowers yellow with green keels, outer stamens sterile, septa sometimes slightly crested. Sept.–Nov. Stony, mostly sandy slopes and flats, sometimes limestone, NW, SW, AP, KM, LB, SE (Richtersveld and W Karoo to Cape Peninsula to Willowmore and Great Karoo).

echinosperma U.Müll.-Doblies (= *Ornithogalum echinospermum* (U.Müll.-Doblies) J.C.Manning & Goldblatt) Like **A. flaccida** but more delicate with 1–3 leaves (*vs.* 3–6), and seeds distinctly papillate. Aug.–Oct. Rocky sandstone slopes, NW, SW (Piketberg to Hermanus).•

flaccida Jacq. (= *Albuca materfamilias* U.Müll.-Doblies, *Ornithogalum flaccidum* (Jacq.) J.C.Manning & Goldblatt) Bulbous geophyte, 40–100 cm, bulb tunics membranous. Leaves 3–6, channelled, fleshy, clasping below. Flowers yellow, often with green keels, slightly fragrant, outer stamens sterile. Aug.–Oct. Mostly coastal in deep sandy soils, NW, SW, AP (S Namaqualand to Still Bay). **gce**

juncifolia Baker (= *Albuca imbricata* F.M.Leight., *Ornithogalum imbricatum* (F.M.Leight.) J.C.Manning & Goldblatt) Bulbous geophyte, 15–30 cm. Leaves several, slender and stiff, channelled below but often terete above, not clasping below. Flowers in drooping racemes, yellow with green keels, outer stamens sterile. Sept.–Oct. Sandy and calcareous flats, NW, SW, AP, LB (Ceres to Cape Peninsula to Mossel Bay).•

massonii Baker (= *Ornithogalum saxatilis* J.C.Manning & Goldblatt) Like **A. acuminata** but flowers smaller, ± 10 mm long and style short, ± half as long as ovary. Sept.–Oct. Sandstone slopes, NW (Gifberg to Pakhuis Mtns).•

paradoxa Dinter (= *Ornithogalum dividens* J.C.Manning & Goldblatt) Like **A. flaccida** but bulb conspicuously depressed and fragmenting into segments. July–Aug. Sandy flats and slopes, NW (S Namibia to Clanwilliam and W Karoo). **gce**

villosa U.Müll.-Doblies (= *Ornithogalum lanatum* J.C.Manning & Goldblatt) Bulbous geophyte, 15–50 cm, outer tunics thinly leathery. Leaves 2–4, narrowly channelled, smooth (woolly elsewhere). Flowers nodding on abruptly bent pedicels, yellow with green keels; outer stamens sterile; style obpyramidal ± as long as ovary. Aug.–Sept. Stony flats and slopes, NW, KM (southern Namibia to Worcester and Little Karoo). **gce**

A.' Inner tepals hooded or cowled at apex; outer stamens usually fertile
C. Flowers nodding

clanwilliamaegloria U.Müll.-Doblies (= *Ornithogalum clanwilliamaegloria* (U.Müll.-Doblies) J.C.Manning & Goldblatt) Bulbous geophyte to 2 m, bulb depressed-globose, producing bulbils. Leaves narrow, channelled, fleshy, dry at flowering. Flowers in slender, elongate racemes, scarcely flaring, large, dull yellow with dark yellow or green keels, outer anthers slightly smaller. Oct.–Nov. Deep sandy soils in restioid fynbos, NW (Olifants River Valley N of Clanwilliam and Redelinghuys to Het Kruis).•

foetida U.Müll.-Doblies (= *Ornithogalum foetidum* (U.Müll.-Doblies) J.C.Manning & Goldblatt) Bulbous geophyte, 20–40 cm. Leaves 2–4, linear-channelled, clasping below, glandular-hairy, scape also glandular-hairy. Flowers yellow with green keels, outer stamens sterile. Sept.–Oct. Stony slopes, NW, SW, KM (N Namaqualand and W Karoo to Tulbagh, and Little Karoo). **gce**

fragrans Jacq. (= *Ornithogalum fragrans* (Jacq.) J.C.Manning & Goldblatt) Slender bulbous geophyte to 1 m, bulb bulbilliferous. Leaves linear, channelled, shortly clasping below. Flowers in drooping racemes, yellow with green keels, outer anthers slightly smaller. Sept.–Oct. Deep sand in fynbos, often coastal, NW, SW (Citrusdal to Hermanus).•

goswinii U.Müll.-Doblies (= *Ornithogalum goswinii* (U.Müll.-Doblies) J.C.Manning & Goldblatt) Bulbous geophyte, 15–60 cm. Leaves 2 or 3, linear, channelled, clasping below. Flowers in drooping racemes, yellow with green keels, outer stamens sterile. Sept.–Oct. Stony slopes, SW, LB (Houwhoek to Riversdale).•

grandis J.C.Manning & Goldblatt Robust, bulbous geophyte to 1.3 m, bulb large, sometimes in clusters. Leaves fleshy, clasping stem in basal half, lanceolate-convolute, attenuate. Flowers in large, dense dropping racemes, yellow-green with green keels, outer anthers ± half as long as

inner. Mostly late Aug.–Sept. Sandy flats and dunes in coastal bush, NW, SW (Hondeklip Bay to Melkbos). **gce**

kirstenii (J.C.Manning & Goldblatt) J.C.Manning & Goldblatt (= *Ornithogalum kirstenii* J.C.Manning & Goldblatt) Slender bulbous geophyte, 10–30 cm, epigeal with fleshy tunics. Leaves 2, linear-convolute, clasping. Flowers in drooping racemes, nodding, yellow with green keels, inner anthers curved, outer scarcely smaller. Apr.–June. Shale cliffs, AP (lower Breede River Valley).•

papyracea J.C.Manning & Goldblatt (= *Ornithogalum papyraceum* (J.C.Manning & Goldblatt) J.C.Manning & Goldblatt) Slender, bulbous geophyte, 50–80 cm, bulb tunics papery and fibrous above. Leaves 2, linear, clasping, sometimes warty below. Flowers in drooping racemes, yellow with green keels, inner anthers curved, outer slightly smaller, ovary with diverging septal ridges. Sept.–Nov. Stony shale slopes, KM (Little Karoo).•

viscosa L.f. (= *Albuca aspera* U.Müll.-Doblies, *A. bontebokensis* U.Müll.-Doblies, *A. jacquinii* U.Müll.-Doblies, *A. viscosella* U.Müll.-Doblies, *Ornithogalum viscosum* (L.f.) J.C.Manning & Goldblatt) TAAITAMARAK Bulbous geophyte, 20–40 cm, bulbs ovoid, often pink, tunics dry and wrinkled above. Leaves subterete, often spirally twisted, glandular-hairy, not clasping below, scape base also glandular-hairy. Flowers yellow with green keels, fragrant, outer anthers smaller. Aug.–Oct. Rocky flats, NW, SW, AP, KM, LB (Namibia and Great Karoo to Riversdale).

C.' Flowers erect

D. Inner bulb tunics forming a conspicuous papery or fibrous collar

bakeri Mart.-Azorín & M.B.Crespo Bulbous geophyte to 15 cm, inner bulb tunics forming a membranous or papery, transversely banded collar. Leaves 2–6, narrow, channelled, clasping below. Flowers erect, white with greenish keels, inner tepals cowled, outer stamens smaller, ovary septa crested. July–Sept. Dry, stony flats, KM (Little Karoo to E Cape).

exuviata Baker (= *Ornithogalum exuviatum* (Baker) J.C.Manning & Goldblatt) Bulbous geophyte to 30 cm, inner bulb tunics coarsely fibrous above, forming a thick neck with conspicuous, woody rings. Leaves linear-filiform, not clasping. Flowers erect, subcorymbose, white to yellow with green keels, inner tepals cowled, all stamens fertile, ovary septa crested. Mainly Aug.–Sept. Clay soils, KM, SE (Little Karoo to E Cape).

setosa Jacq. (= *Ornithogalum setosum* (Jacq.) J.C.Manning & Goldblatt) DIKTAMARAK Bulbous geophyte, 15–60 cm, bulb large, tunics fibrous above and forming a thick neck. Leaves 4–8, narrow, fleshy, sometimes channelled, not clasping below, margins hyaline and often minutely ciliolate. Flowers erect on long pedicels, white or yellow with green keels, inner tepals cowled, outer anthers slightly smaller, ovary septa crested. Oct.–Nov. Rocky clay flats and slopes, NW, SW, KM, SE (S Namaqualand to Swaziland).

D.' Inner bulb tunics not forming a conspicuous collar

aurea Jacq. (= *Ornithogalum auratum* J.C.Manning & Goldblatt) Bulbous geophyte to 50 cm, bulbs often bluish. Leaves few, lanceolate, channelled, clasping below. Flowers erect, often subsecund on an inclined peduncle, whitish or yellow with green keels, inner tepals cowled and yellowish, outer anthers smaller, ovary septa crested. Mainly Sept.–Dec. Stony sandstone and clay slopes, NW, SW, KM (Clanwilliam to Worcester and Little Karoo).•

batteniana Hilliard & B.L.Burtt (= *Ornithogalum battenianum* (Hilliard & B.L.Burtt) J.C.Manning & Goldblatt) Bulbous geophyte to 60 cm, bulb epigeal, green, scales firm, truncate and fibrous above. Leaves lanceolate, firm. Flowers erect on long pedicels, subsecund on an inclined peduncle, white with pale greenish keels, inner tepals cowled, outer anthers smaller, ovary septa crested. July–Oct. Coastal cliffs, SE (Knysna and Kei Mouth).

cremnophila Van Jaarsv. & A.E.van Wyk (= *Ornithogalum cremnophilum* (Van Jaarsv. & A.E.van Wyk) J.C.Manning & Goldblatt) Pendent, bulbous geophyte to 2 m, bulb usually epigeal, greyish green, scales firm, truncate above. Leaves lanceolate, firm. Flowers erect on long pedicels, subsecund on an inclined peduncle, white with pale greenish keels, inner tepals cowled, outer anthers smaller. Dec.–Feb. Cliffs, SE (Baviaanskloof Mtns).•

decipiens U.Müll.-Doblies (= *Ornithogalum decipiens* (U.Müll.-Doblies) J.C.Manning & Goldblatt) Bulbous geophyte to 80 cm, outer bulb tunics thinly leathery. Leaves 2–4, channelled, clasping below. Flowers erect, white with green keels, outer stamens sterile, ovary septa crested. Aug.–Sept. Rocky slopes, NW (Namaqualand to Olifants River Valley). **gce**

glandulosa Baker (= *Ornithogalum glanduliferum* J.C.Manning & Goldblatt) Bulbous geophyte to 35 cm. Leaves 1–4, narrow, channelled, clasping below, glandular-hairy; scape also glandular. Flowers erect, yellow with greenish keels, inner tepals cowled, outer stamens sterile, ovary septa crested. Aug.–Sept. Dry, stony, shale slopes, KM (W Karoo to Little Karoo). **gce**

longipes Baker (= *Ornithogalum longipes* (Baker) J.C.Manning & Goldblatt) Bulbous geophyte to 30 cm, outer bulb tunics often dry and wrinkled above. Leaves 1–6, linear, channelled, not clasping below, dry at flowering. Flowers often in corymbs, erect on long pedicels, white with green keels, inner tepals cowled and bright yellow at tips, outer anthers smaller, ovary septa crested. Sept.–Nov. Clay or lime slopes, NW, SW, AP, KM, LB, SE (S Namibia to Bushmanland, W Karoo to Cape Peninsula to Willowmore).

schoenlandii Baker (= *Ornithogalum schoenlandii* (Baker) J.C.Manning & Goldblatt) Bulbous geophyte to 30 cm, bulb tunics dry and firm. Leaves oblong, flat, margins hyaline. Flowers erect on long pedicels, subcorymbose, white and green, inner tepals cowled, outer anthers smaller, ovary septa crested. Sept.–Nov. Dry sandstone slopes, KM, SE (Oudtshoorn to E Cape).

thermarum Van Jaarsv. & A.E.van Wyk (= *Ornithogalum thermarum* (Van Jaarsv. & A.E.van Wyk) J.C.Manning & Goldblatt) Like **A. cremnophila** but leaf bases persistent and fibrous. Nov.–Dec. Sandstone cliffs, KM (Calitzdorp: Badspoort).•

[**Species excluded** No authentic material found and possibly conspecific with one of the above: **A. hesquaspoortensis** U.Müll.-Doblies, **A. robertsoniana** U.Müll.-Doblies, **A. weberlingiorum** U.Müll.-Doblies]

Namibiogalum–Stellarioides group

bracteata J.C.Manning & Goldblatt (= *Ornithogalum longibracteatum* Jacq.) PREGNANT ONION Bulbous geophyte, 1–1.5 m, bulbilliferous. Leaves spreading, often flaccid. Flowers many, in a dense raceme, white with a broad, green central band, with long-attenuate bracts. Aug.–May. Shaded slopes and forest margins, SE (Mossel Bay to tropical E Africa).

unifolia (Retz.) J.C.Manning & Goldblatt (= *Ornithogalum ovatum* Thunb., *O. unifolium* Retz.) Bulbous geophyte, 6–30 cm. Leaf usually dry at flowering, usually solitary (or 2 or 3), oblong to ovate, spreading, sometimes hairy. Flowers pale yellow to cream- or buff-coloured with dark tepals keels. Sept.–Nov. Dry karroid places, NW, KM (Namibia, Namaqualand and W Karoo to Robertson).

virens (Lindl.) J.C.Manning & Goldblatt (= *Ornithogalum tenuifolium* Redouté, *O. virens* Lindl.) BOSUI Bulbous geophyte, 10–60 cm. Leaves ± 5, suberect. Flowers whitish with green keels, bracts long, narrow. Nov.–Mar. Grasslands, SE (Humansdorp to tropical Africa).

Osmyne group

A. Leaves glandular-haired

pentheri (Zahlbr.) J.C.Manning & Goldblatt (= *Ornithogalum pentheri* Zahlbr.) Like **A. suaveolens** but plants sparsely glandular-hairy. Aug.–Oct. Stony and sandy slopes, NW (W Karoo to Citrusdal). **gce**

sabulosa (U.Müll.-Doblies & D.Müll.-Doblies) J.C.Manning & Goldblatt (= *Orithogalum sabulosum* U. & D.Müll.-Doblies) Like **A. suaveolens** but leaves often strap-shaped, glandular-papillate and covered in sand. Sept.–Oct. Deep red sands, NW, SW (Namaqualand to Cape W coast: Yzerfontein). **gce**

A.' Leaves glabrous or margins ciliate

albucoides (Aiton) J.C.Manning & Goldblatt (= *Ornithogalum albucoides* (Aiton) Thunb.) Bulbous geophyte, 10–20 cm. Leaves dry or emergent at flowering, 3–5, erect, terete or semiterete, not clasping. Flowers firm, yellow with green keels, faintly fragrant. (Apr.–)May–June. Stony flats and rock sheets, NW, SW (Bokkeveld Mtns to Mamre).•

concordiana Baker (= *Ornithogalum apertum* (I.Verd.) Oberm., ***O. concordianum*** (Baker) U. & D.Müll.-Doblies) Bulbous geophyte, 10–20 cm. Leaves 10–20, narrow, flat in cross section, grey, coiled. Flowers firm, yellow with broad green keels. Aug.–Sept. Stony flats, NW, KM, SE (S Namibia and W Karoo to Clanwilliam, Little Karoo to Uniondale). **gce**

consanguinea (Kunth) J.C.Manning & Goldblatt (= *Ornithogalum polyphyllum* Jacq., *O. semipedale* (Baker) U.Müll.-Doblies & D.Müll.-Doblies) Bulbous geophyte, 25–60 cm. Leaves 5–20, erect, narrowly cylindrical, loosely coiled apically on drying. Flowers firm, white or rarely yellow with green keels, fragrant. Aug.–Sept. Stony slopes. NW (Namaqualand to Tulbagh). **gce**

dilucula (Oberm.) J.C.Manning & Goldblatt (= *Ornithoglaum diluculum* Oberm.) Bulbous geophyte to 25 cm. Leaf dry at flowering, solitary, spreading, margin thickened. Flowers firm, yellow with greyish green keels, slightly nodding, opening in the early morning. Sept. ?, KM (Knersvlakte to W Karoo and Witteberg). **gce**

secunda (Jacq.) J.C.Manning & Goldblatt (= *Ornithogalum secundum* Jacq.) Bulbous geophyte, ± 35 cm. Leaves dry at flowering, 5–14, oblong, spreading in a basal rosette, margin often hyaline or fringed. Flowers firm, yellow with green keels. Aug.–Nov. ?, NW, SW (Namaqualand and W Karoo to Saldanha). **gce**

suaveolens (Jacq.) J.C.Manning & Goldblatt (= *Ornithogalum namaquanum* U.Müll.-Doblies & D.Müll.-Doblies, *O. suaveolens* Jacq.) BONTTJIENK Bulbous geophyte, 10–50 cm. Leaves 2–6, sometimes dry at flowering, linear to lanceolate, channelled, clasping basally. Flowers firm, yellow with green keels. Sept.–Nov. Dry slopes and flats, NW, SW, AP, KM, LB, SE (S Namibia, Namaqualand and W Karoo to Humansdorp). **gce**

BOWIEA Harv. ex Hook.f. RANKBOL 1 sp., southern and tropical Africa

volubilis Harv. ex Hook.f. Bulbous geophyte, bulb partly exposed, green. Leaves filiform, dry at flowering. Flowers in a trailing, fleshy, diffusely branched raceme, green, tepals reflexed. Jan.–Feb. Rock outcrops and bush margins, SE (S Namibia, Baviaanskloof Mtns to tropical Africa).

DAUBENYA Lindl. DAUBENYA 8 spp., S Africa

capensis (Schltr.) A.M.van der Merwe & J.C.Manning (= *Androsiphon capensis* Schltr.) Acaulescent, bulbous geophyte to 5 cm. Leaves 2, prostrate, ovate; bracts large. Flowers clustered between leaves, tubular below, yellow with red cup, filaments united below into a slender tube 9–12 mm long. June–Sept. Doleritic clay flats, NW (Bokkeveld Escarpment and W Karoo). **gce**

stylosa (W.F.Barker) A.M.van der Merwe & J.C.Manning (= *Amphisiphon stylosus* W.F.Barker) Acaulescent, bulbous geophyte to 5 cm. Leaves 2, prostrate, ovate; bracts small to 10 mm. Flowers clustered between leaves, tubular below, yellow, scented, filaments fused below into a slender tube 10–15 mm long, tepals fused above filament insertion into a tube with minute lobes. May–June. Clay soils, NW (Bokkeveld Escarpment and W Karoo). **gce**

zeyheri (Kunth) J.C.Manning & Goldblatt (= *Daubenya angustifolia* auct., *Massonia zeyheri* Kunth) Bulbous geophyte to 10 cm. Leaves prostrate, shiny green; bracts small to 10 mm. Flowers clustered between leaves, tubular below, white, filaments orange with purple base. May–June. Coastal limestone flats, SW (Paternoster to Langebaan and Posberg).•

DIPCADI Medik. SLANGUI ± 30 spp., Africa and Eurasia to India

brevifolium (Thunb.) Fourc. Bulbous geophyte, 20–40 cm. Leaves 2–4, sometimes dry at flowering, linear to filiform, straight or coiled. Flowers brown, green or cream-coloured. Aug.–Apr. Stony flats or slopes, NW, SW, AP, KM, LB, SE (S Namibia to W Karoo to E Cape).

ciliare (Zeyh. ex Harv.) Baker (= *Ornithogalum cirrhulosum* J.C.Manning & Goldblatt) Bulbous geophyte to 40 cm. Leaves ± 6, linear-lanceolate, often coiled and usually roughly hairy beneath, margins ciliate and usually crisped or undulate. Flowers brown, green, or yellowish. Nov.–May. Stony flats or slopes, KM, SE (Oudtshoorn to Port Elizabeth, Karoo to northern S Africa).

crispum Baker (= *Ornithogalum crispum* (Baker) J.C.Manning & Goldblatt) KRULUI Bulbous geophyte to 30 cm. Leaves ± 4, linear-lanceolate, coiled, grey, usually softly hairy, margins usually crisped. Flowers brown to grey-green, outer tepals with short, caudate appendages. Apr.–Dec. Stony flats or slopes, NW (Namibia and W Karoo to Clanwilliam).

viride (L.) Moench. (= *Ornithogalum viride* (L.) J.C.Manning & Goldblatt) SKAAMBLOMMETJIE Bulbous geophyte, 15–120 cm. Leaves 1–4, long, linear to lanceolate. Flowers green to brown, outer tepals with short or long, filiform appendages. Sept.–Feb. Stony flats or slopes, KM, LB, SE (Ladismith and Riversdale to Port Elizabeth, widespread in southern Africa to Ethiopia).

DRIMIA Jacq. (= *LITANTHUS, RHADAMANTHUS, SCHIZOBASIS, TENICROA, URGINEA*) POISON SQUILL ± 60 spp., Africa, Mediterranean, Asia

***Drimia* group** BRANDUI, JEUKBOL

capensis (Burm.f.) Wijnands (= *Drimia altissima* auct. non (L.f.) Ker Gawl., *D. forsteri* (Baker) Oberm.) MAERMAN Bulbous geophyte, 1–2 m. Leaves dry at flowering, spreading, oblong to lanceolate. Flowers in an elongate densely whorled raceme, white or cream-coloured, often subsessile, tepals reflexed, stamens connivent, anthers green, 6–8 mm long. Dec.–Mar. Clay and lime soils, NW, SW, AP, KM, LB, SE (S Namaqualand to Port Elizabeth). **gce**

elata Jacq. Bulbous geophyte to 100 cm. Leaves dry at flowering, erect to spreading, linear-lanceolate, often undulate, sometimes hairy, margins ciliate. Flowers in erect racemes, silvery white, green or purple, tepals reflexed, stamens connivent, anthers ± 2 mm long, blue to purple. Mainly Dec.–Apr. Sandy and clay soils, NW, SW, AP, KM, LB, SE (S Namaqualand to Cape Peninsula to E Africa).

haworthioides Baker Bulbous geophyte, 20–40 cm, bulbs exposed, with loose scales. Leaves dry at flowering, spreading, lanceolate, margins often ciliate. Flowers like **D. elata**. Nov.–Feb. Dry karroid areas, NW, KM, SE (Worcester to E Cape and Karoo).

media Jacq. Bulbous geophyte, 30–55 cm, usually evergreen. Leaves suberect, subterete, firm. Flowers like **D. elata**. Jan.–Mar. Sandy coastal flats and slopes, SW, AP, LB, SE (Saldanha, Cape Peninsula to Knysna).•

pusilla Jacq. Like **D. elata** but much smaller, 6–15 cm, few-flowered, capsules depressed-oblong, at least as broad as long and seeds large, discoid. Mainly Dec.–Apr. Clay soils, NW, SW (S Namaqualand to Cape Peninsula). **gce**

***Litanthus* group** FAIRY-SNOWDROP

uniflora J.C.Manning & Goldblatt (= *Litanthus pusillus* Harv.) Bulbous geophyte, 2–8 cm. Leaves dry at flowering, suberect, filiform. Flower solitary, sometimes 2, nodding, tubular, white to pale pink. Dec.–Mar. Rock outcrops and flushes, NW, KM, SE (Namaqualand to Zimbabwe).

***Rhadamanthus* group** AFRICAN-SNOWDROP

A. Anthers basally apiculate or tailed

arenicola (B.Nord.) J.C.Manning & Goldblatt (= *Rhadamanthus arenicola* B.Nord.) Bulbous geophyte, 10–15 cm, with bulb scales loosely overlapping. Leaves suberect, linear, often dry at flowering. Flowers in racemes, nodding, urn-shaped, whitish or light brown with brown keels, anthers apiculate below, porose. Oct.–Nov. Sandy flats and slopes, NW (Namaqualand and W Karoo to Cedarberg). **gce**

platyphylla (B.Nord.) J.C.Manning & Goldblatt (= *Rhadamanthus platyphyllus* B.Nord.) Bulbous geophyte, 3–15 cm. Leaves dry at flowering, usually 2, prostrate, elliptic, velvety. Flowers in racemes, nodding, bell-shaped, reddish brown to creamy pink, anthers barbellate below, porose. Nov.–Jan. Often on rock outcrops, widespread, NW, SW, AP, KM, SE (Namibia, Namaqualand and Karoo to Bredasdorp, Uniondale).

uranthera (R.A.Dyer) J.C.Manning & Goldblatt (= *Rhadamanthus urantherus* R.A.Dyer) Bulbous geophyte, 12–20 cm. Leaves dry at flowering, suberect, linear. Flowers in racemes, nodding, urn-shaped, light brown, anthers tailed, porose. Mar.–Apr. Stony slopes, KM (Oudtshoorn).•

A.' Anthers rounded below

albiflora (B.Nord.) J.C.Manning & Goldblatt (= *Rhadamanthus albiflorus* B.Nord.) Bulbous geophyte, 12–24 cm. Leaves unknown. Flowers in racemes, nodding, dish-shaped, white with brown keels, anthers porose. Dec. Mountain slopes, SW, KM (Montagu to Stormsvlei).•

convallarioides (L.f.) J.C.Manning & Goldblatt (= *Rhadamanthus convallarioides* (L.f.) Baker, *R. montanus* B.Nord.) AFRICAN SNOWDROP Bulbous geophyte, 5–30 cm. Leaves dry at flowering, suberect, subterete, sometimes with a barred sheath below. Flowers in racemes, nodding, bell-shaped, creamy pink to light brown, anthers porose. Oct.–Feb. Shallow soils over rock pavements, NW, SW, KM (Namaqualand and W Karoo to Jonkershoek Mtns and Little Karoo). **gce**

involuta (J.C.Manning & Snijman) J.C.Manning & Goldblatt (= *Rhadamanthus involutus* J.C.Manning & Snijman) Bulbous geophyte, 10–15 cm. Leaves dry at flowering, suberect, filiform. Flowers in racemes, cupped, white with green basal markings, outer tepals spreading apically, inner tepals conduplicate above, anthers porose. Nov.–Dec. Loamy soil on sandstone pavements, NW (Bokkeveld Mtns).•

karrooica (Oberm.) J.C.Manning & Goldblatt (= *Rhadamanthus karooicus* Oberm.) Bulbous geophyte to 20 cm. Leaves 4–6, dry at flowering, spreading, oblong. Flowers in racemes, nodding, urn-shaped, pale lilac to green, anthers longitudinal. Jan.–Feb. KM (W and Little Karoo). **gce**

Schizobasis group VOLSTRUISKOS

cuscutoides (Burch. ex Baker) J.C.Manning & Goldblatt (= *Schizobasis cuscutoides* (Burch. ex Baker) Benth. & Hook.f.) Bulbous geophyte, 10–50 cm. Leaf ephemeral, dry at flowering. Flowers in ascending panicle, often sinous or twining, pendulous on sigmoid pedicels, urceolate, small, white, pale yellow or pink; stamens connivent. Jan.–Mar. Stony slopes, NW, KM (dry areas of southern Africa).

intricata (Baker) J.C.Manning & Goldblatt (= *Schizobasis intricata* (Baker) Baker) Bulbous geophyte, 10–50 cm. Leaf ephemeral, dry at flowering. Flowers in dense, divaricate panicle with stiff branches, erect, stellate, small, white, pale yellow or pink; stamens suberect. Jan.–Mar. Stony slopes, NW, KM, SE (dry areas of southern and tropical Africa).

Tenicroa group GIFBOL

exuviata (Jacq.) Jessop (= *Tenicroa exuviata* (Jacq.) Speta) Bulbous geophyte to 1 m. Leaves ± as long as raceme, few, erect, leathery, greyish, 3–4 mm diam., enclosed below in a banded sheath. Flowers rotate, white with green keels, often flushed purple, fragrant, tepals ± free. Sept.–Oct. NW, SW, AP, KM, LB, SE (S Namaqualand to Port Elizabeth, E Cape).

filifolia (Jacq.) J.C.Manning & Goldblatt (= *Tenicroa filifolia* (Jacq.) Oberm.) Like **D. exuviata** but to 30 cm, leaves few to many, ± 1 mm diam. Sept.–Dec. Clay soils, NW, SW, AP, KM, LB (SW Namibia, Kamiesberg and Bokkeveld Escarpment to Swellendam). **gce**

fragrans (Jacq.) J.C.Manning & Goldblatt (= *Tenicroa fragrans* (Jacq.) Raf.) Bulbous geophyte, 30–80 cm. Leaves subsucculent, shorter than raceme, many, slightly flexuose, ± 1 mm diam., enclosed below in a banded sheath. Flowers rotate, white with green or purple keels, fragrant, tepals ± free. Sept.–Nov. Sandy flats, NW (Namaqualand: Hondeklip Bay, and Bokkeveld Mtns to Hex River Valley). **gce**

multifolia (G.J.Lewis) Jessop (= *Tenicroa multifolia* (G.J.Lewis) Oberm.) Like **D. fragrans** but to 20 cm, leaves filiform, coiled, ± 0.5 mm diam. Sept.–Oct. Poorly drained soils, NW, SW (S Namibia, Namaqualand and W Karoo to Breede River Valley). **gce**

Urginea group SLANGKOP

A. Inflorescence corymbose

barkerae Oberm. ex J.C.Manning & Goldblatt Bulbous geophyte to 20 cm, scape finely hairy below. Leaves in a rosette, 3–9, leathery, elliptic, coarsely hairy, 3–9 mm wide. Flowers like **D. virens**. Oct.–Dec. Saline shale flats with quartz, NW (Eendekuil to Piketberg).•

ligulata J.C.Manning & Goldblatt Bulbous geophyte to 20 cm, scape glabrous. Leaves dry or emergent at flowering, 2 or 3(4), leathery, oblong, obtuse, 6–15 mm wide, margins thickened and papillate. Flower like **D. virens**. (Oct.–)Dec.–Jan. Seasonally moist sandstone slopes, NW (Cedarberg and Piketberg to Waaihoek Mtns).•

physodes (Jacq.) Jessop (= *Urginea pusilla* (Jacq.) Baker) BERGSLANGKOP Bulbous geophyte to 10 cm, bulbs usually large. Leaves dry at flowering, erect, twisted, lanceolate. Flowers in a subcorymbose raceme on long, spreading, wiry pedicels, white, stellate, open in the afternoon. Oct.–Apr. Stony flats, NW, KM (Namaqualand and W Karoo to Worcester and Little Karoo). **gce**

vermiformis J.C.Manning & Goldblatt (= *Drimia virens sensu* Cape plants 2000) Bulbous geophyte to 20 cm, scape glabrous. Leaf dry at flowering, 1(2), leathery, falcate-subclavate, semiterete, 2–4 mm wide. Flower like **D. virens**. Oct.–Nov. Mostly on shale flats, sometimes in quartzite patches, NW, KM (Bushmanland and W Karoo to Olifants River Valley and Little Karoo).

virens (Schltr.) J.C.Manning & Goldblatt (= *Drimia minor* (A.V.Duthie) Jessop) Bulbous geophyte to 20 cm, scape smooth. Leaves 1 or 2, erect, fleshy, filiform-terete, 1–2 mm wide, dry at flower-

ing. Flowers in a head-like, corymbose raceme, bell-shaped, white to brownish. Feb.–Apr. Stony flats, NW, SW, AP, KM, LB (Bokkeveld Mtns to Swartberg and Langeberg).•

A.' Inflorescence racemose

anomala (Baker) Baker (= *Urginea cataphyllata* Oberm. *ms*.) Bulbous geophyte to 50 cm, with banded, papery cataphylls, stems often scabrid below. Leaf usually present at flowering, solitary, erect, terete-cylindrical, firm. Flowers in a narrow raceme, whitish, beige or greenish, tepals slightly reflexed, faintly scented. Oct.–Feb. Sandy or stony soils, SE (Baviaanskloof to KwaZulu-Natal).

ciliata (L.f.) J.C.Manning & Goldblatt (= *Urginea rosulata* Oberm. *ms*.) Bulbous geophyte, 7–15 cm. Leaves rosulate, spreading, elliptic to oblanceolate, leathery, margins thickened and papillate-ciliolate. Flowers like **D. sclerophylla**. Dec.–Feb. Rocky outcrops, AP, SE (Bredasdorp to Port Elizabeth).•

dregei (Baker) J.C.Manning & Goldblatt (= *Urginea dregei* Baker; incl. **U. gracilis** A.V.Duthie) Bulbous geophyte to 30 cm. Leaf dry at flowering, solitary, erect, terete. Flowers in slender, crowded racemes, mostly white with dark keels, tepal margins downturned, open during the morning. Nov.–Mar. Damp sandy flats and slopes, SW, LB (Cape Peninsula to Swellendam).•

hesperantha J.C.Manning & Goldblatt (= *Drimia revoluta* (A.V.Duthie) J.C.Manning & Goldblatt, *Urginea revoluta* A.V.Duthie) Bulbous geophyte, 10–30 cm, scape scabrid below. Leaves dry at flowering, single, sometimes 2, terete, firm, erect. Flowers in flexuose racemes, brown, tepals ± free, reflexed, stamens connivent, faintly scented, open at night. Jan.–Feb., mostly after fire. Rocky slopes and flats, SW, AP (Du Toitskloof to De Hoop).•

salteri (Compton) J.C.Manning & Goldblatt Bulbous geophyte to 25 cm. Leaves dry or emergent at flowering, 2–several, erect or falcate, terete. Flowers crowded in slender racemes, whitish to brown or maroon, open at night to midmorning. Oct.–Feb. Sandy or stony soils, SW (Bain's Kloof to Hermanus).•

sclerophylla J.C.Manning & Goldblatt (= *Urginea rigidifolia* Baker) Bulbous geophyte, 10–30 cm, scape scabrid below. Leaves dry at flowering, 2 or 3, erect, terete, sclerotic-striate. Flowers in lax racemes on wiry pedicels, white, stellate, tepals ± free, sweetly scented, opening in late afternoon. Dec.–Jan. Rocky slopes, AP, KM, LB, SE (De Hoop to Port Elizabeth).•

EUCOMIS L'Hér. PINEAPPLE-LILY 10 spp., N and W Cape to S tropical Africa

autumnalis (Mill.) Chitt. Bulbous geophyte, 6–30 cm. Leaves suberect, oblong-lanceolate, uniformly green, margins undulate. Flowers white to greenish, raceme leafy above, pedicels 3–9 mm long. Dec.–Feb. Rocky, grassy slopes, SE (Knysna eastwards throughout E southern Africa).

comosa (Houtt.) Wehrh. Bulbous geophyte, 17–100 cm. Leaves suberect, oblong-lanceolate, speckled purple beneath. Flowers greenish with dark centre, raceme leafy above, pedicels 15–30 mm long. Dec.–Feb. Grasslands and vleis, SE (Port Elizabeth to KwaZulu-Natal).

regia (L.) L'Hér. Bulbous geophyte, 8–15 cm. Leaves usually prostrate, oblanceolate-spathulate, uniformly green or speckled purple towards base beneath. Flowers in a congested raceme crowned with a cluster of leafy bracts, cream-coloured to greenish, pedicels to 2 mm long. July–Sept. Mostly cooler S-facing clay slopes, or on rock outcrops, NW, SW, AP, KM, LB (Namaqualand and W Karoo to Bredasdorp, Little Karoo). **gce**

LACHENALIA J.Jacq. ex Murray (= *PERIBOEA, POLYXENA*) LACHENALIA, VIOOLTJIE, CAPE HYACINTH ± 120 spp., Namibia to E Cape

***Polyxena* group**

calcicola (U.Müll.-Doblies & D.Müll.-Doblies) G.D.Duncan *ined*. (= *Polyxena calcicola* U.Müll.-Doblies & D.Müll.-Doblies) Like **P. ensifolia** but leaves narrower, lanceolate, 5–10 mm wide, perianth tube shorter, 10–15 mm long, and inner anthers scarcely exserted. Apr.–May. Coastal sandy or limestone flats, SW, AP (Hermanus to De Hoop).•

corymbosa (L.) J.C.Manning & Goldblatt (=*Polyxena corymbosa* (L.) Jessop.) Short-stemmed bulbous geophyte to 15 cm. Leaves 2–6, suberect, linear-channelled, 1–5 mm wide. Flowers shortly racemose, pale lilac with dark keels, perianth tube shorter than tepals, 3.5–6 mm long, filaments 4–5 mm long, anthers exserted. Apr.–June. Loamy flats, NW, SW (Citrusdal to Gordon's Bay).•

ensifolia (Thunb.) J.C.Manning & Goldblatt (= *Polyxena ensifolia* (Thunb.) Schönland, *P. pygmaea* (Jacq.) Kunth) Short-stemmed, bulbous geophyte to 5 cm. Leaves 2, spreading to prostrate, lanceolate to ovate, 10–25 mm wide. Flowers corymbose, clustered between leaves, white to mauve or pale blue, perianth tube slender, longer than tepals, 15–25 mm long, filaments 4–6.5 mm long, anthers exserted. Apr.–June. Clay or limestone flats, NW, SW, AP, KM, LB, SE (Namaqualand and W Karoo to Uitenhage and E Karoo).

maughanii (W.F.Barker) J.C.Manning & Goldblatt (=*Polyxena maughanii* W.F.Barker) Like **L. ensifolia** but filaments 1–2 mm long, inner anthers at least included and style shorter, ± half as long as tube. May–June. Dolerite or rarely sandstone flats, NW (W Karoo and Bokkeveld Mtns). **gce**

paucifolia (W.F.Barker) J.C.Manning & Goldblatt (= *Polyxena paucifolia* (W.F.Barker) A.M.van der Merwe & J.C.Manning, *Periboea oliveri* U.Müll.-Doblies & D.Müll.-Doblies) Like **L. corymbosa** but leaves broader, 5–10 mm wide, flowers darker purple, filaments 1–2 mm long, anthers included and style very short, 1–2.5 mm long. Apr.–June. Coastal granite and limestone outcrops, SW (Paternoster to Langebaan).•

Lachenalia group

*A. Anthers well exserted (see also **L. contaminata**, **L. hirta**)*

anguinea Sweet Bulbous geophyte, 10–45 cm. Leaf solitary, narrowly lanceolate, channelled, banded green and maroon beneath. Flowers on long, white pedicels, bell-shaped, cream-coloured with green markings, anthers well exserted. July–Sept. Deep coastal sands, NW (Richtersveld to Olifants River Valley). **gce**

gillettii W.F.Barker Bulbous geophyte, 12–22 cm. Leaves 2, lorate. Flowers shortly pedicellate, oblong-campanulate, white and lilac with green markings, anthers exserted. Aug.–Sept. Clay soils, often in large colonies, NW, SW (Koringberg and Piketberg to Citrusdal).•

haarlemensis Fourc. Bulbous geophyte, 12–22 cm. Leaves 1 or 2, linear-lanceolate, erect, banded with maroon at base. Flowers shortly pedicellate, campanulate, greenish grey, anthers exserted and mauve. Sept.–Oct. ?, KM, SE (Kammanassie Mtns to Langkloof).•

juncifolia Baker (incl. **L. esterhuysenae** W.F.Barker) Bulbous geophyte, 7–40 cm. Leaves 2, linear to terete or subterete, with maroon bands. Flowers on long, white pedicels, oblong-campanulate, white or pink, tinged darker pink or blue, with purple or green markings, anthers exserted. Aug.–Nov. Often in sand in large colonies, NW, SW, AP (W Karoo and Cedarberg to Still Bay). **gce**

karooica W.F.Barker ex G.D.Duncan Bulbous geophyte, 4–22 cm. Leaves 1 or 2, lanceolate, with blotches on upper surface. Flowers sessile or shortly pedicellate, oblong-campanulate, greenish white and pale blue with maroon or brown markings, anthers exserted. June–Sept. Rocky outcrops, NW (Worcester, Great Karoo to W Free State).

lactosa G.D.Duncan Bulbous geophyte, 10–25 cm. Leaves 1 or 2, oblong, maroon beneath. Flowers pedicellate, urceolate, bluish or greenish white, anthers shortly exserted, peduncle heavily blotched. Sept.–Oct. Sandy coastal flats, SW (Kleinmond to Elim).•

latimerae W.F.Barker Bulbous geophyte, 15–28 cm. Leaves 1 or 2, linear-lanceolate. Flowers on long pedicels, campanulate, pale pink with greenish brown markings, anthers exserted. July–Aug. Sand in large colonies, KM, SE (Swartberg and Kouga Mtns).•

leipoldtii G.D.Duncan Bulbous geophyte, 10–28 cm. Leaf 1, lanceolate, spotted. Flowers subsessile, campanulate, cream-coloured to greenish yellow, anthers well exserted, peduncle sometimes inflated. Aug.–Sept. Sandstone slopes, NW, KM (Biedouw to Waboomsberg).•

lutzeyeri G.D.Duncan Bulbous geophyte, 20–40 cm. Leaves 1 or 2, narrowly lanceolate. Flowers on fairly long pedicels, oblong-campanulate, yellowish cream-coloured with dark green or brown markings, anthers exserted. Nov.(−Jan.), after fires. Coastal areas, SW (Gansbaai).•

mathewsii W.F.Barker Bulbous geophyte, 10–20 cm. Leaves 2, narrowly lanceolate tapering to a long terete apex. Flowers shortly pedicellate, yellow with green markings, anthers exserted. Sept. Moist lower slopes, SW (Vredenburg).•

moniliformis W.F.Barker Bulbous geophyte, 12–17 cm. Leaves several, terete with circular, raised, fleshy bands along upper two-thirds. Flowers on long pedicels, pale blue and pink with reddish brown markings, anthers well exserted. Sept. Sandy flats, NW (Worcester District).•

montana Schltr. ex W.F.Barker Bulbous geophyte, 10–33 cm. Leaves 2, linear, conduplicate, unmarked. Flowers on long, magenta pedicels, campanulate, nodding, cream-coloured or pink with large brownish green markings, anthers exserted. Oct.–Dec., only after fire. Sandy mountain slopes, SW (Franschhoek to Hermanus).•

nardousbergensis G.D.Duncan Bulbous geophyte, 15–30 cm. Leaves 2, lanceolate, spreading, depressed-veined and pustulate. Flowers oblong-campanulate, nodding, tepals pale to deep magenta, anthers exserted. Aug.–Oct. Sandy flats, NW (W Karoo and Bokkeveld Mtns to Cedarberg). **gce**

nervosa Ker Gawl. (= *Lachenalia latifolia* Tratt.) Bulbous geophyte, 15–30 cm. Leaves 2, ovate, prostrate, plain or with pustules on upper surface. Flowers shortly pedicellate, campanulate, white with reddish pink markings, anthers exserted. Sept.–Nov. ?, AP, LB, SE (Swellendam to George).•

physocaulos W.F.Barker Bulbous geophyte, 13–30 cm. Leaf solitary, linear, widening abruptly into a white clasping base. Flowers shortly pedicellate, campanulate, pale magenta with brownish green markings, anthers exserted, peduncle heavily spotted, swollen. Aug.–Sept. Sandy flats and slopes, NW, LB (Robertson to Swellendam).•

polyphylla Baker Bulbous geophyte, 6–18 cm. Leaves several, erect, terete,. Flowers on long pedicels, narrowly campanulate, pale blue and pink with brownish markings, anthers exserted. Sept.–Oct. Gravel flats, NW (Piketberg to Tulbagh).•

purpureocaerulea Jacq. Bulbous geophyte, 10–28 cm. Leaves 2, lanceolate or lorate, densely pustulate. Flowers campanulate, white and purplish blue with greenish brown markings, anthers exserted. Oct.–Nov. Gravel flats, SW (Darling and Mamre).•

pusilla Jacq. Bulbous geophyte, 1–4 cm. Leaves 3–7 in a rosette, spreading, linear to lanceolate, plain or spotted, margins thickened. Flowers tubular, erect, borne at ground level, in a congested raceme, white, heavily scented, anthers exserted. Apr.–June. Common on sandy flats and slopes, NW, SW, AP, LB (W Karoo and Bokkeveld Mtns to Swellendam). **gce**

pustulata Jacq. Bulbous geophyte, 15–35 cm. Leaves 1 or 2, lanceolate or lorate, smooth or densely pustulate, unmarked. Flowers on long pedicels, oblong-campanulate, shades of cream-coloured, blue or pink with green or brownish markings. Aug.–Oct. Often in large colonies in heavy soil, SW (St Helena Bay to Cape Peninsula).•

salteri W.F.Barker Bulbous geophyte, 15–35 cm. Leaves 2, lanceolate, leathery, plain or with large brown blotches. Flowers shortly pedicellate, oblong-campanulate, cream-coloured, reddish purple or a combination of pale blue and pink, anthers exserted. Oct.–Dec. Marshy areas around seasonal pools, SW, AP (Cape Peninsula to Bredasdorp).•

splendida Diels (= *Lachenalia roodieae* E.Phillips) Bulbous geophyte, 6–25 cm. Leaves 2, lanceolate, unmarked, peduncle swollen at inflorescence base. Flowers sessile, oblong-campanulate, pale blue and bright lilac, with greenish brown markings, anthers exserted. July–Aug. Deep sands or quartzite fields, NW (Garies to Klawer). **gce**

stayneri W.F.Barker Bulbous geophyte, 12–30 cm. Leaves 2, lanceolate or lorate, prostrate, with large pustules on upper surface. Flowers on long pedicels, campanulate, pale blue and cream-coloured with reddish markings, anthers exserted. Aug.–Sept. ?, NW (Worcester to Robertson).•

thomasiae W.F.Barker ex G.D.Duncan Bulbous geophyte, 12–38 cm. Leaves 2, lanceolate or lorate, yellowish green. Flowers on long pedicels, oblong-campanulate, white with green or brown markings, anthers well exserted. Sept.–Oct. ?, NW (Clanwilliam District).•

unicolor Jacq. Bulbous geophyte, 8–30 cm. Leaves 2, lanceolate or lorate, densely pustulate on upper surface. Flowers on long, mauve to blue pedicels, cream-coloured, lilac, pink, magenta, blue or purple, with green or purplish markings, anthers exserted. Sept.–Oct. Heavy soil in large colonies, NW, SW (S Namaqualand to Olifants River Valley). **gce**

ventricosa Schltr. ex W.F.Barker Bulbous geophyte, 20–48 cm. Leaf solitary, lanceolate to lorate, margins undulate. Flowers sessile, oblong urn-shaped, pale yellow with white tips, anthers exserted. Aug.–Sept. Usually in sand in large colonies, NW (Nardouw and Pakhuis Mtns).•

violacea Jacq. Bulbous geophyte, 10–35 cm. Leaves 1 or 2, lanceolate, plain or heavily spotted. Flowers on long pedicels, campanulate, bluish green at base, with magenta or purple tips, anthers mauve, magenta or white, exserted. July–Sept. Very variable, usually in rocky places, NW (Namaqualand and Roggeveld to Karoopoort). **gce**

A.' Anthers included or barely protruding
*B. Flowers on long pedicels (see also **L. trichophylla**)*

aloides (L.f.) Engl. (= *Lachenalia tricolor* Thunb.) CAPE COWSLIP, VIERKLEURTJIE Bulbous geophyte, 5–31 cm. Leaves 1 or 2, lanceolate or lorate, plain or densely spotted with green or purple. Flowers on long pedicels, nodding, cylindrical, combinations of orange, red, yellow or greenish blue, with greenish markings, anthers included. May–Oct. Granite and sandstone outcrops, NW, SW (Lambert's Bay to Bredasdorp).•

bolusii W.F.Barker Bulbous geophyte, 10–35 cm. Leaf solitary, ovate-lanceolate or lorate, banded maroon below. Flowers on long pedicels, campanulate, nodding, pale blue and yellow-green with brownish markings, anthers included. Aug.–Sept. Rocky outcrops, NW (Richtersveld to Clanwilliam). **gce**

bulbifera (Cirillo) Engl. (= *Lachenalia pendula* Aiton) ROOINAELTJIE Bulbous geophyte, 8–30 cm. Leaves 1 or 2, lanceolate, lorate or ovate, plain or blotched. Flowers on ± long pedicels, cylindrical, nodding, orange to red with darker red or brown markings and green tips, anthers included. Apr.–Sept. Sandy slopes and flats, rock outcrops, mainly coastal, NW, SW, AP (Klawer to Mossel Bay).•

cernua G.D.Duncan Bulbous geophyte, 15–30 cm. Leaves 1 or 2, lanceolate, uniformly green or purple and spotted. Flowers on short pedicels, urn-shaped, cream-coloured or white with greenish brown markings, weakly scented. Sept.–Oct. Rocky lower slopes, often in partial shade, SW (Worcester to Goudini and Cape Peninsula).•

hirta (Thunb.) Thunb. Bulbous geophyte, 10–30 cm. Leaf solitary, linear, with stiff hairs on margins and below, banded with maroon. Flowers on long pedicels, oblong-campanulate, blue to blue-grey with brown markings and pale yellow tips, anthers usually included, sometimes exserted. Aug.–Sept. Often in deep sand or gravelly clay, in large colonies, NW, SW (Namaqualand to Tygerberg). **gce**

leomontana W.F.Barker Bulbous geophyte, 10–30 cm. Leaf solitary, lanceolate or lorate, plain or with purple spots on upper surface. Flowers on long pedicels, oblong-campanulate, white with pale green markings, anthers included. Oct.–Nov. LB (Langeberg: Swellendam).•

peersii Marloth ex W.F.Barker Bulbous geophyte, 15–30 cm. Leaves 1 or 2, lorate, green or purplish, unmarked. Flowers on fairly long pedicels, urn-shaped, cream-coloured or white with greenish brown markings, strongly carnation-scented. Oct.–Nov. Often in partial shade, sandy soil, SW (Cape Hangklip to Hermanus).•

rosea Andrews Bulbous geophyte, 8–30 cm. Leaves 1 or 2, lanceolate, plain or blotched with maroon or brown. Flowers shortly pedicellate, oblong-campanulate, pink or combinations of pink and blue, with darker pink markings, anthers included. Aug.–Dec. Mainly coastal, on moist flats, SW, AP, KM, LB, SE (Cape Peninsula to Knysna, Ladismith and Montagu).•

sargeantii W.F.Barker Bulbous geophyte, 20–30 cm. Leaves 2, linear-lanceolate. Flowers on long pedicels, nodding, cream-coloured or pale green with green or brown markings, anthers included. Nov., only after fire. Sandstone slopes, SW (Bredasdorp Mtns).•

unifolia Jacq. Bulbous geophyte, 10–35 cm. Leaf solitary, linear, banded with green and maroon beneath. Flowers variable, on short or long pedicels, oblong-campanulate, pale blue, pink or pale yellow, with white tips, anthers included. Aug.–Oct. Sandy granitic of sandstone soils, NW, SW, AP (Namaqualand to Bredasdorp). **gce**

variegata W.F.Barker Bulbous geophyte, 10–40 cm. Leaf solitary, lanceolate or lorate, margins thickened, undulate. Flowers shortly pedicellate, oblong-campanulate, greenish grey with darker green, blue, purple or brown markings and white tips, anthers included. Aug.–Oct. Mainly coastal, in deep sand, NW, SW (Clanwilliam to Cape Peninsula).•

youngii Baker Bulbous geophyte, 7–30 cm. Leaves 2, narrowly lanceolate. Flowers on fairly long pedicels, campanulate, pale blue and pink with darker purplish pink markings, anthers included. July–Nov. Coastal areas, SE (Mossel Bay to Humansdorp).•

B.' Flowers sessile or on pedicels to 2 mm long

algoensis Schönland Bulbous geophyte, 6–30 cm. Leaves 1 or 2, linear, lanceolate or lorate. Flowers shortly pedicellate, facing upward, yellow to greenish yellow, fading to dull red, anthers included. July–Aug. ?, SE (Knysna to E Cape).

ameliae W.F.Barker Dwarf bulbous geophyte, 4–11 cm. Leaves 1 or 2, broadly lanceolate, smooth or hairy. Flowers sessile, urn-shaped or oblong, greenish yellow, with or without purple tips, anthers included. Aug.–Sept. Clay flats, NW, KM (Tanqua Karoo to Ceres Karoo and Touws River). **gce**

arbuthnotiae W.F.Barker Bulbous geophyte, 18–40 cm. Leaves 1 or 2, lanceolate, plain or densely spotted. Flowers sessile, oblong, yellow with pale green markings, anthers included. Aug.–Oct. Marshy flats, SW (Cape Flats).•

aurioliae G.D.Duncan Like **L. obscura** but leaf bases not heavily barred and flower oblong-urceolate with inner tepals without magenta tips. July–Aug. Stony and sandy slopes, KM, SE (S Karoo and Montagu to Kammanassie Mtns).

bachmannii Baker Bulbous geophyte, 15–30 cm. Leaves 2, linear. Flowers shortly pedicellate, campanulate, white with brownish markings, anthers included. Aug.–Sept. Edges of seasonal pools, SW (Piketberg to Stellenbosch).•

bowkeri Baker Bulbous geophyte, 10–26 cm. Leaves 1 or 2, lanceolate, blade unmarked. Flowers shortly pedicellate, oblong-campanulate, pale blue and white with purple markings, anthers included. Aug. Sandy soil, SE (Port Elizabeth to Riebeek East).

capensis W.F.Barker Bulbous geophyte, 15–25 cm. Leaves 1 or 2, lanceolate or lorate, with or without brown blotches. Flowers sessile or shortly pedicellate, oblong-cylindrical, white or cream-coloured, anthers included. Sept.–Oct. Sandstone slopes, SW (Cape Peninsula).•

contaminata Aiton Bulbous geophyte, 6–25 cm. Leaves several, subterete, erect. Flowers shortly pedicellate, campanulate, white with brown or reddish markings, anthers included or exserted. Aug.–Oct. Wet places, often common, NW, SW, AP (Citrusdal to Bredasdorp).•

dehoopensis W.F.Barker Bulbous geophyte, 8–16 cm. Leaves 2, linear, banded with green and maroon. Flowers shortly pedicellate, oblong-campanulate, pale blue and cream-coloured with reddish markings, anthers included. Aug.–Sept. Sandy flats, AP (De Hoop, Bredasdorp).•

elegans W.F.Barker Bulbous geophyte, 10–30 cm. Leaves 1 or 2, lanceolate to ovate-lanceolate, with or without green or maroon spots. Flowers sessile, urn-shaped, yellow, blue, mauve or purple, with white tips, anthers included. July–Oct. Sandy and clay flats, mostly moist slopes, often in large colonies, NW (Namaqualand and W Karoo, Bokkeveld Mtns to Karoopoort). **gce**

fistulosa Baker (= *Lachenalia convallariodora* Stapf) Bulbous geophyte, 8–30 cm. Leaves 2, lorate, plain or spotted with brown. Flowers sessile, oblong-campanulate, cream-coloured, yellow, blue, lilac or violet, with pale brown markings, heavily scented, anthers included. Sept.–Oct. Rocky mountain slopes, NW, SW (Piketberg to Caledon).•

liliflora Jacq. Bulbous geophyte, 10–20 cm. Leaves 2, lanceolate, usually densely pustulate on upper surface. Flowers shortly pedicellate, oblong-campanulate, white with brownish markings and dark magenta tips, anthers included. Sept.–Oct. Hilly slopes in renosterveld, SW (Tygerberg to Paarl).•

longibracteata E.Phillips Bulbous geophyte, 7–35 cm. Leaves 1 or 2, lanceolate, leathery, plain or spotted. Flowers sessile or shortly pedicellate, oblong-campanulate, each flower with a long bract at base, pale blue, or yellow with a blue base, with brown or green markings, anthers included. July–Sept. Clay flats and slopes, NW, SW (Piketberg to Malmesbury).•

lutea G.D.Duncan Like **L. arbuthnotiae** but flowers suberect with inner tepals much longer than outer. Aug.–Oct. Flats and lower slopes, SW (Tulbagh to Bot River).•

margaretae W.F.Barker Dwarf, bulbous geophyte, 3–12 cm. Leaves 1 or 2, lorate, sometimes spotted. Flowers shortly pedicellate, campanulate, white with large brown or green markings, anthers very shortly exserted. Oct.–Dec. Rock ledges in partial shade, NW (Cedarberg).•

marginata W.F.Barker. Bulbous geophyte, 11–30 cm. Leaf solitary, ovate to lanceolate, glaucous, marked brown or green, margins thickened. Flowers sessile, oblong-cylindrical, greenish yellow with large, dark brown markings, anthers included. July–Aug. Sandy flats or slopes, NW (Bokkeveld Mtns to Clanwilliam).•

martinae W.F.Barker Bulbous geophyte, 10–25 cm. Leaf solitary, ovate-lanceolate with maroon bands on clasping base, margins undulate. Flowers shortly pedicellate, oblong-campanulate, dull white and grey, with greenish brown markings, anthers included. July–Aug. Sandstone outcrops, NW (Olifants River Mtns).•

maximiliani Schltr. ex W.F.Barker Bulbous geophyte, 10–20 cm. Leaf solitary, lanceolate, unmarked. Flowers shortly pedicellate, oblong-campanulate, pale blue and white with magenta tips, anthers included. July–Aug. Sandy slopes, often in large colonies, NW (Cedarberg).•

mediana Jacq. Bulbous geophyte, 20–40 cm. Leaves 1 or 2, lanceolate, unmarked. Flowers shortly pedicellate, oblong-campanulate, pale blue and white, or in shades of pinkish blue, with green or purplish markings, anthers included. Aug.–Sept. Clay soil, often in large colonies, NW, SW (Porterville to Cape Peninsula and Caledon).•

muirii W.F.Barker Bulbous geophyte, 10–25 cm. Leaves 1 or 2, linear, withered at flowering time. Flowers sessile, urn-shaped to oblong, pale blue and white with brown or maroon markings, anthers included. Oct.–Dec. Limestone hills and flats, AP (Bredasdorp to Still Bay).•

mutabilis Sweet BONTVIOOLTJIE Bulbous geophyte, 10–45 cm. Leaf solitary, lanceolate, erect, with crisped margins. Flowers oblong to urn-shaped, pale blue and white with yellow tips, or yellowish green, with brown markings, anthers included; apical flowers on blue pedicels and usually sterile. July–Sept. Sandy and stony slopes, NW, SW (Namaqualand and W Karoo, Bokkeveld Mtns to Riviersonderend). **gce**

obscura Schltr. ex G.D.Duncan Bulbous geophyte, 6–38 cm, with hard tunic. Leaves mostly 2, lanceolate, banded purple beneath. Flowers sessile or subsessile, often ternate below, oblong-bell-shaped, pale yellow-greenish, tepals usually tipped magenta, fading dull purple, anthers included or scarcely exserted. June–Oct. Stony karroid flats, NW, KM (Namaqualand and W Karoo to Little Karoo). **gce**

orchioides (L.) Aiton Bulbous geophyte, 10–40 cm. Leaves 1 or 2, lanceolate or lorate, plain or densely spotted. Flowers oblong-cylindrical, greenish yellow or pale to dark blue, anthers included. Aug.–Oct. In heavy soil, often in partial shade, in large colonies, NW, SW, AP, KM (Gifberg to Albertinia and Little Karoo).•

orthopetala Jacq. Bulbous geophyte, 9–27 cm. Leaves several, grass-like, plain or with brown spots. Flowers shortly pedicellate, oblong-campanulate, upward-facing, white with maroon markings, anthers included. Sept.–Oct. Clay soils in large colonies, NW, SW (Piketberg to Durbanville).•

pallida Aiton Bulbous geophyte, 12–30 cm. Leaves 1 or 2, lanceolate, sometimes with pustules above. Flowers shortly pedicellate, oblong-campanulate, cream-coloured to dark yellow with brown or green markings. Aug.–Oct. In clay in large colonies, NW, SW (Piketberg to Stellenbosch).•

perryae G.D.Duncan Bulbous geophyte, 12–32 cm. Leaf solitary, narrowly lanceolate, banded maroon below. Flowers shortly pedicellate, very pale blue and white with green or brown markings. July–Sept. Clay or sandy soil among succulents, NW, SW, LB (Worcester to Albertinia and E Cape).

reflexa Thunb. Bulbous geophyte, 3–19 cm. Leaves 1 or 2, lanceolate or lorate, plain or densely spotted on upper surface. Flowers shortly pedicellate, cylindrical-ventricose, erect, bright yellow, anthers included. June–Aug. Wet sandy flats in large colonies, SW (Malmesbury to Cape Peninsula and Franschhoek).•

rubida Jacq. SANDVIOOLTJIE Bulbous geophyte, 6–25 cm; scape mottled with magenta. Leaves 1 or 2, lanceolate or lorate, plain green or spotted with darker green or purple. Flowers on short, white pedicels, nodding, tubular, plain or densely spotted with pink or red, anthers included. Mar.–July. Sandy flats and slopes, NW, SW, AP, SE (Hondeklip Bay to Cape Peninsula to George). **gce**

subspicata Fourc. Bulbous geophyte, 6–13 cm. Leaves 2, linear. Flowers shortly pedicellate, pinkish mauve. Sept. Gravel flats, LB, SE (Riversdale to Humansdorp).•

trichophylla Baker Bulbous geophyte, 8–20 cm. Leaf solitary, heart-shaped, prostrate with stellate hairs on upper surface and margin. Flowers sessile or with short to long pedicels, oblong-cylindrical, shades of yellow, or yellow flushed with pink, with green markings, anthers included. Aug.–Sept. Sandy slopes, NW (Namaqualand to Citrusdal). **gce**

viridiflora W.F.Barker Bulbous geophyte, 8–20 cm. Leaves 2, lanceolate, plain or spotted. Flowers shortly pedicellate, cylindrical-ventricose, turquoise, anthers included. May–July. Sandy slopes, SW (Saldanha District).•

zeyheri Baker Bulbous geophyte, 6–20 cm. Leaves 1 or 2, subterete. Flowers shortly pedicellate, campanulate, white with reddish brown or green markings, anthers included. Sept.–Oct. Marshes and seeps, NW (Elandskloof to Ceres).•

LEDEBOURIA Roth AFRICAN SQUILL, UNTLOKWANA ± 60 spp., India, Madagascar and sub-Saharan Africa, mainly southern Africa

ensifolia (Eckl.) S.Venter & T.J.Edwards (= *Scilla ensifolia* (Eckl.) Britten) Like **L. revoluta** but bulb cylindrical with a papery or leathery neck, scales not producing threads when torn and flowers in narrow racemes with pedicels as long as flowers. Aug.–Dec. Stony slopes, SE (Humansdorp to E Cape).

ovalifolia (Schrad.) Jessop Bulbous geophyte, 7–12 cm. Leaves ascending, soft, lanceolate to ovate, narrowed below, reddish beneath. Flowers in broad racemes, purple or pink and white, pedicels longer than flowers. Dec.–Apr. Rocky places, often coastal limestone, NW, SW, AP, SE (Hex River Valley to Humansdorp).•

ovatifolia (Baker) Jessop Like **L. revoluta** but bulb scales loosely arranged, very fleshy and producing copious threads when torn. Sept.–Oct. Stony slopes, SE (Port Elizabeth to tropical Africa to Sri Lanka).

revoluta (L.f.) Jessop Bulbous geophyte to 15 cm, scales producing fine threads when torn. Leaves ascending, lanceolate, firm, spotted with red, margin hyaline, often slightly crisped and ciliolate. Flowers in broad racemes, purple and greenish, pedicels longer than flowers. Mainly Oct.–Dec. Stony slopes, LB (Swellendam to Riversdale, E southern Africa to India).

undulata (Jacq.) Jessop Bulbous geophyte, 10–15 cm. Leaves dry at flowering, ascending, narrowly lanceolate, mottled with dark green, margins undulate or crisped. Flowers in dense racemes, on horizontal pedicels ± as long as flowers, whitish and purple-pink or greenish, tepals recurved. Nov.–Jan. Rocky places, including sandstone and limestone, NW, SW (Namaqualand and W Karoo to Darling). **gce**

venteri Van Jaarsv. & A.E.van Wyk Like **L. revoluta** but leaves unspotted. Nov.–Dec. Rocky cliffs, LB (Gouritz River).•

MASSONIA Thunb. ex Houtt. (= *WHITEHEADIA*) HEDGEHOG-LILY, BOBBEJAANBOEK, KRIMPVARKIE ± 9 spp., widespread in dry areas, S Namibia, S Africa and Lesotho

***Whiteheadia* group**

bifolia (Jacq.) J.C.Manning & Goldblatt (= *Whiteheadia bifolia* (Jacq.) Baker) PAGODA-LILY Bulbous geophyte, 8–20 cm. Leaves prostrate, fragile; bracts succulent, green. Flowers sessile in a dense, conical subspicate raceme crowned with a cluster of leafy bracts, cup-shaped, white to green; anthers yellow. Capsules ± 15 mm long. June–Aug. Mostly in rock outcrops, NW (S Namibia to Bokkeveld and Pakhuis Mtns). **gce**

***Massonia* group**

A. Perianth tube funnel-shaped and exposing ovary

depressa Houtt. (= *Massonia grandiflora* Lindl.) Bulbous geophyte to 5 cm. Leaves prostrate, mostly smooth, sometimes spotted, rarely pustulate. Flowers clustered between leaves, musty scented, tube funnel-shaped with wide mouth, ovary exposed, yellow to green, white or pink, with copious viscous nectar, tepals reflexed-sigmoid; anthers 2–5 mm long, yellow. Capsules 10–30 mm long. May–July(–Aug.). Sandy and clay flats, NW, SW, AP, KM, SE (Namaqualand to Langkloof, E Cape, Karoo).

A.' Perianth tube cylindric and concealing ovary

echinata L.f. (= *Daubenya angustifolia* (L.f.) A.M.van der Merwe & J.C.Manning, *Massonia hirsuta* Link & Otto, *M. setulosa* Baker) Bulbous geophyte to 5 cm. Leaves prostrate, glabrous or papillate-hairy above. Flowers clustered between leaves, tubular, white, fading pink, tepals reflexed-sigmoid; anthers 1–2 mm long, blue to pink. Capsules ± 10 mm long. May–July. Sandy and clay flats, NW, SW, AP, KM, LB, SE (Namaqualand, Bokkeveld Mtns and W Karoo to Robertson and E Cape).

pustulata Jacq. Like **M. echinata** but often larger, with yellow anthers, and capsules larger, 15–25 mm long. May–July. Sandy coastal flats, SW, AP, SE (Caledon to Joubertina).•

pygmaea Kunth (= *Massonia heterandra* (F.M.Leight.) Jessop) Bulbous geophyte to 5 cm. Leaves small, prostrate, smooth or pustulate-papillate. Flowers clustered between leaves, tubular, pink or white, tepals linear, spreading-erect; filaments alternately short and long, anthers blue. Capsules ± 10 mm long. May–June. Gravelly rock sheets, NW, SW (Kamiesberg and Cedarberg to Hottentots Holland Mtns). **gce**

tenella Soland. ex Baker (= *Massonia bokkeveldiana* Poelln.) Bulbous geophyte to 5 cm. Leaves prostrate, glabrous or papillate-hairy above. Flowers clustered between leaves, shortly tubular, pink to white or yellow, tepals spreading-erect; anthers 1–2 mm long, blue, pink or white, scented, without nectar. Capsules 8–10 mm long. June–July(–Aug.). Sandy and clay flats and rock sheets, NW, KM (W Karoo and Bokkeveld Mtns to Koo). **gce**

ORNITHOGALUM L. (= *NEOPATERSONIA*) CHINCHERINCHEE, TJIENK ± 200 spp., Africa and Eurasia

A. Bracts large, lanceolate, entire

ceresianum F.M.Leight. Like **O. thyrsoides** but with large, dark centre and all filaments ± winged. Oct.(–Nov.) Vleis and moist flats, NW (Ceres).•

conicum Jacq. CHINCHERINCHEE Bulbous geophyte, 30–90 cm, bulb tunics soft, whitish. Leaves dry at flowering, spreading, ciliate. Flowers with large bracts, white, inner filaments ± filiform. Nov.–Dec. Stony flats and slopes along the coast, NW, SW (Graafwater to Gordon's Bay).•

dubium Houtt. (= *Ornithogalum citrinum* Schltr. ex Poelln., *O. fimbrimarginatum* F.M.Leight., *O. subcoriaceum* L.Bolus) GEELTJIENK Bulbous geophyte, 10–65 cm, bulb tunics leathery and dark. Leaves spreading to erect, ciliate. Flowers with large bracts, white, yellow or orange, often with dark centre and filaments; style very short. Sept.–Nov.(–Jan.). Sandy or stony middle to upper slopes and plateaus, NW, SW, AP, KM, LB, SE (Bokkeveld Plateau to Peninsula to E Cape).

maculatum Jacq. ORANJETJIENK Bulbous geophyte, 8–50 cm. Leaves usually suberect, oblong to lanceolate, glabrous, somewhat fleshy. Flowers with large bracts, orange to orange-red or yellow, outer tepal tips often with a dark or transparent blotch, style very short. Sept.–Oct. Usually sandy soils, often on rocks, NW, SW (Namaqualand to Malmesbury, W Karoo to Laingsburg). **gce**

rupestre L.f. (= *Ornithogalum multifolium* Baker) KLIPTJIENK Bulbous geophyte, 2–25 cm. Leaves spreading, terete, succulent. Flowers with large bracts, few, cream-coloured to yellow or orange, style very short or stigma sessile. Sept.–Dec. Shallow soils on rock pavements, NW, SW, KM (Namaqualand and W Karoo, Bokkeveld Mtns to Little Karoo). **gce**

strictum L.Bolus Like **O. thyrsoides** but raceme cylindrical, ovary yellow, often with deflexed style, and inner filaments with small membranous basal wing. Vleis and moist flats, NW (Bokkeveld Mtns to Ceres and Roggeveld). **gce**

thyrsoides Jacq. CHINCHERINCHEE Bulbous geophyte, 20–80 cm, bulb tunics soft, whitish. Leaves sometimes dry at flowering, suberect, long. Flowers in subcorymbose racemes, with large bracts, white, often with dark centre, ovary dark, inner filaments with broad membranous wings below. Oct.–Dec. Sandy flats and lower slopes, often in vleis, NW, SW, AP (Namaqualand to Bredasdorp). **gce**

uitenhagense (Schönland) J.C.Manning & Goldblatt (= *Neopatersonia uitenhagensis* Schönland) Bulbous geophyte, 15–20 cm. Leaves spreading, lanceolate. Flowers white or greenish with white stamens, filaments fleshy and lobed below, stigma 3-branched. Sept.–Oct. Stony, mostly limestone slopes, NW, AP, LB, SE (Robertson and Protem to Addo).

A.' Bracts small, deltoid, denticulate
B. Filaments dimorphic or fused below

constrictum F.M.Leight. Bulbous geophyte, 20–40 cm. Leaves dry at flowering, prostrate, oblong, margins minutely fimbriate. Flowers on stout pedicels, white with green midrib, stamens unequal, dimorphic. Nov.–Feb. Clay soils in renosterveld, AP, KM, SE (Worcester, Little Karoo, Bredasdorp to E Cape).

inclusum F.M.Leight. Bulbous geophyte to 30 cm. Leaves dry at flowering, suberect, margins minutely fimbriate. Flowers white with green midribs, stamens unequal, dimorphic. Aug.–Sept. Karroid flats, NW (Botterkloof Valley: Doornbosch).•

synadelphicum U.Müll.-Doblies & D.Müll.-Doblies Slender, bulbous geophyte, 10–20 cm. Leaves filiform, minutely hairy. Flowers spreading on short pedicels, white, filaments widened below and fused into a cup. Sept.–Dec. Shale flats, KM (Ladismith to Oudtshoorn).•

B.' Filaments ± equal and free
C. Leaves oblong-lanceolate, often clasping below to form a pseudostem

bicornutum F.M.Leight. Bulbous geophyte, 10–16 cm. Leaves dry at flowering, spreading, with sheathing membranous base. Flowers white, nocturnal, filament appendages horn-like. Oct.–Dec. Dry stony places, NW (Namaqualand to W Karoo and S Bokkeveld Mtns). **gce**

ciliiferum U.Müll.-Doblies & D.Müll.-Doblies (= *Ornithogalum gifbergense* U.Müll.-Doblies & D.Müll.-Doblies) Bulbous geophyte, 10–20 cm. Leaves dry at flowering, clasping stem, margins long-ciliate, basal sheaths long, tubular, bracts small, long-ciliate. Flowers white. Nov.–Dec. Stony slopes, NW (Namaqualand to Clanwilliam). **gce**

hispidum Hornem. GROWWETJIENK Bulbous geophyte, 10–40 cm. Leaves dry at flowering, clasping stem, often pubescent, basal sheaths long, tubular, often spotted, bracts small. Flowers white. Aug.–Dec. Clay flats or rock outcrops, NW, SW, KM (S Namibia to Cape Peninsula to Little Karoo). **gce**

pilosum L.f. (= *Ornithogalum perparvum* Poelln.) Bulbous geophyte, 15–30 cm, bulbs with hard black tunics, often with more than 1 raceme. Leaves sometimes dry at flowering, erect, sheathing below. Flowers white with pinkish reverse. Oct.–Dec. Clay flats and lower slopes, NW, SW, LB (Piketberg to Riversdale).•

thermophilum F.M.Leight. Like **O. hispidum** but flowers in a dense, narrow raceme and tepals linear, white with orange midribs. Dec. Rocky slopes, NW (Clanwilliam).•

C. Leaves linear-filiform, basal

comptonii F.M.Leight. Dwarf bulbous geophyte, 5–10 cm. Leaves sometimes dry at flowering, short, arcuate, linear and keeled, sclerotic, margins retrorse-ciliate. Flowers suberect in a dense conical raceme, white with brown tepal midribs. Oct.–July. Shale flats and slopes, KM (W and Little Karoo). **gce**

dregeanum Kunth Like **O. juncifolium** but sheaths usually orange-spotted, ageing to form a long, fibrous neck. Dec.–Jan. Sandy, often wetter sites, NW, SW (Tulbagh to Kleinrivier Mtns).•

esterhuyseniae Oberm. Bulbous geophyte, 50–70 cm. Leaves erect, channelled, margins inrolled. Flowers subcorymbose, small, white, shortly tubular below, ovary stipitate. Dec.–Feb., usually after fire. Wet places at high alt., NW, SW (Hex River to Hottentots Holland Mtns).•

flexuosum (Thunb.) U.Müll.-Doblies & D.Müll.-Doblies (= *Ornithogalum ornithogaloides* (Kunth) Oberm.) Like **O. paludosum** but flowers in open, elongate racemes with pedicels to 40 mm in fruit. Nov.–Mar. Vleis and river banks, LB, SE (Riversdale to Port Elizabeth to Malawi).

graminifolium Thunb. Bulbous geophyte, 10–30 cm. Leaves often dry at flowering, linear, sometimes hairy, reddish below and forming a papery neck. Flowers usually in a narrow, spike-like raceme, white, dull yellow or pale pink, only a few open at a time. Dec.–Mar. Stony clay flats and slopes, often moist sites, NW, SW, AP, KM, LB, SE (W Karoo and Bokkeveld Mtns to KwaZulu-Natal).

juncifolium Jacq. (= *Ornithogalum comptum* Baker, *O. lithopsoides* Van Jaarsv.) Bulbous geophyte, 10–40 cm. Leaves suberect, slender, usually strongly ribbed. Flowers usually in a narrow, spike-like raceme, small, white, only a few open at a time. Nov.–Mar. Dry flats or exposed rocky slopes, SW, AP, KM, LB, SE (Little Karoo and Caledon to E southern Africa).

nannodes F.M.Leight. (= *Ornithogalum hesperanthum* U.Müll.-Doblies & D.Müll.-Doblies) Bulbous geophyte to 15 cm, with a neck. Leaves dry at flowering, suberect, filiform, tufted. Flowers in corymbose racemes, whitish with brown midribs. Oct.–Dec. Hard stony soil, NW, SW (Namaqualand and W Karoo to Stellenbosch). **gce**

paludosum Baker Stiffly erect, bulbous geophyte, 20–50 cm, bulb elongate and poorly developed, somewhat rhizomatous below. Leaves linear, erect, sclerotic. Flowers in a subspicate raceme, white, tubular below, ovary stipitate. Oct.–Jan. Wet grassy slopes, SE (Uniondale to Mpumalanga).

sardienii Van Jaarsv. Dwarf, evergreen, bulbous geophyte to 4 cm, with epigeal bulb. Leaves numerous, *Haworthia*-like, triangular in section, with 6 rows of white cilia. Flowers white. Jan.–Mar. Enon conglomerate hills, KM (Oudtshoorn).•

schlechterianum Schinz (=*Ornithogalum niveum* auct. non W.T.Aiton, *O. oreogenes* Poelln., *O. vallisgratae* Schltr. ex Poelln; incl. **O. rogersii** Baker) Bulbous geophyte, 10–30 cm, straggling. Leaves spreading, soft, linear to linear-oblanceolate. Flowers on a flaccid peduncle, often subcorymbose, translucent white. Dec.–Feb. Rock ledges at middle to upper alt., SW, KM, LB, SE (Cape Peninsula to Outeniqua and Swartberg).•

tortuosum Baker (=*Ornithogalum thunbergianulum* U.Müll.-Doblies & D.Müll.-Doblies) Bulbous geophyte, 10–20 cm. Leaves filiform, tortuose, minutely hairy. Flowers white with green keels. Aug.–Feb. Clay flats, SE (Mossel Bay to Steytlerville).

zebrinellum U.Müll.-Doblies & D.Müll.-Doblies Bulbous geophyte, 4–10 cm. Leaves 2–5, dry at flowering, spreading, with striped basal sheaths. Flowers in a lax raceme, delicate, white. Feb.–Mar. NW, KM (Namaqualand and W Karoo to Worcester, Witteberg, Little Karoo to Grahamstown).

[**Species excluded** No authentic material found and possibly conspecific with one of the above: **O. nathoanum** U.Müll.-Doblies & D.Müll.-Doblies; **O. adseptentrionesvergentulum** U.Müll.-Doblies & D.Müll.-Doblies]

PERIBOEA Kunth = **LACHENALIA**

POLYXENA Kunth = **LACHENALIA**

SCILLA see **SPETAEA**

SPETAEA Wetschnig & Pfosser• 1 sp., W Cape

lachenaliiflora Wetschnig & Pfosser (= *Scilla plumbea* auct. non Lindl.) Bulbous geophyte, 20–40 cm. Leaves suberect, fleshy, deeply channelled. Flowers purple-blue. Dec.–Jan. Sandstone slopes on wetter sites, SW (Bain's Kloof and Du Toitskloof Mtns).

VELTHEIMIA Gled. VELTHEIMIA, SANDLELIE 2 spp., W and E Cape, Namaqualand

bracteata Harv. ex Baker Bulbous geophyte, 20–40 cm, bulb tunics fleshy. Leaves suberect, glossy green, margins undulate, seldom all deciduous. Flowers in a congested, ovoid raceme, tubular, spreading to nodding, pink or pale yellow, finely speckled with red. Aug.–Sept. Coastal scrub, SE (Humansdorp to E Cape).

capensis (L.) DC. Like **V. bracteata** but outer bulb tunics papery and leaves greyish with margins undulate or crisped, deciduous. Apr.–Aug. Rocky slopes, NW, SW, AP, KM (Namaqualand and W Karoo to Darling, Robertson, Potberg and Little Karoo). **gce**

WHITEHEADIA Harv. = **MASSONIA**

HYDROCHARITACEAE (= *NAJADACEAE*)

1. Ovary superior, 1-locular with solitary ovule; flowers apetalous . . . . . **Najas**
1.' Ovary inferior, 1-locular with many ovules on parietal placentas:
2. Marine plants; leaves linear to lanceolate-ovate, in pairs from a creeping rhizome; flowers apetalous, submerged . . . . . **Halophila**
2.' Fresh-water plants; leaves linear to linear-lanceolate, widely spaced below, dense above, attenuate, subopposite or whorled from long, leafy, submerged stems arising from a perennial rhizome; flowers with petals exserted above water during anthesis **Lagarosiphon**

HALOPHILA Thouars ± 9 spp., tropical coasts of Indian and Pacific Oceans

ovalis (R.Br.) Hook.f. Monoecious or dioecious, creeping marine aquatic exposed only at very low tides. Leaves paired, linear to ovate. Flowers minute, solitary in axils of secondary branches. Jan. Marine, SE (Knysna to Natal, tropical coasts of Indian and Pacific Oceans).

LAGAROSIPHON Harv. ± 16 spp., mainly Africa and Madagascar

muscoides Harv. Monoecious or dioecious, submerged aquatic perennial, rootstock a rhizome, stems long and leafy. Leaves linear, toothed. Flowers tiny, axillary, white or pink. ?. Fresh water, SE (Humansdorp to tropical Africa).

NAJAS L. 35–50 spp., cosmopolitan

marina L. Submerged aquatic annual to 60 cm, stems prickly. Leaves narrow, serrate. Flowers minute. ?. Brackish water, SE (George to tropical Africa, Eurasia, Australia).

HYPOXIDACEAE

by D.A. Snijman

1. Plants densely pubescent, especially on reverse of flowers; hairs branched, stellate or tufted . . . **Hypoxis**
1.' Plants glabrous or if sparsely pubescent, then hairs simple and absent from flowers:

2. Leaves often pleated; flowers with conspicuous solid neck between ovary and tepals; ovary usually hidden in leaf sheaths during flowering, unilocular; fruit indehiscent, subsucculent ..... **Empodium**
2.' Leaves not pleated; flowers with tepals usually free to base, rarely with solid neck between ovary and tepals; ovary usually well exposed during flowering, trilocular or occasionally unilocular; fruit dehiscent, thin-walled:
3. Stamens 3 ..... **Pauridia**
3.' Stamens 6 ..... **Spiloxene**

EMPODIUM Salisb. AUTUMN STAR 8 or 9 spp., N and W Cape to Mpumalanga and Swaziland

flexile (Nel) M.F.Thomps. ex Snijman Cormous geophyte to 10cm, with a fibrous neck. Leaves 3, dry or emergent at flowering, lanceolate, pleated with fringed ribs. Flower yellow, sweetly scented, anthers tipped with elongate, fleshy appendages, ovary mostly subterranean, with a beak 10–30 mm long. Feb.–June. Stony flats, NW, KM, SE (Namaqualand to Oudtshoorn to near Willowmore). **gce**

gloriosum (Nel) B.L.Burtt Like **E. plicatum** but basal sheaths papery, leaves to 8, green at flowering, longer than inflorescence, occasionally ribs hispid when young, flower occasionally lime-scented, ovary mostly exserted from leaf sheaths, beak 20–80 mm long and smooth, and stylar column longer than stigma branches. Mar.–June. Lower slopes, AP, KM, LB, SE (Montagu, Bredasdorp to Somerset East).

namaquensis (Baker) M.F.Thomps. Cormous geophyte to 30 cm, basal sheaths membranous, pale with dark tips. Leaves 1–5, green at flowering, tufted, broadly lanceolate, pleated with minutely toothed ribs. Flowers yellow, held to 5 cm above the ground, anthers without appendages, ovary with a sparsely hispid beak to 20 mm long. Apr.–May. Rock outcrops, NW (Namaqualand to Graafwater). **gce**

plicatum (Thunb.) Garside PLOEGTYDBLOMMETJIE Cormous geophyte, 10–30 cm, basal sheaths membranous. Leaves 1–4, occasionally shortly emergent at flowering, lanceolate, deeply pleated with hispid ribs. Flowers yellow, ovary subterranean, with a hispid beak 50–100 mm long. Apr.–June. Clay and granite flats and lower slopes, NW, SW, AP (Namaqualand and W Karoo to Breede River Mouth). **gce**

veratrifolium (Willd.) M.F.Thomps. Cormous geophyte to 30 cm, basal sheaths dark brown, papery. Leaves 3–6, green at flowering, tufted, spreading, lanceolate, pleated with sparsely ciliate ribs. Flowers held 10 cm or more above ground, yellow, ovary with a beak ± 10 mm long. May–June. Granite rocks along the coast, NW, SW (Lambert's Bay to Saldanha Bay).•

HYPOXIS L. STAR-GRASS, INKBOL ± 80 spp., pantropical and subtropical, mainly Africa

angustifolia Lam. Soft, cormous geophyte, 5–15 cm, often forming clumps, neck membranous, sometimes sparsely fibrous. Leaves 6–10, spreading, linear, flaccid, grass-green, with sparse, long, soft, simple to stellate hairs mainly on veins and margin. Flowers 2–4(–6), yellow. Oct.–Mar. Marshy depressions, SE (Groot River to tropical Africa, Madagascar, Mauritius and Mascarene Islands).

argentea Harv. ex Baker Slender, cormous geophyte, 7–10 cm, with a finely fibrous neck. Leaves 4–7(–10), suberect, clasping basally into a false stem, linear, sparsely to densely hairy mainly on margins and beneath, silvery white, hairs adpressed with arms parallel to long axis. Flowers 1–5, yellow. Aug.–Mar. Grassy fynbos and grasslands, AP, KM, LB, SE (Potberg to Gauteng).

flanaganii Baker Small, cormous geophyte, 3–5 cm, with a brown membranous neck. Leaves 4–7, suberect, linear, sparsely hairy above and beneath, hairs mostly bifurcate, white or pale brown. Flowers 1 or 2, small, yellow. Sept.–Dec. Moist depressions and slopes, AP, SE (Bredasdorp to S Coast of KwaZulu-Natal).

floccosa Baker Small, cormous geophyte, mostly 5–7 cm, with a dark brown papery neck. Leaves 6 or 7, suberect, linear, densely hairy beneath, hairs soft, rufous, stellate, with 4–8 unequal radiating arms. Flowers 2, on a weak scape often shorter than leaves, small, yellow. Nov.–May. Seasonally damp flats, SW, AP, SE (Sir Lowry's Pass to Swellendam to Stutterheim).

longifolia Baker Slender, cormous geophyte, 25–35 cm, with a fibrous neck. Leaves 4–6(–8), suberect, clasping at base into a short, false stem, linear, ribbed above, as long as or longer than the

inflorescence, midrib and margin fringed with thick, short, white hairs. Flowers 4 or 5(–7), yellow. Aug.–May. Damp flats and slopes, SE (Knysna to North West Province and KwaZulu-Natal).

setosa Baker Cormous geophyte, 5–12 cm, with a soft fibrous neck. Leaves 4–11, 3-ranked, spreading, lanceolate, falcate, margin with adpressed stellate hairs, with arms lying parallel to axis, veins thick and prominent beneath. Flowers 2–4, yellow, in a brownish hairy inflorescence. June–Dec. Stony slopes, LB, SE (Swellendam to Grahamstown).

sobolifera Jacq. Cormous geophyte, 10–20(–25) cm, with a fibrous neck. Leaves (4–)8–12, lanceolate, falcate, folded together lengthwise, twisting apically, sparsely to densely hairy mainly beneath, hairs stellate or 2-armed, in tufts, turning pale to reddish brown. Flowers 2–7, yellow. Aug.–Mar. Rocky slopes, LB, SE (Swellendam to KwaZulu-Natal).

stellipilis Ker Gawl. Cormous geophyte, 10–20 cm, with a softly fibrous neck. Leaves 10–18, 3-ranked, lanceolate, falcate, folded together lengthwise at least basally, discolorous, nearly glabrous above, silvery-felted beneath, margin thickened. Flowers 3 or 4(–7), yellow. Nov.–Apr. Dry hill slopes, SE (Uniondale to Port Elizabeth).•

villosa L.f. GOLDEN WINTER STAR Soft, cormous geophyte, 6–15 cm, with a fibrous neck. Leaves 4–7, 3-ranked, lanceolate, falcate, thinly hairy beneath, hairs silky, white, stellate, with arms lying parallel to long axis. Flowers 2–6(–10), yellow, in a corymbose hairy inflorescence with hairs drying brown in upper parts. Oct.–Apr. Coastal forelands, SE (Zwartkops River to northern E Cape).

PAURIDIA Harv.• KLIPSTERRETJIE 2 spp., W and E Cape

longituba M.F.Thomps. Dwarf, cormous geophyte to 9 cm, with a membranous neck. Leaves 3–8(–11), tufted, suberect, linear, overtopping flowers. Flowers 1(2) per scape, white, unpleasantly scented, tube narrow, at least twice as long as lobes, anthers yellow, pedicels up to 2 mm long, bracts 2. May–June. Granite outcrops, SW (St Helena Bay to Vredenburg).•

minuta (L.f.) T.Durand & Schinz Dwarf, cormous geophyte to 8 cm, neck membranous. Leaves 3–5, suberect, linear to lanceolate. Flowers 1(2) per scape, white or pale pink, unscented or sweet-scented, tube shallowly campanulate, anthers white or yellow, pedicels 2–30 mm long, often recurved in fruit, bracts 2. Apr.–June. Damp flats, NW, SW, AP, LB, SE (Vredenburg to Port Elizabeth).•

[The two species hybridize at Vredenburg]

SPILOXENE Salisb. CAPE STAR, STERRETJIE ± 30 spp., S Namibia, N, W and E Cape, Lesotho, KwaZulu-Natal and Australia

A. Flowers funnel-shaped with ovary at ground level

sp. 1 (**Saniella occidentalis** (Nel) B.L.Burtt) Cormous geophyte, 1–3 cm. Leaves 3–11, spreading, terete, firm, with scattered recurved teeth. Flower 1, sessile, funnel-shaped, white with pink reverse, throat yellow, narrowing to a long spongy beak above the ovary, scape and sheathing bract subterranean. July–Aug. Damp soil near flat rocks, NW (Cold Bokkeveld and W Karoo). **gce**

*A.' Flowers star-shaped with ovary usually well above ground level (except in **S. monophylla**)*
*B. Flowers 2 or more per inflorescence (see also **S. schlechteri**)*
*C. Flowers white (see also **S. pusilla**)*

alba (Thunb.) Fourc. WITSTERRETJIE Cormous geophyte to 15 cm, neck softly fibrous. Leaves 2–5, suberect, subterete, spongy, shorter than inflorescence. Flowers (1)2, stellate, constricted into a short, solid beak above the ovary, white with maroon beneath, rarely yellow, sweetly scented, bracts 2, spreading, fruit beaked. Apr.–June. Damp places, NW, SW (Cold Bokkeveld to Botrivier).•

aquatica (L.f.) Fourc. WATERSTERRETJIE Cormous geophyte, 20–45 cm, neck softly fibrous. Leaves 2–5, erect, subterete, hollow, equalling or exceeding the inflorescence. Flowers 2–7, stellate, white with green or red stripes beneath, without a solid beak, bracts 2–7, broad, spreading. June–Nov. Pools or marshes, NW, SW, AP, SE (Namaqualand to Cape Peninsula to Port Elizabeth). **gce**

minuta (L.) Fourc. Dwarf, cormous geophyte, 2–5 cm, corm flat-bottomed, broadest at base, tunics hard. Leaves 2 or 3, spreading, narrow, channelled, firm. Flowers 2(3), stellate, white with green reverse, often sweetly scented, anthers sagittate, with connective broader than pollen sacs, bracts 2(3), narrowly linear, spreading. Apr.–June. Damp flats, NW, SW (Clanwilliam to Cape Peninsula).•

nana Snijman Slender, cormous geophyte to 35 cm, corm tunics softly fibrous, pale brown. Leaves 2–6, suberect, narrow, thin-textured. Flowers 2, stellate, small, white, occasionally flushed pink, pale green beneath, narrowed to a short solid neck above ovary, tepals ± reflexed, bracts 2, lanceolate, pale green. Sept.–Oct. Damp sandstone ledges, NW (Bokkeveld Mtns.).•

C.' Flowers yellow

flaccida (Nel) Garside Cormous geophyte, 6–25 cm, tunic fibres firm, often outwardly pointed at tips. Leaves 3–6(–9), spreading, lanceolate, keeled, soft-textured, occasionally undulate. Flowers (1)2(3), stellate, yellow, greenish to brownish beneath, bracts (1)2, lanceolate, membranous, pale to brownish. July–Sept. Damp flats and southern slopes, NW, SW, AP, LB, SE (Pakhuis and Elandskloof Mtns to Humansdorp).•

maximiliani (Schltr.) Garside Cormous geophyte to 15 cm, corm small, non-fibrous. Leaves 2–4, strap-shaped, curved, keeled, thin-textured. Flowers 2, stellate, yellow, with green beneath, ovary cylindrical, at least twice as long as tepals, triangular in transection, unilocular, bracts 2, broad, spreading, capsule splitting open longitudinally. Aug.–Sept. Damp crevices NW (Olifants River Valley).•

pusilla Snijman Slender, delicate, cormous geophyte to 30 cm, corm tunics soft, brown. Leaves 2–6, suberect, narrow, thin-textured. Flowers 2(3), stellate, small, yellow or white, tepals usually 4, ± reflexed, ovary beaked, filaments adnate to thickened style, stigma branches dark red, bracts 2(3). Sept.–Oct. Damp, shaded, sandstone pavements, NW (Matsikamma Mtns to Pakhuis Mtns.).•

trifurcillata (Nel) Fourc. Delicate, cormous geophyte to 15 cm, corm tunics soft, brown. Leaves 5–8, spreading, narrow, keeled, thin-textured. Flowers 2(1), stellate, small, yellow, with pale green beneath, stigma branches slender, swollen at apex, with 3 slender downturned extensions from their base, bracts 2, linear. Jan.–May. Seasonally moist places, SE (Humansdorp to Somerset East).

umbraticola (Schltr.) Garside Soft, cormous geophyte to 20 cm, corm capped with fine, pale brown fibres. Leaves 2 or 3, spreading, lanceolate, keeled, thin-textured. Flowers (1–)2, stellate, yellow, with pale green beneath, ovary cylindrical, as long as tepals, anthers as long as filiform filaments, bracts 1 or 2, sheathing. June–Sept. Moist S-facing slopes in shade, NW (Olifants River Mtns and Middelberg).•

*B.' Flower 1 per inflorescence (see also **S. alba, S. flaccida, S. trifurcillata** and **S. umbraticola**)*

aemulans (Nel) Garside Cormous geophyte, 3–10 cm, corm tunics finely netted. Leaves 2–5, suberect, narrowly lanceolate, smooth. Flower 1, stellate, yellow, backed with pale green, stamens unequal, anthers oblong, inner face of anther connective convex, bract 1, linear, inconspicuous. May–Aug.(–Sept.). Seasonally damp, loamy soils, AP, KM, LB (near Worcester to Napier to Little Karoo).•

canaliculata Garside GEELPOUBLOM Like **S. capensis** but leaves U-shaped in transection, without a keel, flowers yellow or orange with a dark, non-iridescent centre, ovules and seeds J-shaped. July–Nov. Wet flats, SW (Darling to Cape Peninsula).•

capensis (L.) Garside PEACOCK FLOWER Cormous geophyte, 10–30 cm. Leaves 2–8, spreading, V-shaped in transection, usually toothed. Flower 1, stellate, yellow, white or occasionally pinkish, centre often iridescent, spots occasionally non-iridescent, striped beneath, filaments short, bract 1, leaf-like, sheathing. July–Oct. Seasonally wet flats, NW, SW, AP, KM, LB, SE (Citrusdal to W Karoo to Port Elizabeth). **gce**

curculigoides (Bolus) Garside (incl. **S. declinata** (Nel) Garside) Cormous geophyte to 18 cm, neck of long blunt bristle-like fibres. Leaves 3(–5), fewer at early flowering, linear. Flower 1, stellate, yellow, with green beneath, faintly scented, stigma branches slender, often shorter than stylar column, bract 1, sheathing. Apr.–May. Damp rocky areas, SW, AP (Tulbagh: Elandskloof Mtns to Agulhas Plain).•

gracilipes (Schltr.) Garside) (incl. **S. cuspidata** (Nel) Garside) Cormous geophyte, 3–22 cm, twisted roots covering corm. Leaves 3–9, narrowly to broadly lanceolate, channelled. Flower 1, stellate, yellow with green backs, bract 1, inconspicuous. June–Oct. Wet rocks and crevices on sandstone or granite, NW, SW (Namaqualand to Hex River Valley to W Coast). **gce**

linearis (Andrews) Garside Cormous geophyte to 30 cm, with tangled, woolly roots around corm. Leaves 3–9, spreading, narrow, channelled, minutely serrated. Flower 1, stellate, chrome- to sulphur-yellow, with green and white bands beneath, centre usually dark, style less than half as long as stamens, bracts 2, filiform. Aug.–Oct. Limestone and granite outcrops, SW (Hopefield and Saldanha to Yzerfontein).•

monophylla (Schltr.) Garside Small, cormous geophyte, 4–9 cm, corm tunics finely netted, pale brown. Leaves 1(–2), spreading, firm, channelled, immature at flowering. Flower 1, stellate, held close to the ground, yellow, with pale green beneath, bract 1, sheathing, membranous, partially exposed above ground. Feb.–Apr., especially after fire. Sandstone slopes, SW (Kogelberg to Napier).•

ovata (L.f.) Garside Cormous geophyte, 4–22 cm tall, twisted roots covering corm. Leaves 3–7, ovate to lanceolate, channelled, clasping at base. Flower 1, stellate, white with reddish backs, bract 1, inconspicuous. July–Sept. Seasonally wet clay banks and depressions in renosterveld, SW, AP, LB (Caledon to Bredasdorp to Heidelberg).•

schlechteri (Bolus) Garside Cormous geophyte, 6–9 cm, corm fibres rigid, dark brown. Leaves 2–7, suberect, firm, hemiterete to U-shaped in transection, smooth or with a few recurved teeth. Flowers 1 or 2, stellate, deep yellow, with green or reddish reverse, bracts 1 or 2, leathery, spreading, with a recurved tip. June–Aug. Marshy flats, NW, SW (Bokkeveld Mtns to Cape Peninsula).•

serrata (Thunb.) Garside Cormous geophyte, 6–30 cm, corm fibres fine. Leaves 5–15, suberect, linear, channelled, rounded beneath in transection, margin minutely toothed. Flower 1, stellate, yellow, rarely orange or white, with green reverse, bracts 2, linear. May–Oct. Flats and lower slopes, NW, SW (Namaqualand to W Karoo to Cape Peninsula to near Montagu). **gce**

sp. 2 Cormous geophyte, 3–9 cm, corm fibres fine, net-like. Leaves ± 8, spreading, lanceolate, shallowly channelled, rounded beneath, thin-textured, margins minutely papillate. Flower 1, stellate, yellow, with pale green backs, stylar column usually longer than slender stigma branches, bract 1, linear-lanceolate. Mar.–May. Damp shady flats or slopes, SE (Baviaanskloof Mtns and Gamtoos River Valley).•

[**Species excluded** Poorly known and probably conspecific with one of the above: **S. acida** (Nel) Garside]

IRIDACEAE

1. Flowers in umbellate clusters (rhipidia) enclosed by a pair of opposed leafy bracts (spathes), rarely solitary on peduncles or plants acaulescent but then style either dividing below anthers into tangentially compressed, petal-like branches or dividing below or above base of anthers and obscurely 3-lobed apically, lobes entire or fringed; individual flowers sessile or pedicellate; rootstock a woody caudex, a rhizome or a corm; tepals free or connate:
   2. Evergreen shrubs with woody aerial stems; rootstock a woody caudex; individual flowers sessile and tepals always united in a well-developed tube, lasting at least two days (subfamily NIVENIOIDEAE):
      3. Inflorescence compound, forming a compressed capitulum enclosed by enlarged green or coloured leaves; perianth tube shorter than linear-spathulate tepals ..... **Klattia**
      3.' Inflorescence either compound, forming branched panicles or corymbs, or flowers borne in isolated pairs, enclosed in green or brown spathes; perianth tube shorter or longer than oblong to ovate tepals:
         4. Flowers blue; tepals patent, not villous on reverse; stamens and/or style well exserted from flower ..... **Nivenia**
         4.' Flowers green to blackish and yellow; tepals remaining connivent during flowering, densely villous on reverse; stamens included in flower ..... **Witsenia**
   2.' Plants perennial, either with herbaceous aerial stems or acaulescent, sometimes evergreen; rootstock a rhizome or corm; individual flowers stalked or sessile, tepals free, connate below or united in a tube, lasting one to several days:
      5. Style eccentric, apically notched or lobed, lobes sometimes fringed; flowers usually deep blue (occasionally lilac, white or pale blue); tepals shortly connate basally (subfamily ARISTEOIDEAE) ..... **Aristea**

5.' Style central, usually dividing near base of anthers into distinct branches, these either extending between anthers or appressed against them, sometimes style exceeding anthers; flowers variously coloured; tepals free, connate basally or united in a tube:
6. Evergreen, rhizomatous perennials; pedicels hairy above:
7. Tepals with well-defined ascending claws and spreading limbs, outer larger than inner; style branches broad and petal-like, compressed tangentially, terminating in paired erect crests; anthers adpressed to abaxial side of style branches ..... **Dietes**
7.' Tepals not clawed, inner and outer whorls subequal; style branches filiform, spreading horizontally; anthers ascending, alternating with style branches ..... **Bobartia**
6.' Deciduous, cormous geophytes; pedicels without hairs near apices or flowers sessile:
8. Leaves unifacial, oriented edgewise to stem; corm persisting for some years, tunics membranous or absent; tepals with crisped edges; style branches terminating in feathery, plumose tuft ..... **Ferraria**
8.' Leaves bifacial or terete; corm usually resorbed annually, tunics fibrous; tepals with plane to undulate edges; style branches rarely feathery and plumose but then other characters not as above ..... **Moraea**
a. Flowers with perianth tube; style lobed apically, lobes entire or fringed ..... ***Galaxia* group**
a.' Flowers usually without perianth tube; style dividing below or opposite anthers, compressed tangentially, adpressed to anthers, terminating in paired erect crests:
b. Style branches filiform and each divided to base, thus with 6 branches, branches extending below, between or above anthers ..... ***Hexaglottis* group**
b.' Style branches flattened tangentially, as wide as or much wider than anthers, branches ascending to upright and opposite anthers, sometimes concealed by them:
c. Plants acaulescent with flowers crowded basally; flowers either with ovary borne below or close to ground level or raised above ground on contractile pedicels ..... ***Moraea* group**
c.' Plants with aerial stems; flowers with ovary borne well above ground level:
d. Ovary ± sessile and extended distally in elongate tubular sterile beak .... ***Gynandriris* group**
d.' Ovary borne on long pedicels or occasionally subsessile but then tepals united in a tube, without elongate sterile beak:
e. Flowers with prominent style branches wider than anthers and terminating in paired erect crests; outer tepals larger than inner and with long ascending claws ..... ***Moraea* group**
e.' Flowers with style branches as wide as or narrower than anthers, often hidden by them, with short bilobed apex opposite stigmatic lobe(s); outer tepals only slightly larger than inner, with long or short claws:
f. Flowers yellow or salmon-coloured to pink, stems never sticky ..... ***Homeria* group**
f.' Flowers either blue to purple or yellow but then stems sticky ..... ***Moraea* group**

1.' Flowers in spikes or solitary on peduncles, sometimes in pseudopanicles, or acaulescent, individual flowers always sessile and style branches filiform, simple or deeply divided; rootstock a corm; tepals united below in a tube (subfamily CROCOIDEAE):
9. Outer and inner bracts membranous to scarious, usually translucent to transparent with veins often darkly coloured, outer occasionally solid below but then margins lacerate:
10. Plants acaulescent; leaves mostly entirely bifacial, usually channelled to adaxially grooved, sometimes terete but never grooved; bracts tubular below; corm tunics woody; flowers blue to purple:
11. Corm strongly compressed; leaf solitary, terete; capsules opening when dry ..... **Afrocrocus**
11.' Corm subglobose; leaves usually > 1, terete or channelled; capsules opening when wet ..... **Syringodea**
10.' Plants acaulescent or with aerial stems; leaves unifacial, rarely bifacial, plane or terete but then grooved; bracts with margins free to base or united below; corm tunics woody or papery to fibrous; flowers variously coloured:
12. Bracts pale, dry, papery and crinkled or solid, irregularly streaked with dark flecks or veins, not 3-toothed:
13. Flowers nodding, borne on wiry stems; plants evergreen, leaves linear, narrow, tough and fibrotic without prominent midrib ..... **Dierama**
13.' Flowers upright or facing to side, borne on firm, somewhat fleshy stems; plants deciduous; leaves lanceolate, relatively soft, usually with a prominent midrib ..... **Sparaxis**
12.' Bracts pale or rust-coloured, membranous or dry but not papery and crinkled, sometimes streaked with dark flecks or veins, often 3-toothed:
14. Perianth zygomorphic with stamens unilateral, rarely actinomorphic but then stamens irregularly spreading and style eccentric or tepals orange with conspicuous brown veining; stems firm and relatively thick, never wiry ..... **Tritonia**

14.' Perianth actinomorphic with stamens either symmetrically disposed around central style or unilateral with anthers drooping and porose; stems often ± wiry ..... **Ixia**
a. Perianth tube hollow at least in upper half, occasionally filiform in lower half; filaments inserted within tube and decurrent ..... ***Morphixia* group**
a.' Perianth tube filiform at least in lower two thirds; filaments inserted at top of narrow part of tube and not decurrent, upper part of tube usually vestigial:
b. Style branches involute-tubular, stigmatic only at tips, anthers short, bilobed, often suborbicular, splitting from base, often incompletely ..... ***Dichone* group**
b.' Style branches channelled and stigmatic in upper half; anthers oblong to linear, not bilobed ..... ***Ixia* group**

9.' Outer and inner bracts firm to soft-textured, green or leathery and dry, never lacerate, sometimes inner bracts with broad membranous to scarious margins or rarely almost entirely membranous but then leaves terete and 4-grooved:
15. Style branches deeply divided, occasionally multifid:
16. Leaves terete with narrow longitudinal grooves, or 4-winged; corm tunics brittle and woody; flowers actinomorphic, solitary on branches, not arranged in spikes; plants often acaulescent ..... **Romulea**
16.' Leaves usually plane but if round in transverse section then without longitudinal grooves; corm tunics leathery to fibrous; flowers zygomorphic or if actinomorphic then arranged in spikes; plants never acaulescent:
17. Corms bell-shaped, with a flat base; leaves plane or corrugate ..... **Lapeirousia**
17.' Corms globose to obconic, round or pointed at base:
18. Flowers solitary on branches; leaves prostrate ..... **Xenoscapa**
18.' Flowers in spikes; leaves usually erect:
19. Spikes inclined to horizontal, flowers borne on upper side; bracts green or dry above ... **Freesia**
19.' Spikes erect, flowers distichous or spirally arranged; bracts green or partly to entirely dry:
20. Flowers small, < 12 mm long, crowded in dense distichous spikes; bracts solid below with broad membranous margins ..... **Micranthus**
20.' Flowers medium to large, usually at least 20 mm long, in distichous or spiral spikes; bracts without broad membranous margins:
21. Spikes distichous; leaf blades plane, relatively broad, margins moderately to strongly thickened; flowers never blue or purple; perianth tube always curved so that flowers face to side ..... **Watsonia**
21.' Spikes spiral; leaf blades rounded in section or plane but then narrow and without thickened margins; flowers purple or blue to nearly white; perianth tube straight, flowers facing upward ..... **Thereianthus**

15.' Style branches undivided or at most notched apically:
22. Inflorescence a panicle, individual flowers always pedunculate; flowers actinomorphic, bright orange ..... **Pillansia**
22.' Inflorescence a simple or branched spike, flowers sessile, rarely inflorescence reduced to solitary flower; flowers actinomorphic or zygomorphic, variously coloured:
23. Floral bracts fairly short, coriaceous and often partly to entirely dry at flowering, inner bracts always substantially longer than outer; leaves sometimes with long pseudopetiole, without pseudomidrib and usually with more than 1 prominent vein ..... **Tritoniopsis**
23.' Characters not combined as above:
24. Floral bracts short, ± twice as long as ovary, firm and leathery, green or dry, ± as long as bracteoles; flowers orange to scarlet:
25. Flowers actinomorphic, nodding, perianth tube narrow throughout; seeds dark brown to blackish ..... **Crocosmia**
25.' Flowers zygomorphic, perianth tube narrow and cylindric below, abruptly expanded into a broad upper cylindrical part; seeds bright orange ..... **Chasmanthe**
24.' Floral bracts usually more than twice as long as the ovary, softer, green or dry but never firm and leathery:
26. Leaf blades pleated, sometimes ± linear and striate; stems, leaves or bracts hairy; seeds smooth and glossy ..... **Babiana**
26.' Leaf blades various but never pleated; plants sometimes hairy; seeds never glossy:
27. Flowers usually zygomorphic with tepals unequal and stamens arcuate, rarely actinomorphic with stamens central or arcuate:
28. Corms bell-shaped with flat base; inflorescence wiry, much branched; ovary deeply 3-lobed above; seeds subglobose ..... **Melasphaerula**
28.' Corms subglobose or obconic, rounded at base; inflorescence never wiry nor much branched; ovary ovoid; seeds broadly winged ..... **Gladiolus**
27.' Flowers usually actinomorphic, if zygomorphic then tepals subequal and stamens declinate:

29. Style usually dividing well above mouth of perianth tube, branches relatively short and recurved ..... **Geissorhiza**
29.' Style dividing at apex of perianth tube or within tube, branches long and laxly spreading ..... **Hesperantha**

AFROCROCUS J.C.Manning & Goldblatt 1 sp. Hex River Mtns and SW Karoo gce

unifolius (Goldblatt) Goldblatt & J.C.Manning (= *Syringodea unifolia* Goldblatt) Cormous geophyte, 5–12 cm, corm laterally compressed, fan-shaped, tunics woody. Leaf solitary, terete in distal half. Flowers violet (occasionally white) with yellow centre, tube 30–50 mm. May–June. Clay flats, NW, KM (Hex River Mtns to Touws River and W Karoo). **gce**

ARISTEA Aiton ARISTEA, BLOUSUURKANOL ± 55 spp., sub-Saharan Africa and Madagascar

A. Capsules oblong to cylindrical and 3-lobed
B. Stems not broadly winged, mostly unbranched or sparsely branched

biflora Weim. Rhizomatous perennial, 20–40 cm, forming clumps, stems unbranched, lateral flower clusters sessile or lacking. Leaves linear, narrow. Flowers large, lilac to purple, inner tepals with transparent to translucent bronze windows on lower margins. Capsules elongate. Aug.–Oct. Loamy clay in renosterveld, SW (Caledon to Drayton).•

cantharophila Goldblatt & J.C.Manning Rhizomatous perennial, 20–40 cm, forming clumps, stems unbranched, lateral flower clusters sessile. Leaves linear, narrow. Flowers lilac to cream-coloured with a dark centre. Capsules elongate. Aug.–Sept. Clay and granite slopes in fynbos or renosterveld, SW (Kuils River to Riviersonderend).•

cistiflora J.C.Manning & Goldblatt Rhizomatous perennial, mostly 40–50 cm, forming small clumps, stems mostly unbranched. Leaves linear, tough and fibrous. Flowers pale pink to lilac, tepal bases deep lilac or violet, streaked dull brownish outside, outer tepals with a copper-brown mark in lower third. Capsules elongate. Aug.–Sept. Sandy slopes, LB (central Langeberg).•

lugens (L.f.) Steud. Rhizomatous perennial, 30–40 cm, stem compressed below, unbranched, lateral flower clusters sessile. Leaves broad, short, falcate, spathes greenish. Flowers pale blue to whitish, inner tepals small and dark blue-black. Capsules elongate. Sept.–Oct. Low granitic hills in renosterveld, SW (Riebeek-Kasteel to Stellenbosch).•

nigrescens J.C.Manning & Goldblatt Rhizomatous perennial, 10–50 cm, stem compressed below, unbranched, lateral flower clusters sessile. Leaves ± linear, spathes greenish below. Flowers pale blue to white, outer tepals black on reverse. Capsules elongate. Aug.–Sept. Sandstone alluvium and lower slopes, NW (Waaihoek Mtns).•

pauciflora Wolley-Dod Like **A. simplex** but leaves with rounded margins, flowers deep blue and capsule with locules acute not rounded. Oct.–Dec. Mainly clay and granite slopes, SW (Cape Peninsula).•

pusilla (Thunb.) Ker Gawl. Rhizomatous perennial to 20 cm, stem flattened and 2-winged. Leaves sword-shaped, fairly soft. Flowers blue, spathes with hyaline margins. Capsules cylindric-trigonous, elongate. Sept.–Nov. Mainly clay flats and lower slopes in renosterveld, NW, AP, KM, LB, SE (Swartberg and Robertson to E Cape).

spiralis (L.f.) Ker Gawl. Rhizomatous perennial, 20–50 cm, often in small clumps, stems flattened and 2-winged, usually unbranched, lateral flower clusters sessile. Leaves fairly broad, soft. Flowers secund, white or pale blue, stamens and style long, spathes green with hyaline margins. Capsules elongate. Mainly Sept.–Nov. Rocky sandstone and granite slopes, to 600 m, mainly after fire, SW, AP, LB, SE (Cape Peninsula to Joubertina).•

simplex Weim. Rhizomatous perennial to 50 cm, forming clumps, stems elliptic, mostly unbranched, lateral flower clusters sessile. Leaves narrow. Flowers secund, pale blue, spathes green. Capsules elongate. Sept.–Oct. Clay flats, slopes and plateaus in renosterveld, NW, SW, KM, LB, SE (Cold Bokkeveld, Stellenbosch to George, and Swartberg).•

teretifolia Goldblatt & J.C.Manning Rhizomatous perennial, 20–40 cm, stem rounded, unbranched, lateral flower clusters sessile. Leaves linear or terete. Flowers lilac to cream-coloured, inner tepals with a large, dark mark below, spathes green. Capsules elongate. Aug.–Sept. Low clay hills in renosterveld, SW (Shaw's Pass to Napier and Elim).•

B.' Stems usually branched (if unbranched then broadly 2-winged and with a short leaf below inflorescence)

abyssinica Pax (= *Aristea cognata* N.E.Br. ex Weim.) Slender, rhizomatous perennial, 10–15 cm, stem compressed and 2-winged, consisting of 1 long internode, with a short, subterminal leaf. Leaves linear, narrow. Flowers blue, spathes dry-membranous, lacerate with age. Capsules ovoid. Nov.–Jan. Coastal grasslands and forest margins, SE (Humansdorp to Ethiopia and Cameroon).

anceps Eckl. ex Klatt Rhizomatous perennial, 10–30 cm, stem flattened and 2-winged, consisting of 1 long internode with a short, subterminal leaf. Leaves sword-shaped. Flowers blue, spathes rusty, dry, lacerate with age. Capsules oblong. Sept.–Jan. Mainly coastal slopes and flats, SE (Humansdorp to Transkei).

ecklonii Baker Rhizomatous perennial to 50 cm, stem 2-winged, usually much branched. Leaves broad, sword-shaped, soft. Flowers deep blue, spathes scarious, brownish. Capsules oblong, 3-lobed. Sept.–Dec. Coastal and montane, mostly forest margins, SE (Humansdorp to Uganda and Cameroon).

ensifolia J.Muir Rhizomatous perennial, to 50 cm, stem compressed and 2-winged, few- to many-branched. Leaves sword-shaped, soft. Flowers blue, spathes dry-membranous. Capsules elongate, cylindric-trigonous, indehiscent, decaying with age. Sept.–Nov. Coastal forests, shade or clearings, LB, SE (Riversdale to Uitenhage).•

latifolia G.J.Lewis Rhizomatous perennial to 1 m, stem slightly compressed, usually much branched above. Leaves very broad, soft. Flowers deep blue, spathes pale, scarious. Capsules ovoid, with 3 shallow, rounded lobes. Nov.–Jan. Shady kloofs and gullies, 500–1 500 m, SW (Bain's Kloof to Hottentots Holland Mtns).•

nana Goldblatt & J.C.Manning Rhizomatous perennial to 10 cm, with broadly winged, unbranched flowering stem with the terminal internode elongated. Leaves linear, spathes green. Flowers blue, paired in terminal clusters within green spathes, on long pedicels. Capsules ovoid. Aug.–Sept. Stony sandstone slopes, KM, LB, SE (Robinson's Pass Mtns to Joubertina and Kouga Mtns).•

schizolaena Harv. ex Baker Rhizomatous perennial to 80 cm, stem elliptic, usually few-branched and with sessile lateral flower clusters. Leaves sword-shaped. Flowers blue, spathes scarious, rust-brown, lacerate with age. Capsules ovoid. Dec.–June. Mainly coastal grasslands, SE (Plettenberg Bay to Mpumalanga).

A.' Capsules with 3 narrow wings
C. Style 3-lobed apically and fringed; stems dichotomously branched (sometimes simple)

africana (L.) Hoffmanns. Rhizomatous perennial, mostly 10–15 cm, stem compressed, dichotomously branched, sometimes simple. Leaves linear. Flowers blue, narrow, spathes hyaline with dark keels, closely and deeply fringed and curled, sometimes rusty above. Capsules short, 3-winged. Mainly Oct.–Jan. Sandy flats and mountain slopes, NW, SW, AP, LB (Gifberg to Bredasdorp and Riversdale).•

dichotoma (Thunb.) Ker Gawl. VENSTERVRUG Rhizomatous perennial, 15–30 cm, forming cushions, stems flattened below, dichotomously 3–5-branched. Leaves narrow, glaucous. Flowers blue, spathes translucent with dark keels. Capsules short, 3-winged. Dec.–Mar. Sandy flats and lower slopes, NW, SW (Namaqualand to Cape Peninsula). **gce**

glauca Klatt Rhizomatous perennial, 10–15 cm, forming diffuse, low cushions, spreading by stolons, stems strongly compressed and 2-winged, dichotomously branched or simple. Leaves linear, narrow, glaucous. Flowers blue, spathes translucent with dark keels. Capsules short, 3-winged. Oct.–Dec. Coastal and lower slopes, NW, SW, AP, LB (Ceres and Cape Peninsula to Riversdale).•

oligocephala Baker Rhizomatous perennial 15–25 cm, stems subterete, dichotomously branched. Leaves linear, narrow, rigid, elliptic in section. Flowers blue, spathes translucent with dark keels. Capsules short, 3-winged. Nov.–Jan. Sandstone slopes, NW, SW, AP (Hottentots Holland Mtns to Bredasdorp).•

palustris Schltr. Rhizomatous perennial to 1 m, stem rounded, dichotomously branched. Leaves sword-shaped, soft. Flowers blue, spathes translucent with dark keels. Capsules short, 3-winged. Nov.–Jan. Coastal and lower slopes in wet sites, SW, AP (Bredasdorp).•

recisa Weim. Rhizomatous perennial, 15–35 cm, forming small tufts, stems dichotomously branched, flattened, slender. Leaves sword-shaped, soft. Flowers blue, spathes translucent with dark keels, margins rusty, closely and shallowly fringed. Capsules short, 3-winged. Mainly Sept.–Oct. Sandstone slopes in wet, sandy places, 600–1 200 m, SW, LB (Hottentots Holland Mtns to Hermanus and Swellendam).•

singularis Weim. Rhizomatous perennial to 40 cm, forming diffuse tufts, stems slightly flattened, dichotomously branched and rooting at nodes. Leaves sword-shaped. Flowers blue, nodding, soft, spathes greenish translucent and slightly lacerate. Capsules short, 3-lobed. July–Aug. Sandstone slopes near streams and in shade, NW (Pakhuis Mtns).•

C.' Style undivided to minutely 3-fid; stem variously branched, but seldom dichotomously, or simple with lateral flower clusters sessile

bakeri Klatt (= *Aristea confusa* Goldblatt, *A. macrocarpa* G.J.Lewis) BLOUSUURKANOL Rhizomatous perennial to 1 m, stems rounded, usually much branched. Leaves linear sword-shaped, broad, fibrotic. Flowers blue, style undivided, spathes ovate, usually dry-rusty with transparent margins, sparsely short hairy below. Capsules oblong, 3-winged. Mainly Oct.–Dec., mainly after fire. Stony sandstone slopes, NW, SW, LB, SE (Piketberg to Port Elizabeth and E Cape).

bracteata Pers.(= *Aristea coerulea* (Thunb.) Vahl, *A. monticola* Goldblatt) Rhizomatous perennial to 1.3 m, stem subterete, often much branched, branches short. Leaves linear to sword-shaped, often broad, fibrotic. Flowers blue, style undivided, spathes large, dry-membranous, rusty, translucent on edges, slightly hairy or scabrid. Capsules short, 3-winged. Aug.–Oct. Sandstone slopes, 300–1 000 m, NW, SW (Cedarberg to Du Toitskloof Mtns).•

capitata (L.) Ker Gawl. (= *Aristea major* Andrews, *A. thyrsiflora* D.Delaroche) BLOUVUURPYL Rhizomatous perennial to 1.5 m, stems rounded, bearing short branches above, flower clusters crowded at top of stem. Leaves linear-sword-shaped, broad, fibrotic. Flowers blue, style undivided, spathes lanceolate, dry-membranous, translucent with dark keels. Capsules short, 3-winged. Oct.–Dec. Mountain slopes, 100–900 m, NW, SW (Piketberg to Riviersonderend Mtns).•

cuspidata Schinz Rhizomatous perennial, 20–60 cm, stems slightly compressed. Leaves linear, fairly narrow. Flowers blue, style undivided, spathes rust-brown, transparent on margins. Capsules 3-winged. Oct.–Dec. Grassy and stony slopes, SW, KM, LB, SE (Cape Peninsula to Knysna, and Swartberg).•

fimbriata Goldblatt & J.C.Manning Rhizomatous perennial, 20–30 cm, forming cushions, stems rounded. Leaves linear to sword-shaped, narrow, firm. Flowers blue, style undivided, spathes translucent, margins closely fringed and rust-brown. Capsules oblong, 3-winged. Dec.–Jan. Rocky sandstone slopes in fynbos, 500–800 m, NW (Piketberg).•

inaequalis Goldblatt & J.C.Manning Rhizomatous perennial to 1.5 m, stems rounded, with long, spreading branches, lateral flower clusters sessile, widely spaced. Leaves linear, narrow, grey with reddish margins, fibrotic. Flowers blue, secund, stamens unequal, style undivided, spathes dry-membranous, translucent with dark keels. Capsules short, 3-winged. Oct.–Nov. Sandstone rocks, 500–900 m, NW (Bokkeveld Mtns to Pakhuis Pass).•

juncifolia Baker Rhizomatous perennial, 12–30 cm, with rounded stems, usually unbranched, lateral flower clusters sessile. Leaves subterete to ellipsoid, tough and fibrotic. Flowers with prominently keeled bracts, blue, style undivided, spathes rust-brown, transparent on edges. Capsules oblong, 3-winged. Nov.–Dec. Coastal and lower mountain slopes, SW (Cape Peninsula to Kleinrivier Mtns).•

racemosa Baker Rhizomatous perennial to 40 cm, stems rounded, usually unbranched, lateral flower clusters sessile. Leaves subterete, fibrotic. Flowers blue, style undivided, spathes dry-membranous, rusty, translucent on edges. Capsules oblong, 3-winged. Oct.–Dec. Rocky sandstone slopes, 200–1 000 m, SW, AP, KM, LB, SE (Paarl to George, Swartberg).•

rigidifolia G.J.Lewis Rhizomatous perennial to 1.5 m, stems rounded, with short branches or lateral flower clusters sessile. Leaves elliptic in section, fibrotic, narrow. Flowers blue, style undivided, spathes ovate, rusty, becoming lacerate. Capsules oblong, 3-winged. Oct.–Nov. Sandy flats, SW (Cape Peninsula to Hermanus Mtns).•

rupicola Goldblatt & J.C.Manning Rhizomatous perennial to 40 cm, stems rounded, divaricately branched. Leaves linear, narrow, fibrotic. Flowers light blue, style undivided, spathes ovate, rusty, margins translucent flecked with brown, hairy to scabrid on inside. Capsules short, 3-winged. Dec.–Mar. Sandstone outcrops ± 1 000 m, NW (N Cedarberg).•

zeyheri Baker Rhizomatous perennial, 15–30 cm, stem terete, slender, unbranched with 1 or 2 sessile lateral flower clusters. Leaves terete, filiform. Flowers blue, style somewhat lobed, spathes greenish with hyaline margins. Capsules elongate, 3-winged. Nov.–Dec. Sandstone slopes, usually damp sites, SW (Cape Peninsula to Hermanus Mtns).•

sp. 1 Like **A. capitata** with flower clusters on short branches and crowded at top of stem but floral bracts ovate, rust-brown, paler toward margins and seeds with marginal papillae (lacking in *A. capitata*). Mainly Nov.–Dec., often after fire. Sandstone slopes, LB, SE (Riversdale to George).•

BABIANA Ker Gawl. BABIANA, BOBBEJAANTJIE ± 92 spp., southern S tropical Africa

*A. Flowers actinomorphic (see also **B. stricta**)*

blanda (L.Bolus) G.J.Lewis Acaulescent, cormous geophyte to 6 cm. Leaves lanceolate, hairy. Flowers rosy pink, actinomorphic, sweetly scented, tepals obovate or suborbicular, inner bracts usually divided to base, ovary hairy. Aug.–Sept. Sandy flats, SW (Darling to Paarl).•

foliosa G.J.Lewis Acaulescent, cormous geophyte to 4 cm. Leaves many, lanceolate, hairy. Flowers actinomorphic, mauve with cream-coloured markings, bracts entirely green, inner divided to base, ovary smooth. Aug. ?, SW (Riviersonderend).•

leipoldtii G.J.Lewis Cormous geophyte, 6–15 cm. Leaves lanceolate, hairy. Flowers actinomorphic, blue-violet with a dark centre, inner bracts divided to base, ovary hairy. Aug.–Sept. Damp sandy flats, SW (Darling to Klipheuwel).•

melanops Goldblatt & J.C.Manning Cormous geophyte 10–20 mm, with stems suberect. Leaves erect, lanceolate, softly hairy. Flowers several in an erect spike, actinomorphic, violet to purple with a dark centre, anthers arrow-shaped with wide connective, blackish, inner bracts divided to base, ovary hairy. Aug.–Sept. Clay slopes in renosterveld, NW, SW (Tulbagh Valley to Mamre).•

papyracea Goldblatt & J.C.Manning Acaulescent, cormous geophyte to 15 mm, with stems reaching ground level. Leaves firm, linear, erect, tightly plicate. Flowers several in short, erect spikes, actinomorphic, purple with a darker centre, anthers erect, pollen cream-coloured, bracts dry, papery, attenuate, inner bracts divided almost to base, ovary smooth. Sept.–Oct. Clay flats, NW (Bokkeveld Plateau).•

pygmaea (Burm.f.) Baker GEELBOBBEJAANTJIE Acaulescent, cormous geophyte, 4–10 cm. Leaves lanceolate, hairy. Flowers large, actinomorphic, yellow with a dark centre, tepals obovate, inner bracts forked to ± middle, ovary smooth. Aug.–Sept. Gravelly flats, SW (Hopefield to Darling).•

radiata Goldblatt & J.C.Manning Acaulescent, cormous geophyte, 10–15 mm, with stems reaching ground level. Leaves firm, linear, erect, softly hairy. Flowers several in short, erect spikes, actinomorphic, purple with a red centre and margins often white below, tube elongate, anthers erect, inner bracts forked apically, ovary smooth. Aug.–Sept. Sandy flats, KM (Little Karoo near De Rust).•

regia (G.J.Lewis) Goldblatt & J.C.Manning Cormous geophyte 5–12 mm, with stems arching outward. Leaves firm, erect, tightly plicate. Flowers several in an inclined spike, actinomorphic, violet with a deep red centre, pollen brown, inner bracts divided to base, ovary hairy. Aug.–Sept. Seasonally wet sandy flats, SW (Klipheuwel to Stellenbosch).•

rubrocyanea (Jacq.) Ker Gawl. ROOIBLOUBOBBEJAANTJIE Cormous geophyte, 5–15 cm. Leaves lanceolate, hairy. Flowers actinomorphic, bright blue with red centre, tepals broadly clawed, pollen brown, ovary hairy, stigmas large and flattened, inner bracts divided to base. Aug.–Sept. Granitic sands in renosterveld, SW (Darling to Mamre).•

villosa (Aiton) Ker Gawl. ROOIBOBBEJAANTJIE Cormous geophyte to 15 cm. Leaves lanceolate, hairy. Flowers several in an erect spike, red to red-purple or pink, with tube filiform to near tip and then abruptly expanded, ovary hairy, anthers black, with connectives expanded, inner bracts divided to base. Sept. Clay flats and slopes in renosterveld, NW, SW (Tulbagh to Malmesbury).•

villosula (J.F.Gmel.) Ker Gawl. ex Steud. Acaulescent, cormous geophyte, 3–8 cm. Leaves lanceolate, hairy. Flowers actinomorphic, pale blue to mauve, white in centre, tube filiform, inner bracts divided to base, ovary hairy. May–July. Sandy and clay flats and lower slopes in fynbos, SW (Malmesbury to Gordon's Bay).•

A.' Flowers zygomorphic
B. Flowers predominantly red; dorsal tepal limb enclosing filaments

avicularis Goldblatt & J.C.Manning Like **B. ringens** but leaves linear, arching, flowers much smaller, upper lateral and lower tepals directed forward, pale green, lower part of tube ± 4 mm long with an S-bend at apex. Mainly Sept.–early Oct. Sandy flats and lower slopes, NW (Olifants River Mtns and coast near Elands Bay).•

hirsuta (Lam.) Goldblatt & J.C.Manning (= *Antholyza plicata* (L.f.) Goldblatt, *Babiana thunbergii* Ker Gawl.) ROOIHANEKAM Cormous geophyte, 40–70 cm, with short, horizontal branches. Leaves lanceolate, glabrous. Flowers zygomorphic, bright red, inner bracts divided to base, ovary smooth. July–Oct. Sandy flats and dunes, coastal, NW, SW (Orange River Mouth to Saldanha). **gce**

ringens (L.) Ker Gawl. (= *Antholyza ringens* L.) ANTHOLYZA, ROTSTERT Cormous geophyte, 15–40 cm, main spike axis sterile. Leaves linear-lanceolate, glabrous. Flowers on lateral branches, highly zygomorphic, upper tepal tubular below, limbs of upper and lower lateral tepals spreading, inner bracts divided to base, ovary smooth. Aug.–Oct. Sandy flats in fynbos, 30–500 m, NW, SW, AP, LB (Bokkeveld Mtns and Lambert's Bay to Albertinia).•

B.' Flowers shades of blue to purple, white or yellow; dorsal tepal erect or arching over stamens
C. Perianth tube longer than tepals

brachystachys (Baker) G.J.Lewis Cormous geophyte up to 300 mm, stem short or subterranean, usually branched. Leaves linear to terete with longitudinal grooves, tough, fibrous, sheaths with woolly margins. Flowers in a 5–10-flowered, horizontal spike, beige with red to purple marks on lower tepals, perianth tube elongate, 70–75 mm long, cylindrical, ovary smooth, bracts smooth, inner forked almost to midline. Sept.–Oct. Sandveld, NW (Hondeklip Bay to Heerenlogement). **gce**

cuneata J.C.Manning & Goldblatt Acaulescent, cormous geophyte 8–15 mm. Leaves abruptly truncate at widest point, loosely pleated, smooth or sparsely hairy. Flowers several in dense spikes at ground level, pale to deep blue, the lower lateral tepals with white spear-shaped markings, tube elongate, inner bracts forked apically, ovary smooth. Mainly Sept. Rocky sandstone or dolerite slopes and flats, NW (Bokkeveld Mtns to Swartruggens and Western Karoo). **gce**

ecklonii Klatt Cormous geophyte to 30 cm. Leaves lanceolate, hairy. Flowers zygomorphic, many on an erect spike, blue to violet with white markings on lower tepals, tube elongate, inner bracts divided to base, ovary hairy. Aug.–Sept. Sandstone slopes often on rock outcrops, NW (Gifberg to Citrusdal).•

engysiphon J.C.Manning & Goldblatt Acaulescent, cormous geophyte to 10 cm. Leaves sword-shaped to linear, apices acute, hairy. Flowers several on a short, inclined spike, blue to violet with broad white markings on lower tepals, tube elongate, inner bracts divided to base, ovary hairy. Aug.–Sept. Sandy slopes and plateaus, NW (southern Bokkeveld Mtns).•

framesii L.Bolus Acaulescent, cormous geophyte to 10 cm. Leaves lanceolate, hairy. Flowers zygomorphic, dark blue to purple with white markings, tube elongate, slightly curved, inner bracts forked apically, ovary smooth. Aug.–Sept. Rock outcrops in karroid bush, NW (Bokkeveld Plateau and W Karoo).

geniculata G.J.Lewis Acaulescent, cormous geophyte, 2–6 cm. Leaves lanceolate, hairy. Flowers zygomorphic, purple with white markings, tube elongate, geniculate, ovary hairy, style branches 10 mm long, inner bracts forked apically. Aug. Rocky sandstone in dry fynbos, NW (Pakhuis Mtns).•

latifolia L.Bolus Like **B. ecklonii** but tepals narrow, leaf tips almost obtuse, flowers dark purple with narrow white streaks on lower tepals, and broad style branches. Aug.–Sept. Rocky sandy-loam flats, NW (foot of the Piketberg).•

noctiflora J.C.Manning & Goldblatt Like **B. odorata** but flowers larger, with a tube 35–50 mm long, narrow at base and wider in upper 15–25 mm. Sept.–Oct. Rocky outcrops in renosterveld, SW (Paardeberg S of Malmesbury)•.

patersoniae L.Bolus Cormous geophyte, 15–25 cm. Leaves lanceolate, hairy. Flowers zygomorphic, white to pale blue to mauve with yellow markings, fragrant, inner bracts divided to base, ovary hairy. Aug.–Oct. Clay slopes in renosterveld, SW, LB, SE (Caledon to E Cape).

pauciflora G.J.Lewis Sub-acaulescent, cormous geophyte to 10 cm, stems extending shortly above ground. Flowers zygomorphic, violet with yellow markings, tube elongate, fragrant, inner bracts forked apically, ovary smooth. June. Rocky flats, NW (Bokkeveld Escarpment).•

rigidifolia Goldblatt & J.C.Manning Cormous geophyte to 20 cm, stem often branched. Leaves ± lanceolate, softly hairy to glabrescent. Flowers zygomorphic, several in compact spikes, blue to violet with white markings, odourless, tube elongate, 45–55 mm long, inner bracts forked apically, ovary smooth. Aug.–Sept. Rocky sandstone pavements, NW (S Bokkeveld Mtns).•

sambucina (Jacq.) Ker Gawl. Acaulescent, cormous geophyte, 5–14 cm, stem usually underground, shorter than leaves. Leaves lanceolate, hairy. Flowers zygomorphic, blue to purple with white markings, usually fragrant, tube elongate, straight, inner bracts forked apically, ovary smooth. July–Sept. Rocky slopes and flats, fynbos and renosterveld, NW, SW, AP, KM, LB, SE (Bokkeveld Mtns to Port Elizabeth, Karoo, E Cape).

tubiflora (L.f.) Ker Gawl. (= *Babiana tubulosa* var. *tubiflora* (L.f.) G.J.Lewis) Like **B. tubulosa** but flowers uniformly creamy white or with red marks on lower tepals, tube with a short, obscure gullet, filaments 13–16 mm long, style branches 3–4 mm. Aug.–Sept. Sandy flats, lower slopes and dunes, NW, SW, AP, LB (Elands Bay to Riversdale).•

tubulosa (Burm.f.) Ker Gawl. Acaulescent, cormous geophyte, 7–15 cm, stems shorter than leaves. Leaves linear, hairy. Flowers zygomorphic, creamy pink with red markings and flushed red outside, tube 65–105 mm, with a wide gullet, filaments 20–22 mm long, style branches ± 6 mm, inner bracts forked apically, ovary smooth. Sept.–Oct. Granite outcrops and gravel slopes, SW (Saldanha to Mamre).•

C.' Perianth tube as long as or shorter than tepals
D. Inner bracts forked apically or to ± middle

cedarbergensis G.J.Lewis Acaulescent, cormous geophyte, 4–6 cm, stem very short. Leaves rigid, almost pungent, velvety hairy. Flowers zygomorphic, mauve with yellow markings, inner bracts forked to ± middle, ovary hairy. Sept. Rocky sandstone soils, NW (Cedarberg).•

cinnamomea J.C.Manning & Goldblatt Acaulescent, cormous geophyte to 6 cm, unbranched. Leaves ovate, held at right angles to sheaths, nearly plane, smooth, margins crisped. Flowers 2–6 in a short, decumbent spike, bilabiate, creamy green flushed with mauve, with cream-coloured nectar guides, perianth tube 22–25 mm long, dorsal tepal ± 30 mm long, inner bract forked apically, ovary smooth. May–June. Stony lower slopes, mainly on granite, NW (S Namaqualand and W Karoo to Kobee Mtns). **gce**

confusa (G.J.Lewis) Goldblatt & J.C.Manning Acaulescent, cormous geophyte, mostly 40–80 mm. Leaves ovate to lanceolate, inclined, slightly twisted above, subglabrous except on margins. Flowers 2–6 in a subsecund spike, zygomorphic, pale blue to ± white with yellow nectar guides, sweet scented, tube 23–30 mm long, dorsal tepal 35–40 mm long, inner bract forked apically, ovary smooth. June–July. Deep sands, NW (Hondeklip Bay to Berg River). **gce**

crispa G.J.Lewis Acaulescent, cormous geophyte to 13 cm, stem underground. Leaves crisped and undulate, lanceolate, hairy. Flowers zygomorphic, mauve with yellow markings, inner bracts forked apically, ovary smooth. July. Hard clays and shales, NW (W Karoo, Botterkloof to Biedouw Valley). **gce**

karooica Goldblatt & J.C.Manning Acaulescent, geophyte mostly to 8 cm including leaves. Leaves narrowly sword-shaped, long-hairy on sheaths, short-hairy on blade. Flowers zygomorphic, in a congested spike at ground level, violet with white markings on lower tepals, tube 20–35 mm long, inner bracts forked apically, ovary smooth. June–July. Enon Conglomerate outcrops, KM (central Little Karoo).•

minuta G.J.Lewis Acaulescent, cormous geophyte, 7–13 cm, stem shorter than leaves. Leaves lanceolate, hairy. Flowers zygomorphic, pale reddish mauve with yellow markings, fragrant, inner bracts forked apically, ovary smooth. July–Sept. Shale and rocky sandstone soils, NW (S Namaqualand to Karoopoort and W Karoo). **gce**

nana (Andrews) Spreng. Cormous geophyte, 3–10 cm with short stems. Leaves oblong or lanceolate, hairy. Flowers zygomorphic, blue or purple with white markings, fragrant, inner bracts forked apically, ovary smooth. Aug.–Sept. Sandy coastal flats and dunes, NW, SW, AP, LB (Lambert's Bay to Mossel Bay).•

sinuata G.J.Lewis Cormous geophyte, 10–25 cm, stems aerial, much branched. Leaves narrow, undulate and twisted, margins crisped and long-hairy. Flowers zygomorphic, windowed, dorsal tepal narrow, arcuate, blue with yellow markings, stamens arcuate, anthers connate, inner bracts forked apically, ovary smooth. Aug.–Sept. Rocky shale slopes, NW (Namaqualand to Clanwilliam). **gce**

spiralis Baker (= *Babiana fimbriata* auct. non (Klatt) Baker) Cormous geophyte, 15–20 cm, with branched aerial stem. Leaves linear, loosely coiled above. Flowers zygomorphic, windowed, dorsal tepal narrow, arcuate, blue, mauve or pink with yellow markings, stamens arcuate, inner bracts forked apically, ovary smooth. Aug.–Sept. Sandy flats and slopes, NW (Namaqualand to Klawer). **gce**

vanzyliae L.Bolus Cormous geophyte, 4–12 cm. Leaves lanceolate, hairy, longer than stem. Flowers zygomorphic, few on a short erect spike, yellow to mauve, fragrant. Aug.–Sept. Rocky sandstone and tillite soils, often in fynbos, NW (Bokkeveld Mtns).•

D.' Inner bracts divided to base

ambigua (Roem. & Schult.) G.J.Lewis (= *Babiana obliqua* E.Phillips) Acaulescent, cormous geophyte, 5–8(–16) cm. Leaves usually narrow, occasionally broad, longer than stem, obliquely lanceolate, hairy. Flowers zygomorphic, blue to mauve with white to pale yellow markings, fragrant, inner bracts divided to base, ovary smooth. July–Sept. Sandy coastal flats, dunes, and interior mountain slopes, NW, SW, AP, KM, LB (Gifberg and Botterkloof to Riversdale, inland to Bonteberg).•

angustifolia Sweet (= *Babiana pulchra* (Salisb.) G.J.Lewis) Cormous geophyte, 10–20 cm. Leaves lanceolate, hairy. Flowers inverted with dorsal tepals and stamens facing spike apex, dark blue to violet, lower tepals with red or dark blue-black markings, inner bracts divided to base, ovary hairy. Aug.–Sept. Damp clay flats and lower slopes, renosterveld, NW, SW (Piketberg to Somerset West).•

arenicola Goldblatt & J.C.Manning Subcaulescent, cormous geophyte, 6–14 cm. Leaves narrowly sword-shaped to linear, firm to rigid, short-hairy mainly on veins. Flowers zygomorphic, 2–6 on a dense, suberect spike, blue with white markings, style dividing below level of anthers, inner bracts divided to base, ovary hairy. Aug.–Sept. Sandy stony slopes, SW (Breede River Valley S of Worcester).•

auriculata G.J.Lewis Acaulescent, cormous geophyte, 4–10 cm. Leaves narrowly lanceolate, firm, velvety. Flowers zygomorphic, on an inclined spike, small, facing stem apex, blue to mauve with yellow markings, lateral tepals auriculate at base, inner bracts divided to base, ovary hairy on ribs. Sept. Rock crevices, NW (Pakhuis Mtns).•

fourcadei G.J.Lewis Cormous geophyte, 7–15 cm, usually much branched. Leaves lanceolate, hairy. Flowers zygomorphic, blue to mauve with yellow or white and violet markings, inner bracts divided to base, ovary smooth. Sept.–Oct. Mountain slopes, KM, LB, SE (Riversdale to George and Little Karoo Mtns).•

fragrans (Jacq.) Goldblatt & J.C.Manning (= *Babiana disticha* Ker Gawl., *B. plicata* Ker Gawl.) Cormous geophyte, 7–20 cm. Leaves lanceolate, hairy. Flowers zygomorphic, violet to pale blue, marked with yellow, fragrant, inner bracts divided to base, ovary hairy. July–Sept. Sandstone slopes, NW, SW (Ceres to Cape Peninsula).•

inclinata Goldblatt & J.C.Manning Cormous geophyte 15–30 mm, with stems arching outward. Leaves firm, erect, tightly plicate. Flowers numerous in an inclined spike, zygomorphic, violet with white and darker blue marks on lower tepals, dorsal tepal and stamens facing spike apex, inner bracts divided to base, ovary hairy. Sept.–Oct. Stony, clay flats and lower slopes in renosterveld, NW, SW (Piketberg to Paarl).•

lineolata Klatt Cormous geophyte, 13–25 cm. Leaves lanceolate, hairy. Flowers small to 30 mm, zygomorphic, pale blue to mauve with yellow markings, bracts unusually short, ± 10 mm, inner bracts divided to base, ovary hairy. Sept. Sandy, usually seasonally wet flats, NW (Piketberg to Cold Bokkeveld).•

montana G.J.Lewis Acaulescent, cormous geophyte, 6–7 cm. Leaves lanceolate, hairy. Flowers zygomorphic, mauve with yellow and purple markings, stamens unequal, 1 longer, stigmas flattened and orbicular, ovary smooth, inner bracts divided to base. June–Aug. Sandstone and limestone slopes, SW, AP (Caledon to Bredasdorp).•

mucronata (Jacq.) Ker Gawl. (= *Babiana klaverensis* G.J.Lewis) Cormous geophyte, 5–15 cm. Leaves lanceolate, hairy, margins sometimes thickened, shorter or longer than stems. Flowers zygomorphic, lower tepals ± clawed and contiguous at base and diverging obliquely above, pale blue with white to yellow marks on lower tepals, scented, inner bracts divided to base, ovary hairy. July–Sept. Rocky sandstone slopes and flats, NW (Bokkeveld Mtns to Tulbagh).•

odorata L.Bolus Subcaulescent, cormous geophyte to 12 cm. Leaves lanceolate, hairy, often exceeding stem. Flower several in an inclined spike, yellow, fragrant with tube to 14 mm long, inner bracts divided to base, ovary hairy. July–Sept. Clay soils in renosterveld, NW, SW (Porterville to Tygerberg).•

patula N.E.Br. Subcaulescent, cormous geophyte, 2–8 cm. Leaves longer than stem, lanceolate, hairy. Flowers zygomorphic, mauve to blue with yellow markings or entirely dull yellow, fragrant, inner bracts divided to base, ovary smooth. Aug.–Sept. Clay flats and lower slopes, NW, SW, LB, AP (Tulbagh to Albertinia).•

petiolata Goldblatt & J.C.Manning Acaulescent, cormous geophyte to 14 cm. Leaves ± sword-shaped, usually smooth and hardly pleated, usually with a terete petiole to 4 cm long. Flowers zygomorphic, blue to mauve with white markings, fragrant, inner bracts divided to base, ovary smooth. June–July. Sandy coastal flats, NW (Lambert's Bay to Rocher Pan).•

purpurea Ker Gawl. Like **B. stricta** but flowers pink to purple, with lobes mostly shorter than tube and stigmas large and orbicular. Aug.–Sept. Clay flats and slopes in renosterveld, SW (Botrivier to Robertson and Bredasdorp).•

salteri G.J.Lewis Cormous geophyte up to 100 mm, 1–3-branched. Leaves with a short pseudopetiole, blades oblong, held at right-angles to sheath, shortly hairy. Flowers 5–10 in a dense, spike, zygomorphic, blue-mauve with yellow markings, tube ± 9 mm long, inner bracts divided to base, ovary hairy. June–July. Dry stony flats, NW (Bokkeveld Mtns and S Namaqualand). **gce**

scabrifolia Brehmer ex Klatt Acaulescent, cormous geophyte, 5–9 cm, stems shorter than leaves. Leaves lanceolate, hairy, narrow and twisted when young. Flowers few on a short, erect spike, zygomorphic, pale blue to lilac with white or yellow and purple markings, fragrant, inner bracts divided to base, ovary hairy. June–Aug. Sandy soils in dry fynbos, NW (Olifants River Valley).•

scariosa G.J.Lewis Cormous geophyte, 10–40 cm, stem with several short branches. Leaves lanceolate, hairy. Flowers zygomorphic, mauve with pale yellow markings, bracts papery, inner bracts divided to base, ovary smooth. Aug.–Sept. Dry sandstone or clay, in fynbos or karroid scrub, NW, KM (Bokkeveld and Kobee Mtns, Hex River Mtns to Montagu and Roggeveld Escarpment). **gce**

secunda (Thunb.) Ker Gawl. Cormous geophyte, 15–35 cm. Leaves lanceolate, hairy. Flowers zygomorphic, many on an inclined spike, inverted and facing spike apex, blue with yellow or white markings, outer bracts mostly brown and lacerate, inner bracts divided to base, ovary smooth. Oct.–Nov. Clay flats and lower slopes in renosterveld, SW (Hopefield to Paarl).•

stricta (Aiton) Ker Gawl. Cormous geophyte, 10–20 cm. Leaves lanceolate, hairy. Flowers almost actinomorphic but stamens unilateral, purple to blue, white or yellow, anthers dark blue to black, with expanded connective, inner bracts divided to base, ovary hairy. Aug.–Oct. Clay soils in renosterveld, SW, LB (Peninsula to Swellendam).•

toximontana J.C.Manning & Goldblatt Subcaulescent, cormous geophyte to 15 cm, 1–3-branched. Leaves lanceolate, slightly twisted above, velvety. Flowers 5–10 in a dense spike, zygomorphic, blue-mauve with white markings, tube 12–14 mm long, inner bracts divided to base, ovary hairy. June–July. Stony sandy flats and lower slopes, NW (Matsikamma Mtns and Gifberg).•

tubaeformis Goldblatt & J.C.Manning (= *Babiana longiflora* Goldblatt & J.C.Manning) Cormous geophyte 15–20 mm, with suberect stem. Leaves loosely pleated, softly hairy. Flowers several in an inclined spike, zygomorphic, purple, tube elongate, anthers erect, violet, inner bracts divided to base, ovary hairy. Aug.–early Sept. Seasonally wet, stony flats, NW (Piketberg and Porterville).•

unguiculata G.J.Lewis Cormous geophyte, 10–20 cm, stem often branched. Leaves linear, hairy. Flowers zygomorphic, windowed, dorsal tepal arcuate, yellow, stamens arcuate, inner bracts divided to base or almost so, ovary hairy. Aug.–Sept. Wet sites on sandstone slopes, NW (S Bokkeveld and Nardouw Mtns).•

BOBARTIA L. RUSH-LILY, BLOMBIESIE 15 spp., W to E Cape

A. Stems branched and sticky below nodes

lilacina G.J.Lewis Rhizomatous perennial, 30–70 cm, stem laxly branched and sticky below nodes. Leaves narrowly sword-shaped. Flowers in solitary cymes, purple. Jan.–Mar. Mountain slopes on shale, 600–1 500 m, SW (Bain's Kloof to Franschhoek Mtns).•

paniculata G.J.Lewis Rhizomatous perennial, 40–100 cm, stem branched above and sticky below nodes. Leaves linear. Flowers in solitary cymes loosely clustered near top of stem, yellow. Nov.–Feb. Middle to upper slopes in dry fynbos, KM (Kammanassie Mtns).•

A.' Stems unbranched; inflorescences few to many, sessile and crowded at stem apex
*B. Leaves plane or elliptic in section (see also **B. macrospatha**)*

filiformis (L.f.) Ker Gawl. Slender, rhizomatous perennial, 15–55 cm. Leaves subterete to linear. Flowers in a much-reduced inflorescence of 1–few cymes, yellow. Sept.–Dec., mostly after fire. Sandy lower to middle slopes in fynbos, SW, AP (Paardeberg to Michell's Pass to Agulhas and Riviersonderend Mtns).•

gladiata (L.f.) Ker Gawl. Rhizomatous perennial, 20–80 cm, stems usually flat. Leaves linear, elliptic in section. Flowers in a flattened inflorescence of 3–12 cymes, yellow. Sept.–Dec. Mountain slopes and coastal flats, in fynbos, SW (Cape Peninsula and Bain's Kloof to Hermanus).•

*B.' Leaves terete (see also **B. filiformis**)*
C. Spathes fibrotic, brown or grey

fasciculata J.B.Gillett ex Strid Rhizomatous perennial, 80–150 cm. Leaves terete, spathes fibrotic, dilated. Flowers in a dense, distinctly fasciculate inflorescence of 16–60 cymes, yellow. Aug.–Nov. Mountain slopes, NW, SW (Porterville and Olifants River Mtns).•

macrospatha Baker BERGBLOMBIESIE Rhizomatous perennial, 50–110 cm. Leaves terete to linear, spathes fibrotic, dilated. Flowers in a dense inflorescence of (3–)8–30 cymes, yellow, with a perianth tube. Mainly Aug.–Nov. Mountain slopes in fynbos, AP, LB, SE (Swellendam to Humansdorp).•

parva J.B.Gillett Slender, rhizomatous perennial, 15–40 cm. Leaves terete, spathes fibrotic, dilated. Flowers in a small inflorescence of 3–7 cymes, yellow. Nov.–Feb. Moist mountain slopes, LB (Langeberg: Swellendam to Lemoenshoek).•

robusta Baker Rhizomatous perennial, 70–210 cm. Leaves terete, spathes fibrotic, dilated. Flowers in a dense inflorescence of 8–40 cymes, yellow, ovary and capsules tuberculate. Mainly Aug.–Oct. Coastal and lower mountain slopes, LB, SE (Riversdale to George).•

rufa Strid Rhizomatous perennial, 50–90 cm. Leaves terete, spathes fibrous, light brown. Flowers in a compact, indistinctly fasciculate inflorescence of up to 50 cymes, yellow. Sept.–Nov. Mountain fynbos, NW (Cedarberg to Hex River Mtns).•

C.' Spathes green and leaf-like

aphylla (L.f.) Ker Gawl. BIESROEI Slender rhizomatous perennial, 30–60 cm. Leaves terete. Flowers in a narrow inflorescence of 3–10 cymes, yellow, ovary and capsules tuberculate. Mainly Nov.–Mar. Grassy mainly coastal slopes, LB, SE (Mossel Bay to Plettenberg Bay).•

indica L. BIESIESRIET Rhizomatous perennial, 50–100 cm. Leaves terete, longer than stems and trailing. Flowers in a dense inflorescence of 6–40 cymes, yellow. Mainly Oct.–Mar. Sandy flats and slopes, SW, AP (Mamre to Caledon).•

longicyma J.B.Gillett Robust, rhizomatous perennial to 1.8 m. Leaves terete. Flowers in an inflorescence of 2–20 long cymes, yellow. Capsule obovoid, 10–20 mm. Aug.–Dec. Sandy flats and lower slopes, SW, AP (Kuils River to Potberg).•

macrocarpa Strid Robust, rhizomatous perennial to 1 m. Leaves terete. Flowers in a slender, shortly pedunculate inflorescence of 2–6 cymes, yellow. Aug.–Feb. Grassy slopes, SE (Humansdorp to E Cape).

orientalis J.B.Gillett Rhizomatous perennial, 40–130 cm. Leaves terete. Flowers in a dense inflorescence of 10–100 short cymes, yellow. Capsule subglobose, 4–8 mm. Mainly Aug.–Nov. Mainly dry, stony, sandstone slopes, NW, SW, LB, SE (Piketberg and Riviersonderend Mtns to Transkei).

CHASMANTHE N.E.Br. COBRA-LILY, KAPELPYPIE 3 spp., NW to E Cape

aethiopica (L.) N.E.Br. Cormous geophyte, 40–65 cm, corm tunics papery, stems unbranched. Leaves sword-shaped. Flowers in a ± horizontal, secund spike, tube flaring abruptly and almost pouched below, orange. Apr.–July. Hills and flats on granite, sandstone, or shale, mainly coastal in bush or forest margins, SW, AP, LB, SE (Darling to E Cape).

bicolor (Gasp.) N.E.Br. Cormous geophyte, 70–90 cm, corm tunics papery, stems usually branched. Leaves sword-shaped. Flowers in a second spike, tube flaring gradually, orange-red with green markings. July–Aug. Sheltered ravines, in bush, SW, LB (Robertson to Swellendam).•

floribunda (Salisb.) N.E.Br. Cormous geophyte, 45–100 cm, corm tunics firm-papery, becoming fibrous with age, stems branched. Flowers in a 2-ranked spike, tube flaring gradually, orange-red (rarely yellow). July–Sept. Coastal and montane on sandstone and granite, NW, SW (S Namaqualand and Bokkeveld Mtns to Hermanus). **gce**

*CROCOSMIA Planch. MONTBRETIA 7 spp., southern and tropical Africa

***aurea** (Pappe ex Hook.) Planch. Cormous geophyte, 40–130 cm. Leaves linear-lanceolate. Flowers actinomorphic, nodding, orange, filaments elongate. Mainly Feb.–Mar. Forest margins, SE (E Cape to tropical Africa, ?naturalized near George).

DIERAMA K.Koch HAIRBELL, GRASKLOKKIE 44 spp., S Cape to Ethiopia

pendulum (L.f.) Baker Cormous perennial, 70–110 cm, stem slender and wiry, laxly branched. Leaves linear, fibrotic. Flowers nodding, in drooping spikes, pink. Oct.–Dec. Rocky sandstone slopes and flats, SE (Knysna to Grahamstown).

DIETES Salisb. ex Klatt WOOD IRIS 6 spp., S Cape to E Africa, Lord Howe Island (1 sp.)

iridioides (L.) Sweet ex Klatt Evergreen, rhizomatous perennial, 30–50 cm. Leaves sword-shaped. Flowers white with violet style arms, outer tepals with yellow marking at limb base and line of yellow hairs on claws, lasting a single day. Mainly Aug.–Dec. Evergreen forests and margins, SW, LB, SE (Riviersonderend Mtns to E Africa).

FERRARIA Burm. ex Mill. SPIDER-LILY, SPINNEKOPBLOM 18 spp., W Cape through Namibia to tropical Africa

A. Anther lobes parallel; capsules ovoid, without beak

crispa Burm. KRULLETJIE Cormous geophyte, 40–100 cm, leafy and much branched. Leaves sword-shaped with raised midvein. Flowers dull yellow to brown, often speckled, often putrid-smelling, tepals margins buff, anther lobes parallel; capsules ovoid. Aug.–Oct. Mainly coastal, sandstone or granite rocks, NW, SW, AP, KM, LB (Lambert's Bay to Mossel Bay, Little Karoo).•

densepunctulata M.P.de Vos Slender, cormous geophyte, 12–35 cm. Lower leaves linear, without a central vein. Flowers greenish to grey, speckled with blue, spicy scented, anther lobes parallel; capsules ovoid. May–July. Granite or limestone outcrops or sandy flats, mostly coastal, NW, SW (Lambert's Bay to Langebaan).•

foliosa G.J.Lewis Like **F. crispa** but leaves and branches spirally 2-ranked, leaves thickened toward middle, and flowers maroon, purple or dark brown. Aug.–Oct. Deep sand, W coast, NW (Namaqualand to Velddrif). **gce**

A.' Anther lobes diverging widely in fully open flowers; capsules with prominent beak

divaricata Sweet GEEL SPINNEKOPBLOM Cormous geophyte to 45 cm, stem reaching well above ground, much-branched above. Leaves sword-shaped, crowded basally. Flowers brown with lighter brown margins or golden brown with darker margins, claws broad, forming a wide cup, nectaries pale green, large, anther lobes diverging, capsules beaked. Mainly late Sept.–Nov. Deep sands, NW, SW (Hondeklip Bay to Cape Flats). **gce**

ferrariola (Jacq.) Willd. Slender, cormous geophyte, 15–60 cm, stems partly exposed, spotted with red below. Lower leaves with long, linear blades. Flowers greenish, blue or yellow, sweet or spicy scented, anther lobes eventually diverging, capsules beaked. June–Aug. Granite and sandstone slopes, NW (N Namaqualand to Clanwilliam). **gce**

flava Goldblatt & J.C.Manning Subcaulescent, cormous geophyte to 15 cm, stems branched at ground level. Basal leaves sword-shaped, leathery, without a central vein, cauline leaves shorter. Flowers yellow with dark spots at base of tepal limbs, limbs with crisped, pale yellow margins, sweetly scented, anther lobes divaricate, ovary beaked. Late Aug.–Oct. Deep sand in coastal sandveld, NW (S Namaqualand coast to Klawer). **gce**

parva Goldblatt & J.C.Manning Cormous geophyte to 15 cm, stems partly exposed below. Basal leaves linear, without a central vein, cauline leaves broader and shorter. Flowers tiny, pale to dull yellow or flushed maroon, tepal limbs with dark spotting, limbs with crisped, yellow-brown margins, sweetly scented, anther lobes divaricate after splitting, ovary beaked. Late Aug.–Sept. Deep sand and limestone pavements in strandveld, SW (Velddrif to Bokbaai).•

uncinata Sweet Cormous geophyte, 10–40 cm. Leaves lanceolate, obtuse, in a tight fan, margins thickened and crisped. Flowers mostly blue to violet, sometimes creamy yellow speckled dark blue, tepal margins buff to light brown, tepal claws narrow, forming a deep cup, tips attenuate and coiled, anther lobes divergent, ovary beaked. Aug.–Oct. Mainly sandstone outcrops, NW, SW (Gifberg to Malmesbury).•

variabilis Goldblatt & J.C.Manning Cormous geophyte, 6–20 cm, branching mostly near base. Leaves sword-shaped, crowded at base, sheathing the stem. Flowers dull yellow, yellow-green or brown, with banded or speckled markings and darker margins, often putrid-smelling, claws broad, forming a wide cup, nectaries usually basal, dark-coloured, anther lobes diverging, capsules beaked. Aug.–Nov. Sandy and shale flats and rock outcrops, NW, SW, KM, LB (S Namibia and upper Karoo to Clanwilliam, Caledon to Little Karoo).

FREESIA Klatt (= *ANOMATHECA*) FREESIA, KAMMETJIE 15 spp., W Cape and Karoo to tropical Africa

A. Flowers salver-shaped with slender tube

verrucosa (Vogel) Goldblatt & J.C.Manning (= *Anomatheca verrucosa* (Vogel) Goldblatt) Cormous geophyte, 8–20 cm. Leaves sword-shaped. Flowers pink, with narrow tube and spreading tepals, faintly sweet-scented. Aug.–Oct. Clay soils, renosterveld, KM, SE (Oudtshoorn to Humansdorp).•

viridis (Aiton) Goldblatt & J.C.Manning (= *Anomatheca viridis* (Aiton) Goldblatt) GROEN-AGRETJIE Cormous geophyte, 10–35 cm, stem flattened and winged. Leaves sword-shaped to oblong, sometimes crisped and glaucous. Flowers small, green to maroon, tepals attenuate, tube slender and curved, clove-scented at night. Mainly July–Aug. Stony clay, limestone or sandstone slopes, coastal and inland, NW, SW (S Namibia to Mamre). **gce**

A.' Flowers funnel-shaped with broad upper tube
B. Bracts pale and soft-textured, often with brown tips

corymbosa (Burm.f.) N.E.Br. FLISSIE, KAMMETJIE Cormous geophyte, 25–50 cm. Leaves sword-shaped, acute. Flowers yellow, sometimes pink or white, faintly scented. Mainly Aug.–Nov. Mainly stony sandstone slopes, SE (Langkloof to E Cape).

occidentalis L.Bolus Cormous geophyte, 9–50 cm. Leaves sword-shaped, obtuse. Flowers creamy white and yellow, faintly scented. July–Sept. Stony soils, NW, KM (Cedarberg to Touws River and W Karoo).

refracta (Jacq.) Klatt FLISSIE, KAMMETJIE Cormous geophyte, 18–45 cm. Leaves sword-shaped, bracts uniformly pale. Flowers white, greenish or purple with orange markings, spice-scented. July–Sept. Dry, stony karoo and arid fynbos, SW, KM (Worcester to Oudtshoorn).•

speciosa L.Bolus Cormous geophyte, 8–20 cm. Leaves sword-shaped, obtuse, inclined to prostrate. Flowers large, 50–70 mm long, white and deep yellow, sweetly scented. Aug.–Sept. Karroid flats on sandstone or alluvium, KM (Montagu to Calitzdorp).•

B.' Bracts green and leathery

caryophyllacea (Burm.f.) N.E.Br. (= *Freesia elimensis* L.Bolus) Cormous geophyte, 5–10 cm, corm tunics of coarse fibres. Leaves sword-shaped, obtuse, often prostrate. Flowers white with yellow markings, sweetly scented. Apr.–June. Clay soils and limestones, renosterveld and coastal bush, SW, AP, LB (Villiersdorp to Swellendam and Bredasdorp).•

fergusoniae L.Bolus RIVERSDALE FREESIA Cormous geophyte, 10–20 cm, corm tunics of coarse fibres. Leaves sword-shaped, obtuse, prostrate. Flowers yellow with orange markings, sweetly scented. Aug.–Sept. Clay soils, renosterveld, LB (Heidelberg to Mossel Bay).•

fucata J.C.Manning & Goldblatt Cormous geophyte, 15–30 cm, corm tunics of coarse fibres. Leaves linear, glaucous. Flowers white flushed mauve on reverse, sweetly scented, bracts tricuspidate. July. Renosterveld, SW (Bosjesveld between Villiersdorp and Breede River).•

leichtlinii Klatt (= *Freesia alba* (G.L.Mey.) Gumbl.) DUINE-FREESIA Cormous geophyte, 8–20 cm, corm tunics of fine fibres, stem with axillary cormlets underground. Leaves sword-shaped. Flowers creamy yellow or white, then often with mauve reverse, with broad yellow markings, sweetly scented. Aug.–Sept. Deep sands and rocky pavements, coastal bush and fynbos, AP, LB, SE (Cape Agulhas to Plettenberg Bay).•

marginata J.C.Manning & Goldblatt Like **F. caryophyllacea** but leaves leathery with thickened submarginal veins. May–June. Gravelly washes in succulent karoo, SW (Robertson Karoo).•

praecox J.C.Manning & Goldblatt Like **F. leichtlinii** but flowers always white, faintly scented, stems mostly unbranched and without axillary cormels. June–July. Rocky sandstone slopes, SW (Riviersonderend Mtns).•

sparrmanii (Thunb.) N.E.Br. Cormous geophyte, 12–18 cm, corm tunics of coarse fibres. Leaves sword-shaped, often prostrate. Flowers narrowly funnel-shaped with lower part of tube 12–15 mm, white, flushed purple on reverse, faintly scented. Sept. Forest margins in loam, LB (Langeberg foothills: Swellendam to Heidelberg).•

GEISSORHIZA Ker Gawl. SATIN-FLOWER, SYSIE ± 100 spp., mainly W Cape, also Namaqualand and W Karoo

*A. Flowers blue to violet, sometimes with red centre (see also **G. inconspicua**)*
B. Corm tunics overlapping like roof tiles; stamens often unequal and stems velvety to papillate
C. Filaments unequal, one at least 0.5 mm shorter than other two

arenicola Goldblatt Cormous geophyte, 12–20 cm, tunics woody, imbricate, stem velvety. Leaves linear, with thick margins. Flowers blue, tepals spreading. Aug.–Sept. Sandy mountain soils in fynbos, NW (Bokkeveld Mtns to Gifberg and N Olifants River Mtns).•

aspera Goldblatt BLOU SYSIE Cormous geophyte, 10–35 cm, tunics woody, imbricate, stem velvety. Leaves sword-shaped, margins and midrib slightly thickened. Flowers blue-violet, sometimes white, tepals spreading, stamens usually slightly unequal. Aug.–Sept. Mostly sandy soils, flats and slopes, 10–700 m, NW, SW, AP (Gifberg to Agulhas).•

heterostyla L.Bolus Cormous geophyte, 12–45 cm, tunics woody, imbricate, stem velvety. Leaves linear to sword-shaped, margins winged and ciliate. Flowers blue to purple, occasionally white, sometimes dark in centre, tepals spreading, stamens unequal. Aug.–Oct. Mainly on clay slopes in renosterveld, NW, SW, KM, LB, SE (Bokkeveld Mtns to Port Elizabeth, S Namaqualand and W Karoo). **gce**

inaequalis L.Bolus Cormous geophyte, 8–15 cm, tunics woody, imbricate, stem velvety. Leaves sword-shaped. Flowers blue, tepals spreading, stamens unequal. Aug.–Oct. Heavy clay soils, NW (Bokkeveld and Kobee Mtns and W Karoo). **gce**

lewisae R.C.Foster Cormous geophyte, 15–30 cm, tunics woody, imbricate, stem velvety. Leaves sword-shaped. Flowers glossy, dark blue-violet, pale green in throat, tepals ± vertical, stamens unilateral, filaments unequal. Mostly Sept.–Oct. Sandy slopes, granite outcrops, NW, SW (Citrusdal and St Helena Bay to Langebaan).•

monanthos Eckl. Cormous geophyte, 6–20 cm, tunics woody, imbricate, stem velvety. Leaves sword-shaped. Flowers glossy, dark blue, with large central white eye edged with a darker ring, tepals ± cupped, stamens unilateral, filaments unequal. Aug.–Sept. Granite outcrops and granitic gravel, NW, SW (Darling to Stellenbosch).•

pseudinaequalis Goldblatt Cormous geophyte, 9–30 cm, tunics papery. Leaves linear. Flowers blue to violet, tepals spreading, stamens unequal. Oct.–Jan. Mountain slopes and cliffs, SW (Bain's Kloof to Simonsberg).•

ramosa Ker Gawl. ex Klatt Cormous geophyte, 20–45 cm, tunics woody, imbricate, stem often several-branched. Leaves linear. Flowers small, blue to purple, tepals spreading, stamens unequal. Oct.–Dec. Rocky mountain slopes, NW, SW, LB (Tulbagh to Swellendam).•

reclinata Goldblatt & J.C.Manning Cormous geophyte to 12 cm, tunics woody, imbricate, stem sparsely short-hairy. Leaves ± plane, margins and central vein narrowly winged. Flowers in a 1–3-flowered spike, zygomorphic, blue-mauve, upper tepals purple at base, stamens unilateral, declinate, filaments unequal. Mid-Aug.–Sept. Rocky sandstone slopes, often after fire, KM (Swartberg: Meiringspoort).•

scopulosa Goldblatt Cormous geophyte, 6–20 cm, tunics soft, stem velvety. Leaves linear. Flowers blue-violet, tepals spreading, stamens unequal. Nov. Rocky sandstone soils, 500–1 500 m, NW (Hex River Mtns).•

tabularis Goldblatt Cormous geophyte, 25–35 cm, tunics woody, imbricate, stem often branched. Leaves sword-shaped. Flowers mauve, rarely white, tepals spreading, stamens unequal. Oct.–Dec. Cool, damp sandstone slopes, SW (Cape Peninsula).•

sp. 1 Like **G. aspera** but flowers pinkish purple with blackish centre, stamens and style. Sept. Loamy slopes, SW (Malmesbury).•

C.' Filaments equal

eurystigma L.Bolus WINE-CUP, KELKIEWYN Cormous geophyte, 8–20 cm, tunics woody, imbricate. Leaves ribbed. Flowers deep blue with a red centre, tepals cupped, stigmas broad and villous. Sept.–Oct. Granitic soils in renosterveld, SW (Darling to Malmesbury).•

mathewsii L.Bolus WINE CUP, KELKIEWYN Cormous geophyte, 8–18 cm, tunics woody, imbricate. Leaves ribbed. Flowers violet with red centre, tepals cupped, stigmas broad and villous. Aug.–Sept. Wet sandy flats, SW (Darling District).•

radians (Thunb.) Goldblatt WINE CUP, KELKIEWYN Cormous geophyte, 8–16 cm, tunics woody, imbricate. Leaves linear. Flowers deep blue with red centre and white ring, tepals cupped, stamens and style unilateral. Sept.–Oct. Damp sandy soils, SW (Malmesbury to Gordon's Bay).•

splendidissima Diels BOKKEVELD PRIDE Cormous geophyte, 8–20 cm, tunics woody, imbricate, stem velvety. Leaves linear. Flowers glossy, blue-violet, tepals cupped, stamens unilateral, anthers red-brown. Aug.–Sept. Clay soils in renosterveld, NW (Bokkeveld Plateau).•

subrigida L.Bolus Cormous geophyte, 12–30 cm, tunics woody, imbricate. Leaves linear to sword-shaped, pilose. Flowers blue-violet, tepals spreading. Aug.–Sept. Rocky sandstone soils, NW (Bokkeveld Mtns).•

B.' Corm tunics concentric, often drawn into bristles above, or fibrous, or papery and not persisting; stamens always equal and stems smooth

alticola Goldblatt Cormous geophyte, 20–30 cm, tunics fibrous. Leaves linear. Flowers blue-violet, tepals spreading. Dec.–Feb. Mountain peaks, 1 500–2 000 m, SW (Bain's Kloof to Wemmershoek Mtns).•

burchellii R.C.Foster Cormous geophyte, 12–20 cm, tunics papery, imbricate. Leaves linear. Flowers dark purple, tepals spreading, stamens unequal and unilateral. Dec.–Jan., mostly after fire. Rocky sandstone slopes, 200–400 m, SW, LB (Bain's Kloof to Langeberg).•

cataractarum Goldblatt Cormous geophyte, 10–30 cm, tunics soft. Leaves slender, trailing. Flowers pale blue, tepals spreading. Nov.–Jan. Waterfalls and damp cliffs, SW (Kogelberg to Kleinrivier Mtns).•

hesperanthoides Schltr. Cormous geophyte, 15–30 cm, tunics fibrous. Leaves linear, margins and midribs thickened. Flowers blue to violet, tepals spreading. Nov.–Jan. Damp and marshy mountain slopes, 800–1 500 m, SW (Bain's Kloof to Bredasdorp).•

lithicola Goldblatt Cormous geophyte, 15–30 cm, tunics woody, concentric. Leaves terete. Flowers violet to purple, tepals spreading. Oct. Lower rocky slopes, 50–200 m, SW (Kogelberg).•

monticola Goldblatt & J.C.Manning Cormous geophyte, 10–16 cm, tunics woody, concentric, stem branched. Leaves soft-textured, lower 2 or 3 spreading to prostrate, ± linear. Flower single per branch, zygomorphic, tepals vertical, blue-mauve, greenish in throat, stamens unilateral, declinate. Sept. Sandstone slopes in pockets of peaty sand, KM (Swartberg).•

nigromontana Goldblatt Cormous geophyte, 10–16 cm, tunics woody, concentric. Leaves lanceolate, trailing. Flowers 1–few per spike, blue, tepals spreading. Jan.–Feb. Along streams, KM (Swartberg).•

purpurascens Goldblatt Cormous geophyte, 18–30 cm, tunics woody, concentric. Leaves linear. Flowers mauve, tepals spreading. Sept.–Oct. Sandy flats, NW, SW (Piketberg to Stellenbosch).•

pusilla (Andrews) Klatt Cormous geophyte, 7–25 cm, tunics woody, concentric. Leaves sword-shaped, slightly villous. Flowers blue to mauve, tepals spreading. Aug.–Oct. Damp shady places, SW (Cape Peninsula to Paarl).•

*A.' Flowers white to pink or yellow (see also **G. aspera** and **G. tabularis**)*
D. Corm tunics overlapping like roof tiles; stamens often unequal and stems velvety to papillate
E. Filaments unequal, one at least 0.5 mm shorter than other two

barkerae Goldblatt Cormous geophyte, 10–20 cm, tunics woody, imbricate. Leaves linear, ribbed. Flowers yellow with a purple centre, tepals cupped, stamens and style unilateral, filaments unequal. Sept.–Oct. Marshes and seeps at foot of mountains, NW (Piketberg to Citrusdal).•

bryicola Goldblatt Cormous geophyte, 15–30 cm, tunics woody, imbricate. Leaves narrowly sword-shaped, soft and trailing. Flowers white, stamens unequal, tepals spreading. Sept.–Nov. Wet rocks, waterfalls, stream edges, SW (Hermanus Mtns).•

callista Goldblatt Cormous geophyte, 15–25 cm, tunics papery. Leaves linear, margins thickened. Flowers bright pink with dark purple centre, tepals cupped, stamens and style unilateral. Oct.–Nov., mainly after fire. Wet rocks, SW, LB (Riviersonderend Mtns and Langeberg).•

demissa Goldblatt & J.C.Manning Delicate, cormous geophyte to 12 cm, tunics woody, imbricate, stem puberulous below, rarely branched. Leaves linear-falcate, margins and central vein narrowly winged, smooth. Flowers in a 1- or 2-flowered spike, white, veins tinged blue below, outer tepals flushed blue outside, stamens symmetrical, filaments unequal. Late Aug.–Oct. Seasonally damp sheltered sites on rocky slopes, NW (Kamiesberg and Gifberg to Cold Bokkeveld). **gce**

grandiflora Goldblatt Cormous geophyte, 16–35 cm, tunics soft. Leaves linear. Flowers large, pink, tepals cupped, stamens unequal and unilateral. Nov.–Dec. Rocky sandstone slopes, NW, SW (Grootwinterhoek Mtns to Villiersdorp).•

louisabolusiae R.C.Foster Cormous geophyte, 15–20 cm, tunics woody, imbricate. Leaves linear to terete. Flowers pale yellow, stamens usually unequal. Aug.–Sept. Wet sandy flats, NW (Olifants River Valley).•

saxicola Goldblatt & J.C.Manning Cormous geophyte to 10 cm, tunics unknown, probably woody, imbricate, stem pubescent. Leaves ± falcate to trailing, margins and central vein winged, wing edges ciliate, Flowers white to pale pink, tepals ± 7.5 × 2.5 mm, stamens symmetrical, filaments unequal. Aug.–Oct. Rocky slopes in partial shade, NW (Pakhuis Mtns and N Cedarberg.)•

silenoides Goldblatt & J.C.Manning Cormous geophyte, 20–30 cm, tunics woody, imbricate, stem velvety. Leaves linear, margins thickened. Flowers pale pink, tube long, stamens unequal. Sept.–Oct. Shale slopes in renosterveld, NW (Ceres: Gydo Pass).•

*E.' Filaments equal (but see **G. leipoldtii**)*
F. Stems velvety to papillate

ciliatula Goldblatt Cormous geophyte, 6–12 cm, tunics woody, imbricate, stem velvety. Leaves linear and soft. Flowers white fading mauve, tepals spreading. Oct.–Nov. Moist, rocky sandstone slopes, 600–1 000 m, NW (Cedarberg).•

erubescens Goldblatt Cormous geophyte, 8–15 cm, tunics woody, imbricate, stem velvety. Leaves narrowly sword-shaped, margins and midribs thickened. Flowers small, cream-coloured, bright red on reverse, tepals spreading. Sept. Shale and loam slopes, NW (Pakhuis Mtns).•

intermedia Goldblatt Cormous geophyte, 5–12 cm, tunics woody, imbricate, stem velvety. Leaves sword-shaped, sticky below. Flowers white. Sept.–Oct. Sandstone soils in fynbos, NW, SW (Porterville to Stellenbosch).•

leipoldtii R.C.Foster Cormous geophyte, 12–30 cm, tunics woody, imbricate, stem velvety. Leaves sword-shaped, slightly pilose. Flowers white, pink or mauve, tepals spreading, stamens often unequal. Aug.–Sept. Mostly S-facing shale slopes, NW (Pakhuis Mtns to Citrusdal).•

tulbaghensis F.Bolus Cormous geophyte, 8–15 cm, tunics woody, imbricate, stem velvety. Leaves linear. Flowers white with dark centre, zygomorphic. Aug.–Sept. Clay flats, NW, SW (Porterville to Wellington).•

F.' Stems smooth

divaricata Goldblatt Cormous geophyte, 20–45 cm, tunics woody, imbricate, stems divaricately branched. Leaves sword-shaped, margins and veins thickened and ciliate. Flowers small, blue or white, rarely pale mauve, dark mauve on reverse, tepals spreading. Sept.–Oct. Sandstone rocks, NW (Bokkeveld Mtns to Gifberg).•

erosa (Salisb.) R.C.Foster Like **G. inflexa** but flowers larger, red, purple, pink, occasionally white, tepals 18–24 mm long, anthers 7–10 mm (*vs.* tepals mostly 10–16 mm long and anthers 5–6 mm). Aug.–Sept. Clay and loam flats and slopes, NW, SW (Tulbagh to Stellenbosch and Botrivier).•

exilis Goldblatt & J.C.Manning Cormous geophyte to 14 cm, tunics woody, imbricate. Leaves ± linear, margins winged and ciliate on veins and marginal wing edges. Flowers in a 1–3-flowered spike, white, outer tepals flushed pink outside, ± 8 × 4 mm. Sept.–Oct. Sandstone slopes, especially after fire, NW (Waaihoek Mtns).•

geminata E.Mey. ex Baker Cormous geophyte, 12–30 cm, tunics woody, imbricate. Leaves linear. Flowers white to cream-coloured, tepals cupped. Sept.–Nov. Marshes and pools, NW (Cold Bokkeveld to Worcester).•

imbricata (D.Delaroche) Ker Gawl. Cormous geophyte, 8–25 cm, tunics woody, imbricate. Leaves ribbed. Flowers white to yellow, tepals spreading. Aug.–Nov. Wet sandy flats, marshes, streamsides, NW, SW, AP (Gifberg to Bredasdorp).•

inflexa (D.Delaroche) Ker Gawl. WITSYBLOM Cormous geophyte, 12–35 cm, tunics woody, imbricate. Leaves sword-shaped to linear, margins winged and ciliate on veins and marginal wing edges. Flowers white to pale yellow Aug.–Sept. Clay flats and slopes in renosterveld, NW, SW, AP (Piketberg to Bredasdorp).•

minuta Goldblatt Cormous geophyte, 3–12 cm, tunics woody, imbricate. Leaves linear. Flowers small, white, tepals spreading, outer often flushed purple outside. Sept.–Oct. Wet sandstone pavements, NW (Matsikamma to Pakhuis Mtns).•

purpureolutea Baker Cormous geophyte to 15 cm, tunics woody, imbricate. Leaves linear. Flowers yellowish, usually with dark centre, tepals spreading. Aug.–Sept. Wet sandy flats, NW, SW (Piketberg to Paarl).•

scillaris A.Dietr. Cormous geophyte, 12–35 cm, tunics woody, imbricate. Leaves only 2, basal linear, margins heavily thickened, second leaf entirely sheathing. Flowers small, white to pale blue or mauve, tepals spreading. Aug.–Nov. Rocky sandstone slopes and flats, NW, SW (Cedarberg to Caledon).•

similis Goldblatt Cormous geophyte, 12–35 cm, tunics woody, imbricate. Leaves linear. Flowers white. Aug.–Oct. Sandy slopes and flats, SW (Bain's Kloof to Cape Peninsula).•

sulphurascens Schltr. ex R.C.Foster Cormous geophyte, 12–20 cm, tunics woody, imbricate. Leaves linear. Flowers cream. Aug.–Sept. Wet sandy soils, NW (Bokkeveld Mtns).•

D.' Corm tunics concentric, often drawn into bristles above, or fibrous, or papery and not persisting; stamens always equal and stems smooth
G. Stamens included in perianth tube

cedarmontana Goldblatt Cormous geophyte, 7–35 cm, tunics woody, concentric. Leaves linear. Flowers pale pink, dark red at tepal bases, tepals spreading, tube elongate, stamens and style included in tube. Oct.–Nov. Damp S slopes and rocks, NW (Cedarberg).•

esterhuyseniae Goldblatt Cormous geophyte, 7–8 cm, tunics woody, concentric. Leaves sword-shaped, margins and midrib slightly thickened. Flowers white, tepals spreading, stamens and style included in tube. Oct. Rocky S-facing sandstone slopes, ± 1 200 m, NW (Grootwinterhoek Mtns).•

G.' Stamens exserted
H. Flowers zygomorphic with declinate stamens and style
I. Leaves H-shaped in section with winged margins

bonaspei Goldblatt Cormous geophyte, 12–20 cm, tunics woody, concentric. Leaves linear, narrow, H-shaped in section, viscid on margins. Flowers pink, darker on veins, tepals spreading, tube elongate, stamens and style unilateral. Sept.–Nov., mainly after fire. Rocky sandstone slopes in fynbos, SW (Cape Peninsula).•

exscapa (Thunb.) Goldblatt LANGPYP-SYSIE Cormous geophyte, 18–30 cm, tunics woody, concentric, stem shorter than leaves. Leaves linear, H-shaped in section, viscid on margins. Flowers creamy beige, fading pink, darker on veins, tube elongate, stamens and style unilateral. Oct.–Nov. Sandy soils, coastal and montane, 120–400 m, NW, SW (central Namaqualand coast to Melkbos and Bokkeveld Mtns). **gce**

tenella Goldblatt Cormous geophyte, 10–30 cm, tunics woody, concentric. Leaves narrow, H-shaped in section, viscid on margins. Flowers white to pink, tube elongate, stamens and style unilateral. Oct.–Dec. Sandy flats and dunes, SW, AP (Yzerfontein to Still Bay).•

I.' Leaves plane or with thickened to winged margins and central vein

brevituba (G.J.Lewis) Goldblatt Cormous geophyte, 12–20 cm, tunics woody, concentric. Leaves sword-shaped, margins and midrib thickened and viscid. Flowers deep pink, darker on veins, tepals cupped, stamens and style unilateral. Sept., mainly after fire. Rocky sandstone slopes, NW (Piketberg).•

confusa Goldblatt Cormous geophyte, 12–30 cm, tunics woody, concentric. Leaves linear to sword-shaped, margins and midribs thickened and viscid. Flowers creamy beige fading pinkish, darker on veins, tepals spreading, stamens and style unilateral. Mainly Oct.–Nov., mainly after fire. Rocky sandstone slopes in fynbos, 400–1 200 m, NW, SW (Gifberg to Caledon).•

fourcadei (L.Bolus) G.J.Lewis Cormous geophyte, 12–30 cm, tunics woody, concentric, stems branched. Leaves terete. Flowers single on branches, large, pink to mauve, tepals spreading, stamens and style unilateral. Mainly Mar.–May. Sandstone rocks, KM, LB, SE (Langeberg, Swartberg, Baviaanskloof and Outeniqua Mtns to Humansdorp).•

longifolia (G.J.Lewis) Goldblatt Cormous geophyte, 12–20 cm, tunics woody, concentric. Leaves linear, margins and midribs heavily thickened, sticky. Flowers white, fading pink with darker veins, tepals spreading, tube elongate. Sept.–Nov. Stony, often shale soils, NW (Gifberg to Piketberg and Ceres).•

nubigena Goldblatt Cormous geophyte, 15–30 cm, tunics fibrous. Leaves linear. Flowers rose to mauve, tepals spreading, tube fairly long, stamens and style unilateral. Dec.–Jan. High rocky slopes, 1 000–1 800 m, NW, SW (Grootwinterhoek Mtns to Kogelberg).•

roseoalba (G.J.Lewis) Goldblatt Cormous geophyte, 15–20 cm, tunics woody, concentric. Leaves sword-shaped, margins and midribs thickened. Flowers pale pink with red markings, pink on reverse, tepals loosely cupped, stamens and style unilateral. Aug.–Sept., mostly after fire. Sandstone soils in dry fynbos, KM, LB, SE (Little Karoo to Uitenhage).•

schinzii (Baker) Goldblatt Cormous geophyte, 10–20 cm, tunics woody, imbricate. Leaves linear, margins and midribs thickened and sticky. Flowers large, pink with dark veins, tepals spreading, stamens and style unilateral. Aug.–Oct., after fire. Stony sandstone slopes, SW (Houwhoek to Bredasdorp Mtns).•

uliginosa Goldblatt & J.C.Manning Cormous geophyte, 15–30 cm, tunics soft. Leaves linear. Flowers dark pink, zygomorphic, with declinate stamens and style. Dec.–Jan. Waterfalls and wet cliffs, KM (Swartberg).•

H.' Flowers radially symmetric
J. Leaves terete with 4 longitudinal grooves

brehmii Eckl. ex Klatt Cormous geophyte, 20–30 cm, tunics woody, imbricate. Leaves terete. Flowers white to cream-coloured, tepals spreading. Aug.–Oct. Seasonal pools, mainly lowlands, SW, AP (Malmesbury and Cape Peninsula to Bredasdorp).•

furva Ker Gawl. ex Baker Cormous geophyte, 8–14 cm, tunics woody, concentric. Leaves terete with 4 longitudinal grooves. Flowers large, golden-yellow, tepals spreading, perianth tube 3–5 mm long. Sept.–Oct. Stony flats and lower slopes, SW (Gouda to Paarl).•

juncea (Link) A.Dietr. Cormous geophyte, 20–40 cm, tunics woody, concentric. Leaves terete. Flowers small, white to yellow, tepals spreading. Aug.–Nov. Sandy flats and slopes, to 400 m, NW, SW (Cedarberg to Bredasdorp).•

stenosiphon Goldblatt Cormous geophyte, 15–30 cm, tunics woody, concentric. Leaves terete, 4-grooved. Flowers 1 or 2 per spike, tubular, white with pink reverse. Nov.–Dec. Rocky sandstone slopes above 400 m, NW (S Cold Bokkeveld Mtns).•

sufflava Goldblatt & J.C.Manning Like **G. furva** but 10–15 cm, flowers in a 1- or 2-flowered spike, pale watery yellow, tepals cupped, perianth tube 7–9 mm long. Sept. Stony lower slopes, NW (Piketberg, eastern slopes)•

J.' Leaves plane or with margins and central vein thickened and sometimes raised

altimontana Goldblatt & J.C.Manning Cormous geophyte to 12 cm, tunics soft, evidently concentric, unbranched. Leaves plane, the lower horizontal and prostrate. Flowers in 1- or 2-flowered spikes, pink, greenish in throat, tepals widely cupped. Jan. Rocky, sandstone slopes at high elevations, LB (Langeberg: Leeuriviersberg).•

bolusii Baker Cormous geophyte, 3–10 cm, tunics woody, concentric. Leaves lanceolate to ovate, often prostrate. Flowers small, white, tepals spreading, buds often aborted and replaced by cormlets, never producing capsules. Oct.–Jan. Damp, shady, sandstone slopes in moss, 400–1 500 m, NW, SW (Cedarberg to Cape Peninsula and Worcester).•

bracteata Klatt Cormous geophyte, 6–18 cm, tunics woody, concentric. Leaves sword-shaped to ovate, often prostrate. Flowers 1–few per spike, white, tepals spreading. Sept.–Oct. Mostly clay slopes in renosterveld, KM, LB, SE (Touws River to Little Karoo, Albertinia to Grahamstown and Somerset East).

darlingensis Goldblatt Cormous geophyte, 7–15 cm, tunics woody, concentric. Leaves linear, margins and midribs thickened and viscid. Flowers yellow with a dark brown centre, tepals cupped. Sept.–Oct. Damp flats, SW (Darling).•

delicatula Goldblatt Cormous geophyte, 3–12 cm, tunics soft. Leaves linear to sword-shaped, soft, often prostrate. Flowers lilac, tepals spreading. Aug.–Dec. Sandstone outcrops, KM (Swartberg).•

elsiae Goldblatt Cormous geophyte, 14–25 cm, tunics soft. Leaves sword-shaped to linear, soft. Flowers pink. Oct.–Nov. Damp southern slopes, KM (Kammanassie Mtns).•

foliosa Klatt Cormous geophyte, 8–20 cm, tunics woody, concentric, stems usually branched. Leaves short, lanceolate, soft. Flowers lilac to mauve-pink with white anthers. Sept.–Nov. Clay slopes and flats in renosterveld, LB (Swellendam to Riversdale).•

helmei Goldblatt & J.C.Manning Cormous geophyte to 15 cm, tunics woody, concentric, stems usually simple. Leaves linear, margins and central vein thickened and winged, wing edges ciliate, viscid with sand adhering. Flowers in a 7–10-flowered spike, pink, stamens symmetrically arranged. Late Aug.–Sept. Dry, stony, sandstone slopes after fire, NW (NW base of Piketberg).•

hispidula (R.C.Foster) Goldblatt Cormous geophyte, 7–25 cm, tunics woody, concentric. Leaves linear, margins and midribs thickened and sticky. Flowers small, cream-coloured or white, tepals spreading. Aug.–Sept., mainly after fire. Sandy flats and mountain slopes, SW, AP, LB (Cape Peninsula to Albertinia).•

humilis (Thunb.) Ker Gawl. Cormous geophyte, 8–14 cm, tunics woody, concentric. Leaves linear, margins and midrib thickened and sticky. Flowers bright yellow, tepals slightly cupped. Aug.–Oct., mainly after fire. Sandy soils in fynbos, 50–300 m, SW (Cape Peninsula to Malmesbury and Paarl).•

inconspicua Baker Cormous geophyte, 10–30 cm, tunics woody, concentric. Leaves sword-shaped to linear, plane. Flowers several per spike, white or purple, tepals spreading. Oct.–Feb. Mountains and flats, LB, SE (Swellendam to Uitenhage).•

lapidosa Goldblatt & J.C.Manning Cormous geophyte to 4 cm, tunics woody, concentric, stem unbranched. Leaves thick, leathery, linear-falcate, to 1 mm wide. Flowers 1 or 2 per spike, white, outer tepals red outside, ± 6 × 2 mm, stamens symmetrical, erect. Nov., possibly late Oct. Sandstone pavements in shallow soil, SW, (Du Toitskloof Mtns: Goudini Sneeukop).•

malmesburiensis R.C.Foster Cormous geophyte, 5–8 cm, corms with flat base, tunics woody, concentric. Leaves linear-filiform. Flowers 1–few per spike, yellow. Sept.–Oct. Granitic sand in renosterveld, SW (Malmesbury).•

nana Klatt Cormous geophyte, 5–7 cm, tunics woody, concentric. Leaves linear. Flowers mostly 1 per spike, tiny, white, tepals spreading. Sept.–Oct. Clay slopes and flats in renosterveld, SW, AP, LB (Caledon to Riversdale).•

ornithogaloides Klatt Cormous geophyte, 4–10 cm, corms often with a flat base, tunics woody, concentric. Leaves linear. Flowers 1–few per spike, bright yellow, tepals spreading. Aug.–Oct. Mostly clay flats and lower slopes, NW, SW, LB, SE (Cedarberg to Humansdorp).•

outeniquensis Goldblatt Cormous geophyte, 20–50 cm, tunics soft, stems often trailing. Leaves trailing. Flowers pink to purple. Oct.–Feb. Stream banks, waterfalls and wet rocks in shade, SE (Outeniqua Mtns).•

ovalifolia R.C.Foster Cormous geophyte, 3–9 cm, tunics woody, concentric. Leaves oblong, often prostrate. Flowers white. Oct.–Nov. Damp places, NW, SW (Cold Bokkeveld to Franschhoek Mtns).•

ovata (Burm.f.) Asch. & Graebn. Cormous geophyte, 6–15 cm, tunics woody, concentric. Leaves ovate, leathery, prostrate. Flowers few per spike, white, pink on reverse, tube fairly long. Aug.–Oct., mainly after fire. Sandstone slopes and flats, NW, SW, AP (Olifants River Mtns to Riversdale).•

pappei Baker Cormous geophyte, 5–10 cm, tunics woody, concentric. Leaves linear, margins and midribs thickened and sticky. Flowers small, white to cream-coloured, tepals spreading. Sept.–Oct. Sandy mountain soils, NW, SW (Ceres to Caledon).•

parva Baker Cormous geophyte, 4–12 cm, tunics woody, concentric. Leaves sword-shaped to oblong, leathery, often prostrate. Flowers few per spike, small, cream-coloured to yellow. Aug.–Nov. Sandy soils, mountains and flats, NW, SW, LB (Cedarberg to Swellendam).•

platystigma Goldblatt & J.C.Manning Tiny cormous geophyte to 6 cm, tunics woody, concentric, stems often branched at base. Leaves plane, ± linear. Flowers 1 per stem, pale yellow, tepals ± cupped, 6–7 × ± 3 mm, style branches unusually short and broad. Late Aug.–Sept. Granitic gravel slopes in renosterveld, SW (Darling hills).•

rupicola Goldblatt & J.C.Manning Cormous geophyte, 15–20 cm, tunics fibrous. Leaves linear, margins thickened. Flowers pale pink, tepals loosely cupped. Nov.–Dec. Wet sandstone cliffs, NW (Ceres).•

setacea (Thunb.) Ker Gawl. Cormous geophyte, 4–8 cm, tunics woody, concentric. Leaves linear to sword-shaped. Flowers small, 1–few per spike, white or cream-coloured, occasionally with dark centre, tepals spreading. June–Sept. Damp sandy and stony flats, SW (Gouda to Gordon's Bay).•

tricolor Goldblatt & J.C.Manning Cormous geophyte to 20 cm, tunics woody, concentric. Leaves several, plane, lanceolate to sword-shaped. Flowers on a 1–3-flowered spike, golden-yellow with glossy black-maroon central eye, yellow-green in tube, tepals spreading. Sept.–early Oct. Flats on pebbly ironstone, LB (locale near Riversdale).•

umbrosa G.J.Lewis Cormous geophyte, 12–30 cm, tunics mostly fibrous. Leaves linear. Flowers white to cream-coloured. Oct.–Dec. Sandstone slopes in damp sites mostly above 400 m, NW, SW (Cedarberg to Cape Peninsula and Riviersonderend Mtns).•

unifolia Goldblatt Cormous geophyte, 5–10 cm, tunics papery, concentric. Leaves mostly 1, linear. Flowers white, small. Oct. High elevations, NW (Cedarberg).•

GLADIOLUS L. (= *ANOMALESIA, HOMOGLOSSUM*) GLADIOLUS, PYPIE, AFRIKANER ± 250 spp., Africa and Madagascar, Eurasia

*A. Flowers red to orange (see also **G. meliusculus**)*
B. Leaves 3, basal leaf X-shaped or with thickened margins and midrib; flowers trumpet-shaped

abbreviatus Andrews (= *Homoglossum abbreviatum* (Andrews) Goldblatt) Cormous geophyte, 30–65 cm, tunics woody. Leaves cross-shaped in section. Flowers long-tubed, tube cylindrical, orange to reddish, lower tepals very short, green to blackish. June–Sept. Clay soils in renosterveld, SW, LB (Botrivier to Riversdale).•

huttonii (N.E.Br.) Goldblatt & M.P.de Vos EASTERN CAPE FLAME Cormous geophyte, 30–60 cm, tunics coarsely fibrous. Leaves cross-shaped in section. Flowers long-tubed, red to orange with cylindrical tube streaked maroon, lower tepals smaller and sometimes yellow. June–Sept. Sandstone slopes, SE (Plettenberg Bay to Grahamstown).

quadrangularis (Burm.f.) Ker Gawl. (= *Homoglossum quadrangulare* (Burm.f.) N.E.Br.) Cormous geophyte, 50–90 cm, tunics fibrous. Leaves cross-shaped in section. Flowers like **G. watsonius**, red. Aug.–Oct. Rocky sandstone slopes, NW (Cold Bokkeveld to Koo).•

teretifolius Goldblatt & M.P.de Vos (= *Homoglossum muirii* (L.Bolus) N.E.Br.) Cormous geophyte, 30–60 cm, tunics woody. Leaves slender, oval to terete in section and 4-grooved. Flowers tubular, tepals subequal, red. May–Aug. Clay slopes in renosterveld, SW, LB (Caledon to Mossel Bay).•

watsonius Thunb. (= *Homoglossum watsonium* (Thunb.) N.E.Br.) ROOI-AFRIKANER Cormous geophyte, 30–50 cm, tunics woody. Leaves linear with thickened margins and midribs. Flowers tubular, tepals subequal, red to orange. Aug.–Sept. Clay and granite slopes in renosterveld, NW, SW (Piketberg to Stellenbosch).•

B.' Leaves various but not as above
C. Flowers tubular or trumpet-shaped

cunonius (L.) Gaertn. (= *Anomalesia cunonia* (L.) N.E.Br.) SUIKERKANNETJIE, LEPELBLOM Cormous geophyte, 20–45 cm, stoloniferous, tunics papery. Leaves sword-shaped, soft. Flowers tubular, upper tepal elongate and spooned, bright red, lower tepals small, green. Sept.–Oct. Coastal in sandy soils, SW, AP, SE (Saldanha to Knysna).•

merianellus (L.) Thunb. (= *Gladiolus bonaspei* Goldblatt & M.P.de Vos, *Homoglossum merianellum* (L.) Baker) VLAMME Cormous geophyte, 30–50 cm, tunics fibrous. Leaves sword-shaped, villous. Flowers long-tubed, tube cylindrical, tepals equal, orange to yellow. Apr.–Aug. Sandy flats and slopes to 250 m, SW (Cape Peninsula).•

miniatus Eckl. Cormous geophyte, 15–40 cm, tunics papery. Leaves sword-shaped. Flowers long-tubed, salmon, tube cylindrical. Oct.–Nov. Coastal limestone outcrops, SW, AP (Hermanus to Agulhas).•

overbergensis Goldblatt & M.P.de Vos (= *Homoglossum guthriei* (L.Bolus) L.Bolus) Cormous geophyte, 35–55 cm, tunics fibrous. Leaves sword-shaped, scabrid. Flowers tubular, lower tepals smaller, red to orange. July–Sept. Sandstone slopes, SW, AP (Hermanus to Agulhas).•

priorii (N.E.Br.) Goldblatt & M.P.de Vos (= *Homoglossum priorii* (N.E.Br.) N.E.Br.) Cormous geophyte, 30–40 cm, tunics fibrous. Leaves linear with short blades. Flowers tubular, tepals subequal, red with yellow throat. Apr.–June. Sandstone and granite slopes, SW (Saldanha to Hermanus).•

saccatus (Klatt) Goldblatt & M.P.de Vos (= *Anomalesia saccata* (Klatt) Goldblatt) ROGGEVELD SUIKER-KANNETJIE Cormous geophyte, 25–80 cm, tunics fibrous. Leaves sword-shaped. Flowers tubular, dorsal tepal elongate and spooned, lower tepals reduced to tiny scales, bright red. June–Aug. Dry shale slopes, NW (Namibia to Pakhuis Mtns).

vandermerwei (L.Bolus) Goldblatt & M.P.de Vos (= *Homoglossum vandermerwei* (L.Bolus) L.Bolus) Cormous geophyte, 30–60 cm, stoloniferous, tunics papery. Leaves sword-shaped. Flowers tubular, bright red, lower tepals linear, marked with green. Aug.–Sept. Shale slopes in renosterveld, SW, LB (Botrivier to Heidelberg).•

C.' Flowers funnel-shaped

alatus L. KALKOENTJIE, KIPKIPPIE Cormous geophyte, 8–25 cm, tunics papery. Leaves falcate, ribbed. Flowers bilabiate, upper tepal suberect, orange marked yellow to greenish, scented. Aug.–Sept. Flats, slopes and plateaus, mainly in sand, NW, SW, AP (Bokkeveld Mtns to Bredasdorp).•

brevitubus G.J.Lewis Cormous geophyte, 12–35 cm, tunics fibrous. Leaves linear. Flowers rotate, almost actinomorphic, tube obsolete, orange, faintly scented. Sept.–Nov. Rocky sandstone slopes, SW (Helderberg to Kleinrivier Mtns).•

cardinalis Curtis NEW YEAR LILY, NUWEJAARSBLOM Cormous geophyte, 60–120 cm, tunics papery. Leaves sword-shaped, stem inclined to drooping. Flowers large, funnel-shaped, red with white splashes on lower tepals. Dec.–Jan. Waterfalls and wet cliffs, SW (Bain's Kloof to Riviersonderend Mtns).•

insolens Goldblatt & J.C.Manning Cormous geophyte, 40–65 cm, tunics papery. Leaves linear, slightly fleshy. Flowers long-tubed, tulip-shaped, tepals subequal, scarlet. Dec.–Jan. Wet sandstone cliffs and rocks, ± 1 200 m, NW (Piketberg: Zebra Kop).•

nerineoides G.J.Lewis Cormous geophyte with reduced leaves, 30–40 cm, tunics fibrous. Leaf produced after flowering on a separate shoot, linear, solitary, hairy. Flowers clustered, long-tubed, narrowly funnel-shaped, scarlet. Jan.–Mar. Rocky sandstone slopes and cliffs, 500–1 500 m, SW (Bain's Kloof to Somerset West).•

pulcherrimus (G.J.Lewis) Goldblatt & J.C.Manning KALKOENTJIE Like **G. alatus** but plants often taller, 20–50 cm, leaves not ribbed, dorsal tepal erect. Sept.–Oct. Sandstone slopes, NW (S Namaqualand to Piketberg). **gce**

sempervirens G.J.Lewis GEORGE FLAME Evergreen, cormous geophyte, 40–60 cm, corm reduced and rhizomatous. Leaves sword-shaped. Flowers large, funnel-shaped, pinkish red with white streaks on the lower tepals. Mar.–May. Seeps on sandstone slopes, 300–1 500 m, SE (George to Kareedouw).•

speciosus Thunb. KALKOENTJIE Cormous geophyte, 10–20 cm, corm with stoloniferous, tunics papery. Leaves sword-shaped. Flowers like **G. alatus** but upper tepal strongly hooded. Sept.–Oct. Deep sandy soils in fynbos, NW, SW (Bokkeveld Escarpment to Mamre).•

stefaniae Oberm. Cormous geophyte, 40–60 cm, tunics papery. Leaves reduced. Flowers large, funnel-shaped, red with white streaks on lower tepals. Mar.–Apr. Rocky sandstone slopes, 100–800 m, NW, SW (Montagu and Potberg).•

stokoei G.J.Lewis Cormous geophyte with reduced leaves, 30–45 cm, tunics fibrous. Leaf produced after flowering on a separate shoot, linear, solitary, hairy. Flowers tulip-shaped, scarlet. Mar.–Apr. Marshy sandstone slopes, 500–1 000 m, SW (Riviersonderend Mtns).•

A.' Flowers white, yellow, pink, shades of blue to mauve, brown or green
D. Foliage leaves absent at flowering (autumn) or ± hairy

aureus Baker Cormous geophyte, 30–50 cm, tunics fibrous. Leaves linear, hairy, blades often very short. Flowers slender-tubed, tepals subequal, bright yellow. Aug.–Sept. Seeps on rocky, sandstone slopes, SW (Cape Peninsula).•

brevifolius Jacq. HERFSPYPIE Cormous geophyte with reduced leaves, 15–50 cm, tunics fibrous. Leaf produced after flowering on a separate shoot, solitary, linear, hairy. Flowers bilabiate, pink, rarely brownish or grey, with yellow markings. Mar.–May. Sandstone and shale slopes, NW, SW (Bokkeveld Mtns to Riviersonderend and Bredasdorp).•

caryophyllaceus (Burm.f.) Poir. SANDPYPIE, PIENK-AFRIKANER Cormous geophyte, 18–75 cm, tunics fibrous. Leaves sword-shaped, pubescent. Flowers large, funnel-shaped, pink to mauve, speckled, fragrant. Aug.–Oct. Sandstone flats and slopes, NW, SW, KM (S Namaqualand to Mamre and Swartberg). **gce**

emiliae L.Bolus Cormous geophyte, 20–50 cm, tunics fibrous. Leaf blades reduced. Flowers long-tubed, yellowish to light brown with brown or purplish speckles, fragrant. Mar.–Apr. Rocky loam, SW, KM, LB, SE (Riviersonderend to George and Gamkaberg).•

guthriei F.Bolus (= *Gladiolus odoratus* L.Bolus) KANEELPYPIE Cormous geophyte, 30–50 cm, tunics fibrous. Leaf blades short, sword-shaped, sometimes hairy. Flowers long-tubed, pink to red or brownish with dark speckles, fragrant. Apr.–June. Sandstone outcrops, 100–800 m, NW, SW, KM (Bokkeveld Mtns to Elim).•

hirsutus Jacq. (= *Gladiolus punctulatus* Schrank) LAPMUIS Cormous geophyte, 30–60 cm, tunics fibrous. Leaves sword-shaped, blades usually short, hairy. Flowers bilabiate, pink to purple or white, lower tepals streaked with dark colour on a pale background. Mainly June–Oct. Rocky sandstone slopes, NW, SW, LB (Citrusdal to Mossel Bay).•

martleyi L.Bolus (= *Gladiolus pillansii* G.J.Lewis) Cormous geophyte with reduced leaves, 20–35 cm, tunics papery. Leaves 1 or 2, produced after flowering on a separate shoot, terete and 4-grooved. Flowers bilabiate, white to mauve with dark pink markings, fragrant. Feb.–May. Sandy and rocky flats and lower slopes to 200 m, NW, SW, AP, LB (Bokkeveld Mtns to Riversdale).•

mostertiae L.Bolus Cormous geophyte, 15–30 cm, tunics fibrous. Leaves linear, pubescent. Flowers bilabiate, pale pink with yellow-green markings on lower tepals. Nov.–Dec. Wet sandy soils, NW (Bokkeveld Mtns).•

rhodanthus J.C.Manning & Goldblatt Cormous geophyte to 50 cm, tunics fibrous. Leaves linear, hairy. Flowers funnel-shaped with a slender tube, pink with red markings on lower tepals. Dec.–Jan. Rocky sandstone slopes at high alt., SW (Stettynskloof Mtns).•

subcaeruleus G.J.Lewis Cormous geophyte with reduced leaves, 20–30 cm, tunics fibrous. Leaf produced after flowering on a separate shoot, solitary, terete and 4-grooved, thinly hairy. Flowers bilabiate, pale blue to mauve with yellow markings on lower tepals. Mar.–May. Sandy loam and clay slopes in renosterveld, SW (Botrivier to Bredasdorp).•

vaginatus F.Bolus Cormous geophyte, 20–70 cm, tunics fibrous. Leaves 2, entirely sheathing. Flowers bilabiate, blue to grey with dark streaks on lower tepals, fragrant. Feb.–Apr. Limestone and clay-loam slopes, fynbos and renosterveld, SW, LB, SE (Cape Peninsula, Caledon to Knysna).•

D.' Foliage leaves present and glabrous
*E. Leaves terete and 4-grooved or cross-shaped in transverse section (see also **G. virescens**)*

caeruleus Goldblatt & J.C.Manning Cormous geophyte, 40–60 cm, tunics woody. Leaves narrow, with winged margins (H-shaped), soft. Flowers bilabiate, blue with dark spotting on lower tepals, fragrant. Aug.–Sept. Limestone outcrops, calcareous sands, SW (Jacobsbaai to Yzerfontein).•

ceresianus L.Bolus Cormous geophyte, 8–15 cm, tunics fibrous. Leaves imbricate, terete with 4 grooves. Flowers bilabiate, dorsal tepal erect, dull purple to brownish with dark veining, fragrant. Aug.–Oct. Sandstone slopes, NW, KM (Cold Bokkeveld to Witteberg and W Karoo). **gce**

cylindraceus G.J.Lewis Cormous geophyte, 30–50 cm, tunics fibrous. Leaves cross-shaped in section. Flowers long-tubed, pale pink with dark marks on lower tepals. Dec.–Jan. Sandstone slopes, NW (Cold Bokkeveld and Tulbagh Mtns).•

engysiphon G.J.Lewis Cormous geophyte with reduced leaves, 35–50 cm, tunics fibrous. Leaf blades lacking, foliage leaves terete and 4-grooved. Flowers long-tubed, cream-coloured with red streaks on lower tepals. Mar.–Apr. Clay and granitic loam in renosterveld and grasslands, LB (Swellendam to Mossel Bay).•

fourcadei (L.Bolus) Goldblatt & M.P.de Vos (= *Homoglossum fourcadei* (L.Bolus) N.E.Br.) Cormous geophyte, 40–60 cm, tunics fibrous. Leaves cross-shaped in section. Flowers tubular, tube cylindrical, red or yellow-green. Sept.–Oct. Clay soils in renosterveld, KM, SE (George to Humansdorp).•

gracilis Jacq. BLOUPYPIE Cormous geophyte, 30–60 cm, tunics woody. Leaves linear with winged margins. Flowers bilabiate, blue to grey, occasionally pink or yellow, with dark streaks on lower tepals, fragrant. June–Aug. Mostly clay slopes, sometimes on granite, NW, SW, AP, LB (Aurora to Albertinia).•

hyalinus Jacq. SMALL BROWN-AFRIKANER Cormous geophyte, 25–50 cm, tunics woody. Leaves linear with thickened margins and midribs. Flowers long-tubed, brownish to cream-coloured with dark speckles, rarely fragrant. June–Sept. Shale, granite and sandstone slopes, fynbos or renosterveld, NW, SW, SE (Namaqualand to Port Alfred).

inflatus Thunb. BLOUKLOKKIE, TULBAGH BELL Cormous geophyte, 25–60 cm, tunics woody. Leaves terete with 4 grooves. Flowers bell-like, white, mauve or pink with yellow markings. Aug.–Nov. Rocky sandstone slopes, NW, SW, LB (Cedarberg to Swellendam).•

jonquilodorus Eckl. ex G.J.Lewis Cormous geophyte with reduced leaves, 30–45 cm, tunics papery. Leaves produced after flowering on a separate shoot, 2 or 3, terete with 4 grooves. Flowers bilabiate, cream-coloured to pale yellow, fragrant. Nov.–Dec. Sandy coastal flats, SW (Darling to Cape Peninsula).•

liliaceus Houtt. LARGE BROWN-AFRIKANER, AANDPYPIE Cormous geophyte, 35–70 cm, tunics woody. Leaves linear with thickened margins and midribs, bracts attenuate. Flowers long-tubed, funnel-shaped, brown to russet or beige, turning mauve in the evening and then fragrant. Aug.–Nov. Clay slopes, mainly in renosterveld, NW, SW, AP, KM, LB, SE (Cedarberg to Port Elizabeth).•

longicollis Baker Cormous geophyte, 35–60 cm, tunics woody. Leaves terete and 4-grooved. Flowers long-tubed, brown to cream-coloured with brownish speckling, fragrant in the evening. Sept.–Oct. Sandstone slopes, KM, SE (Oudtshoorn to Limpopo).

nigromontanus Goldblatt Cormous geophyte, 30–40 cm, tunics woody. Leaf blades short, terete with 4 grooves. Flowers long-tubed, white with red streaks on the lower tepals. Mar. Wet sandstone slopes, KM (Swartberg Pass).•

patersoniae F.Bolus Cormous geophyte, 30–50 cm, tunics coarsely fibrous. Leaves terete with 4 grooves. Flowers bell-like, blue to pearly grey with yellow markings on the lower tepals, fragrant. Aug.–Oct. Rocky sandstone slopes, SW, KM, SE (Worcester to Great Winterhoek Mtns).•

recurvus L. VOORLOPERTJIE Like **G. gracilis** but flowers long-tubed with attenuate tepals, grey to cream or pinkish, fragrant. June–Oct. Clay flats and lower slopes, NW, SW (Ceres to Somerset West).•

sufflavus (G.J.Lewis) Goldblatt & J.C.Manning Cormous geophyte, 45–70 cm, tunics fibrous. Leaves slender, cross-shaped in section, sheaths hairy. Flowers bell-like, greenish yellow, fragrant. Aug.–Sept. Marshy sandstone soils, NW (Bokkeveld Mtns).•

trichonemifolius Ker Gawl. (= *Gladiolus citrinus* Klatt, *G. tenellus* auct. non Jacq.) Cormous geophyte, 10–25 cm, tunics woody. Leaves terete and 4-grooved. Flowers funnel-shaped, sometimes actinomorphic, yellow to whitish, occasionally with a dark centre, usually fragrant. July–Oct. Wet sandy flats, 50–1 000 m, NW, SW, AP (Hopefield and Ceres to Bredasdorp).•

tristis L. MARSH AFRIKANER, TROMPETTERS Cormous geophyte, 40–150 cm, tunics fibrous. Leaves slender, cross-shaped in section. Flowers long-tubed, cream-coloured with brown shading, fragrant in evening. Aug.–Dec. Usually marshy sites on sandstone, clay, or limestone soils, NW, SW, AP, KM, LB, SE (Bokkeveld Mtns to Port Elizabeth).•

E.' Leaves plane or ribbed

acuminatus F.Bolus Cormous geophyte, 20–30 cm, tunics fibrous. Leaves linear. Flowers long-tubed, tepals attenuate, greenish yellow, fragrant. Aug.–Sept. Stony clay soils, SW (Caledon to Bredasdorp).•

albens Goldblatt & J.C.Manning Cormous geophyte, 30–40 cm, tunics fibrous. Leaves linear, blades often short. Flowers long-tubed, white to cream-coloured, fragrant. Mar.–May. Grassy slopes, SE (George to Alexandria).

angustus L. Like **G. carneus** but flowers with tube much longer than tepals, white to cream-coloured with red markings on lower tepals. Oct.–Nov. Streams and marshes on sandstone soils, NW, SW (Cedarberg to Cape Peninsula).•

aquamontanus Goldblatt Cormous geophyte, 40–100 cm, tunics papery. Leaves sword-shaped, stems inclined to drooping. Flowers long-tubed, mauve-pink with purple markings on lower tepals. Nov.–Dec. Streams and wet cliffs, KM (Swartberg).•

arcuatus Klatt Cormous geophyte, 8–30 cm, tunics papery. Leaves narrowly sword-shaped, velvety below. Flowers bilabiate, greyish mauve with yellow lower tepals, windowed, fragrant. June–Aug. Gravelly flats and slopes, NW (Namaqualand to Trawal). **gce**

atropictus Goldblatt & J.C.Manning Cormous geophyte to 40 cm, tunics fibrous. Leaves linear, midribs and margins slightly raised. Flowers bilabiate, blue with reddish streaking on lower tepals, fragrant. July–Aug. Rocky sandstone slopes, SW (Riviersonderend Mtns).•

bilineatus G.J.Lewis Cormous geophyte, 20–40 cm, tunics papery. Leaves sword-shaped, blades often short, 6–8 mm wide. Flowers pink, perianth tube 50–70 mm. Mar.–Apr. Clay and loamy sand, fynbos, LB (southern foothills of the Langeberg: Swellendam to Albertinia).•

blommesteinii L.Bolus Cormous geophyte, 30–60 cm, tunics woody. Leaves linear with raised margins. Flowers bilabiate, mauve or pink with dark streaks on lower tepals, bracts ridged. Aug.–Oct. Sandstone slopes in fynbos, SW (Du Toitskloof to Hottentots Holland and Riviersonderend Mtns).•

buckerveldii (L.Bolus) Goldblatt Cormous geophyte, 80–120 cm, tunics papery. Leaves sword-shaped, stem inclined to drooping. Flowers long-tubed, cream-coloured with red markings on lower tepals, bracts large. Dec.–Jan. Rocky stream banks and waterfalls, NW (Cedarberg).•

bullatus Thunb. ex G.J.Lewis CALEDON BLUEBELL Cormous geophyte, 50–80 cm, tunics woody. Leaves linear, blades short. Flowers bell-like, blue marked with yellow on lower tepals, bracts ridged. Aug.–Oct. Sandstone slopes in fynbos, SW, AP (Kogelberg to Potberg).•

carinatus Aiton BLOU-AFRIKANER Cormous geophyte, 30–60 cm, tunics fibrous, stem base mottled. Leaves linear, midrib prominent. Flowers bilabiate, blue to violet or yellow, occasionally pink, fragrant. Aug.–Sept. Sandstone slopes or deep coastal sands, NW, SW, AP, LB, SE (Namaqualand to Knysna). **gce**

carmineus C.H.Wright CLIFF GLADIOLUS Cormous geophyte to 35 cm, tunics papery. Leaf blades reduced, sword-shaped. Flowers funnel-shaped, deep pink with white streaks on lower tepals. Feb.–Apr. Coastal sandstone cliffs and rocks, SW, AP (Cape Hangklip to Cape Infanta).•

carneus D.Delaroche PAINTED LADY, BERGPYPIE Cormous geophyte, 25–60 cm, tunics papery. Leaves sword-shaped. Flowers funnel-shaped, pink or white, often with dark pink markings on lower tepals. Mainly Oct.–Nov. Sandstone slopes, often wet sites, to 500 m, NW, SW, LB, SE (S Cold Bokkeveld to Knysna).•

comptonii G.J.Lewis Cormous geophyte, 45–60 cm, tunics fibrous. Leaves linear. Flowers bilabiate, tepals attenuate, yellow with brown streaks on lower tepals. June–July. Rocky sandstone slopes, NW (Heerenlogement Mt).•

crispulatus L.Bolus Cormous geophyte, 35–45 cm, tunics fibrous. Leaves linear, 2-veined. Flowers bilabiate, tepal margins crisped, dark pink, lower tepals with triangular median streaks and dark spots in throat. Nov.–Dec., especially after fire. Rocky sandstone slopes, LB (Langeberg: Swellendam to Riversdale).•

debilis Sims LITTLE PAINTED LADY Cormous geophyte, 35–50 cm, tunics woody. Leaves linear with raised margins. Flowers long-tubed, white with red markings on lower tepals, bracts ridged. Sept.–Oct. Rocky sandstone slopes, SW (Cape Peninsula to Bredasdorp).•

delpierrei Goldblatt Cormous geophyte, 40–45 cm, tunics fibrous. Leaves linear, 2-veined. Flowers bilabiate, yellowish cream-coloured with yellow and red marking on lower tepals. Dec.–Jan. Marshy sandstone slopes, 1 200 m, NW (Cedarberg: Sneeuberg).•

dolichosiphon J.C.Manning & Goldblatt Like **G. bilineatus** leaves 6 or 7 (*vs.* 3), 1.5–6.5 mm wide, flowers with perianth tube 30–55 mm long. Feb. Seasonally moist, sandy slopes at high elevation, KM (Little Karoo Mtns: Rooiberg and Klein Swartberg).•

exilis G.J.Lewis Cormous geophyte, 25–45 cm, tunics fibrous. Leaves linear, blades reduced. Flowers bilabiate, white to pale blue with dark streaks on lower tepals, fragrant. Apr.–May. Clay loam in fynbos, NW, SW (Porterville to Du Toitskloof).•

floribundus Jacq. Cormous geophyte, 15–45 cm, tunics papery. Leaves sword-shaped. Flowers long-tubed, lower tepals smaller, white to pink with dark median streaks. Sept.–Nov. Dry clay, sandy or limestone flats and slopes, NW, SW, AP, KM, LB, SE (Cedarberg to Alexandria).

geardii L.Bolus (= *Gladiolus robustus* Goldblatt) Cormous geophyte, 80–150 cm, tunics papery, stems branched. Leaves sword-shaped. Flowers funnel-shaped, pink with darker markings on lower tepals. Nov.–Jan. Moist sandstone slopes, SE (Humansdorp to Uitenhage).•

grandiflorus Andrews (= *Gladiolus floribundus* subsp. *milleri* (Ker Gawl.) Oberm.) Cormous geophyte, 25–50 cm, tunics papery. Leaves sword-shaped. Flowers funnel-shaped, cream-coloured to greenish, sometimes with darker median streaks on lower or all the tepals. Sept.–Oct. Clay slopes in renosterveld, SW, KM, LB, SE (Botrivier to Port Elizabeth).•

griseus Goldblatt & J.C.Manning Like **G. carinatus** but flowers smaller, greyish with pale yellow markings on lower tepals. May–July. Calcareous, coastal soils in fynbos and strandveld, SW (Saldanha to Milnerton).•

gueinzii Kuntze Cormous geophyte, 25–50 cm, producing aerial cormlets, tunics papery. Leaves linear, leathery. Flowers nearly actinomorphic, funnel-shaped, mauve with purple and white markings. Mainly Oct.–Dec. Coastal sand dunes, AP, LB, SE (Agulhas and Mossel Bay to KwaZulu-Natal).

inflexus Goldblatt & J.C.Manning Cormous geophyte, 15–25 cm, tunics woody. Leaves linear. Flowers bilabiate, pale blue to mauve with dark speckling on lower tepals, fragrant. July–Aug. Rocky, sandstone or limestone flats in fynbos, SW (Worcester and Bredasdorp).•

involutus D.Delaroche Cormous geophyte, 30–50 cm, stoloniferous, tunics papery. Leaves linear. Flowers bilabiate, upper lateral tepals attenuate, lower tepals involute, white with yellow-green markings, often fading pink. Aug.–Oct. Clay slopes in renosterveld and grasslands, LB, SE (Swellendam to East London).

karooicus Goldblatt & J.C.Manning Like **G. venustus** but corm tunics fibrous, flowers yellow, sweetly scented, windowed in side view, upper lateral tepals arching over dorsal and lower tepal claws drawn into spurs at base. Sept. Seasonal streams and drainages in light clay loam, KM (Witteberg foothills and Klein Roggeveld). **gce**

leptosiphon F.Bolus Cormous geophyte, 30–50 cm, tunics fibrous. Leaves linear and whip-like. Flowers long-tubed, upper tepals attenuate, cream-coloured with purple streaks on lower tepals. Oct.–Nov. Dry, stony sandstone slopes, KM, SE (Ladismith to Uitenhage).•

maculatus Sweet BRUINAFRIKANER Cormous geophyte, 30–60 cm, tunics fibrous. Leaves linear, blades often short. Flowers long-tubed, funnel-shaped, brownish with dark speckling, fragrant. Mar.–July. Mainly clay slopes, SW, AP, KM, LB, SE (Cape Peninsula to Grahamstown).

meliusculus (G.J.Lewis) Goldblatt & J.C.Manning KALKOENTJIE Cormous geophyte, 12–25 cm, tunics papery. Leaves falcate, ribbed. Flowers bilabiate, dorsal tepal erect, pink to orange with black and greenish markings on lower tepals, fragrant. Sept.–Oct. Damp sandstone and granite slopes and flats, SW (Hopefield to Cape Peninsula).•

meridionalis G.J.Lewis Cormous geophyte, 35–45 cm, tunics fibrous. Leaves linear, blades usually short. Flowers long-tubed, tube cylindrical, salmon-pink to yellowish cream-coloured, faintly scented. May–July. Sandstone slopes, SW, AP, SE (Pearly Beach to Port Elizabeth).•

monticola G.J.Lewis ex Goldblatt & J.C.Manning Like **G. brevifolius** but flowers long-tubed with tube longer than tepals, pink with red markings on lower tepals. Dec.–Mar. Rocky, sandstone slopes, SW (Cape Peninsula).•

mutabilis G.J.Lewis BROWNIES Cormous geophyte, 25–50 cm, tunics fibrous. Leaf blades short, linear. Flowers bilabiate, purple to pink or brown with purple streaks on lower tepals, fragrant. July–Aug. Sandstone slopes, SW, LB, SE (Albertinia to Grahamstown).•

orchidiflorus Andrews GROENKALKOENTJIE Cormous geophyte, 30–80 cm, tunics papery to fibrous. Leaves linear to sword-shaped. Flowers bilabiate, windowed in profile, greenish to purple with dark purple markings, fragrant. Aug.–Oct. Clay and sandstone soils, NW, SW, KM (Namibia to Cape Flats, to Free State).

oreocharis Schltr. Cormous geophyte, 30–60 cm, tunics papery. Leaves linear, 2-veined. Flowers funnel-shaped, dark pink with red and white markings on lower tepals. Dec.–Jan., mostly after fire. Wet sandstone slopes, 1 000–2 000 m, NW, SW, LB (Cedarberg to Langeberg).•

ornatus Klatt Cormous geophyte, 40–60 cm, tunics papery. Leaves linear, margins thickened. Flowers funnel-shaped, pink with white and red markings on lower tepals. Aug.–Nov. Marshy sandstone and granite slopes, SW (Mamre to Cape Flats).•

pappei Baker Cormous geophyte, 20–35 cm, tunics papery. Leaves linear. Flowers long-tubed, funnel-shaped, dark pink with red and white markings on lower tepals. Oct.–Nov., mainly after fire. Marshes on sandstone slopes, SW (Cape Peninsula and Jonkershoek Mtns).•

permeabilis D.Delaroche Cormous geophyte, 30–50 cm, tunics fibrous. Leaves linear-terete, whip-like. Flowers bilabiate, windowed in profile, cream-coloured to brownish or mauve usually with yellowish markings. Aug.–Oct. Shale slopes in renosterveld, SW, LB, KM, SE (Caledon eastwards throughout southern Africa).

phoenix Goldblatt & J.C.Manning Cormous geophyte, 50–75 cm, tunics papery, stems branched. Leaves sword-shaped. Flowers funnel-shaped, deep pink with red and white markings on lower tepals. Nov.–Dec., only after fire. Wet sandstone slopes above 600 m, SW (Bain's Kloof Mtns).•

pritzelii Diels Cormous geophyte, 30–50 cm, tunics fibrous. Leaves linear, scabrid to pilose. Flowers bell-like, yellow with brown markings on lower tepals, fragrant. Aug.–Oct. Rocky sandstone slopes, 800–2 000 m, NW (W Karoo, Cedarberg to Cold Bokkeveld). **gce**

quadrangulus (D.Delaroche) Barnard Cormous geophyte to 30 cm, tunics fibrous. Leaves linear with prominent midribs. Flowers rotate, actinomorphic, lilac to pink. Aug.–Oct. Wet sandy flats, SW (Darling to Cape Flats).•

rogersii Baker RIVERSDALE BLUEBELL Cormous geophyte, 30–60 cm, tunics fibrous to woody. Leaves linear or solidly terete. Flowers bell-like or bilabiate, blue to purple with yellow or white markings on lower tepals, fragrant. Mainly Sept.–Oct. Sandstone and limestone slopes to 1 000 m, AP, KM, LB, SE (Pearly Beach to Humansdorp).•

roseovenosus Goldblatt & J.C.Manning Cormous geophyte, 20–40 cm, tunics fibrous. Leaf blades reduced, linear. Flowers long-tubed, funnel-shaped, pink with darker streaks. Mar.–Apr. Sandstone slopes, SE (Outeniqua Mtns).•

rudis Licht. ex Roem. & Schult. Like **G. grandiflorus** but leaf bases conspicuously marked with textured white speckles, perianth tube to 20 mm and flowers cream-coloured with spear-shaped markings on lower tepals. Sept.–Oct. Sandstone slopes in fynbos, SW (Grabouw to Elim).•

stellatus G.J.Lewis Cormous geophyte, 20–50 cm, tunics fibrous. Leaves linear, whip-like. Flowers rotate, actinomorphic, white to lilac, fragrant. Sept.–Nov. Clay slopes in renosterveld, AP, KM, LB, SE (Swellendam to Port Elizabeth).•

taubertianus Schltr. Cormous geophyte, 18–25 cm, tunics woody. Leaves linear. Flowers bilabiate, purple with dark streaks, lower tepals with yellow markings. Aug.–Sept. Rocky sandstone soils, NW (Pakhuis Pass to Cold Bokkeveld).•

uitenhagensis Goldblatt & Vlok Like **G. permeabilis** but perianth tube longer, 22–28 mm. Flowers grey-blue or white. Sept.–Oct., only after fire. Rocky sandstone slopes, SE (Hankey to Uitenhage).•

undulatus L. VLEIPYPIE Like **G. carneus** but flowers longer-tubed with tepals attenuate and undulate to crisped, greenish white or cream-coloured, often with red markings on lower tepals. Nov.–Dec. Marshy sandstone slopes, NW, SW (Kamiesberg, Bokkeveld Mtns to Stellenbosch). **gce**

uysiae L.Bolus ex G.J.Lewis Cormous geophyte, 7–20 cm, corm depressed-globose with papery tunics, producing long stolons. Leaves falcate. Flowers bilabiate, dorsal tepal erect, brownish purple with conspicuous dark veining, fragrant. Aug.–Sept. Clay slopes in renosterveld, 600–1 000 m, NW, KM (Bokkeveld Escarpment and W Karoo to Ceres, local in Little Karoo). **gce**

variegatus (G.J.Lewis) Goldblatt & J.C.Manning Cormous geophyte, 20–40 cm, tunics woody. Leaves linear. Flowers funnel-shaped, white to pale pink, lower tepals irregularly spotted with dark red. Sept.–Oct. Limestone outcrops, AP (Gansbaai to Cape Agulhas).•

venustus G.J.Lewis Cormous geophyte, 20–60 cm, tunics woody. Leaves linear to falcate. Flowers bilabiate, lower tepals pinched and geniculate below, purple to pink with yellow lower tepals, fragrant. Aug.–Oct. Clay and sandstone slopes, NW, SW, KM, LB (Bokkeveld Escarpment to Swellendam).•

vigilans Barnard Cormous geophyte, 30–40 cm, tunics woody. Leaves linear, margins and midribs thickened. Flowers long-tubed, pink with darker markings on lower tepals. Oct.–Nov. Sandstone slopes, SW (Cape Peninsula, ?Kogelberg).•

violaceolineatus G.J.Lewis Cormous geophyte, 35–60 cm, tunics fibrous. Leaves linear, midrib winged on one side. Flowers bilabiate, tepals attenuate, blue with violet veins, fragrant. July–Aug. Rocky sandstone slopes, 500–1 000 m, NW (Gifberg to Cedarberg).•

virescens Thunb. Cormous geophyte, 10–25 cm, tunics papery. Leaves linear and ribbed to terete. Flowers bilabiate, dorsal tepals erect, yellow to pink with dark veins, fragrant. Aug.–Sept. Sandstone or clay slopes, NW, SW, KM, LB, SE (Ceres to Port Elizabeth).•

virgatus Goldblatt & J.C.Manning Like **G. blommesteinii** but flowers long-tubed, funnel-shaped, pale to deep pink with red blotches on lower tepals. Sept.–Nov. Rocky, sandstone slopes, SW (Du Toitskloof to Somerset West).•

viridiflorus G.J.Lewis Cormous geophyte, 10–20 cm, stem base speckled, tunics woody. Leaves sword-shaped, twisted. Flowers bilabiate, greenish with purple markings, fragrant. May–July. Rocky sandstone slopes, NW (Orange River to Clanwilliam). **gce**

watermeyeri L.Bolus Cormous geophyte, 10–30 cm, tunics papery. Leaves narrow, ribbed. Flowers bilabiate, windowed in profile, pearly grey with dark veins, lower tepals green, fragrant. July–Sept. Rocky sandstone slopes, NW (Bokkeveld Mtns to Wuppertal).•

wilsonii (Baker) Goldblatt & J.C.Manning Cormous geophyte, 30–50 cm, tunics fibrous. Leaves linear, thickened in midline, whip-like. Flowers many in slender spikes, short-tubed, bilabiate, white or flushed lilac. Oct.–Nov. Open grasslands, SE (Humansdorp to E Cape).

HESPERANTHA Ker Gawl. HESPERANTHA, AANDBLOM 82 spp., sub-Saharan Africa

*A. Flowers pink, yellow or purple (see also **H. acuta**, **H. falcata** and **H. pilosa**)*

ciliolata Goldblatt Like **H. pilosa** but leaves terete or oval in section with four to several deep grooves, scabrid-ciliate on rib edges, and flowers violet, musky scented. Aug.–Sept. Stony sandstone slopes, KM (Voetpadsberg (Touws River) and Roggeveld Escarpment). **gce**

elsiae Goldblatt Cormous geophyte, 25–30 cm. Leaves linear. Flowers long-tubed, bright pink, facing to the side, stamens and style branches included in tube, bract margins united below around spike axis. Dec. Rocky sandstone slopes, NW (Cedarberg).•

fibrosa Baker Cormous geophyte, 8–30 cm, corm rounded, tunics drawn into long fibres above. Leaves sword-shaped, fleshy with thickened margins. Flowers mauve or purple, sometimes white. Aug.–Sept. Clay slopes in renosterveld, SW, LB (Caledon to Heidelberg).•

humilis Baker Acaulescent, cormous geophyte, 3–8 cm, corm rounded. Leaves falcate, glaucous. Flowers long-tubed, pink to reddish. July–Sept. Sandstone and shale slopes in renosterveld, NW, KM (W Karoo and Hex River Mtns to Witteberg). **gce**

malvina Goldblatt Like **H. pilosa** but leaves sparsely long-hairy, and flowers pale mauve, larger with tepals ± 14 × 4–5 mm. Sandstone cliffs, KM (Little Karoo: Anysberg).•

pallescens Goldblatt Cormous geophyte, 10–20 cm, corm rounded, tunics imbricate. Leaves linear, fairly soft. Flowers long-tubed, pale yellow, fragrant. Aug.–Sept. Clay slopes in renosterveld, NW (Olifants River Mtns).•

pauciflora (Baker) G.J.Lewis Cormous geophyte, 8–24 cm, corm with a flat base. Leaves sword-shaped. Flowers pink to purple, occasionally yellow. Aug.–Sept. Sandy and clay soils, NW (Namaqualand to Bokkeveld Plateau). **gce**

sufflava Goldblatt Like **H. falcata** but leaves always 3, crowded at the base, flowers pale yellow and perianth tube 12–16 mm long, exceeding the tepals. Late July–Aug. Sandy gravel slopes in renosterveld, SW (Malmesbury).•

truncatula Goldblatt Cormous geophyte, 8–12 cm, corm rounded. Leaves short, oblong. Flowers pale blue. Aug.–Sept. Dry, N-facing, shale slopes in renosterveld, KM (N foothills of the Klein Swartberg).•

vaginata (Sweet) Goldblatt PERDEBLOM Cormous geophyte, 12–18 cm, corm rounded. Leaves sword-shaped. Flowers large, cup-shaped, yellow usually marked with dark brown. Aug.–Sept. Heavy clay soil, NW (Bokkeveld Escarpment and W Karoo). **gce**

*A.' Flowers white or cream-coloured (see also **H. fibrosa**)*

acuta (Licht. ex Roem. & Schult.) Ker Gawl. Cormous geophyte, 10–30 cm, corm rounded. Leaves linear to sword-shaped, upper leaf sheathing the stem. Flowers yellow or white, fragrant at night. July–Sept. Clay slopes in renosterveld and succulent karoo, NW, KM, SE (Worcester to George, S Karoo). **gce**

bachmannii Baker WITROKKIE Cormous geophyte, 15–30 cm, corm rounded, tunics imbricate. Leaves linear to sword-shaped. Flowers white, nodding on recurved tube, tepals reflexed, sweetly scented. July–Sept. Mostly clay slopes in renosterveld, NW, SW, KM, LB, SE (widespread, Namaqualand to East London).

brevifolia Goldblatt Cormous geophyte, 15–40 cm, corm with oblique flat base. Leaves short, sword-shaped. Flowers white, red on reverse, tube curved outward, bract margins united below around spike axis. Sept.–Nov. Shale and sandstone slopes, NW, SW (Nardouw Mtns to Bain's Kloof).•

cedarmontana Goldblatt Cormous geophyte, 12–25 cm, corm with a flat base. Leaves sword-shaped. Flowers long-tubed, white, stamens included in tube, fragrant. Sept.–Oct. Sandstone outcrops, NW (Pakhuis Mtns to Piketberg).•

cucullata Klatt Cormous geophyte, 15–30 cm, corm rounded. Leaves sword-shaped. Flowers white, red (occasionally brown) on reverse of outer tepals, fragrant. July–Sept. Mostly shale and dolerite soils, mainly renosterveld, NW (W Karoo and Bokkeveld Mtns to Biedouw Valley). **gce**

erecta (Baker) Benth. ex Baker Cormous geophyte, 10–22 cm, corm rounded. Leaves narrowly sword-shaped. Flowers white to cream-coloured, fragrant. Aug.–Sept. Granite outcrops and granitic sands, sandveld and renosterveld, NW, SW (Klawer to Mamre).•

falcata (L.f.) Ker Gawl. BONTROKKIE Cormous geophyte, 6–30 cm, corm with a flat base. Leaves sword-shaped to falcate. Flowers white or yellow, red to brown on reverse, fragrant. July–Oct. Sandstone and shale slopes, widespread, NW, SW, AP, LB, SE (Bokkeveld Mtns to Port Elizabeth).•

juncifolia Goldblatt Cormous geophyte, 18–20 cm, corm with a flat base. Leaves terete. Flowers white, pink on outside, bract margins united below around spike axis. Sept.–Oct. Limestone flats, AP (Agulhas Peninsula).•

lithicola J.C.Manning & Goldblatt Cormous geophyte mostly 8–14 cm. Leaves falcate or twisted, to 2 mm wide. Flower white, red on reverse of outer tepals, opening in late afternoon, tube 10–12 mm long. Sept. Rocky sandstone pavements, NW (Swartruggens).•

marlothii R.C.Foster Cormous geophyte, 4–15 cm, corm with a flat base. Leaves linear, slightly fleshy. Flowers nodding on a recurved tube, cream-coloured, brown or red on outside, bracts ± fused below around spike axis. July–Sept. Sandstone rocks, NW (Bokkeveld Mtns to Cold Bokkeveld and W Karoo). **gce**

montigena Goldblatt Cormous geophyte, 5–15 cm, corm rounded. Leaves oblong, often prostrate, with thickened margins. Flowers white, red on reverse. Oct.–Nov. Sandstone outcrops, 1 000–1 600 m, NW, SW (Worcester Mtns to Jonkershoek).•

muirii (L.Bolus) G.J.Lewis Cormous geophyte, 10–20 cm, corm with a flat base. Leaves linear. Flowers large, nodding, with a recurved tube, large, cream-coloured with pink veins, bract margins fused below around spike axis. Oct.–Nov. Clay slopes in renosterveld, SW, LB (Bredasdorp to Albertinia).•

pilosa (L.f.) Ker Gawl. Cormous geophyte, 10–30 cm, corm rounded. Leaves pilose, the lower 2 linear or sword-shaped, the third leaf sheathing stem. Flowers white, open in the evening or blue to purple and open in the day. Aug.–Oct. Sandstone and clay slopes, NW, SW, AP, LB (Bokkeveld Mtns to Bredasdorp, Langeberg at Cloete's Pass and W Karoo). **gce**

pseudopilosa Goldblatt Like **H. pilosa** but lower 2 leaves lanceolate to oblong, bearing a short, scale-like leaf below spike, flowers always white, greenish to brown on reverse. Aug.–Sept. Clay soils in renosterveld, NW, KM (Bokkeveld Mtns and W Karoo to Klein Swartberg). **gce**

radiata (Jacq.) Ker Gawl. Cormous geophyte, 20–40 cm, corm obliquely flattened below. Leaves short, linear, fleshy. Flowers nodding, tube recurved, white to cream-coloured, red to brown on reverse, bract margins fused below around spike axis. Aug.–Oct. Sandstone, granite and clay soils, fynbos and renosterveld, NW, SW, KM, LB, SE (widespread, Namaqualand to Swaziland).

rivulicola Goldblatt Cormous geophyte, 15–30 cm, corm rounded. Leaves subterete, inflated and hollow. Flowers white, brown on reverse. Sept. Along streams, NW (Bokkeveld Mtns to Calvinia). **gce**

saldanhae Goldblatt Cormous geophyte, 15–25 cm, corm obliquely flattened below. Leaves sword-shaped. Flowers small, white, stamens and style branches included in tube. Aug. Granite outcrops, SW (Vredenburg).•

spicata (Burm.f.) N.E.Br. KANEELTJIE Cormous geophyte, 12–35 cm, corm with flat base. Leaves terete and hollow or lanceolate to falcate and margins sometimes crisped. Flowers small, white, dark on reverse, sweetly cinnamon-scented especially in the evening. Aug.–Sept. Clay and sandy soils, NW, SW (Piketberg to Cape Peninsula).•

IXIA L. IXIA, KALOSSIE ± 85 spp., Namaqualand to E Cape

Dichone **group**

A. Flowers with horizontal to drooping, unilateral anthers

collina Goldblatt & Snijman Cormous geophyte, 50–90 cm. Leaves sword-shaped. Flowers pale pink, tube filiform, anthers broadly oblong with a right-angled bend near base, unilateral, and nodding. Aug.–Sept. Shale hills in renosterveld, SW (Breede River Valley near Worcester).•

erubescens Goldblatt KLEINAGRETJIE Cormous geophyte, 12–30 cm. Leaves lanceolate in outline, margins undulate and crisped or entire blade undulate. Flowers pink, tube filiform, short, anthers oblong, unilateral and horizontal. Aug.–Sept. Clay flats and slopes in renosterveld, often seasonally wet sites, NW, SW (Piketberg to Caledon).•

scillaris L. AGRETJIE Cormous geophyte, 25–50 cm. Leaves (3–)4–7 in 2-ranked fan, sword-shaped to falcate, margins sometimes undulate. Flowers pale or deep pink or white, tube filiform,

anthers oblong, unilateral and drooping. Mainly Aug.–Oct. Sand and clay flats and slopes, NW, SW (Namaqualand and Matsikamma Mtns to Peninsula and Gordon's Bay). **gce**

simulans Goldblatt & J.C.Manning Like **I. scillaris** but leaves 2(3), uppermost sheathing for most of its length, blades linear to narrowly sword-shaped, with 1 or (when broader) 3 main veins, flowers few in a lax spike, deep pink to purple. Sept.–Oct. Sandstone slopes, NW, LB (Langeberg: Robertson to Swellendam).•

A.' Flowers with upright anthers arranged symmetrically

altissima Goldblatt & J.C.Manning Slender geophyte to 1 m or more. Leaves ± linear with thickened margins and central vein. Flowers 14–20 in a straight, dense spike, mauve-pink, perianth tube funnel-shaped, ± 4 mm long, bracts dry. Nov.–Dec. Marshy places at high elevation, NW (interior Cedarberg).•

bifolia Goldblatt & J.C.Manning Like **I. trinervata** but foliage leaf narrower, with single prominent vein, flowers somewhat smaller with tepals slightly cupped, style branches tubular, ± straight and ascending, rose-scented. Aug.–Sept. Stony, loam slopes, SW (Caledon: Shaw's Mtns to Drayton).•

confusa (G.J.Lewis) Goldblatt & J.C.Manning Cormous geophyte to 40 cm. Leaves usually 2, lower basal, upper largely sheathing, blades plane, linear to sword-shaped. Flowers pink, rose-scented, tube filiform, 3–4 mm long, anthers oblong, ± 2 mm long. Aug.–Sept. Lower mountain slopes, often on clay loam, SW, KM, LB (Stettynsberg to Langeberg and Swartberg).•

micrandra Baker Slender, cormous geophyte, 25–50 cm, unbranched. Leaves 2, lower with linear blade less than 1.5 mm wide, upper leaf entirely sheathing. Flowers pink, tube filiform, anthers oblong-linear, style branches filiform, ± straight. July–Sept. Mostly sandstone slopes, occasionally on limestone, SW, AP (Houwhoek Mtns to De Hoop).•

minor (G.J.Lewis) Goldblatt & J.C.Manning Like **I. micrandra** but foliage leaf terete or subterete, filaments flattened, narrowed at tips, anthers suborbicular, style branches tubular and curved. Aug.–Sept. Sandstone slopes, SW (Wemmershoek Mtns to Kleinmond).•

stricta (Eckl. ex Klatt) G.J.Lewis Cormous geophyte, 35–55 cm. Leaves sword-shaped, often dry at flowering. Flowers pale to deep pink, tube filiform, anthers oblong. Nov.–Dec. Lower sandy loam slopes in renosterveld, SW (Caledon to Bredasdorp).•

trifolia G.J.Lewis Cormous geophyte, 15–30 cm, often with 1–3 three short, spreading branchlets. Leaves with lower 2 or 3 sword-shaped to falcate, with thickened margins, upper leaf mostly sheathing. Flowers 5–9 in a lax spike, deep pink, throat yellow edged deep pink, tube filiform, 3–4 mm long, tepals spreading, 14–20 mm long. Sept.–Oct. Rocky slopes, KM (Roggeveld escarpment to Witteberg foothills). **gce**

trinervata (Baker) G.J.Lewis Cormous geophyte, 20–40 cm. Leaves 2, lowermost lanceolate, with 3 prominent veins, upper leaf entirely sheathing. Flowers pink, pale in throat, tube filiform, anthers oblong, style branches recurved. Sept. Rocky slopes, SW (Elgin to Riviersonderend).•

Ixia group

*A. Flowers yellow to orange (see also **I. abbreviata, I. polystachya**)*

calendulacea Goldblatt & J.C.Manning Cormous geophyte, 30–60 cm, corms with long stolons, tunics softly fibrous. Leaves lanceolate or broadly sword-shaped, twisted above, bracts rusty in upper half. Flowers orange with large, dull red to brown centre, tube filiform, filaments brown, united below or entirely. Sept.–Oct. Mostly deep sands or limestone flats and slopes, sandveld and strandveld, NW, SW (coastal Namaqualand to Saldanha, Bellville, Cape Peninsula). **gce**

curta Andrews Cormous geophyte, 15–40 cm. Leaves sword-shaped. Flowers orange with a brownish centre, tube filiform, 10–15 mm long, filaments united; bracts with prominent dark brown cusps. Sept.–Oct. Sandy flats and slopes, SW (Hopefield to Malmesbury and Darling).•

dubia Vent. (= *Ixia frederickii* M.P.de Vos) Cormous geophyte, 25–60 cm. Leaves sword-shaped to nearly linear. Flowers orange to yellow, occasionally scarlet, usually brown in centre, tube filiform, bracts translucent pink. Oct.–Dec. Sandstone and granite flats and slopes, NW, SW, AP (Piketberg to Caledon).•

maculata L. KORINGBLOM Cormous geophyte, 20–50 cm, corms with short or long stolons, tunics membranous to papery. Leaves narrowly sword-shaped, bracts large, dry, rusty above or entirely. Flowers orange or yellow with shallow, dark brown cup often with star-like pattern in centre, tube filiform, filaments united below (rarely free), yellow. Sept.–Oct. Wet, sandy or granitic flats and rocky outcrops, mostly in renosterveld, NW, SW (Piketberg to Melkbos).•

A.' Flowers white to mauve, green or red
*B. Style dividing at or above top of filaments (but see **I. polystachya**)*

campanulata Houtt. ROOIKALOSSIE Cormous geophyte, 10–35 cm. Leaves linear. Flowers crowded terminally, white or bright red, tube short and filiform. Oct.–Nov. Damp sandstone slopes, NW, SW (Tulbagh to Worcester).•

flexuosa L. WAAIKALOSSIE Cormous geophyte, 35–65 cm, stems wiry, often unbranched. Leaves linear. Flowers in congested spikes, pink, mauve or white, honey-suckle-scented, tube filiform. Mainly Aug.–Sept. Mostly clay flats and slopes, SW, AP, LB (Cape Peninsula to Riversdale).•

leucantha Jacq. Like **I. patens** but plants shorter, leaves lanceolate, with prominent main vein, flowers somewhat larger, entirely white, evidently unscented. Oct.–Nov. Clay slopes and flats in renosterveld, SW (Elim).•

metelerkampiae L.Bolus Cormous geophyte to 70 cm. Leaves linear. Flowers crowded terminally, pink to lilac with a purple centre outlined white, tube filiform. Nov.–Dec. Sandstone slopes, SW (Bain's Kloof to Paarl).•

monadelpha D.Delaroche BONTKALOSSIE Cormous geophyte, 15–40 cm. Leaves sword-shaped. Flowers shades of turquoise to purple, rarely whitish, with blackish centre, tube filiform, filaments united, black; bracts with prominent dark brown cusps. Sept.–Oct. Wet, sandy flats and lower slopes, SW (Darling to Cape Peninsula).•

mostertii M.P.de Vos Cormous geophyte, 35–45 cm, stem with a fibrous neck. Leaves narrow. Flowers crowded terminally, pink, mauve or white with a dark centre, tube filiform. Sept.–Oct. Clay slopes in renosterveld, NW (Romans River to Worcester).•

patens Aiton Cormous geophyte, mostly 40–50 cm. Leaves usually linear. Flowers crowded terminally, deep pink (rarely red), slightly darker toward centre, pale yellow-green at base, tube filiform; faintly honey-suckle-scented. Sept.–Oct. Clay slopes in renosterveld, NW, SW (Tulbagh to Riviersonderend).•

superba J.C.Manning & Goldblatt Cormous geophyte to 60 cm. Leaves lanceolate, twisted. Flowers crowded terminally, salver-shaped, pale to deep pink, purple to blackish in centre, slightly scented, tube filiform, tepals united below in a wide cup, stamens blackish. Aug.–Sept. Loamy lower slopes, KM (Little Karoo: Montagu).•

vanzijliae L.Bolus Cormous geophyte, 18–40 cm. Leaves sword-shaped in outline, twisted with margins undulate. Flowers brick-red with dark centre, tube filiform. Aug.–Sept. Clay flats, NW (Worcester to Bonnievale).•

sp. 1 (*Ixia roseoalba* Goldblatt & J.C.Manning *ms.*) Like **I. polystachya** but leaves linear, flowers pale pink with white centre, anthers yellow, ovate with broad connective, splitting laterally, style dividing opposite lower third of anthers, faintly rose-unscented; outer bracts mostly 3-toothed. Mid Aug.–Sept. Stony limestone or sandstone banks, NW (western Langeberg: Robertson to Montagu).•

B.' Style dividing ± at mouth of perianth tube

abbreviata Houtt. (= *Ixia conferta* R.C.Foster, *I. lutea* Eckl.) Cormous geophyte, 15–35 cm. Leaves sword-shaped, often twisted distally. Flowers crowded terminally, white to palest yellow or red-purple, with dark centre, tube filiform, bracts usually rust-brown in upper half. Aug.–Oct. Clay and granitic flats and slopes in renosterveld, NW, SW (Citrusdal to Paarl and Darling).•

atrandra Goldblatt & J.C.Manning Cormous geophyte to 50 cm. Leaves narrowly lanceolate, usually four, stem 1- or 2-branched. Flowers crowded terminally, pink or cream-coloured with large dark centre, tube filiform, stamens fully exserted, blackish, anthers broad, arrow-shaped with exposed connective. Sept.–Oct. Renosterveld, SW (Bosjesveld: Villiersdorp to Breede River).•

gloriosa G.J.Lewis Cormous geophyte, 35–65 cm, stem wiry, with several, short, few-flowered branches. Leaves linear. Flowers deep pink with a purple-black centre, tube filiform. Aug.–Sept. Clay slopes in renosterveld, KM (Barrydale District).•

polystachya L. Cormous geophyte, 40–80 cm, corms with stolons. Leaves linear to sword-shaped. Flowers crowded terminally, white, pink or mauve, or yellow often with darker centre, sometimes yellow, tube filiform, rarely faintly fragrant. Oct.–Dec. Granitic and sandstone slopes and flats, NW, SW (Cedarberg to Caledon).•

rouxii G.J.Lewis Cormous geophyte, 35–50 cm, stem with widely spreading branches. Leaves linear. Flowers few, crowded terminally, mostly bluish to purple, with dark centre, tube filiform. Oct.–Nov. Clay flats, NW, SW (upper Tulbagh Valley and Porterville to Wellington).•

stolonifera G.J.Lewis Cormous geophyte, 20–50 cm, corms with slender stolons. Leaves sword-shaped. Flowers crowded terminally, small, mauve with purple centre, tube filiform, bracts with long-attenuate cusps. Sept. Sandstone slopes, ± 1 000 m, KM (Montagu: Keisiesberg).•

versicolor G.J.Lewis Cormous geophyte, 15–35 cm. Leaves linear, twisted, with margins thickened, raised and crisped. Flowers crowded terminally, white or purple with dark centre, tube filiform. Oct. Sandy flats, SW (Simondium and Somerset West to Gordon's Bay).•

vinacea G.J.Lewis Cormous geophyte, 40–45 cm, stem with a fibrous neck. Leaves linear, firm and fibrotic, usually exceeding spike. Flowers few, crowded terminally, red with dark centre, evidently unscented, tube filiform. Aug.–Sept. Stony clay flats, NW (Tulbagh).•

viridiflora Lam. GROENKALOSSIE Cormous geophyte, 50–100 cm, stem with several, short, few-flowered branches. Leaves narrow. Flowers in elongate, lax spikes, green to pale blue with dark purple-black centre, tube filiform. Sept.–Oct. Rocky, mostly clay slopes, NW (Tulbagh to Wolseley).•

sp. 2 (*Ixia sarmentosa* Goldblatt & J.C.Manning *ms.*) Like **I. rouxii** but corm small, with finely fibrous to papery tunics, and mostly bearing slender stolons from base, flowers pale yellow (occ. white) with dark green to brown centre, style branches and filaments often purple, evidently unscented. Oct.–Nov. Clay slopes and flats in renosterveld, SW (Porterville to Kleinmond and Hermanus).•

Morphixia group

A. Perianth tube ± cylindrical, usually > 20 mm long

bellendenii R.C.Foster Like **I. longituba** but flowers white, pink on reverse, perianth tube 35–40 mm long, style branches short, 1.5–2 mm long. Mainly Nov. Rocky, sandstone slopes, SW (western Riviersonderend Mtns).•

cedarmontana Goldblatt & J.C.Manning Like **I. paucifolia** but corm tunics of fine netted fibres, leaves sword-shaped to sublinear, not falcate, flowers white or pink, yellow in tube, open at night and strongly scented, perianth tube mostly 16–25 mm long. Mostly Oct.–Nov. Sandstone slopes, often in marshy sites, NW (Cedarberg to Grootwinterhoek Mtns).•

dolichosiphon Goldblatt & J.C.Manning Like **I. pauciflora** but flowers pale lilac veined purple outside, tube 15–18 mm long, and filaments exserted no more than 1.5 mm (*vs.* 2 mm). Mainly Aug. S-facing, stony, sandstone slopes, NW (Langeberg near De Wet).•

linderi Goldblatt & J.C.Manning Cormous geophyte, 30–45 cm, unbranched, corm with tunics of fine fibres. Leaves 3 or 4, ± linear with prominent central vein. Flowers 2–6 per spike, white or faintly pink, flushed pale pink outside, tube subcylindric, 18–20 mm long, stamens and style included in tube. Nov. Stony sandstone slopes, NW (Piketberg: Zebrakop).•

longituba N.E.Br. Cormous geophyte, 25–70 cm. Leaves sword-shaped. Flowers pink (rarely white), tube cylindrical, 12–33(–35) mm long, style branches slender, 3–5 mm long. Sept.–Oct. Shale slopes, SW, AP, LB (Caledon to Swellendam).•

paniculata D.Delaroche PYPKALOSSIE Cormous geophyte, 40–100 cm. Leaves sword-shaped. Flowers white to beige, tube elongate, (35–)45–75 mm long, stamens and style branches usually included in tube, anthers dark. Oct.–Dec. Wet sandy slopes and flats, NW, SW (Bokkeveld Mtns to Kleinmond).•

paucifolia G.J.Lewis Cormous geophyte, 12–30 cm, with corm tunics of coarse, wiry fibres. Leaves linear to lanceolate, sometimes falcate. Flowers white to beige, tube 24–34 mm long, cylindrical, filaments exserted 2 mm from tube. Sept.–Nov. Stony, middle to upper, mountain slopes, NW, KM (Hex River Mtns and Bonteberg to Ladismith).•

splendida G.J.Lewis Cormous geophyte, 30–60 cm. Leaves linear. Flowers pink, tube ± cylindrical, 27–30 mm long, stamens and style included in tube. Oct.–Nov. Mountain slopes, NW (Piketberg: Zebra Kop).•

stenophylla Goldblatt & J.C.Manning (= *Ixia fucata* var. *filifolia* G.J.Lewis) Cormous geophyte to 40 cm, usually unbranched. Leaves 3, lower linear-filiform, to 1.2 mm wide, with heavily thickened main vein. Flowers white, marked with purple lines at tepal bases and veins outside, perianth tube cylindrical, (12–)15–20 mm long. Late Sept.–Nov. Sandstone slopes, SW, NW (Hex River and Riviersonderend Mtns).•

*A.' Perianth tube funnel-shaped or flared evenly from base, 3–22 mm long (but see **I. ecklonii** and **I. longituba**)*
B. Foliage leaves 2, linear-filiform, < 1.5 mm wide, without evident central vein when alive

capillaris L.f. Cormous geophyte, 20–45 cm. Leaves linear, very narrow. Flowers white to blue or mauve, tube funnel-shaped, filaments exserted. July–Sept. Mainly clay slopes, NW, SW, KM, LB (Piketberg and Cedarberg to Riversdale).•

dieramoides Goldblatt & J.C.Manning Cormous geophyte, 20–45 cm. Leaves; 2 basal, linear-filiform. Flowers pale blue, mauve or watery pink, tube funnel-shaped, anthers partly included. Aug.–Sept. Rocky sandstone slopes, NW, KM (S Cedarberg, Bonteberg and Voetpadsberg to Montagu).•

exiliflora Goldblatt & J.C.Manning Cormous geophyte, 20–45 cm. Leaves: 2 basal, linear-filiform, without visible central vein, upper leaf entirely sheathing. Flowers blue-mauve or white with pale yellow cup, tube funnel-shaped, anthers partly included. July–Sept. Mainly clay slopes, NW, KM (Hex River Mtns to Koo).•

pauciflora G.J.Lewis Cormous geophyte, 20–40 cm, usually with a few short branches. Leaves linear, very narrow. Flowers white or pink to mauve, tube elongate and wide, 15–18 mm long, stamens unilateral, filaments exserted 2–6 mm, style branches 3–4.5 mm long. Aug.–Sept. Sandstone soils in fynbos, NW (Cedarberg to Gydo Pass).•

reclinata Goldblatt & J.C.Manning Like **I. pauciflora** but flowers zygomorphic with declinate stamens, anthers curved upward, filaments exserted 8–10 mm, perianth tube 13–15 mm long, style branches 4.5–5 mm long. Aug.–Sept. Clay slopes, SW (Theewaterkloof hills).•

B.' Foliage leaves 1–5, variously shaped but when linear-filiform the central vein evident when alive
*C. Filaments included, reaching but not exceeding rim of upper part of tube (but see **I. divaricata**)*

contorta Goldblatt & J.C.Manning Cormous geophyte, 10–30 cm, with short, twisted branchlets, corm tunics of dark, wiry fibres. Leaves 3, lower two lanceolate to falcate, margins thickened, upper leaf entirely sheathing. Flowers 2–6 in a wiry, twisted spike, erect, blue-purple with yellow-green throat edged dark purple, unscented, tube funnel-shaped, 9–14 mm long, filaments included. Sept.–Oct. Sandy flats and plateaus, NW, KM (Cedarberg and Cold Bokkeveld to Touws River).•

leipoldtii G.J.Lewis Cormous geophyte, 11–25 cm. Leaves sword-shaped. Flowers white with dark purple centre, tube funnel-shaped, ± 11 mm long, filaments included. Sept. Clay soils in renosterveld, KM (Barrydale District).•

mollis Goldblatt & J.C.Manning (= *Ixia flaccida* (G.J.Lewis) Goldblatt & J.C.Manning) Cormous geophyte, (15–)40–70 cm, corm tunics of fine, wiry fibres, stem with short, twisted branchlets. Leaves usually 3, linear, soft, uppermost sheathing the stem. Flowers few in a wiry spike, nodding, white or flushed pale blue, sweetly scented, perianth tube funnel-shaped, 8–10 mm long, shorter than tepals, filaments included. Aug.–Sept. Shady, S-facing, sandy slopes, NW (Olifants River Valley and adjacent valleys).•

namaquana L.Bolus (= *Ixia rapunculoides* var. *namaquana* (L.Bolus) G.J.Lewis) NAMAQUA KALOSSIE Cormous geophyte, 15–70 cm, stem with short lateral branchlets. Leaves 3, sword-shaped to falcate, uppermost leaf sheathing the stem. Flowers few in a straight spike, half nodding, white to pale mauve or pink, often sweetly scented, perianth tube funnel-shaped, 13–16 mm, filaments included. Aug.–Sept. Mostly sandy soils in fynbos, NW (S Richtersveld to N Cedarberg). **gce**

oxalidiflora Goldblatt & J.C.Manning Cormous geophyte, (15–)40–70 cm, corm with soft tunics, producing stolons, stem usually with short, twisted branchlets. Leaves usually 3, linear, soft, uppermost sheathing the stem. Flowers few in a wiry spike, pink with white throat, sweetly scented, perianth tube funnel-shaped, 16–22 mm long, filaments and anthers included. Aug.–Sept. Shale and clay slopes, NW, KM (Hex River Mtns to Witteberg).•

rapunculoides Delile BLOUKALOSSIE Cormous geophyte, 15–70 cm, with short lateral branchlets. Leaves usually 3, lower 2 sword-shaped to falcate, uppermost sheathing the stem. Flowers few in a wiry spike, half nodding, faintly rose-scented, blue-mauve occasionally pink with yellow

cup, perianth tube funnel-shaped, 6–9 mm long, filaments included. Aug.–Sept. Mostly clay soils in renosterveld, NW (W Karoo and Bokkeveld Mtns to Roggeveld). **gce**

recondita Goldblatt & J.C.Manning Like **I. stohriae** but flowers shell-pink, tube 10–12 mm long, stamens and style branches included in lower part of tube. Sept.–Oct. S-facing mountain slopes, 300–800 m, LB (Langeberg: local W of Swellendam).•

saundersiana Goldblatt & J.C.Manning Cormous geophyte to 20 cm. Foliage leaf solitary, ± linear, to 3 mm wide, with margins and central veins thickened. Flowers blue-mauve, yellow in throat, filaments included in tube, anthers fully exserted. (?Nov.)–Dec. Damp cliffs, NW (Hex River Mtns: Milner Peak).•

sobolifera Goldblatt & J.C.Manning Cormous geophyte, 15–70 cm, corms with stolons, stem usually branched. Leaves narrowly sword-shaped to linear, uppermost leaf entirely sheathing. Flowers pink, grey-blue or white, tube funnel-shaped, filaments included. Aug.–Sept. Mostly clay soils in renosterveld, NW, KM (E Namaqualand and W Karoo and Bokkeveld Mtns to Little Karoo). **gce**

stohriae L.Bolus Cormous geophyte, 15–30 cm. Leaves linear. Flowers pink or white, unscented, tube 12–20 mm long, filaments included in long, narrowly funnel-shaped tube, anthers exserted or partly to fully included. Sept.–Oct. Mountain slopes, 300–800 m, LB (Langeberg: Swellendam to Grootvadersbos).•

C.' Filaments exserted at least 0.5 mm from tube, thus anthers fully exserted

aurea J.C.Manning & Goldblatt Cormous geophyte, 15–40 cm. Leaves sword-shaped, loosely coiled above. Flowers orange, tube narrowly funnel-shaped, ± filiform below, bracts translucent. Sept.–Oct. Granite and sandy slopes, NW, SW (Paleisheuwel to Malmesbury and Darling).•

brunneobracteata G.J.Lewis Cormous geophyte, 25–45 cm, corms with stolons. Leaves linear, narrow. Flowers white with yellow throat, occasionally fading pink, tube funnel-shaped, bracts glossy, dark brown. Sept.–Oct. Sandstone soils in seasonally wet places, NW (Bokkeveld Mtns).•

cochlearis G.J.Lewis Cormous geophyte, 20–40 cm. Leaves linear. Flowers rose to salmon-pink with dark veins, tube narrowly funnel-shaped. Nov. Lower mountain slopes, SW (Stellenbosch Mtns).•

divaricata Goldblatt & J.C.Manning Cormous geophyte, 30–50 cm, mostly with 2 or 3 long straight branches with flowers crowded distally. Leaves sword-shaped to linear. Flowers mostly 4 to 7 in dense spikes, white to pink (purple), with yellow cup, tube funnel-shaped, 8–11 mm long, filaments usually exserted 1–2 mm, occasionally reaching top of tube. Mainly Oct.–Nov. Seasonally wet, stony, sandstone slopes and flats, NW (Cold Bokkeveld to Hex River Mtns).•

ecklonii Goldblatt & J.C.Manning Cormous geophyte to 50 cm, stem with 2–4 short, wiry branchlets, each 1-flowered. Leaves 3, lower two with lanceolate blades, upper leaf entirely sheathing. Flowers single per branch, held horizontally, colour white?, filaments exserted 1.5 mm. Sept. ?, NW (Olifants River Valley).•

esterhuyseniae M.P.de Vos Cormous geophyte, 10–15 cm. Leaves linear. Flowers yellow, red on reverse, tube funnel-shaped. Dec.–Jan. Sandstone rocks, SW (Jonkershoek and Hottentots Holland Mtns).•

fucata Ker Gawl. Cormous geophyte, 15–40 cm. Leaves linear. Flowers white to pale pink, often dark red at tepal bases, outer tepals usually red outside, tube elongate, 10–15 mm, ± cylindrical. Sept.–Nov. Sandstone mountain slopes, NW (Waaihoek Mtns to Montagu).•

latifolia D.Delaroche Cormous geophyte, 15–40 cm, with 1 or 2 sturdy, twisted or straight branches, flowers occasionally crowded distally. Leaves broad, often falcate. Flowers ascending or often facing the side, pink to mauve, occasionally red, tube narrowly funnel-shaped, 7–18 mm long, filaments exserted 6–8 mm from tube. Sept.–Nov. Mostly clay and stony sandstone soils in renosterveld or arid fynbos, NW, KM (Cold Bokkeveld and Worcester to Little Karoo: Gamkaberg, Tanqua Karoo). **gce**

marginifolia G.J.Lewis Cormous geophyte up to 50 cm, stem with several short, spreading branchlets. Leaves broadly sword-shaped to falcate, margins strongly thickened. Flowers mostly 2 or 3 per spike, pale blue-mauve, pink or white, perianth tube widely funnel-shaped, 2.5–4 mm long, tepals 10–14 mm long, filaments well exserted. Aug.–Oct. Mainly renosterveld, stony slopes and flats, KM (Witteberg and Western and Upper Karoo).

monticola Goldblatt & J.C.Manning Cormous geophyte, 8–25 cm, mostly unbranched or with 1 or 2 short branchlets. Leaves 2–4, narrowly sword-shaped to linear, upper entirely sheathing. Flowers mostly 2 or 3 per spike, pink with yellow throat, tube funnel-shaped, ± 10 mm long, filaments exserted 2–3 mm. Dec.–Jan. Rocky slopes and cliffs above 1 200 m, SW (Wemmershoek Mtns to Victoria Peak).•

odorata Ker Gawl. SOETKALOSSIE Cormous geophyte, 20–50 cm. Leaves linear to lanceolate, often coiled above. Flowers small, in dense spikes, pale yellow, fragrant, tube funnel-shaped. Sept.–Nov. Sandstone and granite slopes, NW, SW (Citrusdal to Stanford).•

orientalis L.Bolus Cormous geophyte, 25–70 cm. Leaves linear. Flowers white or pink, tube narrowly funnel-shaped, ± filiform below. Sept.–Oct. Flats and slopes, SW, AP, KM, LB, SE (Villiersdorp to Port Alfred).

pumilio Goldblatt & Snijman Cormous geophyte, 12–20 cm. Leaves linear. Flowers brick-red with dark veins, tube funnel-shaped. Aug.–Sept. Sandy alluvial flats, SW (Breede River Valley near Worcester).•

purpureorosea G.J.Lewis Cormous geophyte, 20–60 cm, stem wiry, corm with flattened stolons bearing multiple cormlets. Leaves sword-shaped. Flowers mauve-pink, purple in tube, tube filiform below, flared in upper third. Sept.–Oct. Limestone and calcareous sands in strandveld, SW (Saldanha Bay).•

ramulosa (G.J.Lewis) Goldblatt & J.C.Manning Cormous geophyte, 23–75 cm, with several short, wiry branchlets. Leaves 3, lower 2 sword-shaped, upper leaf sheathing. Flowers 1–3 per branch, white to pale blue-mauve with yellow cup (red-purple or mauve with white cup elsewhere), tube narrowly funnel-shaped, 7–10 mm long, filaments exserted 2–4 mm. Aug.–Sept. Clay soils in arid fynbos, NW (Namaqualand to Bokkeveld and Kobee Mtns). **gce**

tenuifolia Vahl (= *Ixia framesii* L.Bolus) Cormous geophyte, 15–40 cm. Leaves linear. Flowers yellow to orange or red with dark centre, tube narrowly funnel-shaped, only slightly wider above. Sept.–Oct. Sandy flats, SW (Darling to Kalbaskraal).•

KLATTIA Baker• KWASBOS 3 spp., W Cape

flava (G.J.Lewis) Goldblatt Evergreen shrub, 80–130 cm. Leaves lanceolate. Flowers in congested, brush-like heads, bright yellow, style shortly exceeding tepals, inflorescence bracts pale green. Nov.–Dec. Mountain slopes in fynbos, 400–1 250 m, SW (Bain's Kloof to Mt Lebanon).•

partita Baker Evergreen shrub, 60–120 cm. Leaves narrowly lanceolate. Flowers in congested, brush-like heads, dark purple-black, styles not reaching tepal apices, inflorescence bracts green. Oct.–Dec. Mountain slopes, 600–1 250 m, SW, LB (Cape Peninsula, Hottentots Holland Mtns, Kogelberg and Langeberg).•

stokoei L.Guthrie Like **K. partita** but leaves lanceolate and flowers and inflorescence bracts bright red, styles exceeding tepals. Dec.–Feb. Mountains slopes in seeps, SW (Kogelberg and Palmiet River Mtns).•

LAPEIROUSIA Pourr. LAPEIROUSIA, CABONG 42 spp., sub-Saharan Africa, mainly western southern Africa

A. Leaves plane; floral bracts subequal; flowers in corymbose panicles or spikes

azurea (Eckl. ex Baker) Goldblatt Cormous geophyte, 6–12 cm. Leaf blades plane, falcate, broad, margins often undulate. Flowers in corymbose panicles, deep blue with blackish markings on lower tepals, stamens unilateral, pollen dark blue to brown. Sept.–Oct. Granitic soils in renosterveld, SW (Gouda to Paarl).•

corymbosa (L.) Ker Gawl. BLOUCABONG Cormous geophyte, 5–15 cm. Leaf blades plane, falcate, undulate. Flowers in corymbose panicles, actinomorphic, pale to deep blue with white central star, or star marking only on lower tepals. Mainly Sept.–Nov. Sandy and granitic slopes, NW, SW, AP (Piketberg to Agulhas).•

falcata (L.f.) Ker Gawl. Cormous geophyte to 10 cm. Leaf blades plane. Flowers in short spikes, pink to mauve with red markings, tubular, stamens unilateral. Sept.–Oct., mainly after fire. Rocky sandstone slopes in shallow sand, NW (Cold Bokkeveld to Worcester).•

fastigiata (Lam.) Ker Gawl. Cormous geophyte, 6–9 cm. Leaf blades plane, falcate and often loosely crisped. Flowers in corymbose panicles, actinomorphic, pale yellow with brown markings. Sept.–Oct. Clay slopes and flats in renosterveld, to 300 m, NW, SW (Piketberg to Malmesbury).•

micrantha (E.Mey. ex Klatt) Baker Cormous geophyte, 15–35 cm. Leaf blades plane. Flowers in corymbose panicles, actinomorphic, small, cream-coloured to maroon, fragrant. Oct.–Nov., only after fire. Rocky sandstone soils in fynbos, NW, SW, LB (Gifberg to Riversdale).•

neglecta Goldblatt Cormous geophyte, 30–80 cm. Leaf blades plane. Flowers in open panicles, white or blue, stamens unilateral. Nov.–Dec. Rocky sandstone slopes above 800 m, only after fire, SW (Bain's Kloof to Hottentots Holland Mtns).•

A.' Leaves ribbed; inner floral bracts smaller than outer and 2-keeled; flowers in spikes or in compact rosettes at ground level
B. Plants acaulescent, forming rosettes at ground level

oreogena Schltr. ex Goldblatt Acaulescent, cormous geophyte, 5–10 cm. Leaf blades ribbed. Flowers actinomorphic, long-tubed, violet with cream-coloured and blackish markings. Aug.–Sept. Mainly clay soils, NW (Bokkeveld Escarpment and W Karoo). **gce**

plicata (Jacq.) Diels HAASCABONG Acaulescent, cormous geophyte, 3–5 cm. Leaf blades ribbed. Flowers actinomorphic, long-tubed, small, blue with white markings or white. July–Sept. Dry flats, succulent karoo or renosterveld, NW, KM, LB (Worcester to Riversdale, Namibia, Bushmanland, interior Namaqualand, Karoo).

B.' Plants with aerial stems

anceps (L.f.) Ker Gawl. Cormous geophyte, 10–30 cm. Leaf blades ribbed. Flowers in short spikes, cream-coloured to pink with red markings on lower tepals, tube elongate. Sept.–Nov. Deep sand or stony slopes in fynbos, NW, SW, AP, LB (Namaqualand to Mossel Bay). **gce**

divaricata Baker Cormous geophyte, 7–25 cm. Leaf blades ribbed. Flowers bilabiate and short-tubed, white to pale pink, fragrant. Aug.–Oct. Damp sandy places, NW (Bokkeveld Mtns to Citrusdal).•

fabricii (D.Delaroche) Ker Gawl. CABONG, CHABI Cormous geophyte, 15–25 cm. Leaf blades ribbed. Flowers long-tubed with deep wide throat, large, white to yellowish (rarely purple) with red markings on lower tepals, reddish outside, lower tepals with arching, claw-like appendages. Mostly mid-Sept.–Oct. Stony sandstone slopes in fynbos, NW, SW (N Namaqualand to Malmesbury). **gce**

jacquinii N.E.Br. Cormous geophyte, 8–12 cm. Leaf blades ribbed. Flowers long-tubed, dark purple with cream-coloured and reddish streaks on lower tepals, bracts 2-keeled below, broadly obtuse. Aug.–Sept. Sandstone soils, NW, SW (S Namaqualand to Darling and Worcester). **gce**

pyramidalis (Lam.) Goldblatt NAELTJIE Cormous geophyte, 5–10 cm. Leaf blades ribbed. Flowers long-tubed, cream-coloured to bluish and fragrant, or dark purplish to magenta and scentless, bracts spreading, broad and retuse above. July–Sept. Shale and sandstone soils, fynbos to renosterveld, NW, SW, AP, KM, LB (S Namaqualand to Oudtshoorn). **gce**

violacea Goldblatt Cormous geophyte to 10 cm. Leaf blades ribbed. Flowers long-tubed, violet with dark red markings on lower tepals, a filiform tooth at base of all lower tepals, bracts large and inflated. Aug.–Sept. Sandstone soils in renosterveld and arid fynbos in sand, NW (Bokkeveld Escarpment to Biedouw Valley).•

sp. 1 (*Lapeirousia purpurea* Goldblatt & J.C.Manning *ms.*) Like **L. violacea** but flowers with white markings on lower tepals, lower median tepal with a prominent filiform tooth near base, upper lateral tepals reflexed and bracts hardly enlarged. Mid-Aug.–mid-Sept. Dry, rocky, sandstone slopes, NW (Swartruggens).•

MELASPHAERULA Ker Gawl. BAARDMANNETJIE, FAIRY-BELL, FEEKLOKKIE
1 sp., S Namibia to W Cape gce

graminea (L.f.) Ker Gawl. (= *Melasphaerula ramosa* (Burm.f.) N.E.Br.) Cormous geophyte, 30–60 cm, diffusely branched. Flowers lax, wiry spikes, small, bilabiate, cream-coloured to pale yellow, lower tepals streaked with red-brown in midline, sour-smelling. July–Sept. Mostly sheltered sites on sandstone or limestone slopes, NW, SW, AP, KM, SE (S Namibia to Baviaanskloof Mtns). **gce**

MICRANTHUS (Pers.) Eckl.• COMB-FLOWER, VLEIBLOMMETJIE 7 spp., W Cape

alopecuroides (L.) Rothm. Cormous geophyte, 25–40 cm. Leaves sword-shaped or falcate, plane with distinct midvein. Flowers many in 2-ranked spikes, pale to deep blue. Oct.–Dec. Sandy loam or clay soils, NW, SW, LB (Olifants River Valley to Cape Peninsula, Caledon to Swellendam).•

plantagineus (Pers.) Eckl. (incl. **M. junceus** (Baker) N.E.Br.) Cormous geophyte, 20–65 cm. Leaves mostly 3 or 4, with cormlets in lowermost axils, terete, straight and hollow, 2–3.5 mm diam. Flowers many in 2-ranked spikes, usually dark blue, occasionally white, lower floral bracts sometimes sterile, subtending cormlets. Oct.–Jan. Wet sites on granite or sandstone soils, NW, SW, AP, KM, LB, SE (Bokkeveld Mtns to Port Elizabeth).•

tubulosus (Burm.) N.E.Br. Cormous geophyte, 10–45 cm, with collar of stiff fibres around base. Leaves tubular, hollow, tips truncate-apiculate, often dry at flowering. Flowers many in 2-ranked spikes, blue to mauve, fragrant, lower floral bracts occasionally sterile, subtending cormlets. Oct.–Dec. Mainly clay soils in renosterveld, NW, SW, LB (Gifberg to Swellendam).•

sp. 1 (*Micranthus filifolius* Goldblatt & J.C.Manning *ms.*) Cormous geophyte, 10–30 cm, with fibrous neck. Leaves mostly 4–6, without axillary cormlets, filiform with heavily thickened veins and margins, ± 1 mm diam. Flowers pale mauve or blue. Dec.–Feb. Mainly clay slopes and flats, SW (Caledon District).•

sp. 2 (*Micranthus simplex* Goldblatt & J.C.Manning *ms.*) Cormous geophyte to 20 cm. Leaves linear to falcate, to 1 mm wide, with moderately thickened veins and margins, flowers several in 2-ranked spikes, white fading lilac, style branches undivided. Dec.–Jan. Wet sandstone pavements in mossy pockets, NW (Piketberg: Zebrakop).•

sp. 3 (*Micranthus cruciatus* Goldblatt & J.C.Manning *ms.*) Like **M. sp. 1** but style dividing at mouth of perianth tube. Nov.–Dec. Rocky sandstone slopes in locally damp sites, NW (Bokkeveld Mtns to N Cedarberg).•

sp. 4 (*Micranthus thereianthoides* Goldblatt & J.C.Manning *ms.*) Like **M. plantagineus** but flowers purple with cylindrical floral tube ± 20 mm long. Jan. Streamsides in granite rocks, SW (Paardeberg).•

MORAEA Mill. (= *GALAXIA, GYNANDRIRIS, HEXAGLOTTIS, HOMERIA, RHEOME, ROGGEVELDIA, SESSILISTIGMA*) UINTJIE ± 220 spp., sub-Saharan Africa and Mediterranean to Middle East

Galaxia group CLOCK-FLOWER, HORLOSIEBLOM

A. Flowers pink, mauve or purple, sometimes reddish

barnardiella Goldblatt (= *Galaxia barnardii* Goldblatt) Acaulescent, cormous geophyte, 3–5 cm. Leaves broadly lanceolate, often prostrate, margins undulate. Flowers pink to purple with blackish centre, tepals spreading horizontally, style reaching middle of anthers, stigmas lobed. Aug.–Sept. Clay flats and hills, renosterveld, SW (Villiersdorp to Caledon).•

melanops Goldblatt & J.C.Manning Acaulescent, cormous geophyte, 2–4 cm. Leaves broadly lanceolate, prostrate. Flowers purple with blackish centre, tepals shallowly cupped to laxly spreading, stamens free in upper half or entirely, style exceeding anthers, stigmas lobed. Aug.–Sept. Clay slopes in renosterveld, SW (Shaw's Pass to Potberg).•

variabilis (G.J.Lewis) Goldblatt (= *Galaxia variabilis* G.J.Lewis) Acaulescent, cormous geophyte, 2–5 cm. Leaves ovate to oblong, channelled, prostrate. Flowers purple to mauve with yellow centre, tepals cupped, anthers sessile, style exceeding anthers, stigmas lobed. Sept.–Oct. Mainly clay soils, 400–1 000 m, NW (Olifants River Mtns and Cold Bokkeveld to Ceres).•

versicolor (Salisb. ex Klatt) Goldblatt (= *Galaxia versicolor* Salisb. ex Klatt) Acaulescent, cormous geophyte, 2–5 cm. Leaves ovate to lanceolate, prostrate, margins undulate. Flowers pink to purple, often with yellow centre, tepals cupped, style exceeding anthers, stigmas lobed. Aug.–Sept. Clay and granite flats and slopes, to 300 m, SW (Tulbagh to Cape Peninsula and Houwhoek).•

A.' Flowers yellow or white
*B. Leaves linear-terete (see also **M. stagnalis**)*

albiflora (G.J.Lewis) Goldblatt (= *Galaxia albiflora* G.J.Lewis) Acaulescent, cormous geophyte, 2–3 cm. Leaves linear, channelled. Flowers white with yellow centre, style shorter than stamens, stigmas fringed. May–Aug. Coastal, on sand or granite or limestone outcrops, SW, AP (St Helena Bay to Agulhas).•

angulata Goldblatt (= *Galaxia alata* Goldblatt) Acaulescent, cormous geophyte, 2–4 cm, tunics woody and vertically winged. Leaves terete. Flowers yellow or white, tepals cupped, style exceeding anthers, stigmas fringed. June–Aug. Wet sandy flats, SW (Malmesbury to Gordon's Bay).•

fugacissima (L.f.) Goldblatt (= *Galaxia fugacissima* (L.f.) Druce) Acaulescent, cormous geophyte, 3–6 cm. Leaves linear to terete. Flowers yellow, tepals cupped, style exceeding anthers, stigmas fringed. July–Sept. Wet sand and clay flats, NW, SW, AP, LB, SE (Namaqualand to Humansdorp). **gce**

B.' Leaves ovate-lanceolate

citrina (G.J.Lewis) Goldblatt (= *Galaxia citrina* G.J.Lewis) Acaulescent, cormous geophyte, 3–6 cm. Leaves oblong, channelled. Flowers yellow, tepals cupped, anthers sessile, style exceeding anthers, stigmas lobed. July–Oct. Shallow sandy or stony soils, 500–1 000 m, NW (Bokkeveld Mtns to Gydo Pass).•

galaxia (L.f.) Goldblatt & J.C.Manning (= *Galaxia ovata* Thunb., *M. ovalifolia* Goldblatt) Acaulescent, cormous geophyte, 2–4 cm. Leaves ovate, prostrate, margins thickened and ciliate. Flowers yellow, tepals cupped, style exceeding anthers, stigmas fringed. July–Sept. Flats and plateaus, mainly on sandstone soils, NW, SW, AP (Cedarberg to Bredasdorp).•

luteoalba (Goldblatt) Goldblatt (= *Galaxia luteoalba* Goldblatt) Acaulescent, cormous geophyte, 2–5 cm. Leaves ovate and prostrate, conspicuously ciliate. Flowers yellow fading to white at edges, tepals cupped, stamens free, style exceeding anthers, stigmas fringed. July–Sept. Sandstone outcrops, 400–1 000 m, NW (Matsikamma to N Cedarberg).•

minima Goldblatt (= *Galaxia parva* Goldblatt, *Moraea minutiflora* Goldblatt *nom. nud.*) Acaulescent, cormous geophyte, 2–3 cm. Leaves lanceolate, spreading, margins undulate. Flowers tiny, white marked with green, tepals cupped, style reaching middle of anthers, stigmas lobed. July–Aug. Clay flats in renosterveld, SW (Bredasdorp).•

pilifolia Goldblatt (= *Galaxia ciliata* Pers.) Like **M. galaxia** but leaf margins with cilia longer than the thickened margins. June–July. Stony, often clay slopes, NW (Namaqualand to Gifberg). **gce**

stagnalis (Goldblatt) Goldblatt (= *Galaxia stagnalis* Goldblatt) Acaulescent, cormous geophyte, 2–4 cm. Leaves linear to lanceolate. Flowers yellow, tepals cupped, style reaching anther apices, stigmas fringed. June–Aug. Wet sites on sandstone soils, 400–800 m, NW (Namaqualand to Pakhuis Pass). **gce**

vuvuzela Goldblatt & J.C.Manning Acaulescent, cormous geophyte to 4 cm, corm tunics vertically ridged. Leaves spreading, lanceolate, channelled, margins smooth. Flowers pale yellow with deep yellow cup edged with brown markings, style exceeding anthers, stigmas shallowly fringed. Aug. Moist clay slopes in renosterveld, SW (Franschhoek to Brandvlei).•

Gynandriris group PAPIERUINTJIE

australis (Goldblatt) Goldblatt (= *Gynandriris australis* Goldblatt) Cormous geophyte, 8–25 cm. Leaf solitary, linear, channelled and trailing. Flowers large, pale blue, nectar guides cream-coloured, inner tepals erect. Sept.–Nov. Coastal sand dunes and rocky flats, SE (George to Humansdorp).•

cedarmontana (Goldblatt) Goldblatt (= *Gynandriris cedarmontana* Goldblatt) Cormous geophyte, 10–30 cm. Leaves 2, linear, channelled and trailing. Flowers white, nectar guides yellow, inner tepals erect, sweetly scented. Sept.–Oct. Stream banks in sandy soils, NW (Pakhuis Mtns to Citrusdal).•

hesperantha (Goldblatt) Goldblatt (= *Gynandriris hesperantha* Goldblatt) Cormous geophyte, 40–60 cm. Leaves 2 , linear, trailing, margins inrolled. Flowers dark blue, inner tepals reflexed, opening late afternoon. Oct.–Nov. Heavy clay slopes in renosterveld, NW (Bokkeveld Plateau and W Karoo). **gce**

pritzeliana Diels (= *Gynandriris pritzeliana* (Diels) Goldblatt) KURKTREKKERUINTJIE Cormous geophyte, 10–25 cm. Leaves 2, surface plane, translucent along midline, entire blade helically coiled. Flowers dark blue, nectar guides cream-coloured, inner tepals reflexed. Sept.–Oct. Sandstone and clay soils, mainly in renosterveld, NW (Bokkeveld Plateau and W Karoo). **gce**

setifolia (L.f.) Druce (= *Gynandriris setifolia* (L.f.) R.C.Foster) BOKUINTJIE, PAPIERUINTJIE Cormous geophyte, 5–20 cm. Leaves 1 or 2, linear, channelled and trailing. Flowers small, pale mauve, nectar guides orange and white, inner tepals reflexed. Sept.–Nov. Sandy and gravelly flats and slopes, NW, SW, AP, KM, LB (Namaqualand to Grahamstown).

Hexaglottis group THREAD-STAR, VOLSTRUISUINTJIE

lewisiae (Goldblatt) Goldblatt (= *Hexaglottis lewisiae* Goldblatt) Cormous geophyte, 20–90 cm. Leaves 1–3, linear, channelled and trailing. Flowers deep yellow. Capsules oblong to ellipsoid, exserted from spathes. Oct.–Dec. Various soils and habitats, mostly dry sites, NW, SW, KM, LB, SE (Namaqualand to Humansdorp). **gce**

longifolia (Jacq.) Pers. (= *Hexaglottis longifolia* (Jacq.) Salisb.) Cormous geophyte, 60–150 cm. Leaves 3–5, linear, channelled and trailing. Flowers pale yellow. Capsules club-shaped, exserted from spathes, 12–20 mm. Oct.–Nov. Shady, moist sites on sandstone, SW (Cape Peninsula to Du Toitskloof).•

nana (L.Bolus) Goldblatt & J.C.Manning (= *Hexaglottis nana* L.Bolus) Cormous geophyte, 10–30 cm, stem usually branched above the leaves and branches crowded. Leaves 2–several, clustered above ground. Flowers pale yellow to salmon, style arms 6, filiform and extending between filaments. Sept.–Nov. Rocky sandstone slopes, NW, SW (Namaqualand to Darling). **gce**

pearsonii Goldblatt & J.C.Manning Cormous geophyte to 45 cm, ultimate branches sessile. Leaves 2 or 3, linear, channelled and trailing. Flowers pale blue-mauve, tepals spreading, with short ascending claws. Capsules globose, exserted. Mainly Nov. Washes and gullies on shale, NW (Ceres District: Hottentotskloof).•

riparia (Goldblatt) Goldblatt (= *Hexaglottis riparia* Goldblatt) Cormous geophyte, 45–90 cm. Leaves 2 or 3, linear, channelled and trailing. Flowers yellow. Capsules club-shaped, exserted from spathes, 6–12 mm. Oct.–Nov. Along streams and rivers in rocky sandstone, NW (Clanwilliam to Tulbagh).•

virgata Jacq. (= *Hexaglottis virgata* (Jacq.) Sweet) PYPIEVOLSTRUISUINTJIE Cormous geophyte, 20–85 cm. Leaves 2 or 3, linear, channelled and trailing. Flowers pale to deep yellow, tepals forming a tube below and ovary subsessile. Capsules narrowly ellipsoid, enclosed in spathes. Mainly Sept.–Nov. Shale and granite soils, rarely sandstone, NW, SW, AP, LB, SE (S Namaqualand and W Karoo to Port Elizabeth). **gce**

***Homeria* group** CAPE-TULIP, TULP

*A. Foliage leaves more than 1 (see also **M. karooica** and **M. ochroleuca**)*

aspera Goldblatt (= *Homeria spiralis* L.Bolus) Cormous geophyte, 10–30 cm. Leaves 3, linear, loosely coiled, stem minutely hairy. Flowers stellate, with short tepal claws, salmon, anthers exserted on a slightly bulbous filament column. Aug.–Sept. Clay slopes in renosterveld, NW (Bokkeveld Escarpment).•

cedarmonticola Goldblatt (= *Homeria cedarmontana* Goldblatt) Cormous geophyte, 70–100 cm. Leaves 2 or 3, linear-lanceolate, trailing above, glaucous. Flowers yellow, stamens included in the narrow cup. Aug.–Oct., only after fire. Rocky sandstone slopes, 1 000–1 500 m, NW (Cedarberg).•

maximiliani (Schltr.) Goldblatt & J.C.Manning (= *Rheome maximiliani* (Schltr.) Goldblatt) Cormous geophyte to 15 cm, stem branched above the leaves and branches crowded. Leaves 2–several, clustered well above ground. Flowers pale yellow to buff, filaments united and anthers concealing minute style arms, crests vestigial. Aug.–Sept. Sandstone slopes and flats, NW (Pakhuis Mtns to Biedouw Valley).•

miniata Andrews (= *Homeria miniata* (Andrews) Sweet) PRONKTULP Cormous geophyte, 15–60 cm. Leaves 2 or 3, linear, trailing. Flowers stellate, with short tepal claws, usually salmon, sometimes yellow or white, minutely speckled in centre, anthers exserted on a bulbous filament column. Aug.–Sept. Mainly clay slopes, renosterveld and karroid scrub, NW, SW, LB (Namaqualand to Riversdale, and Great and Upper Karoo).

vlokii Goldblatt Cormous geophyte, 15–20 cm. Leaves 1 or 2, linear, channelled. Flowers tiny, yellow, style branches reduced, concealed by anthers, crests vestigial. Oct. Rocky sandstone slopes in arid fynbos, KM (Montagu to Swartberg).•

*A.' Foliage leaf solitary (see also **M. vlokii**)*
B. Tepal claws short and erect, often clasping filament base; anthers on long, exserted filament column

bifida (L.Bolus) Goldblatt (= *Homeria bifida* L.Bolus) Like **M. miniata** but leaf solitary, fairly broad below and clasping lower half of stem. Aug.–Sept. Clay soils in renosterveld, NW (Bokkeveld Plateau and W Karoo to Pakhuis Pass). **gce**

brachygyne (Schltr.) Goldblatt (= *Homeria brachygyne* Schltr.) Cormous geophyte, 8–25 cm, stem flexed outward above leaf sheath. Leaf solitary, channelled and trailing. Flowers small, stellate, with short tepal claws, pink with yellow, speckled centre, anthers exserted on a cylindrical, pilose filament column. July–Sept. Rocky sandstone slopes, NW (Bokkeveld Mtns to Clanwilliam).•

bulbillifera (G.J.Lewis) Goldblatt (= *Homeria bulbillifera* G.J.Lewis) UINTJIESTULP Cormous geophyte, 30–50 cm, stems often with clusters of cormlets at nodes. Leaf solitary, linear, trailing. Flowers stellate, tepals with short claws forming a shallow cup, yellow to salmon, anthers exserted on a slender filament column. Aug.–Sept. Sandstone and limestone soils, mainly coastal, SW, AP, LB, SE (Cape Peninsula to Alexandria).

cookii (L.Bolus) Goldblatt (= *Homeria cookii* L.Bolus) Cormous geophyte, 30–60 cm. Leaf solitary, sheathing lower stem, channelled and trailing above. Flowers yellow with a darker yellow-speckled centre, tepal claws short, anthers exserted on a thick filament column. Aug.–Sept. Rocky sandstone slopes, NW, KM, SE (Cedarberg to Karoo and Lesotho).

flavescens (Goldblatt) Goldblatt (= *Homeria flavescens* Goldblatt) Cormous geophyte, 12–30 cm, stem flexed outward above leaf sheath. Leaf solitary, linear, trailing. Flowers yellow with a greenish, speckled centre, tepal claws forming a short cup, anthers exserted on a slender filament column. Sept. Rocky sandstone slopes, NW (Bokkeveld to Cedarberg).•

fuscomontana (Goldblatt) Goldblatt (= *Homeria fuscomontana* Goldblatt) Cormous geophyte, 10–25 cm, stem flexed outward above leaf sheath. Leaf solitary, linear, channelled. Flowers stellate, tepal claws short, clasping, pale yellow with a green, speckled centre, anthers exserted on a slender filament column. Sept. Rocky sandstone slopes in dry fynbos, NW, KM (Swartruggens and Bonteberg).•

louisabolusiae Goldblatt (= *Homeria bolusiae* Goldblatt) Cormous geophyte, 15–40 cm. Leaf solitary, stem flexed outward above leaf. Flowers stellate, with short tepal claws, yellow or salmon-pink, stamens exserted from a short cup. Aug.–Sept. Rock outcrops, NW (Namaqualand to Nardouw Mtns). **gce**

marlothii (L.Bolus) Goldblatt (= *Homeria marlothii* L.Bolus) Cormous geophyte, 50–75 cm. Leaf solitary, clasping lower half of stem, channelled, trailing above. Flowers yellow or salmon-pink, tepal claws short and clasping, anthers exserted on a thick filament column. Aug.–Oct. Sandstone or dolerite rocks or heavy clay soils, NW (Bokkeveld Mtns and W Karoo). **gce**

patens (Goldblatt) Goldblatt (= *Homeria patens* Goldblatt) Cormous geophyte, 25–45 cm, stem flexed above leaf sheath. Leaf solitary, channelled, trailing. Flowers yellow or salmon-pink, tepal claws short, forming a short cup, anthers exserted on a slender filament column. Aug.–Sept. Sandstone soils, NW (Nardouw and Pakhuis Mtns).•

radians (Goldblatt) Goldblatt (= *Sessilistigma radians* Goldblatt) Cormous geophyte, 12–25 cm, stem flexed outward above leaf sheath. Leaf solitary, linear, channelled, glaucous. Flowers beige with a yellow centre, tepals spreading from base, broadly ovate, stamens free, style branches subsessile. Aug.–Sept. Clay soils in renosterveld, SW (near McGregor).•

B.' Tepal claws fairly long, erect or ascending, forming cup including filaments and sometimes anthers

autumnalis (Goldblatt) Goldblatt (= *Homeria autumnalis* Goldblatt) Cormous geophyte, 20–30 cm. Leaf solitary, linear, trailing. Flowers yellow, tepal claws forming a narrow cup, anthers partly exserted. Apr.–July. Sandstone slopes, NW (Cold Bokkeveld: Elandskloof).•

britteniae (L.Bolus) Goldblatt (= *Homeria britteniae* L.Bolus) Cormous geophyte, 20–45 cm. Leaf solitary, clasping lower half of stem, channelled, trailing above. Flowers pale yellow to cream-coloured, tepals claws forming a narrow cup, anthers on a slender filament column, included. Sept.–Oct. Sandy slopes, SE (Knysna to Grahamstown).

collina Thunb. (= *Homeria collina* (Thunb.) Salisb.) AASUINTJIE, GEELTULP Cormous geophyte, 20–50 cm, stem flexed outward above leaf sheath. Leaf solitary, linear, channelled. Flowers yellow or salmon, tepal claws forming a cup including the stamens, faintly scented. July–Sept., common after fire. Lower mountain slopes and flats on sand or clay, SW (Bain's Kloof to Caledon).•

comptonii (L.Bolus) Goldblatt (= *Homeria comptonii* L.Bolus) RUIKTULP Cormous geophyte, 18–40 cm. Leaf solitary, linear, channelled, glaucous, clasping stem below. Flowers yellow or salmon with a yellow centre, tepals often with a large green mark, tepal claws forming a wide, shallow cup, filaments included, intensely fragrant. Aug.–Sept. Clay slopes in renosterveld, SW (Villiersdorp to Stanford).•

demissa Goldblatt (= *Homeria tenuis* Schltr.) Cormous geophyte, 7–20 cm, stem flexed outward above leaf sheath. Leaf solitary, linear, channelled. Flowers small, pale yellow, tepal claws forming a shallow cup, anthers exserted on a thick filament column. Aug.–Sept. Rocky sandstone slopes, 400–1 400 m, NW (Gifberg to Citrusdal).•

elegans Jacq. (= *Homeria elegans* (Jacq.) Sweet) POUTULP Like **M. comptonii** but tepals widest below apex and flowers yellow with outer tepals orange, often with large green blotches. Aug.–Sept. Clay slopes in renosterveld, SW (Teslaarsdal to Bredasdorp).•

flaccida (Sweet) Steud. (= *Homeria flaccida* Sweet) GROOTTULP, ROOITULP Cormous geophyte, 35–60 cm, stem flexed outward above leaf sheath. Leaf solitary, linear, channelled. Flowers salmon with a yellow centre or entirely yellow, tepal claws forming a wide, shallow cup, anthers exserted on a thick filament column. Aug.–Oct. Wet, sandstone and granitic soils, NW, SW (Bokkeveld Mtns to Caledon).•

fragrans Goldblatt (= *Homeria odorata* L.Bolus) Like **M. bifida** but flowers pale yellow and tepal claws forming a deep cup including the stamens, sweetly fragrant. Aug.–Sept. Mainly clay soils in renosterveld, NW (Bokkeveld Plateau and W Karoo). **gce**

karooica Goldblatt (= *Homeria tricolor* G.J.Lewis) Cormous geophyte, 15–30 cm. Leaf usually solitary, occasionally 2, usually clasping stem below. Flowers salmon with a yellow centre, tepal claws forming a shallow cup, anthers exserted on a slender filament column. Sept.–Oct. Clay soils in renosterveld, NW, KM (Ceres to Barrydale and W Karoo). **gce**

longistyla (Goldblatt) Goldblatt (= *Homeria longistyla* Goldblatt) Cormous geophyte, 15–30 cm, stem flexed outward above leaf sheath. Leaf solitary, linear, channelled. Flowers yellow or salmon, tepal claws forming a deep cup including the stamens, style branches usually united in lower half. Aug.–Oct. Mainly clay soils, renosterveld or arid fynbos, NW, SW, KM (Ceres to Montagu and Caledon).•

minor Eckl. (= *Homeria minor* (Eckl.) Goldblatt) KLEINTULP Like **M. longistyla** but ovary and capsules elongate and cylindrical and style branches free to base. Aug.–Sept. Sandstone and granitic soils, to 800 m, NW, SW (Gifberg to Cape Peninsula).•

ochroleuca (Salisb.) Drapiez (= *Homeria ochroleuca* Salisb.) APRICOT TULP Cormous geophyte, 35–75 cm. Leaf solitary, occasionally 2, linear, channelled. Flowers yellow to orange or bicoloured, tepal claws forming a wide cup, filament column slender, anthers partly exserted. Mainly Aug.–Nov., mainly after fire. Rocky sandstone slopes, NW, SW (Citrusdal to Caledon).•

pyrophila Goldblatt (= *Homeria galpinii* L.Bolus) Cormous geophyte, 15–30 cm, stem flexed outward above leaf sheath. Leaf solitary, linear, channelled, apex often flattened. Flowers yellow, tepal claws forming a narrow cup including the stamens. Mainly Mar.–June, only after fire. Rocky sandstone slopes, NW, SW (Piketberg to Bredasdorp).•

vallisbelli (Goldblatt) Goldblatt (= *Homeria vallisbelli* Goldblatt) SLAPTULP Cormous geophyte, 15–30 cm, stem flexed outward above leaf sheath. Leaf solitary, linear, channelled. Flowers yellow or pink with a yellow nectar guide outlined in dark colour, tepal claws forming a narrow cup, anthers partly exserted on a slender filament column. July–Sept. Rocky sandstone soils, NW (Bokkeveld Mtns to Botterkloof).•

Moraea group MORAEA, UINTJIE

A. Plants ± acaulescent

ciliata (L.f.) Ker Gawl. Acaulescent, cormous geophyte, 5–10(–20) cm. Leaves 3–5, sparsely to densely hairy, usually grey. Flowers blue or yellow, rarely white, spicy-fragrant. July–Sept. Sandy and clay slopes, NW, SW, AP, KM, LB (Namaqualand and W Karoo to Riversdale, S Karoo and E Cape).

falcifolia Klatt Acaulescent, cormous geophyte to 5 cm. Leaves several, spreading, channelled and somewhat twisted and undulate. Flowers white with yellow nectar guides on outer tepals and purple marks on inner tepals. May–Aug. NW, KM, SE (SW Namibia to Clanwilliam and W Karoo to Alexandria).

macrocarpa Goldblatt Acaulescent, cormous geophyte, 8–12 cm. Leaf solitary, rarely 2, linear, channelled. Flowers violet or pale blue-mauve, outer tepals with white marks, ovary and capsules elongate, beaked. Sept. Deep sand in arid fynbos, NW, SW (Bokkeveld Mtns and Lambert's Bay to Langebaan and Worcester).•

macronyx G.J.Lewis Acaulescent, cormous geophyte, mostly 9–15 cm. Leaves 3–5, slightly pilose. Flowers yellow and white, tepal claws longer than limbs, fragrant. Sept.–Oct. Rocky sandstone slopes, NW, KM, LB, SE (Cold Bokkeveld to Robertson, Touws River to Avontuur).•

nubigena Goldblatt Dwarf almost acaulescent, cormous geophyte, 3–5 cm. Leaf solitary, linear-lanceolate, shallowly channelled. Flowers small, blue-mauve, style crests short. Sept.–Oct. Rock seeps at 1 200 m, NW (Worcester: Fonteintjiesberg).•

tricolor Andrews Acaulescent, cormous geophyte, 5–15 cm. Leaves 3–5, pilose or glabrous. Flowers yellow, red or purple, vanilla-scented, style crests broad, triangular. (May–)July–Sept. Wet sandy or clay flats, NW, SW, AP (Piekenierskloof and Hopefield to Still Bay).•

A.' Plants with aerial stems
*B. Foliage leaves more than 1 (see also **M. crispa, M. tripetala**)*
C. Stems sticky

bituminosa (L.f.) Ker Gawl. TEERUINTJIE Cormous geophyte, 20–50 cm, stems sticky. Leaves 2 or 3, linear, channelled and trailing. Flowers fairly large, yellow (rarely mauve). Oct.–Dec. Granitic and sandstone slopes and flats, NW, SW (Tulbagh to Agulhas).•

bubalina Goldblatt Cormous geophyte, 30–45 cm, stems sticky. Leaves 2–5, linear, channelled and trailing. Flowers brownish with green markings. Oct.–Nov. Rocky sandstone slopes, NW (Gifberg to Botterkloof and W Karoo). **gce**

elsiae Goldblatt Cormous geophyte, 20–40 cm, stems sticky. Leaves 2 or 3, linear, channelled and trailing. Flowers yellow (rarely white), style crests vestigial. Nov.–Dec. Deep sandy soils, SW, AP (Cape Peninsula to Bredasdorp, Still Bay).•

inconspicua Goldblatt TAAIUINTJIE Cormous geophyte, 20–45 cm, stems sticky. Leaves 2 or 3, linear, channelled and trailing or loosely coiled. Flowers tiny, yellow to brown or cream-coloured, tepal limbs often strongly reflexed. Sept.–Nov. Sandy and clay slopes, NW, SW, AP, KM, LB, SE (Namaqualand to Port Elizabeth). **gce**

saldanhensis Goldblatt & J.C.Manning Like **M. inconspicua** but flowers greyish blue with white markings, and tepal claws as long as limbs. Oct.–Nov. Calcareous sands, SW (Saldanha Bay).•

simplex Goldblatt & J.C.Manning Cormous geophyte, 30–40 cm, stems sticky. Leaves solitary, linear, channelled and trailing. Flowers pale yellow, style branches filiform, undivided, extending between the anther bases. Sept.–Oct. Gritty, sandy flats, NW (eastern foot of the Piketberg).•

viscaria (L.f.) Ker Gawl. Cormous geophyte, 20–45 cm, stems sticky. Leaves 2 or 3, linear, channelled and trailing. Flowers white, fragrant. Sept.–Dec. Sandy flats, SW, AP (Saldanha to Cape Agulhas).•

C.' Stems not sticky
D. Foliage leaves inserted well above ground at node above first long aerial internode

filicaulis Baker Like **M. fugax** but plants smaller, stem slender, leaves 2, usually ± filiform, flowers small, blue, violet, or white, opening early afternoon. Mostly Aug.–Sept. Sandy soils, NW, SW (Namaqualand to Saldanha). **gce**

fugax (D.Delaroche) Jacq. SOETUINTJIE, HOTTENTOTUINTJIE Cormous geophyte, 12–80 cm, branches often crowded. Leaves 1 or 2, then often unequal, inserted well above ground, linear to almost filiform, channelled, often trailing. Flowers blue, white or yellow, fragrant, opening early afternoon, ovary and capsules with short beak. Aug.–Nov. Deep sands and rocky sandstone and granitic soils, NW, SW, AP, LB (Namaqualand and W Karoo to Swellendam). **gce**

gracilenta Goldblatt Like **M. fugax** but stem laxly branched, flowers small, pale blue, opening late afternoon. Sept.–Oct. Sandy soils, NW (Clanwilliam to Tulbagh).•

D.' Foliage leaves basal or nearly so

bipartita L.Bolus Cormous geophyte, 15–45 cm. Leaves 2–4, linear, channelled., stems much branched. Flowers blue, occasionally yellow. June–Nov. Clay flats and slopes, KM, LB, SE (Ladismith to E Cape and S Karoo).

cooperi Baker Cormous geophyte, 20–35 cm, stem much branched. Leaves 2 or 3, linear, channelled and trailing. Flowers yellow, tubular below, inner tepals absent, ovary subsessile and capsules concealed in spathes. Sept.–Oct. Rocky sandstone and clay slopes and flats, often near water, NW, SW (Tulbagh to Stanford).•

fergusoniae L.Bolus Cormous geophyte, 10–20 cm, only branching near ground. Leaves several, linear-lanceolate, channelled, margins undulate, sometimes crisped. Flowers white, sometimes blue, inner tepals often tricuspidate. July–Aug. Clay slopes in renosterveld, SW, LB (Botrivier to Mossel Bay).•

gawleri Spreng. Cormous geophyte, 15–45 cm. Leaves 2 or 3, margins often crisped. Flowers yellow, cream-coloured or brick-red, sometimes bicoloured. July–Oct. Sandy or clay slopes, usually in renosterveld, NW, SW, AP, KM, LB (Namaqualand to Humansdorp). **gce**

linderi Goldblatt Cormous geophyte, 35–45 cm, stem branching above and branches short and crowded. Leaves 2 or 3, linear, channelled. Flowers yellow. Oct.–Dec. Wet sandy flats in fynbos, NW (Piketberg and Cold Bokkeveld).•

lugubris (Salisb.) Goldblatt KERSBLAKERTJIE Cormous geophyte, 6–16 cm. Leaves 2 or 3, linear, channelled. Flowers deep blue, style branches feathery. Aug.–Nov., mainly after fire. Mostly damp sandstone soils, NW, SW, AP (Bokkeveld Mtns to Bredasdorp).•

papilionacea (L.f.) Ker Gawl. Cormous geophyte, 10–20 cm, branching only from base. Leaves 3 or 4, often pilose. Flowers yellow or salmon. Aug.–Oct. Mostly sandstone soils, sometimes clay, renosterveld and transitional fynbos, to 500 m, NW, SW, AP (Cedarberg to Swellendam and Bredasdorp).•

polyanthos L.f. BLOUTULP Cormous geophyte, 15–60 cm, stem often much branched. Leaves several, linear, channelled. Flowers blue or white, tepals cupped below, style crests vestigial. Aug.–Sept. Flats and lower slopes, mainly clay, NW, KM, LB, SE (Worcester to E Cape).

polystachya (Thunb.) Ker Gawl. Cormous geophyte, 50–80 cm, much-branched. Leaves several. Flowers blue. Mainly Mar.–June. Dry karroid slopes, KM (Ladismith to Oudtshoorn, Karoo to S Namibia).

ramosissima (L.f.) Druce VLEIUINTJIE Cormous geophyte, 50–120 cm, much-branched, roots spiny. Leaves several in a distichous fan, linear, channelled. Flowers yellow. Oct.–Dec., mainly after fire. Damp sandstone flats and slopes, NW, SW, LB, SE (Gifberg to E Cape).

serpentina Baker SLANGUINTJIE Cormous geophyte, 4–15 cm, branching mainly from base. Leaves 2 or 3, linear, margins inrolled, twisted or coiled. Flowers white and yellow, style branches and crests often flushed violet. Sept.–Oct. Dry stony flats, NW (Namaqualand and Bushmanland to Olifants River Valley).

umbellata Thunb. (= *Rheome umbellata* (Thunb.) Goldblatt) Cormous geophyte, 15–45 cm, stems branching above the leaves and branches crowded. Leaves 2–several, clustered above ground. Flowers pale yellow, style branches minute, appressed to anthers, crests vestigial. Sept.–Nov. Seasonally wet sandstone flats and plateaus, NW, SW (Piketberg to Caledon).•

vegeta L. BRUINUINTJIE Cormous geophyte, 15–30 cm, stem minutely hairy. Leaves 3 or 4, linear-lanceolate, channelled. Flowers buff to dull purple-brown. Sept.–Oct. Damp clay or granite slopes and flats, NW, SW, LB (Kobee Mtns and Darling to Swellendam).•

*B.' Foliage leaf solitary (but see **M. fugax** above)*
E. Inner tepals lacking or linear to filiform or reduced to short acute cusps

amabilis Diels Like **M. tripetala** but corm tunics pale and relatively soft, leaves plane in upper half, sometimes hairy beneath, filaments free or united less than 0.5 mm and inner tepals short, attenuate cusps. Aug. –Sept. Clay soils, mostly in renosterveld, NW (W Karoo and Bokkeveld Mtns to Olifants River Valley). **gce**

barnardii L.Bolus Cormous geophyte, 15–30 cm. Leaf solitary, linear, narrowly channelled. Flowers white, speckled with blue, inner tepals absent. Sept.–Oct. Rocky sandstone slopes, SW (Caledon: Shaw's Mtns to Gansbaai).•

longiaristata Goldblatt Cormous geophyte, 15–30 cm. Leaf solitary, linear, channelled. Flowers white, speckled blue, inner tepals linear-filiform, straight and erect. Sept.–Oct. Rocky sandstone lower slopes, SW (Caledon Swartberg).•

mutila (C.H.Bergius ex Eckl.) Goldblatt & J.C.Manning (= *Moraea punctata* Baker) Like **M. tripetala** but leaves usually shorter than stem, flat and twisted in distal half (not channelled), and inner tepals linear, often slightly wider in middle. Aug.–early Sept. Clay and loamy soils in renosterveld, NW, SW (Piketberg to Malmesbury).•

tripetala (L.f.) Ker Gawl. BLOU-UINTJIE Cormous geophyte, (10–)20–45 cm, with coarse, wiry tunic fibres. Leaf solitary (rarely 2), linear, narrowly channelled, rarely hairy beneath. Flowers blue to violet (rarely white or pale yellow), inner tepals reduced to short attenuate cusps (rarely linear and spreading distally), filaments united basally for up to 1.5 mm (rarely free), pollen usually red. Mainly Sept.–Jan. Mostly clay or clay loam slopes, to 1 200 m, NW, SW, AP, KM, LB, SE (Clanwilliam to Cape Peninsula, Paarl to Knysna, Bonteberg to Swartberg).•

E.' Inner tepals with trifid or lanceolate limbs
*F. Stems usually minutely velvety and leaves usually hairy beneath (abaxial surface) or on margins (but see **M. tripetala**)*

atropunctata Goldblatt Cormous geophyte, 15–20 cm. Leaf solitary, linear, channelled, hairy beneath. Flowers grey-white with dark speckles, brownish on the reverse, inner tepals trifid with a long, central cusp. Sept. Clay slopes, SW (Caledon: Eseljacht Mtns).•

calcicola Goldblatt Cormous geophyte, 30–40 cm. Leaf solitary, linear, channelled, hairy beneath. Flowers mauve to purple with dark markings, inner tepals trifid with a long, straight, central cusp. Sept. Limestone hills, SW (St Helena Bay to Saldanha).•

debilis Goldblatt Cormous geophyte, 15–40 cm. Leaf solitary, linear, channelled, hairy beneath. Flowers mauve, becoming mottled with age, inner tepals trifid with a straight, filiform, central tricusp. Sept.–Oct. Clay slopes in renosterveld, SW, LB (Botrivier to Swellendam).•

gigandra L.Bolus GROOTFLAPPIE Cormous geophyte, 20–40 cm. Leaf solitary, linear, channelled, hairy beneath. Flowers blue, rarely white or orange, inner tepals trifid with a long, straight, central cusp. Sept.–Oct. Clay soils, NW (Piketberg to Porterville).•

hainebachiana Goldblatt & J.C.Manning Cormous geophyte to 20 cm; corm with blackish, woody, strongly clawed, tunics. Leaf solitary, narrowly channelled, with a cluster of cormlets in the axil. Flowers blue with small, white, nectar guides, inner tepals reduced and minutely trifid, filaments fused in basal 2 mm, pollen blue. Aug. Coastal limestone, SW (Saldanha Bay).•

loubseri Goldblatt SPINNEKOPFLAPPIE Cormous geophyte, 15–20 cm. Leaf solitary, linear, channelled, hairy beneath. Flowers deep blue to purple, with purple hairs on outer tepals, inner tepals trifid with a long, laxly spreading, central cusp. Aug.–Sept. Limestone on granite hills, SW (Saldanha Bay).•

tulbaghensis L.Bolus (= *Moraea neopavonia* R.C.Foster) ROOIFLAPPIE Cormous geophyte, 25–40 cm. Leaf solitary, linear, channelled, usually hairy beneath. Flowers orange to reddish or white, with yellow or orange nectar guide edged iridescent green or blue, inner tepals trifid with a long, straight, central cusp, rarely lanceolate. Sept. Clay flats and lower slopes in renosterveld, NW, SW (Piketberg to Tulbagh and Wellington).•

villosa (Ker Gawl.) Ker Gawl. BLOUFLAPPIE, UILTJIE, PEACOCK MORAEA Cormous geophyte, 30–40 cm. Leaf solitary, hairy beneath. Flowers purple, blue or orange, nectar guides large and dark, inner tepals tricuspidate with trailing central cusp. Aug.–Sept. Stony granite and clay slopes and flats, NW, SW (Piketberg to Gordon's Bay and Ceres).•

F.' Stems and leaves smooth

amissa Goldblatt Cormous geophyte, 20–30 cm. Leaf solitary, linear, channelled. Flowers violet with a dark eye, inner tepals trifid with a long, straight, central cusp. Oct. Stony, granitic slopes, SW (Malmesbury).•

aristata (D.Delaroche) Asch. & Graebn. BLOUOOGUINTJIE Cormous geophyte, 25–35 cm. Leaf solitary, linear, channelled. Flowers white with a blue eye, inner tepals trifid with a long, straight, central cusp. Sept. Clay soils, SW (Cape Peninsula: Observatory).•

bellendenii (Sweet) N.E.Br. PATRYSUINTJIE Cormous geophyte, 50–100 cm, stem willowy. Leaf solitary, linear, channelled and trailing. Flowers yellow, inner tepals trifid with a short, obliquely twisted, central cusp. Oct.–Nov. Granitic, sandy or clay slopes, SW, LB, SE (Darling to Plettenberg Bay).•

caeca Barnard ex Goldblatt Cormous geophyte, 20–40 cm. Leaf solitary, linear, channelled. Flowers mauve with a small dark or sometimes yellow eye, inner tepals trifid with a long, straight central cusp. Sept.–Oct. Rocky sandstone slopes in fynbos, NW (Piketberg to Porterville Mtns).•

lilacina Goldblatt & J.C.Manning Cormous geophyte, 20–35 cm. Leaf solitary, linear, channelled. Flowers pale pink with a bright yellow mark on each outer tepal, inner tepals trifid with a long, incurving, central cusp. Aug.–Sept. Stony slopes in renosterveld, KM (N foothills of Attaquas Mtns).•

regalis Goldblatt & J.C.Manning (= *Moraea derustensis* Goldblatt & J.C.Manning orth. error) Cormous geophyte, 18–25 cm. Leaf solitary, linear, channelled. Flowers deep violet, inner tepals trifid with a long, incurved, central cusp. Aug.–Sept. Rocky slopes, KM (Little Karoo: De Rust).•

tricuspidata (L.f.) G.J.Lewis RIETUINTJIE Cormous geophyte, 25–60 cm. Leaf solitary, linear, channelled. Flowers white to cream-coloured, inner tepals trifid with a short, obliquely twisted, central cusp. Mainly Sept.–Oct. Clay or granitic slopes, NW, SW, LB, SE (Cedarberg to Grahamstown).

unguiculata Ker Gawl. Cormous geophyte, 20–50 cm. Leaf solitary. Flowers white to cream-coloured or brownish, rarely violet, inner tepals tricuspidate with inrolled or straight, central cusp. Sept.–Nov. Mostly shale slopes in renosterveld, NW, SW, AP, LB, SE (N Namaqualand to Port Elizabeth, Karoo Mtns).

*E." Inner tepals lanceolate or oblanceolate (see also **M. tulbaghensis**)*
G. Leaves terete distally; flowers usually yellow; stem nodes usually sticky

angusta (Thunb.) Ker Gawl. Cormous geophyte, 20–40 cm, stem unbranched, sticky on nodes, usually with 2 sheathing cauline leaves. Leaf solitary, terete. Flowers yellow to light brown with dark yellow nectar guides usually edged brown, filaments joined for less than 2 mm; ovary 3-angled. Aug.–Nov. Rocky sandstone flats and slopes, NW, SW, LB, SE (Bokkeveld Mtns to Knysna).•

anomala G.J.Lewis Cormous geophyte, 20–40 cm, stem unbranched, sticky on nodes usually with 2 sheathing cauline leaves. Leaf solitary, terete. Flowers yellow with darker yellow nectar guides, filaments joined for at least 2 mm; ovary 3-angled. Sept.–Nov. Mountains and flats, often on clay, NW, SW (Pakhuis Pass to Cape Peninsula, Caledon).•

neglecta G.J.Lewis Cormous geophyte, 20–50 cm, stem unbranched, nodes sticky, usually with 1 sheathing cauline leaf. Leaf solitary, terete. Flowers yellow with nectar guides of dark spots in radiating lines, ovary 3-angled. Sept.–Nov. Usually deep sands, NW, SW, AP (Bokkeveld Mtns to Agulhas coast).•

vallisavium Goldblatt Cormous geophyte, 10–35 cm, unbranched. Leaf solitary, terete, usually with 1 sheathing cauline leaf. Flowers yellow with nectar guide yellow with brown spots, ovary 3-angled. Dec.–Jan. Sandstone seepages, 500–1 000 m, SW, LB (Kogelberg to Kleinrivier Mtns and Langeberg).•

G.' Leaf channelled throughout; flowers various colours; stem nodes never sticky

algoensis Goldblatt Cormous geophyte, 20–40 cm. Leaf solitary, linear, channelled. Flowers purple, inner tepals oblanceolate sometimes 3-lobed. July–Sept. Clay slopes in renosterveld, NW, KM, LB, SE (Worcester to Port Elizabeth).•

barkerae Goldblatt Cormous geophyte, 15–40 cm. Leaf solitary, linear, channelled. Flowers pale salmon to pink with purple markings, inner tepals attenuate. Oct.–Nov. Rocky sandstone slopes, NW (Cedarberg, Piketberg and Cold Bokkeveld Mtns).•

cantharophila Goldblatt & J.C.Manning Like **M. lurida** but flowers always cream-coloured, tepals claws shorter, forming a shallow cup, and anthers partly exserted from floral cup, not foul scented. Aug.–Sept. Loamy clay and shale bands, SW (Sir Lowry's Pass to Sandy's Glen).•

crispa Thunb. Cormous geophyte, 8–20 cm. Leaf usually solitary, linear, channelled, often slightly twisted, margins rarely crisped. Flowers blue-mauve with yellow to orange markings, tepals subequal, style branches reduced, crests vestigial. Oct.–Nov. Mainly clay slopes in renosterveld, NW, KM, SE (Cedarberg to Baviaanskloof Mtns, S and W Karoo).

deltoidea Goldblatt & J.C.Manning Like **M. unguiculata** but inner tepals oblanceolate and style crests obsolete. Oct.–Nov. Seeps on sandstone, SW (Kleinmond to Kleinrivier Mtns).•

elliotii Baker Cormous geophyte, 15–50 cm. Leaf solitary, linear, channelled. Flowers blue-violet with yellow markings. Aug.–Mar. Grassy, sandstone slopes, LB, SE (Mossel Bay to Malawi).

exiliflora Goldblatt Cormous geophyte, 15–25 cm. Leaf solitary, linear, channelled. Flowers small, pale blue-mauve with white or yellow nectar guides on outer tepals. Sept. Sandstone outcrops in fynbos, KM (Klein Swartberg to De Rust).•

incurva G.J.Lewis Cormous geophyte, 35–40 cm. Leaf solitary, linear, channelled. Flowers deep blue with yellow or white markings. Oct. Clay soils in renosterveld, NW (Tulbagh Valley).•

insolens Goldblatt Cormous geophyte, 20–35 cm. Leaf solitary, linear, channelled. Flowers deep orange or cream-coloured with brown centre, style branches narrow and crests short. Sept. Clay slopes in renosterveld, SW (Caledon Swartberg).•

lurida Ker Gawl. AASUINTJIE Cormous geophyte, 20–30 cm. Leaf solitary, linear, channelled. Flowers maroon, sometimes marked with yellow, or entirely cream-coloured, usually foetid-smelling, style crests short. Aug.–Oct., mainly after fire. Rocky sandstone and granitic slopes in fynbos, SW (Sir Lowry's Pass to Bredasdorp).•

monticola Goldblatt (= *Moraea obscura* Goldblatt orth. error, *Roggeveldia montana* Goldblatt) Cormous geophyte to 40 cm. Leaf solitary, terete. Flowers blue or white, stamens free, extending between filiform style arms. Nov.–Dec. Rocky, lower slopes, KM (Swartberg and W Karoo).

spathulata (L.f.) Klatt Cormous geophyte to 1 m, unbranched. Leaf solitary, linear, flat or channelled, often fairly broad. Flowers large, yellow, inner tepals erect. June–Sept. Sandstone and peaty slopes and flats, KM, SE (Kammanassie Mtns and George to Zimbabwe and Great Karoo Mtns).

thomasiae Goldblatt Cormous geophyte, 15–30 cm. Leaf solitary, linear, channelled. Flowers pale yellow with dark veins, inner tepals erect. Aug.–Sept. S-facing clay slopes in renosterveld, NW, KM (Waboomsberg and Worcester to Barrydale).•

verecunda Goldblatt Cormous geophyte, 15–25 cm. Leaf solitary, linear, channelled. Flowers tiny, violet, tepals subequal, style branches narrow and crests vestigial. Oct.–Nov. Rocky sandstone in fynbos, NW (Bokkeveld Mtns to Wuppertal).•

worcesterensis Goldblatt Cormous geophyte to 15 cm. Leaf solitary, linear, channelled. Flowers stellate, tepals spreading from base, purple with diamond-shaped nectar guides, style branches narrow, crests vestigial. Sept.–Oct. Mostly shale slopes, NW (Worcester).•

NIVENIA Vent.• BUSH IRIS 11 spp., W Cape

A. Inflorescence a few-flowered pseudoraceme or single flower pair

argentea Goldblatt (= *Nivenia capitata* (Klatt) Weim.) Shrub to 50 cm. Leaves sword-shaped. Flowers single in compound, branched, stalked pseudoracemes, heterostylous, deep blue, tube 15–25 mm, bracts conspicuous, silvery-translucent above with dark keels. Mainly Nov.–Dec. Rocky slopes and summits, SW, LB (eastern Riviersonderend Mtns and central Langeberg).•

concinna N.E.Br. Shrublet to 40 cm. Leaves sword-shaped. Flowers dark blue, tube ± 15 mm. Jan.–Feb. Rocky, sandstone slopes in fynbos, SW (Groenland Mtns).•

fruticosa (L.f.) Baker Cushion-like shrublet, 9–20 cm. Leaves sword-shaped. Flowers paired, pale blue, tube 20–30 mm. Nov.–Jan. Rocky sandstone slopes, LB (Langeberg).•

inaequalis Goldblatt & J.C.Manning (= *Nivenia argentea* auct. non Goldblatt) Shrub to 60 cm. Leaves sword-shaped. Flowers paired in compound, branched pseudoracemes, heterostylous, blue, tube 30–40 mm, stamens unequal, 1 shorter than other 2, bracts conspicuous, silvery-translucent. Oct.–Dec. Rocky sandstone slopes in fynbos, KM (Little Karoo: Rooiberg).•

levynsiae Weim. Shrublet to 25 cm. Leaves sword-shaped. Flowers pale blue, tepals cupped, tube short, ± 7 mm. Dec.–Feb. Rocky sandstone outcrops, SW (Kogelberg to Kleinmond).•

A.' Inflorescence a lax corymbose pseudopanicle

binata Klatt Shrub to 50 cm. Leaves sword-shaped. Flowers paired, heterostylous, deep blue, anthers blue, tube 9–15 mm. Mainly Aug.–Oct. Rocky sandstone slopes in fynbos, KM (Swartberg: Ladismith to Meiringspoort).•

corymbosa (Ker Gawl.) Baker Shrub 50–200 cm. Leaves sword-shaped. Flowers solitary, heterostylous, deep blue, tube 11–13 mm. Feb.–Mar. Rocky sandstone slopes near water, SW (Bain's Kloof to Tulbagh Kloof).•

dispar N.E.Br. Shrub to 80 cm. Leaves sword-shaped. Flowers solitary, heterostylous, light blue, tube 16–20 mm. Feb.–Apr. Sandstone cliffs and rocks, 200–400 m in river valleys, SW (Riviersonderend Mtns).•

parviflora Goldblatt Shrub 50–80 cm. Leaves sword-shaped. Flowers paired, heterostylous, tiny, pale to deep blue, anthers blue, tube ± 5.5 mm, shorter than lobes. Mar.–Apr. Sandstone slopes ± 300 m, KM (Swartberg: near Ladismith).•

stenosiphon Goldblatt Shrub 40–100 cm. Leaves sword-shaped. Flowers paired, heterostylous, blue, anthers blue, tube 20–25 mm. Apr. Rocky sandstone slopes in fynbos, 500–800 m, KM (Touwsberg and Swartberg: near Ladismith).•

stokoei (L.Guthrie) N.E.Br. Shrub 40–60 cm. Leaves sword-shaped. Flowers solitary, large, pale to deep blue, tube 27–37 mm. Feb.–Mar. Rocky sandstone in fynbos, SW (Kogelberg to Kleinmond).•

PILLANSIA L.Bolus• 1 sp., W Cape

templemannii (Baker) L.Bolus Cormous, evergreen perennial, 60–90 cm. Leaves linear, strap-like, loosely twisted, fibrotic, without a midrib. Flowers in flat-topped panicles, rotate, orange. Oct.–Nov. Sandstone slopes after fire, SW (Kogelberg to Kleinrivier Mtns).•

ROMULEA Maratti ROMULEA, KNIKKERTJIE, FROETANG ± 95 spp., S Africa to S Europe and Middle East, mainly W Karoo and W Cape

A. Corms rounded or pointed at base, the tunics splitting into coarse, straight or bent teeth; stems always subterranean
B. Flowers yellow

hirta Schltr. Cormous geophyte, 5–10 cm, corms rounded at base with coarse, bent teeth. Leaves several, H-shaped in section, 4-winged, wings ciliate to hairy. Flowers dull yellow. July–Sept. Sandstone soils, NW (W Karoo and Bokkeveld to Cedarberg). **gce**

luteoflora (M.P.de Vos) M.P.de Vos Cormous geophyte, 8–15 cm, corms rounded at base with coarse, bent teeth. Basal leaves several. Flowers yellow with brown streaks or blotches. July–Sept. NW, KM, LB (Namaqualand, Cedarberg to Riversdale, W Karoo and Lesotho).

malaniae M.P.de Vos Cormous geophyte, 8–12 cm, corms rounded at base with coarse, bent teeth. Basal leaves 1–3. Flowers on geniculate peduncles, small, pale yellow, bracts with broad membranous margins. Aug. Sandstone outcrops, NW (Matroosberg to Koo).•

membranacea M.P.de Vos Cormous geophyte to 12 cm, corm ovoid, pointed at base with coarse, straight teeth. Basal leaves several. Flowers uniformly deep yellow with yellowish cup, inner and outer bracts mostly membranous and spotted with brown. July–Aug. Sandy flats, NW (Lokenberg and W Karoo). **gce**

monticola M.P.de Vos Cormous geophyte, 5–8 cm, corms rounded at base with coarse, bent teeth. Basal leaves 1–several. Flowers yellow with dark streaks. June–Sept. Sandy loam in fynbos, NW (Bokkeveld Mtns to Gifberg).•

viridibracteata M.P.de Vos Cormous geophyte, 4–8 cm, corms rounded at base with coarse, bent teeth. Basal leaves several. Flowers yellow with dark brown markings, inner bracts 2-keeled. Aug.–Sept. Sandstone slopes, NW (Bokkeveld Mtns to Pakhuis Pass).•

B.' Flowers red, magenta or pink to salmon

atrandra G.J.Lewis Cormous geophyte, 8–15 cm, corms rounded at base with coarse, bent teeth. Basal leaves several. Flowers magenta to pale pink or white with dark veins and dark blotches at edge of yellow cup, bracts with broad membranous margins. July–Oct. Clay soils, NW, SW, KM, LB, SE (W Karoo and Gifberg to E Cape).

cedarbergensis M.P.de Vos Like **R. obscura** but leaves 1–3. Flowers white to pale pink with yellow cup, filaments longer than anthers. July–Sept. Sandstone rocks, NW (Cedarberg).•

cruciata (Jacq.) Baker Cormous geophyte, 5–12 cm, corm pointed at base with coarse, straight teeth. Basal leaves 2–several. Flowers magenta to lilac with dark blotches at edges of yellow cup. July–Sept. Sandstone and granite slopes and rocks, NW, SW, AP, LB (Bokkeveld Mtns to Gourits River).•

eximia M.P.de Vos Like **R. cruciata** but flowers larger, longer than 35 mm, old rose. Aug.–Sept. Sandy flats, SW (Yzerfontein to Melkbos).•

lilacina J.C.Manning & Goldblatt Cormous geophyte, 1–3 cm, corms rounded at base with coarse, bent teeth. Basal leaf solitary, sticky with adhering sand grains. Flowers solitary, lilac with darker stripes in a pale cup. Ripe capsules recurved. May–June. Deep sands in washes, NW (Cold Bokkeveld: Katbakkies).•

obscura Klatt Cormous geophyte, 5–8 cm, corms rounded at base with coarse, bent teeth. Basal leaves 1–several. Flowers apricot or rose, often with dark blotches at edge of greenish to yellow cup. Aug.–Oct. Sandy flats, NW, SW, AP (Clanwilliam to Agulhas).•

rosea (L.) Eckl. ROOIKNIKKERTJIE Cormous geophyte, 10–40 cm, corms rounded at base with coarse, bent teeth. Basal leaves several. Flowers pink to purple, sometimes white, with yellow cup. Ripe capsules erect. July–Oct. Sandy and clay slopes and flats, NW, SW, AP, KM, LB, SE (Kamiesberg and Bokkeveld Mtns to Port Elizabeth and W Karoo). **gce**

sabulosa Schltr. ex Bég. SATYNBLOM Cormous geophyte, 6–10 cm, corms rounded at base with coarse, bent teeth. Basal leaves several. Flowers dark red, rarely pink with black blotches at edge of creamy green cup, inner bracts 2-keeled. July–Sept. Light clay and sandy flats in renosterveld, NW (Bokkeveld Escarpment).•

vlokii M.P.de Vos Like **R. cruciata** but bracts conspicuously veined. Flowers pink with orange cup. July–Aug. Sandy soils, KM (Montagu to Kammanassie Mtns).•

A.' Corms variously flattened or ridged at base, the tunics splitting into fine fibrils; stem subterranean or exserted
C. Corm fibrils aggregated in converging clusters

albomarginata M.P.de Vos Cormous geophyte to 6 cm, corm with an oblique basal ridge, fibrils convergent in clusters. Basal leaves 2. Flowers magenta to pink with orange-yellow cup; bracteole margins unmarked. Aug.–Oct. Sandstone flats, NW (Cold Bokkeveld).•

dichotoma (Thunb.) Baker Cormous geophyte to 35 cm, corm with an oblique basal ridge, fibrils convergent in clusters, stem branching divaricately above ground, often ciliate. Basal leaf usually solitary. Flowers pink to salmon with yellowish cup. Sept.–Oct. Clay soils in renosterveld, SW, ?AP, LB, SE (Stanford to Humansdorp).•

fibrosa M.P.de Vos Cormous geophyte to 35 cm, corm with an oblique basal ridge, fibrils convergent in clusters, stem with a fibrous neck, branching above ground. Basal leaves 2. Flowers magenta to pink with yellow cup. Oct.–Dec. High altitudes, KM, SE (Swartberg to Uitenhage).•

jugicola M.P.de Vos Cormous geophyte to 30 cm, corm with an oblique basal ridge, fibrils convergent in clusters, stem with a fibrous neck, branching above ground. Basal leaf solitary, hairy. Flowers orange with yellow cup. Aug. Clay soils in renosterveld, KM (Kammanassie Mtns).•

longipes Schltr. Cormous geophyte, 4–35 cm, corm with an oblique basal ridge, fibrils convergent in clusters, stem branched above ground. Basal leaves 2. Flowers cream-coloured to apricot with yellow cup. July–Nov. Sandy flats, SE (Port Elizabeth to East London).

pilosa J.C.Manning & Goldblatt Cormous geophyte to 7 cm, corm with oblique basal ridge, fibrils convergent in clusters, stem short, branched above ground, ciliate. Basal leaf solitary, falcate, H-shaped in section, 4-winged, hairy on wings. Flowers salmon to dull orange with yellow throat. Aug. Clay soils in renosterveld, SW (Riviersonderend).•

pudica Soland. ex Ker Gawl. (= *Romulea amoena* Schltr. ex Bég.) Cormous geophyte, 8–12 cm, corms symmetrical, bell-shaped, fibrils convergent in clusters. Basal leaves 2–4. Flowers pink to red with black blotches at edge of cream-coloured cup. Aug.–Sept. Sandstone soils, NW (Bokkeveld Mtns).•

sanguinalis M.P.de Vos Cormous geophyte to 35 cm, corm almost bell-shaped with incomplete basal ridge, fibrils convergent in clusters, stem branched above ground. Basal leaves 2. Flowers uniformly red, filaments smooth. Aug. Rocky flats, NW (Bokkeveld Mtns near Botterkloof).•

setifolia N.E.Br. Cormous geophyte, 4–12 cm, corm with an oblique basal ridge, fibrils convergent in clusters. Basal leaves 2. Flowers yellow or apricot, sometimes with dark blotches at edge of cup; bracteole margins unmarked. July–Sept. Sandstone slopes and flats, NW, SW, AP, KM, LB, SE (Bokkeveld Mtns to Port Elizabeth, and W Karoo). **gce**

C.' Corm fibrils not aggregated in converging clusters
D. Corm symmetrical and bell-shaped

discifera J.C.Manning & Goldblatt Cormous geophyte, 8–15 cm, corms symmetrical, depressed-discoid, basal rim wide and fibrous. Basal leaves 2 or 3. Flowers yellow with darker cup, with or without black markings. July. Sandy flats, NW (Bokkeveld Mtns).•

gracillima Baker Like **R. hirsuta** but flowers smaller, pale pink with yellow cup. Aug.–Sept. Sandstone slopes, SW, AP (Cape Peninsula to Agulhas flats).•

hirsuta (Eckl. ex Klatt) Baker Cormous geophyte, 6–10 cm, corms symmetrical, bell-shaped, basal rim fibrous, stem branching above ground. Basal leaves 2, sometimes solitary. Flowers pink to rose or coppery orange with dark marks at edge of yellow cup. Aug.–Sept. Sandstone or clay slopes and flats, NW, SW (Clanwilliam to Elim).•

sladenii M.P.de Vos Cormous geophyte, 7–9 cm, corms symmetrical, bell-shaped, basal rim wide and fibrous, stems branched above ground. Basal leaves 2. Flowers white with yellow cup. Aug.–Sept. Rocky sandstone flats, NW (Gifberg).•

tortilis Baker Like **R. hirsuta** but leaves spirally twisted. July–Sept. Sandstone slopes, NW (Clanwilliam to Piketberg).•

triflora (Burm.f.) N.E.Br. Cormous geophyte to 20 cm, corms symmetrical, bell-shaped, basal rim fibrous, stem usually branched above ground. Basal leaves usually 2. Flowers yellow, sometimes white, with yellow cup. Aug.–Oct. Sandstone slopes, NW, SW (Citrusdal to Stanford).•

D.' Corm obliquely ridged at base or laterally compressed
E. Flowers yellow (rarely white or pale blue)

austinii E.Phillips Cormous geophyte to 20 cm, corm with a broad, fan-like oblique base, basal ridge fibrous. Basal leaves several, channelled to apex. Flowers yellow, usually with brown markings. May–July. Clay flats, KM (W and S Karoo, Montagu to Uniondale).

elliptica M.P.de Vos Cormous geophyte, 15–20 cm, corm with an oblique basal ridge, basal ridge fibrous, stem branching above ground. Basal leaves 2. Flowers yellow with dark streaks. Aug. Deep sandy flats, SW (Vredenburg).•

flava (Lam.) M.P.de Vos GEELFROETANG, GEELKNIKKERTJIE Cormous geophyte, 5–30 cm, corm with an oblique basal ridge, basal ridge fibrous, stem short or branching just above ground. Basal leaves 1 or 2, clasping below. Flowers white or yellow, rarely blue or pinkish, with yellow cup, inner bracts papery. June–Sept. Sandy and clay soils, fynbos or renosterveld, NW, SW, AP, LB, SE (Richtersveld to Humansdorp). **gce**

montana Schltr. ex Bég. Cormous geophyte, 5–15 cm, corm with a wide basal ridge, basal ridge fibrous, stem often branching above ground. Basal leaves 2. Flowers yellow with dark streaks or blotches. July–Sept. Sandstone outcrops, NW (W Karoo and Bokkeveld Mtns to Cedarberg). **gce**

multisulcata M.P.de Vos WATERFROETANG Cormous geophyte, 6–15 cm, corm with an oblique basal ridge, basal ridge fibrous, stem branching above ground. Basal leaves 2, blades 6–8-grooved. Flowers white or yellow with darker cup, fruits globose on sharply spreading pedicels. Aug.–Sept. Seasonal pools, NW (Bokkeveld Mtns and Gifberg flats).•

saldanhensis M.P.de Vos Similar to **R. flava** but flowers orange-yellow with dark lines in cup. Aug.–Sept. Wet sand or clay flats, SW (Vredenburg to Darling).•

sphaerocarpa M.P.de Vos Like **R. austinii** but corm conspicuously compressed and fan-like, leaf mostly solitary, sticky. Flower usually 1, yellow with brown streaks. June. Sandstone outcrops, NW, KM (Hex River Pass to Waboomsberg: Ouberg Pass).•

sulphurea Bég. Cormous geophyte, 4–6 cm, corm with an oblique basal ridge, basal ridge fibrous, stem branching just above ground. Basal leaves 2. Flowers yellow with dark marks in cup, filaments twice as long as anthers and hairy. Aug. Sandstone rocks, NW (Pakhuis Mtns).•

tortuosa (Licht. ex Roem. & Schult.) Baker Like **R. austinii** but corms laterally compressed and fan-like and leaves twisted to coiled. June–Sept. Seasonally moist clay soils, NW (Kamiesberg and W Karoo to Worcester). **gce**

*E.' Flowers white or lilac to magenta (see also **R. flava**)*

aquatica G.J.Lewis WATERFROETANG Like **R. multisulcata** but basal leaf solitary. Flowers white with yellow cup, fragrant. Fruiting pedicels erect. Aug.–Sept. Seasonal pools, NW, SW (Pools to Hopefield).•

barkerae M.P.de Vos Cormous geophyte, 4–6 cm, corm with an oblique basal ridge, basal ridge fibrous, stem branching above ground. Basal leaf solitary, with 2 grooves. Flowers white with black cup edged in yellow, inner bracts papery. July–Aug. Limestone rocks, SW (Paternoster to Saldanha).•

biflora (Bég.) M.P.de Vos Cormous geophyte, 10–15 cm, corm with an oblique basal ridge, basal ridge fibrous, stem branched above ground. Basal leaves 2. Flowers pink to rose with yellow cup edged with dark blotches. July–Sept. Clay foothills, NW (Gifberg and Biedouw Valley).•

flexuosa Klatt Like **R. schlechteri** but flowers white or pale lilac with buff to brown cup, anthers with long-pointed appendages. May–July. Sandstone rocks, in fynbos, NW, SW (Namaqualand: near Bitterfontein and Lokenberg to Hottentots Holland Mtns). **gce**

gigantea Bég. Like **R. schlechteri** but flowers smaller, white, lilac or blue with greenish yellow cup. Sept.–Oct. Moist places, SW, LB, SE (Kleinmond to Port Alfred).

leipoldtii Marais Like **R. tabularis** but basal leaves usually 2. Flowers cream-coloured with yellow cup, not blotched on reverse, inner bracts greenish in the centre. Sept.–Oct. Damp sandy sites, NW, SW (S Namaqualand to Mamre). **gce**

minutiflora Klatt Cormous geophyte, 3–6 cm, corm with a spathulate basal projection, basal ridge fibrous. Basal leaves several. Flowers tiny, to 15 mm long, pale mauve with yellowish cup, anthers ± 2 mm, inner bracts conspicuously spotted with brown. July–Sept. NW, SW, AP, KM, LB, SE (widespread, Kamiesberg and Bokkeveld Mtns to Grahamstown).

pratensis M.P.de Vos Cormous geophyte to 10 cm, corm with an oblique basal ridge, basal ridge fibrous. Basal leaves several. Flowers rose to white with greenish yellow cup. July–Sept. Grasslands, SE (Avontuur to Alexandria).

saxatilis M.P.de Vos Similar to **R. schlechteri** but with slender, elongate stem. Flowers magenta-pink with yellow cup, filaments swollen in middle. Sept.–Oct. Sandstone rocks, NW (Cedarberg to Ceres).•

schlechteri Bég. (= *Romulea papyracea* Wolley-Dod) Cormous geophyte, 8–30 cm, corm with an oblique basal ridge, basal ridge fibrous, stem usually branching above ground. Basal leaves 2. Flowers lilac to cream-coloured with deep yellow cup. July–Sept. Streams and vleis on sandy soils, NW, SW (Bokkeveld Mtns to Caledon).•

singularis J.C.Manning & Goldblatt Acaulescent, cormous geophyte, to 4 cm, corm with an oblique basal ridge, basal ridge fibrous. Basal leaves 2, ± 1 mm diam. Flowers funnel-shaped, mauve to lilac, tube white inside, ± 10.5 mm long, filaments inserted in lower half of tube. Sept. Moist, sandstone pavements, NW (Bokkeveld Mtns: Oorlogskloof Nature Reserve).•

sinispinosensis M.P.de Vos Like **R. minutiflora** but flowers 15–20 mm long, white with yellow cup, anthers 3.5–4 mm long, inner bracts with inconspicuous spots. Aug. Sandy flats, NW (Doringbaai to Sauer).•

stellata M.P.de Vos Cormous geophyte, 3–5 cm, corms with an oblique basal ridge, basal ridge fibrous. Leaves 1 or 2. Flowers tiny, hypocrateriform, violet, rarely white, with yellow throat, tube elongate. May–July. Sandstone pavements, NW (Gifberg to Cedarberg: Sneeukop).•

tabularis Eckl. ex Bég. Cormous geophyte to 10 cm, corm with an oblique basal ridge, basal ridge fibrous, stem branching above ground. Basal leaves 1 or 2. Flowers blue to white with yellow cup, often blotched on reverse, sometimes fragrant, inner bracts membranous. July–Oct. Moist sandy or limestone flats, NW, SW, AP (coastal Namaqualand to Agulhas). **gce**

tetragona M.P.de Vos Cormous geophyte, 4–12 cm, corms with an oblique basal ridge, basal ridge fibrous. Basal leaves several, 4-winged, wings ciliate. Flowers rose to lilac or pink with yellowish cup. Aug.–Sept. Clay soils, NW, KM (W Karoo and Cold Bokkeveld to Tweedside). **gce**

toximontana M.P.de Vos Cormous geophyte to 10 cm, corm with a wide, obliquely flattened basal ridge, basal ridge fibrous, stem usually branching above ground. Basal leaves 2. Flowers white with orange cup. Aug. Sandy soils, NW (Bokkeveld Mtns to Gifberg).•

vinacea M.P.de Vos Like **R. schlechteri** but flowers blue-violet with cream-coloured and yellow cup, outer tepals shiny and wine-red on reverse. Aug. Sandy soils, NW (Pakhuis Pass).•

SPARAXIS Ker Gawl. (= *SYNNOTIA*) CAPE-BUTTERCUP, SPARAXIS, FLUWEELTJIE 16 spp., W Cape to W Karoo gce

A. Flowers or at least perianth ± actinomorphic with ± erect stamens

bulbifera (L.) Ker Gawl. BOTTERBLOM Cormous geophyte, 15–45 cm, stem branched and with axillary cormlets after blooming. Leaves sword-shaped. Flowers nearly actinomorphic, with unilateral stamens and style, white to cream-coloured, outer tepals often purplish on reverse, often faintly sweet scented. Sept.–Oct. Wet sandy or clay flats, SW, AP (Darling to Agulhas).•

elegans (Sweet) Goldblatt Cormous geophyte, 9–20 cm. Leaves lanceolate. Flowers actinomorphic, stamens and style central, salmon or white, marked purple and yellow, anthers coiled, brown. Aug.–Sept. Clay soils, NW (Bokkeveld Escarpment and Kobee Mtns). **gce**

fragrans (Jacq.) Ker Gawl. Cormous geophyte, 10–25 cm. Leaves linear. Flowers actinomorphic, stamens and style central, yellow to buff, musty scented. Aug.–Sept. Clay slopes in renosterveld, SW (Botrivier to Bredasdorp).•

grandiflora (D.Delaroche) Ker Gawl. BOTTERBLOM Cormous geophyte, 10–25 cm. Leaves lanceolate, sometimes prostrate. Flowers nearly actinomorphic, with unilateral stamens and style, white or yellow to plum-red. Aug.–Sept. Clay flats and slopes in renosterveld, NW, SW (Clanwilliam to Bredasdorp).•

maculosa Goldblatt Cormous geophyte, 10–20 cm. Leaves broad, falcate. Flowers actinomorphic, stamens and style central, yellow with black centre. Sept. Clay slopes in renosterveld, SW (Villiersdorp).•

tricolor (Schneev.) Ker Gawl. HARLEQUIN FLOWER Cormous geophyte to 30 cm. Leaves lanceolate. Flowers actinomorphic, stamens and style central, orange with black and yellow centres. Sept.–Oct. Damp clay and sandstone soils in renosterveld, NW (Bokkeveld Escarpment; scattered garden escapes in SW and SE).•

A.' Flowers zygomorphic with unilateral, arcuate, ± parallel stamens
B. Corm tunics clawed below

caryophyllacea Goldblatt Cormous geophyte, 8–20 cm, tunics clawed below. Leaves oblong, obtuse, prostrate, darkly speckled on sheaths. Flowers zygomorphic, yellow and white with speckled throat, dorsal tepal arcuate, fragrant. Aug. Rocky sandstone slopes, NW (Nardouw Mtns).•

metelerkampiae (L.Bolus) Goldblatt & J.C.Manning Cormous geophyte, 15–30 cm, tunics clawed below. Leaves lanceolate, obtuse, sometimes prostrate. Flowers zygomorphic, tube elongate, sharply bent, violet marked with white, style branches short, not overtopping anthers. Aug.–Sept. Rocky sandstone slopes, NW (Bokkeveld Mtns to Eendekuil).•

variegata (Sweet) Goldblatt Cormous geophyte, 25–40 cm, tunics clawed below. Leaves lanceolate, obtuse, often inclined. Flowers zygomorphic, tube elongate, sharply bent, violet and yellow or white, throat streaked with purple, style branches long, overtopping anthers. Aug.–Sept. Rocky sandstone slopes, NW (mid-Olifants River Valley).•

villosa (Burm.f.) Goldblatt Cormous geophyte, 12–35 cm, tunics clawed below. Leaves lanceolate, often obtuse. Flowers zygomorphic, small, yellow, upper tepals purple. Aug.–Sept. Clay and granite slopes, NW, SW (Citrusdal to Cape Peninsula).•

B.' Corms tunics fibrous

auriculata Goldblatt & J.C.Manning Cormous geophyte, 15–50 cm. Leaves lanceolate, darkly speckled on sheaths. Flowers zygomorphic, mauve and yellow, dorsal tepal erect, faintly scented. Aug. Rocky sandstone slopes, NW (Gifberg).•

calcicola Goldblatt & J.C.Manning *ined.* Cormous geophyte to 12–18 cm. Leaves narrowly sword-shaped. Flowers zygomorphic, pale yellow but dorsal tepal almost white, erect, lemon-scented. Aug.–Sept. Limestone pavements, SW (Saldanha coast).•

galeata Ker Gawl. Cormous geophyte, 12–35 cm. Leaves lanceolate, obtuse, often prostrate, speckled on sheaths. Flowers zygomorphic, cream and yellow with purplish markings, dorsal tepals erect or reflexed, usually strongly sweet scented. July–Sept. Dry clay slopes in renosterveld, NW (W Karoo and Vanrhyn's Pass to Clanwilliam). **gce**

parviflora (G.J.Lewis) Goldblatt Cormous geophyte, 15–30 cm. Leaves linear to sword-shaped. Flowers zygomorphic, small, cream-coloured sometimes flushed purple, tube very slender, faintly scented. Aug.–Sept. Granite and shale slopes, rock outcrops, SW (Hopefield and Saldanha to Darling).•

roxburghii (Baker) Goldblatt Cormous geophyte, 25–40 cm. Leaves sword-shaped, speckled on sheaths. Flowers zygomorphic, mauve to lilac with yellow on lower tepals, dorsal tepal erect, tube fairly long. Aug.–Sept. Rocky sandstone slopes, NW (rare and local S of Clanwilliam).•

SYRINGODEA Hook.f. CAPE-CROCUS 7 spp., SW Cape to Vaal River

derustensis M.P.de Vos Cormous geophyte, 5–8 cm, corm turbinate. Leaves 3–5, lanceolate, flattened and prostrate. Flowers violet, rarely white, tube 25–35 mm. Apr.–June. Stony hills, KM (Little Karoo: Dysselsdorp to De Rust).•

flanaganii Baker Cormous geophyte, 3–12 cm, corm turbinate. Leaves 6–9, filiform. Flowers blue to violet with white or yellow centre, tube 25–45 mm. Apr.–June. Stony flats, SE (Port Elizabeth to E Cape).

longituba (Klatt) Kuntze Cormous geophyte, 4–10 cm, corm turbinate. Leaves 5–8, filiform, often twisted. Flowers blue to violet with white or yellow centre, tube 15–30 mm. Apr.–June. Sandstone and shale soils, NW, SW, AP, KM, LB (Namaqualand and W Karoo to Bredasdorp and Riviersonderend, Little Karoo to Mossel Bay). **gce**

saxatilis M.P.de Vos Cormous geophyte, 4–8 cm, corm turbinate. Leaf solitary, terete and fleshy. Flowers lilac to violet, tube 15–20 mm. May–June. Low rocky hills, KM (Ladismith).•

THEREIANTHUS G.J.Lewis• SOMERPYPIE 11 spp., W Cape

A. Bracts (7–)8–13 mm long and prominently veined
B. Leaves not ribbed; stamens ± declinate

bulbiferus Goldblatt & J.C.Manning Cormous geophyte, 15–25 cm. Leaves linear, without prominent veins. Flowers spreading, actinomorphic with declinate stamens, pale to mid-blue with

white markings on all tepals, tube 7–8 mm long, bracts 7–10 mm long, strongly veined. Nov. Alluvial fynbos, NW, SW (Piketberg to Wellington).•

bracteolatus (Lam.) G.J.Lewis Cormous geophyte, 15–25 cm. Leaves terete without prominent veins. Flowers spreading, actinomorphic with declinate stamens, deep blue or purple with strongly purple-spotted veins, tube 7–15 mm long; bracts 8–12 mm long, strongly veined. Nov.–Jan. Dry sandstone slopes, SW (Peninsula and Stellenbosch to Bredasdorp).•

B.' Leaves longitudinally ribbed; stamens erect or arcuate

elandsmontanus Goldblatt & J.C.Manning Like **T. spicatus** but flowers cream-coloured or flesh-pink with linear tepals strongly banded purple at base. Nov. Sandstone ridges, SW (Bo-Hermon: Elandsberg Nature Reserve).•

ixioides G.J.Lewis Like **T. spicatus** but flowers clustered in head-like racemes, actinomorphic, white with violet markings on all tepals, tube filiform, 10–12 mm long, mouth closed by filament bases. Oct.–Nov. Damp sandstone slopes, SW (Bain's Kloof to Franschhoek Mtns).•

longicollis (Schltr.) G.J.Lewis Like **T. spicatus** but flowers pale lilac to pinkish purple and tube more than twice as long as tepals, 30–45 mm long. Nov.–Jan. Sandstone slopes, NW, SW (Porterville and Elandskloof Mtns).•

spicatus (L.) G.J.Lewis Cormous geophyte, 18–30 cm. Leaves linear and prominently veined. Flowers blue to pink or white, tube 12–25 mm long; bracts (7–)8–15 mm long, strongly veined. Oct.–Nov. Stony slopes, NW, SW (Piketberg and Porterville Mtns to Kleinmond).•

A.' Bracts 3–8 mm long, not strongly veined
C. Perianth tube < twice as long as tepals

intermedius J.C.Manning & Goldblatt Cormous geophyte, 15–25 cm. Leaves linear with definite midrib. Flowers violet with dark markings on lower tepals, tube 11–13 mm long; bracts 3–5 mm long, not veined. Dec. Seeps on sandstone slopes, NW (Cold Bokkeveld).•

racemosus (Klatt) G.J.Lewis Cormous geophyte, 15–25 cm. Leaves linear to sword-shaped with definite midrib. Flowers pale blue with dark markings on lower tepals, tube very short, 1 mm long, included in bracts; bracts 3–5 mm long, not veined, bracteoles membranous. Oct.–Dec. Rocky sandstone slopes, NW (Piketberg and Porterville Mtns).•

C. Perianth tube > twice as long as tepals

juncifolius (Baker) G.J.Lewis Cormous geophyte, 30–35 cm. Leaves terete, slender. Flowers in a lax spike, blue to purple, white in throat, tube 11–20 mm long, much longer than tepals; bracts 3–5 mm long, not veined, bracteoles leathery; capsule flask-shaped. Nov.–Mar. Mountain seeps, marshes and streams in sandstone, NW, SW (Cold Bokkeveld to Riviersonderend and Kleinrivier Mtns).•

minutus (Klatt) G.J.Lewis (= *Thereianthus lapeyrousioides* (Baker) G.J.Lewis) Cormous geophyte, 10–20 cm. Leaves sword-shaped with definite midrib. Flowers magenta, tube 20–30 mm long, much longer than tepals; bracts 6–8 mm long, not veined. Nov.–Jan. Seeps and wet sandstone rocks, SW (Elandskloof Mtns to Kogelberg and western Riviersonderend Mtns).•

montanus J.C.Manning & Goldblatt Cormous geophyte to 35 cm. Leaves linear. Flowers purple, tube 22–27 mm long, much longer than tepals; bracts 6–8 mm long, weakly veined, bracteoles papery. Jan.–Feb. Upper sandstone slopes, SW (Riviersonderend Mtns: Pilaarkop).•

TRITONIA Ker Gawl. TRITONIA, BASTERKALKOENTJIE ± 30 spp., S Cape and Namaqualand to S tropical Africa

A. Flowers or at least perianth radially symmetric; stamens ± unilateral or central

crocata (L.) Ker Gawl. MOSSELBAAI-BASTERKALKOENTJIE Cormous geophyte, 25–50 cm. Leaves sword-shaped. Flowers almost actinomorphic, rotate, with unilateral stamens and style, orange to reddish, tepal margins nearly transparent below. Sept.–Nov. Clay slopes in renosterveld, AP, LB, SE (Swellendam to Humansdorp).•

deusta (Aiton) Ker Gawl. Cormous geophyte, 15–25 cm. Leaves sword-shaped. Flowers almost actinomorphic, rotate, with unilateral stamens and style, orange, often with dark marks on outer tepals. Sept.–Oct. Clay, granite slopes in renosterveld, rarely on limestone, SW, AP, LB (Cape Peninsula to Riversdale).•

dubia Eckl. ex Klatt Cormous geophyte, 12–25 cm. Leaves falcate. Flowers actinomorphic, pink to orange with dark veins, stamens central around erect style. Aug.–Sept. Clay slopes in renosterveld and bush, SE (Humansdorp to Port Elizabeth).•

squalida (Aiton) Ker Gawl. Cormous geophyte, 25–40 cm. Leaves sword-shaped. Flowers almost actinomorphic, rotate, with unilateral stamens and style, pink to purple, tepals with lower margins transparent. Sept.–Oct. Limestone outcrops and calcareous sands, AP, LB (Riversdale to Albertinia).•

A.' Flowers zygomorphic; stamens unilateral, parallel and erect or arcuate
B. Perianth tube shorter than tepals

cedarmontana Goldblatt & J.C.Manning Cormous geophyte to 15 cm. Leaves linear, plane, as long as stem. Flowers in 2- or 3-flowered spikes, bilabiate, ?salmon-pink, lower tepals without calluses or median ridges. Dec. Ledges and steep slopes along streams, NW (S Cedarberg).•

gladiolaris (Lam.) Goldblatt & J.C.Manning (= *Tritonia lineata* (Salisb.) Ker. Gawl.) Cormous geophyte to 60 cm. Leaves sword-shaped with prominent submarginal veins. Flowers weakly bilabiate, pale yellow, occasionally orange with dark veins, lower tepals or only lower median tepal with thickened longitudinal ridges. Aug.–Nov. Grasslands, KM, SE (Swartberg and Jeffreys Bay to Mpumalanga).

laxifolia (Klatt) Benth. ex Baker Like **T. securigera** but autumn-flowering, calluses blunt and capsules larger, 10–15 mm long. Mar.–May. Grassy slopes, SE (Uitenhage to Tanzania).

parvula N.E.Br. Like **T. securigera** but leaves linear, 1–4 mm wide and lateral calluses sometimes reduced. Sept.–Nov. Stony sandstone soils, KM, LB, SE (Riversdale to Willowmore).•

securigera (Aiton) Ker Gawl. (= *Tritonia watermeyeri* L.Bolus) Cormous geophyte, 6–40 cm. Leaves sword-shaped to falcate, flat or twisted and undulate to crisped. Flowers bilabiate, scarlet-orange, occasionally yellow, lower tepals each with a large, tooth-like yellow callus. Aug.–Sept. (–Nov. outside our area). Clay or sandy slopes, mostly in karroid scrub, KM, LB, SE (Montagu to Willowmore, Riversdale to E Cape: Katberg).

B.' Perianth tube longer than tepals
C. Spike dense, ± secund and comb-like; bracts short, truncate, brown-edged

cooperi (Baker) Klatt Cormous geophyte, 40–60 cm. Leaves narrowly sword-shaped with flanged margins, H-shaped in section. Flowers in secund spikes, long-tubed, white to cream-coloured, fading pink, often with red markings, bracts small, obtuse, brown-edged. Nov.–Dec. Rocky sandstone soils, SW, LB (Du Toitskloof to Riversdale).•

lancea (Thunb.) N.E.Br. Cormous geophyte, 10–30 cm. Leaves narrow with inrolled margins and petiole-like base. Flowers in secund spikes, long-tubed, white with red markings, bracts small, obtuse, brown-edged. Aug.–Sept. Sandstone slopes, NW (Piketberg).•

undulata (Burm.f.) Baker (= *Tritonia crispa* (L.f.) Ker Gawl.) Cormous geophyte, 18–35 cm. Leaves sword-shaped with undulate and crisped margins. Flowers in secund spikes, long-tubed, cream-coloured with red markings, pink on outside, bracts small, obtuse, brown-edged. Oct.–Dec. Rocky sandstone slopes in fynbos, NW, SW (Bokkeveld Mtns to Grabouw).•

C.' Spike not comb-like; bracts otherwise

bakeri Klatt Cormous geophyte, 40–70 cm. Leaves linear, subterete. Flowers long-tubed, perianth nearly actinomorphic but stamens unilateral, cream-coloured to pale mauve. (Late Sept.–)Oct.–Nov.(–Dec.). Rocky slopes, KM, LB, SE (Ladismith to Avontuur).•

chrysantha Fourc. Cormous geophyte, 15–30 cm. Leaves sword-shaped. Flowers long-tubed, bright yellow, lower tepals each with a large, tooth-like callus. Aug.–Oct. Dry karroid slopes, KM, SE (Oudtshoorn to Grahamstown).

flabellifolia (D.Delaroche) G.J.Lewis Cormous geophyte, 25–40 cm. Leaves sword-shaped. Flowers long-tubed, cream-coloured with red streaks, bracts large, rust-coloured above and attenuate. Mainly Oct.–Nov. Rocky sandstone and shale slopes in renosterveld or fynbos, SW, KM, LB (Villiersdorp to Albertinia).•

linearifolia Goldblatt & J.C.Manning Cormous geophyte, 20–60 cm. Leaves linear. Flowers long-tubed, cream-coloured, lower tepals each with narrow yellowish green callus, bracts fairly short, acute. Dec. Sandstone seeps, LB, SE (Attaquas Mtns to Baviaanskloof Mtns).•

pallida Ker Gawl. Cormous geophyte, 20–40 cm. Leaves sword-shaped. Flowers long-tubed, cream-coloured or pink to pale lilac, lower tepals each usually with a yellowish green tooth or ridge, bracts fairly short, acute. Sept.–Oct. Sandstone and clay slopes, NW, KM, LB (Robertson to Oudtshoorn).•

TRITONIOPSIS L.Bolus (= *ANAPALINA*) SNAKE-FLOWER 24 spp., W to E Cape

A. Flowers red to salmon
B. Stem leaves long and filiform-attenuate

burchellii (N.E.Br.) Goldblatt (= *Anapalina burchellii* (N.E.Br.) N.E.Br.) Cormous geophyte, 50–90 cm. Leaves linear, 3-veined, narrowed below into a petiole, upper leaves filiform, brown. Flowers tubular, scarlet, upper tepals larger, tube 30–40 mm. Feb.–Apr. Rocky sandstone slopes, 200–600 m, SW, AP, LB (Tulbagh to Outeniqua Mtns).•

triticea (Burm.f.) Goldblatt (= *Anapalina triticea* (Burm.f.) N.E.Br.) Like **T. burchellii** but flowers smaller, tube 25–30 mm and tepals subequal, to 12 mm. Mainly Feb.–Apr. Rocky granite and sandstone slopes, NW, SW, AP, LB (Cedarberg to Cape Peninsula to Mossel Bay).•

B.' Stem leaves shorter and blunter

antholyza (Poir.) Goldblatt (= *Anapalina longituba* Fourc., *T. nervosa* (Thunb.) G.J.Lewis) BERG-PYPIE, KARKARBLOM Cormous geophyte to 90 cm. Leaves lanceolate to linear, 3–6-veined. Flowers tubular, red to yellowish pink, dorsal tepal largest, arising below lower, lower tepals often with dark streaks, tube 25–30 cm. Nov.–Apr. Rocky slopes, NW, SW, AP, KM, LB, SE (Bokkeveld Mtns to Port Elizabeth).•

caffra (N.E.Br.) Goldblatt & J.C.Manning (= *Anapalina caffra* (N.E.Br.) G.J.Lewis) Cormous geophyte, 20–80 cm. Leaves sword-shaped to linear, 2–4-veined. Flowers tubular, red, dorsal tepal largest, elongate-spathulate, arising 6–8 mm beyond lower, tube 20–30 mm. Sept.–Dec. Sandstone slopes, LB, SE (Heidelberg to East London).

intermedia (Baker) Goldblatt (= *Anapalina intermedia* (Baker) G.J.Lewis) Like **T. caffra** but leaves shorter than stem, lower tepals with purple-black markings at sinuses and dorsal tepal arising 3–5 mm beyond lower. Sept.–Dec. Rocky sandstone slopes, SE (Uniondale to Port Elizabeth).•

lesliei L.Bolus Cormous geophyte, 35–65 cm. Leaves linear, 1- or 2-veined, stems usually branched. Flowers actinomorphic, bright red, tube elongate, 20–25 mm, anthers short-apiculate. Feb.–Apr. Sandstone rocks, along streams and seeps, NW (Skurfdeberg: Ceres).•

pulchra (Baker) Goldblatt (= *Anapalina pulchra* (Baker) N.E.Br.) Cormous geophyte, 25–50 cm. Leaves linear to lanceolate, 2- or 3-veined. Flowers dark rose, tepals nearly equal, tube elongate, tube 30–33 mm. Feb.–June. Rocky sandstone slopes, SW, AP (Hottentots Holland to Agulhas coast).•

williamsiana Goldblatt Like **T. caffra** but leaves and tunics softer and not forming a neck, dorsal tepal arising 2–3 mm beyond lower, capsules small and verrucose, to 10 mm and seeds flattened. Dec.–Jan. Marshes on peaty sandstone soil, SW (Hermanus Mtns).•

*A.' Flowers pink, cream-coloured or yellow (see also **T. antholyza**)*
C. Perianth tube 20–70 mm long

flexuosa (L.f.) G.J.Lewis Cormous geophyte, 15–30 cm. Leaves ovate, 2-veined, pseudopetiolate, margins undulate. Flowers pink, tube elongate, 35–40 mm, anthers long-apiculate, bracts 25–35 mm, dry and brown. Jan.–Feb. Clay slopes in renosterveld, SW, AP (Shaw's Mtns to Agulhas flats).•

nervosa (Baker) G.J.Lewis Cormous geophyte, 50–100 cm. Leaves sword-shaped, 2- or 3-veined. Flowers pale yellow to cream-coloured or white, tube elongate, 30–40 mm, fragrant. Dec.–Jan. Rocky mountain slopes, NW (Pakhuis Mtns to Ceres).•

revoluta (Burm.f.) Goldblatt (= *Tritoniopsis apiculata* (F.Bolus) G.J.Lewis) Cormous geophyte, 25–40 cm. Leaves sword-shaped, 3–5-veined. Flowers pink with darker markings, tube elongate, 40–70 mm, anthers long-apiculate, bracts large and brown, 20–50 mm. Mar.–May. Stony soils, coastal to 1 000 m, AP, KM, LB (Potberg, Langeberg and Swartberg).•

toximontana J.C.Manning & Goldblatt Cormous geophyte, 30–65 cm, mostly unbranched. Leaves lanceolate, 3-veined, contracted abruptly into a terete pseudopetiole, often dry at flowering. Flowers pink, tube elongate, ± 20 mm. Mar.–May. Sandstone outcrops, NW (Gifberg and Matsikamma Mtns).•

C.' Perianth tube to 15 mm long
D. Flowers yellow or cream-coloured

bicolor J.C.Manning & Goldblatt Like **T. parviflora** but leaves narrowly lanceolate, abruptly narrowed below into a pseudopetiole, and filaments shorter, 6–7 mm long. Nov.–Dec. Seasonally waterlogged sandstone plateau, SW (Bredasdorp Mtns and Baardskeedersbos).•

caledonensis (R.C.Foster) G.J.Lewis Like **T. unguicularis** but leaves narrower, linear, 1-veined, 1–2 mm wide and filaments shorter, 3–5 mm. Nov. Rocky sandstone slopes, SW (Houw Hoek to Bredasdorp Mtns).•

flava J.C.Manning & Goldblatt Like **T. unguicularis** but more robust with larger, bright yellow flowers, tube 4–5 mm, filaments ± 10 mm long. Dec. Seasonal marshes, SW (Kogelberg Reserve near Palmiet River Mouth).•

nemorosa (E.Mey. ex Klatt) G.J.Lewis Cormous geophyte, 1–1.5 m, stems often branched. Leaves sword-shaped, 5–7-veined. Flowers yellow with brown markings, tube ± 8 mm, anthers shortly apiculate. Nov.–Jan. Rocky slopes in fynbos, NW (Cedarberg to Elandskloof).•

parviflora (Jacq.) G.J.Lewis Cormous geophyte, 15–40 cm. Leaves linear, 1- or 2-veined. Flowers yellow with brown to maroon markings, tube ± 4 mm. Nov.–Jan. Rocky sandstone slopes, NW, SW, AP (Citrusdal to Agulhas).•

unguicularis (Lam.) G.J.Lewis Cormous geophyte, 20–55 cm. Leaves linear-lanceolate, 2- or 3-veined. Flowers small, 12–15 mm, tube ± 3 mm, cream-coloured to yellowish with mauve markings, fragrant. Dec.–Mar. Rocky sandstone slopes, SW (Tulbagh: Elandskloof Mtns to Cape Peninsula).•

D.' Flowers pink

dodii (G.J.Lewis) G.J.Lewis Like **T. ramosa** but never branched and bracts obtuse, rigid when dry. Feb.–Apr. Sandstone slopes, SW, AP (Cape Peninsula to Agulhas flats).•

elongata (L.Bolus) G.J.Lewis Like **T. dodii** and **T. ramosa** but flower spike very long and elongate and bracts conspicuously apiculate. Mar.–Apr. Sandy loam at low altitudes, SW (Paarl, Caledon).•

lata (L.Bolus) G.J.Lewis Like **T. ramosa** but more robust and rarely branched, dorsal tepal larger, 7–12 mm wide and longer than upper laterals. Mar.–May. Sandstone mountain slopes, SW (Bain's Kloof to Hermanus).•

latifolia G.J.Lewis Like **T. ramosa** but stouter, flowers pale pink to cream-coloured and leaves lanceolate, 4–6-veined. Dec.–Jan. Rocky sandstone slopes, NW (N Cedarberg).•

pulchella G.J.Lewis Like **T. ramosa** but tube ± 15(–20) mm, tepals ± truncate and upper 3 subequal in width and wider than the 3 lower. Dec.–Feb. Sandstone slopes, SW (Bain's Kloof Mtns).•

ramosa (Eckl. ex Klatt) G.J.Lewis Cormous geophyte, 15–50 cm, stems usually with slender branches. Leaves linear to lanceolate, 1–3-veined. Flowers deep pink with dark markings, tube 7–10 mm, anthers shortly apiculate. Jan.–Apr. Sandstone slopes, NW, SW, LB, SE (Gifberg to Humansdorp).•

WATSONIA Mill. WATSONIA, KANOLPYPIE 52 spp., Namaqualand to Limpopo, mainly W Cape

A. Flower tube short or long, gradually flaring above
B. Stamens declinate

amabilis Goldblatt Cormous geophyte, 15–50 cm. Leaves sword-shaped. Flowers pink with dark markings in throat, stamens declinate. Oct.–Nov. Granite slopes in renosterveld, SW (Paarl to Sir Lowry's Pass).•

borbonica (Pourr.) Goldblatt (= *Watsonia ardernei* J.W.Mathews & L.Bolus, *W. pyramidata* (Andrews) Klatt) Robust, cormous geophyte, 50–200 cm, stems often purple. Leaves sword-shaped,

apple-green. Flowers purple-pink, rarely white, tube short, stamens mostly declinate, sometimes arcuate. Capsules ovoid-oblong. Oct.–Jan. Mainly rocky sandstone slopes, also granite and clay, 100–1 500 m, NW, SW (Tulbagh to Bredasdorp).•

dubia Eckl. ex Klatt Cormous geophyte, 25–40 cm. Leaves sword-shaped. Flowers pink, tube elongate, slender, stamens declinate, bracts long, becoming dry and lacerated. Capsules oblong. Oct.–Nov. Granite and clay slopes in renosterveld, NW, SW (Citrusdal to Wellington).•

laccata (Jacq.) Ker Gawl. Dwarf cormous geophyte, 30–40 cm. Leaves sword-shaped. Flowers pink to orange or white, sometimes with pink keels, stamens declinate. Sept.–Nov. Sandstone slopes in fynbos, SW, AP, SE (Vyeboom and Kleinmond to Humansdorp).•

rogersii L.Bolus Cormous geophyte, 20–50 cm. Leaves sword-shaped with thickened margins. Flowers purple-pink, tube short, stamens declinate. Capsules ovoid-oblong. Oct.–Dec. Mainly rocky sandstone slopes, also granite and clay, 100–1 500 m, SW (Hottentots Holland Mtns to Kogelberg).•

strictiflora Ker Gawl. Cormous geophyte, 25–45 cm. Leaves sword-shaped. Flowers pink with dark markings in throat, tube elongate, stamens declinate. Capsules ovoid-oblong. Nov.–Dec. Mainly granite outcrops, SW (Durbanville to Klapmuts).•

*B.' Stamens arcuate or erect (see also **W. borbonica** above)*

distans L.Bolus Cormous geophyte, 15–35 cm, slender. Leaves sword-shaped. Flowers deep pink, short-tubed. Nov.–Dec. Mountain marshes, SW (Franschhoek to Kleinmond).•

elsiae Goldblatt Cormous geophyte, 40–65 cm. Leaves sword-shaped, margins thickened. Flowers scarlet, stamens included in tube. Capsules ovoid. Mainly Nov.–Dec. Stony sandstone slopes, SE (Uniondale to Joubertina).•

emiliae L.Bolus Cormous geophyte, 40–60 cm. Leaves sword-shaped. Flowers pale pink. Capsules ovoid. Nov.–Dec. Rocky sandstone slopes, KM, LB (Swartberg and Langeberg: Riversdale).•

galpinii L.Bolus Cormous geophyte to 1.5 m, spikes dense. Leaves sword-shaped. Flowers dark red. Capsules obovoid. Dec.–May. Streamsides, KM, SE (Swartberg and Outeniqua Mtns).•

marginata (L.f.) Ker Gawl. Cormous geophyte, 50–200 cm. Leaves broad with thick hyaline margins and midribs. Flowers actinomorphic, pink, occasionally white or purple. Sept.–Dec. Sandy and granitic soils, often damper sites, NW, SW (Bokkeveld Mtns to Hermanus).•

stenosiphon L.Bolus Cormous geophyte, mostly 20–35 cm, slender. Leaves sword-shaped. Flowers bright orange, tube elongate, slender. Capsules cylindrical. Sept.–Oct. Sandy coastal flats, SW (Hermanus to Potberg).•

A.' Flower tube long, slender below but widening abruptly into a broadly cylindrical upper part
*C. Floral bracts short, 5–14 mm long (see also **W. aletroides** above)*

angusta Ker Gawl. ROOIKANOLPYPIE Cormous geophyte to 1.2 m. Leaves sword-shaped. Flowers scarlet, tube elongate. Capsules attenuate. Mainly Nov.–Jan. Montane marshes and stream banks in fynbos, NW, SW, AP, LB, SE (Cedarberg to S KwaZulu-Natal).

fourcadei J.W.Mathews & L.Bolus SUURKANOL Cormous geophyte to 2 m. Leaves sword-shaped. Flowers mostly orange to red, sometimes pink or purple, red or orange, tube elongate, bracts short. Capsules tapering. Nov.–Jan. Rocky sandstone slopes, NW, SW, LB, SE (Cedarberg to Port Elizabeth).•

knysnana L.Bolus Cormous geophyte to 1.6 m, robust. Leaves sword-shaped. Flowers mostly pink to purple, tube elongate. Capsules obovoid. Nov.–Jan. Sandstone slopes in fynbos, LB, SE (Mossel Bay to East London).

marlothii L.Bolus Cormous geophyte, 60–120 cm. Leaves sword-shaped, with thick hyaline margins and midrib. Flowers mainly red to pink, tubes elongate. Capsules globose. Mainly Nov.–Jan. Rocky sandstone slopes, KM (Swartberg).•

minima Goldblatt Cormous geophyte, 10–45 cm. Leaves few, sword-shaped to sublinear. Flowers orange to scarlet, tube elongate. Capsules obovoid-truncate. Nov.–Dec. Seasonally waterlogged, rocky sandstone slopes, SW (Riviersonderend Mtns).•

paucifolia Goldblatt Cormous geophyte, 20–45 cm. Leaves few, narrow. Flowers pink, tubes elongate. Capsules ovoid. Nov.–Jan. Rocky sandstone slopes, 500–1 200 m, NW, SW (Tulbagh Mtns to Greyton).•

stokoei L.Bolus Cormous geophyte to 1 m. Leaves sword-shaped. Flowers in a lax spike, small, red, tube elongate. Capsules obovoid. Nov.–Jan. Sandstone soils in seeps and marshes, NW (Gifberg to Cold Bokkeveld).•

tabularis J.W.Mathews & L.Bolus Cormous geophyte to 1.5 m. Leaves sword-shaped, cauline leaves inflated. Flowers orange or pink, tube elongate. Capsules oblong-truncate. Nov.–Dec. Rocky sandstone soils, 50–400 m, SW (Cape Peninsula).•

wilmaniae J.W.Mathews & L.Bolus Cormous geophyte, 80–150 cm. Leaves sword-shaped. Flowers orange, red or purple, tube elongate, slender. Capsules obovoid. Nov.–Jan. Rocky sandstone soils, often wet sites, KM, SE (Ladismith to Knysna).•

zeyheri L.Bolus Cormous geophyte, 50–120 cm. Leaves sword-shaped. Flowers bright orange, tube elongate. Capsules fusiform. Nov.–Jan. Marshes on sandstone, coastal to 100 m, SW, AP (Cape Peninsula to Agulhas coast).•

C.' Floral bracts longer, 15–45 mm long (but see also ***W. fourcadei, W. knysnana, W. zeyheri)***

aletroides (Burm.f.) Ker Gawl. Cormous geophyte to 45 cm. Leaves sword-shaped. Flowers red, sometimes pinkish, nodding on a recurved tube, tepals short, usually barely spreading. Capsules fusiform-attenuate. Sept.–Oct. Clay slopes, mainly renosterveld, rarely sandstone, SW, AP, LB, SE (Botrivier to Knysna).•

coccinea (Herb. ex Baker) Baker Cormous geophyte, 14–40 cm. Leaves sword-shaped. Flowers purple, pink or scarlet, tubes elongate. Capsules oblong. Aug.–Nov. Sandstone flats and plateaus, SW, AP (Malmesbury to Bredasdorp).•

fergusoniae L.Bolus Cormous geophyte to 80 cm. Leaves sword-shaped. Flowers bright orange-red, tube elongate. Capsules oblong-cylindrical. Oct.–Nov. Limestone outcrops, AP (Agulhas to Albertinia).•

humilis Mill. (= *Watsonia roseoalba* Ker Gawl.) Dwarf, cormous geophyte, 15–40 cm. Leaves sword-shaped. Flowers pale pink to white, tube elongate, bracts imbricate. Sept.–Nov. Sandstone or granite flats, SW (Malmesbury to Gordon's Bay).•

hysterantha J.W.Mathews & L.Bolus Cormous geophyte, 50–90 cm, with slender stems. Leaves dry at flowering, linear with prominent margins. Flowers red, tube elongate. Capsules ovoid. Apr.–July. Coastal granite outcrops, SW (Saldanha to Langebaan).•

meriana (L.) Mill. (= *Watsonia bulbillifera* J.W.Mathews & L.Bolus) LAKPYPIE, WASPYPIE Cormous geophyte, 60–200 cm, sometimes with cormlets at nodes. Leaves sword-shaped. Flowers red, pink or mauve, tube elongate. Capsules oblong. Sept.–Nov. Sandy or granitic soils, often vleis and stream banks, NW, SW, AP (Namaqualand to Bredasdorp). **gce**

pillansii L.Bolus (= *Watsonia beatricis* J.W.Mathews & L.Bolus) Cormous geophyte, 50–120 cm. Leaves sword-shaped. Flowers scarlet, tube elongate. Capsules obovoid. Nov.–Jan. Sandy soils mostly at low elevations, SE (George to central KwaZulu-Natal).

schlechteri L.Bolus Cormous geophyte, 40–100 cm. Leaves sword-shaped, with very thick margins. Flowers scarlet, tube elongate. Capsules obovoid. Nov.–Feb., mainly after fire. Rocky sandstone slopes in fynbos, NW, SW, AP, KM, LB, SE (Citrusdal to Kouga Mtns).•

spectabilis Schinz Cormous geophyte, 25–50 cm. Leaves sword-shaped. Flowers large, scarlet, tube elongate. Capsules obovoid to globose. Aug.–Nov. Sandy flats and plateaus, often near water, NW, SW, AP (Bokkeveld Mtns to Potberg).•

vanderspuyiae L.Bolus Cormous geophyte, 1–2 m, robust. Leaves broad, with thick margins. Flowers dark red, tube elongate. Capsules oblong. Sept.–Nov. Sandstone outcrops, NW (Matsikamma Mtns to Ceres and Piketberg).•

versfeldii J.W.Mathews & L.Bolus Cormous geophyte, 1–2 m, robust. Leaves broad. Flowers pink-purple, tube elongate. Capsules obconic. Oct.–Nov. Sandstone slopes, NW (Piketberg and Porterville Mtns).•

WITSENIA Thunb.• BOKMAKIERIESTERT, WAAIERTJIE 1 sp., SW Cape

maura Thunb. Slender, woody shrub to 2 m. Leaves narrowly lanceolate. Flowers paired in pseudoracemes, tubular, tepals connivent, dark green with velvety yellow tips. Mainly Apr.–Aug. Marshy coastal flats and mountain slopes, to 1 250 m, SW, LB (Cape Peninsula to Swellendam).•

XENOSCAPA (Goldblatt) Goldblatt & J.C.Manning FEEPYPIE 3 spp., S Namibia to SW Cape

fistulosa (Spreng. ex Klatt) Goldblatt & J.C.Manning (= *Anomatheca fistulosa* (Spreng. ex Klatt) Goldblatt) Cormous geophyte, 3–20 cm. Leaves ovate, prostrate. Flowers small, white, long-tubed. Aug.–Oct. Damp clay soil, sometimes on granite, NW, SW, KM (S Namibia and W Karoo to Montagu, Vredenburg, Cape Peninsula). **gce**

JUNCACEAE

JUNCUS L. ± 250 spp., cosmopolitan

A. Annuals

***bufonius** L. TOADRUSH Soft annual, 15–30 cm. Leaves linear. Flowers in leafy, branched spikes, green. Oct.–Jan. Disturbed areas, NW, SW, AP, LB, SE (cosmopolitan).

cephalotes Thunb. Tufted annual, 6–15 cm. Leaves linear. Flowers in solitary capitula, streaked with black or brown. Sept.–Nov. Damp flats, NW, SW (Namaqualand to Swellendam). **gce**

obliquus Adamson Similar to **J. rupestris** but capitula usually solitary, stamens 3 and style short. Sept.–Oct. Streamsides, NW (Cold Bokkeveld Mtns).•

rupestris Kunth Small, delicate, tufted annual, 6–16 cm. Leaves filiform. Flowers in branched capitula, yellow. Oct.–Nov. Damp sandy places, NW, SW (Namaqualand to Cape Peninsula). **gce**

scabriusculus Kunth Low, tufted, scabrid annual, 6–12 cm. Leaves linear. Flowers in branched capitula, yellow-brown. Nov.–Dec. Marshes, NW, SW, AP (Cape Peninsula to Bredasdorp).•

A.' Perennials

acutus L. Hard, tufted perennial to 2 m. Leaves cylindrical. Flowers in pseudolateral panicles, red to brown. Sept.–Jan. Brackish marshes, NW, SW, KM, LB, SE (pantemperate).

capensis Thunb. Tufted perennial, 6–60 cm. Leaves filiform to linear. Flowers in cymes, pale with dark keels. Nov.–Apr. Damp flats and lower slopes, NW, SW, AP, KM, SE (Clanwilliam to E Cape).

***capillaceus** Lam. Tufted perennial to 30 cm. Leaves filiform, ribbed. Flowers in pseudolateral spikes, green. Mar.–Apr. Disturbed areas, SW (S American weed).

dregeanus Kunth Similar to **J. capensis** but style vestigial. Flowers dark brown. Nov.–Dec. Marshes, SW, LB, SE (Darling to E Africa).

effusus L. Tufted perennial to 1 m. Leaves cylindrical, stem-like. Flowers in tight pseudolateral clusters, green. Dec.–Mar. Streambeds or marshes, SW, LB, SE (Cape Peninsula to E Cape, cosmopolitan).

exsertus Buchenau BIESIE Similar to **J. oxycarpus** but capsule cylindrical and exserted from perianth. Nov. Streamsides or marshes, NW, SW, KM, LB, SE (Namaqualand to S tropical Africa).

***imbricatus** Laharpe Similar to **J. capillaceus** but to 60 cm and more sclerotic. Nov.–Mar. Disturbed areas, SW (S American weed).

kraussii Hochst. RUSH, BIESIE Hard, dark green, tufted perennial to 1.2 m. Leaves cylindrical, stem-like. Flowers in pseudolateral panicles, brown. Sept.–Jan. Saline marshes, SW, AP, LB, SE (Cape Peninsula to Mozambique, Australia, S America).

lomatophyllus Spreng. Tufted perennial, 30–80 cm. Leaves strap-shaped, soft. Flowers in cymes, dark brown. Oct.–Apr. Streamsides, marshes and seeps, NW, SW, AP, LB, SE (Matsikamma Mtns to Zimbabwe).

oxycarpus E.Mey. ex Kunth Tufted perennial with soft stems, 40–80 cm. Leaves cylindrical, septate. Flowers in round capitula in pseudolateral panicles, brown. Oct.–Jan. Streamsides and marshes, NW, SW, LB, SE (Gifberg to Eritrea).

punctorius L.f. Hard, tufted, pale green perennial to 1.5 m. Leaf solitary per flowering stem, cylindrical, septate. Flowers in round capitula in pseudolateral panicles, brown. Oct.–Feb. Freshwater marshes, NW, SW, AP, LB, SE (Namibia to Cape Peninsula to Limpopo, also N Africa, Eurasia).

stenopetalus Adamson Similar to **J. cephalotes** but capsule with a long beak. Oct. Damp, sandy, lower slopes, NW, SW (Tulbagh to Cape Peninsula).•

JUNCAGINACEAE

TRIGLOCHIN L. 25–35 spp., cosmopolitan

A. Fruits globose, ± 2 mm long

striata Ruíz & Pav. Tufted, rhizomatous perennial, 5–50 cm. Leaves subdistichous, terete. Flowers in dense spiral whorls. Fruits globose, 2 mm long. Mostly July–Dec. Marshes and seeps, NW, SW, LB, SE (Namaqualand to E Cape and ± worldwide).

A.' Fruits tapering-conical, 5–10 mm long
B. Plants bulbous, never from tidal situations

bulbosa L. Tufted perennial with fusiform bulbs, 5–50 cm, with dark fibres. Leaves green at flowering, terete to filiform. Flowers 4–40 in lax or dense racemes, green. Fruits narrowly ovoid, 4–12 mm long. July–Sept. Damp or marshy places, NW, SW, AP, KM, LB (Knersvlakte and Bokkeveld Mtns to Still Bay). **gce**

compacta Adamson Like **T. bulbosa** but leaves absent or emergent at flowering. Jan.–May. Deep coastal and inland sands, NW, SW, AP, KM, SE (Namaqualand, Bokkeveld Mtns to Knysna and Swartberg). **gce**

B.' Plants rhizomatous, mainly from tidal situations

buchenaui Köcke, Mering & Kadereit Tufted, rhizomatous perennial, 9–30 cm, with few, very long, pale fibres. Leaves terete, 1–2 mm diam. Flowers 3–17 in lax racemes, green. Fruits narrowly ovoid, 4–8 mm long. Jan.–Dec. Estuarine salt marshes, SW, AP, SE (Velddrif–Langebaan, Still Bay, Mossel Bay to Eastern Cape).

elongata Buchenau Tufted, rhizomatous perennial, 15–90 cm, thinly fibrous at base. Leaves terete, 1–2 mm diam. Flowers 10–100 in dense racemes, green. Fruits often secund, narrowly ovoid, 5–9 mm long. Jan.–Dec. Estuarine salt marshes, rarely salt pans, NW, SW, AP, SE (Namaqualand, Graafwater, Peninsula to KwaZulu-Natal).

LANARIACEAE

LANARIA Aiton KAPOK-LILY, PERDEKAPOK 1 sp., W to E Cape

lanata (L.) T.Durand & Schinz Evergreen, rhizomatous perennial, 30–80 cm. Leaves tufted, narrow, channelled, fibrotic, margins serrate. Flowers in white-woolly panicles, small, mauve, honey-scented. Nov.–Jan. Clay and sandstone slopes, SW, AP, LB, SE (Bain's Kloof to E Cape).

NAJADACEAE = HYDROCHARITACEAE

ORCHIDACEAE

by H. Kurzweil

1. Pollinia at apex of gynostemium under deciduous anther cap, usually hard and waxy (subfamily EPIDENDROIDEAE):
 2. Plants epiphytic or lithophytic with slender, smooth white or grey roots on surface of substrate; leaves distichous, leathery, jointed basally:
  3. Plants sympodial, with pseudobulbs of several internodes; inflorescence terminal; flowers not resupinate ..... **Polystachya**
  3.' Plants monopodial, without pseudobulbs; inflorescence axillary; flowers resupinate:
   4. Rostellum deeply notched ..... **Angraecum**
   4.' Rostellum beaked:

5. Viscidia 2 ..... **Mystacidium**
5.' Viscidium 1:
6. Lip simple; pollinia attached to separate stalks (stipes) ..... **Cyrtorchis**
6.' Lip 3-lobed; pollinia attached to a single stalk (stipes) ..... **Tridactyle**

2.' Plants normally terrestrial with roots subterranean and often tuberous; leaves various:
7. Saprophytic plants with reduced, scale-like leaves; flowers nodding ..... **Gastrodia**
7.' Eutrophic plants with well-developed green leaves:
8. Inflorescence terminal:
9. Leaves few to numerous, linear, distichous, leathery, scattered on unthickened stem ..... **Acrolophia**
9.' Leaves 2 or 3, ovate to elliptic, flat and often leathery, on underground or aboveground pseudobulbs ..... **Liparis**
8.' Inflorescence lateral:
10. Spur thread-like, 20–40 mm long; pollinia 8, rather soft; lip and gynostemium extensively united basally ..... **Calanthe**
10.' Spur absent or short and broad, to 9 mm long; pollinia 2, hard; lip free from gynostemium ..... **Eulophia**

1.' Pollinia in 2 persistent, longitudinally slit, pouch-like structures, sectile or granular; plants normally terrestrial with tuberous roots (subfamily ORCHIDOIDEAE):
11. Lip with single basal spur; sepals never spurred; anther usually erect:
12. Stigma concave:
13. Leaves several, lanceolate, cauline; plants glabrous ..... **Brachycorythis**
13.' Leaves 1 or 2, orbicular, adpressed to the ground; plants mostly variously pubescent:
14. Leaves 2; flowers few to many, small, with lip entire or lacerated ..... **Holothrix**
14.' Leaf 1; flowers normally solitary, large, with lip deeply lacerated ..... **Bartholina**
12.' Stigma convex, with 2 lobes or arms:
15. Flowers pink; petals free, simple, concealing gynostemium; lip spotted ..... **Stenoglottis**
15.' Flowers green or green and white; petals adhering to median sepal, often bilobed; lip unmarked:
16. Lip united with base of stigmatic arms; central rostellum lobe deeply concave, helmet shaped ..... **Bonatea**
16.' Lip free from stigma; central rostellum lobe flat or folded ..... **Habenaria**

11.' Lip with paired spurs or without spurs; sepals sometimes with single spur; anther usually reflexed:
17. Gynostemium slender and elongated; petals and sepals similar:
18. Lip scarcely different from petals and never spurred ..... **Pachites**
18.' Lip hooded and with 2 spurs (sometimes reduced to sacs or rarely absent) ..... **Satyrium**
17.' Gynostemium short and squat; petals and sepals usually dissimilar:
19. Petals free from median sepal; lip not adpressed to gynostemium, usually spreading, never appendaged ..... **Disa**
a. Lip complex with an ascending basal part, flat middle part, and tooth-like apex; stem slender, wiry and often flexuose ..... ***Schizodium* group**
a.' Lip simple, rarely fimbriate or spathulate; stem seldom wiry:
b. Viscidium 1; lip fleshy; rostellum unlobed; spur pendent ..... ***Monadenia* group**
b.' Viscidia 2, sometimes connate; lip not fleshy; rostellum 3-lobed; spur various:
c. Lip spathulate, elliptic or elliptic-ovate, often fringed; leaves grass-like, usually dry at flowering; petals falcate ..... ***Herschelia* group**
c.' Lip mostly linear or lorate; leaves various, mostly green at flowering ..... ***Disa* group**
19.' Petals normally connate with median sepal to form hood; lip erect at base and adpressed to gynostemium, mostly fused with it, usually appendaged:
20. Lateral sepals spurred or saccate ..... **Disperis**
20.' Lateral sepals never spurred or saccate:
21. Median sepal spurred; lip erect, minute (about a third of gynostemium length) ... **Brownleea**
21.' Median sepal normally not spurred; lip never erect and minute:
22. Lip blade not anchor-shaped; leaves 1-many, elliptic to lanceolate, rarely linear; lip appendage generally present ..... **Pterygodium**
a. Median sepal and petals forming deeply globose hood; lip appendage a shield on top of gynostemium, often with lateral processes ..... ***Corycium* group**
a.' Median sepal and petals forming shallow to flat hood; lip appendage elongate, solid or funnel-shaped ..... ***Pterygodium* group**
22.' Lip blade anchor-shaped, rarely rhomboid or kidney-shaped; leaves numerous, cauline, linear or narrowly lanceolate; lip appendage present or absent:
23. Lip appendage absent or 2-lobed; stigmas ± frontal on inner portion of rostellum; petals white, yellow or greenish ..... **Ceratandra**
23.' Lip appendage entire or bifid; stigmas terminal in rostellum arms; petals pink ... **Evotella**

ACROLOPHIA Pfitzer CINDERELLA ORCHID 7 spp., W and E Cape

A. Anther cap horned

capensis (P.J.Bergius) Fourc. Robust geophyte to 80 cm, with short rhizome. Leaves linear, channelled, leathery. Flowers in a lax, branched raceme, ± 10–15 mm long, green to purplish brown, lip white with purple callus and side lobes, narrowly obovate, 3-lobed, with 5–7 rows of papillae, spur 1.5–2.5 mm long, anther cap with 2 prominent lateral horns. Dec.–Jan. Rocky outcrops and slopes, NW, SW, AP, KM, LB, SE (Ceres to Grahamstown).

lamellata (Lindl.) Schltr. & Bolus Like **A. capensis** but flowers larger, sepals 13–20 mm long. Mainly Oct. Sandy coastal flats, SW (Darling to Bredasdorp).•

A.' Anther cap not horned

barbata (Thunb.) H.P.Linder (= *Acrolophia lunata* (Schltr.) Schltr. & Bolus) Robust, rhizomatous geophyte to 1 m. Leaves linear, channelled, leathery. Flowers few to many in a dense raceme, white or pale rose, ± 12 mm long, lip oblanceolate, 3-lobed, with 5 rows of papillae, spur 3 mm long. Nov.–Dec. Sandstone slopes, LB, SE (Swellendam to Humansdorp).•

bolusii Rolfe Robust, rhizomatous geophyte to 80 cm. Leaves linear, channelled, leathery. Flowers many in a lax, branched raceme, ± 10 mm diam., not resupinate, brownish, lip dull yellow, broadly obovate, often recurved, disc with slender tall papillae, spur conical, 1 mm long. Oct.–Dec. Sandy coastal flats, SW, AP (Hopefield to Bredasdorp).•

cochlearis (Lindl.) Schltr. & Bolus Robust, rhizomatous geophyte to 1 m. Leaves linear, channelled, leathery. Flowers many in a branched raceme, ± 7 mm long, not resupinate, brownish, lip yellow, obovate, obscurely 3-lobed, disc densely papillate, spur saccate, 1.5 mm long. Sept.–Dec. Rocky grasslands, SW, AP, LB, SE (Bredasdorp to KwaZulu-Natal).

micrantha (Lindl.) Pfitzer Slender, rhizomatous geophyte to 60 cm. Leaves linear, channelled, leathery. Flowers many in a lax, branched raceme, ± 7 mm diam., purplish green or brown, lip white, distinctly 3-lobed, disc with 3 rows of papillae, spur 1.5 mm long. Sept.–Dec. Coastal forelands, SW, AP, SE (Cape Peninsula to East London).

ustulata (Bolus) Schltr. & Bolus BLACK ORCHID Slender, rhizomatous geophyte to 10 cm. Leaves linear-lanceolate, slightly channelled, leathery. Flowers few in a lax raceme, dark maroon or greenish yellow, 7–8.5 mm long. Nov.–Dec., after fire. Fynbos, SW, AP, LB, SE (Cape Peninsula to George).•

ANGRAECUM Bory SHELL ORCHID ± 200 spp., mainly tropical Africa and Madagascar

conchiferum Lindl. Monopodial epiphyte to 30 cm, often branched. Leaves 8–16, narrowly lanceolate. Flowers solitary in axils, white, sepals 25–30 mm long, lip broadly ovate-acuminate, spur 30–45 mm long. Sept.–Jan. Montane forests, SE (George to tropical Africa).

pusillum Lindl. Monopodial epiphyte to 2.5 cm. Leaves 5–10, grass-like, linear. Flowers few in a lax, axillary raceme, to 5 mm diam., white, sepals 1.5 mm long, spur saccate, 1 mm long. Throughout the year. Temperate forests, LB, SE (Swellendam to Limpopo).

sacciferum Lindl. Monopodial epiphyte to 4 cm. Leaves 4–8, linear-lorate. Flowers few in a lax, axillary raceme, lime-green, sepals ovate to oblong, 3–4 mm long, lip hooded, spur 2 mm long. Dec.–Mar. Montane forests near the coast, SE (Knysna to tropical Africa).

ANOCHILUS Rolfe = **PTERYGODIUM**

BARTHOLINA R.Br. SPIDER ORCHID 2 spp., S Namibia to E Cape

burmaniana (L.) Ker Gawl. Slender, tuberous geophyte to 23 cm, scape hairy. Leaf single, basal, ovate, prostrate, hairy. Flower usually solitary, white, lip much-divided with segments acute, spur 8–12 mm long. Aug.–Oct., usually after fire. Clay slopes and flats, NW, SW, AP, LB, SE (Clanwilliam to E Cape).

etheliae Bolus Like **B. burmaniana** but lip segments club-shaped tips. Mainly Oct.–Dec. Sandy slopes and flats, NW, SW, KM, LB, SE (S Namibia to E Cape).

BONATEA Willd. PHANTOM ORCHID 20 spp., Africa and Arabia

cassidea Sond. Tuberous geophyte to 50 cm. Leaves scattered, linear-lanceolate. Flowers few to many in a lax raceme, green and white, to 40 mm long, petals bilobed, lip 3-fid, spur 11–25 mm long, stigmas ± 6 mm long. Aug.–Oct. Bush and scrub, SE (Uitenhage to Zimbabwe).

speciosa (L.f.) Willd. Robust, tuberous geophyte to 1 m. Leaves oblong to broadly lanceolate. Flowers usually many in a lax to dense raceme, usually many-flowered, green and white, petals bilobed, lip 3-fid, spur 25–47 mm long, stigmas ± 25 mm long. June–Feb. Coastal scrub and forest margins, SW, AP, LB, SE (Yzerfontein to Zimbabwe).

BRACHYCORYTHIS Lindl. HELMET ORCHID ± 32 spp., Africa and Asia

macowaniana Rchb.f. Tuberous geophyte to 20 cm. Leaves narrowly lanceolate, imbricate. Flowers many in a dense raceme, brownish and green flowers, lateral sepals ± 4 mm long, lip with a spur ± 2 mm long. Nov.–Dec., after fire. Grasslands or restio veld, LB, SE (Swellendam to E Cape).

BROWNLEEA Harv. ex Lindl. FALSE DISA 7 spp., southern and tropical Africa, Madagascar

recurvata Sond. Slender, tuberous geophyte to 50 cm. Leaves 2 or 3, linear to narrowly lanceolate. Flowers few in a lax raceme, ± 10 mm diam., white to pale pink with darker spots, lip ± 1 mm long. Feb.–Apr. Mainly stony slopes or flats, SE (Knysna to Mpumalanga).

CALANTHE R.Br. FAIRY ORCHID ± 200 spp., mainly Asia

sylvatica (Thouars) Lindl. Robust, rhizomatous perennial to 65 cm, with pseudobulbs largely obscured by leaves. Leaves lanceolate, pleated. Flowers many in a shortly hairy raceme, white to pink, lip 3-lobed with a callus of 3 small ridges, spur slender, 15–30 mm long. Dec.–Mar. Temperate or submontane forests, SE (Knysna to tropical Asia).

CERATANDRA Eckl. ex F.A.Bauer (= *EVOTA*) SHIELD ORCHID 6 spp., W and E Cape

A. Lip appendage absent

atrata (L.) T.Durand & Schinz Tuberous geophyte to 35 cm, with thickened roots and small tubers. Leaves linear, cauline leaves longer. Flowers many in a lax raceme, greenish yellow, not resupinate, lateral sepals 11–12 mm long, lip anchor-shaped, appendage absent, rostellum arms horn-like, projecting, 7–8 mm long. Oct.–Dec., after fire. Marshes or rock flushes and stream banks, NW, SW, KM, LB, SE (Cold Bokkeveld to Knysna).•

globosa Lindl. Like **C. atrata** but flowers many in a corymbose raceme, sepals pale purplish green to pink, petals and lip white, lateral sepals ± 5–7 mm long, lip spathulate, appendage absent, rostellum arms ± 4 mm long. Nov.–Jan., mostly after fire. Sandstone slopes, NW, SW, KM, LB, SE (Cedarberg to Baviaanskloof Mtns).•

grandiflora Lindl. Like **C. atrata** but flowers many in a corymbose raceme, orange-yellow, not resupinate, lateral sepals 10–12 mm, lip spathulate-cordate, appendage absent, rostellum arms ± 6 mm long. Mainly Oct.–Dec., after fire. Damp sandstone flats, AP, SE (Gourits River to Grahamstown).

A.' Lip appendage present

bicolor Sond. ex Bolus (= *Evota bicolor* (Sond. ex Bolus) Rolfe) Slender, tuberous geophyte to 35 cm, with thickened roots. Leaves linear-lanceolate, cauline leaves lax. Flowers 1–9 in a lax raceme, sepals green, petals and lip yellow, lateral sepals 11–13 mm long, lip spathulate-lunate, appendage a pair of horns 6–9 mm long. Nov.–Dec., after fire. Sandstone flats, NW, SW (Cedarberg to Riviersonderend Mtns).•

harveyana Lindl. (= *Evota harveyana* (Lindl.) Rolfe) Like **C. bicolor** but flowers 2–many in a lax to dense raceme, sepals pale green, petals and lip yellow, lateral sepals 9–12 mm long, lip anchor-

shaped, appendage a pair of fleshy wings. Nov.–Dec., after fire. Sandstone slopes, SW (Cape Peninsula to Kleinrivier Mtns).•

venosa (Lindl.) Schltr. (= *Evota venosa* (Lindl.) Schelpe) Tuberous geophyte to 26 cm. Leaves linear-lanceolate. Flowers many in a dense raceme, sepals green, petals and lip white with pink veins, crenulate-erose, lateral sepals ± 7 mm long, lip subrotund, crenulate, appendage a pair of erect, laterally flattened, rounded horns. Oct.–Nov., after fire. Sandstone slopes, SW (Cold Bokkeveld to Hottentots Holland Mtns).•

CORYCIUM Sw. = **PTERYGODIUM**

CYRTORCHIS Schltr. BIRD ORCHID 20 spp., Africa

arcuata (Lindl.) Schltr. Monopodial epiphyte or lithophyte with stems to 40 cm. Leaves strap-shaped, channelled. Flowers few to many in a dense, axillary raceme, white, tepals subequal, recurved, narrowly lanceolate, apiculate, 20–30 mm long, spur 25–40 mm long. Jan.–May. Montane and lowland forests, SE (Knysna to tropical Africa).

DISA P.J.Bergius (= *HERSCHELIA, MONADENIA, SCHIZODIUM*) DISA ± 170 spp., sub-Saharan Africa, Madagascar and Reunion

***Disa* group**

*A. Spur obsolete (see also **D. cylindrica, D. obtusa** and **D. tenuis**)*

atricapilla (Harv. ex Lindl.) Bolus Slender or robust, tuberous geophyte to 30 cm. Leaves cauline, subequal, linear-lanceolate. Flowers few to many in a corymbose raceme, median sepal white, lateral sepals red, black and white, petals and lip maroon, lateral sepals 10–17 mm long, keeled above. Nov.–Dec., mostly after fire. Seeps and moist sandstone slopes, NW, SW, KM (Cedarberg to Cape Peninsula to Swartberg).•

begleyi L.Bolus Slender, tuberous geophyte to 10 cm. Leaves cauline, ± equal, lanceolate. Flowers few in a subcorymbose raceme, pale pink with darker speckles, lateral sepals oblong, 7–9 mm long. Dec.–Jan., after fire. Stony sandstone slopes at high altitude, SW (Jonkershoek to Elgin).•

bivalvata (L.f.) T.Durand & Schinz Like **D. atricapilla** but sepals white, not keeled above and petals and lip pale to dark red. Sept.–Jan., usually after fire. Sandstone slopes and seeps, NW, SW, LB, SE (Cape Peninsula to Humansdorp).•

bodkinii Bolus Robust, tuberous geophyte, 3–25 cm. Leaves lanceolate. Flowers 1–15 in a corymbose raceme, purplish brown and black, lateral sepals narrowly ovate, ± 15 mm long. Nov., usually after fire. Slight seeps on sandstone slopes, SW, LB (Cape Peninsula to Riversdale).•

brachyceras Lindl. Slender, tuberous geophyte to 7 cm. Leaves many, spiralling, linear, reaching to raceme base. Flowers many in a cylindrical raceme, white, lateral sepals oblong, ± 2.5 mm long. Aug.–Sept. Damp sandy slopes, NW, SW (Hex River to Riviersonderend Mtns).•

elegans Sond. ex Rchb.f. Robust, tuberous geophyte to 60 cm. Leaves cauline, linear-lanceolate. Flowers few in a corymbose raceme, white, petals tipped yellow and maroon, lateral sepals broadly oblong, 15–22 mm long. Nov.–Dec., usually after fire. Mountain marshes and seeps, NW, SW, KM (Cedarberg to Cape Peninsula to Swartberg).•

filicornis (L.f.) Thunb. Slender or robust, tuberous geophyte. Leaves dimorphic: radical leaves linear, cauline leaves lanceolate. Flowers few in a lax raceme, white to bright pink, lateral sepals oblong, 10–20 mm long. Oct.–Dec. Mostly dry sandstone slopes, NW, SW, AP, KM, LB, SE (Cedarberg to Humansdorp).•

introrsa Kurzweil, Liltved & H.P.Linder Slender, tuberous geophyte to 15 cm. Leaves 3–5, cauline, linear. Flowers few in a lax raceme, not resupinate, facing inward, dull carmine-red and cream-coloured, median sepal 3 mm long. Nov.–Dec., after fire. Sandstone slopes, NW (Ceres).•

lineata Bolus Slender, tuberous geophyte to 40 cm. Leaves subimbricate, narrowly lanceolate. Flowers few in a lax raceme, pale brown, lip purple with yellow base and apex, petals with purple tips, lateral sepals oblong, ± 6 mm long. Sept.–Nov., mostly after fire. Sandstone slopes, NW, SW (Cedarberg to Kleinrivier Mtns).•

maculata L.f. Slender, subflexuose, tuberous geophyte to 30 cm. Leaves in a basal rosette, elliptic to oblanceolate. Flower solitary, blue, petals with purple markings, lateral sepals obovate, 15–18

mm long. Oct.–Nov. Mossy sandstone ledges, NW, SW, KM (Piketberg to Cape Peninsula to Swartberg).•

minor (Sond.) Rchb.f. Slender, tuberous geophyte to 10 cm. Leaves basal, narrowly elliptic. Flowers few in a corymbose raceme, pink, lateral sepals obovate, ± 7 mm long. Nov.–Dec. Montane marshes, NW (Grootwinterhoek to Hex River Mtns).•

neglecta Sond. Slender, tuberous geophyte to 18 cm. Leaves narrowly lanceolate. Flowers many in a dense raceme, dull yellow and purple, petals strongly reduced and 1 mm long. Nov.–Dec., after fire. Sandstone slopes, NW, SW (Grootwinterhoek and Hex River Mtns).•

oligantha Rchb.f. Slender, tuberous geophyte to 15 cm. Leaves narrowly oblanceolate. Flowers few in a corymbose raceme, sepals cream-coloured, petals and lip yellow from white bases, lateral sepals oblong, 6–7 mm long. Dec.–Jan. Sandstone slopes at high alt., SW (Cape Peninsula, Jonkershoek Mtns).•

pillansii L.Bolus Slender, tuberous geophyte to 30 cm. Leaves mainly basal, elliptic. Flowers few in a corymbose or subcorymbose raceme, purplish pink, lateral sepals obovate, 10–14 mm long. Oct.–Dec. Stream banks and seeps, SW (Hottentots Holland Mtns).•

racemosa L.f. Slender, tuberous geophyte to 1 m. Leaves basal, narrowly lanceolate. Flowers few in a lax raceme, pale pink with darker veins, median sepal dish-shaped, lateral sepals oblong, 15–25 mm long. Nov.–Dec., after fire. Sandstone seeps and marshes, NW, SW, KM, LB, SE (Cold Bokkeveld and Cape Peninsula to Grahamstown).

richardiana Lehm. ex Bolus Slender, tuberous geophyte to 30 cm. Leaves mainly basal, elliptic. Flowers few in a corymbose raceme, white, petals and lip yellow, lateral sepals obovate, 9–12 mm. Sept.–Nov. Mossy sandstone ledges, SW (Cape Peninsula to Riviersonderend Mtns).•

rosea Lindl. Flexuose, tuberous geophyte to 20 cm. Leaves 2 or 3, basal, broadly ovate, purple beneath. Flowers few in a lax, subcorymbose raceme, white to rose, lateral sepals elliptic-oblong, 8–13 mm long. Nov.–Dec. Mossy sandstone ledges, NW, SW (Grootwinterhoek Mtns to Cape Peninsula to Riviersonderend Mtns).•

schizodioides Sond. Slender, tuberous geophyte to 25 cm. Leaves narrowly elliptic. Flower usually solitary, white to violet-mauve, lateral sepals obovate, 13–20 mm long. Dec.–Jan., often after fire. Seeps or sandstone ledges, NW, SW, KM, LB, SE (Hex River Mtns to Langkloof).•

tenuifolia Sw. (= *Disa patens* (L.f.) Thunb.) Slender, tuberous geophyte to 30 cm. Leaves dimorphic: radical leaves linear, cauline leaves lanceolate. Flowers few in a lax raceme, bright yellow, lateral sepals lanceolate, 12–18 mm long. Nov.–Jan., often after fire. Mountain seeps, NW, SW, KM, LB, SE (Porterville to Riversdale).•

venosa Sw. Like **D. racemosa** but plants smaller and median sepal narrower. Nov., mainly after fire. Seeps on sandstone slopes, NW, SW, KM, SE (Cedarberg and Cape Peninsula to Outeniqua Mtns).•

virginalis H.P.Linder Like **D. maculata** but flower not resupinate, white. Oct. Sandstone slopes and outcrops, NW, SW (Piketberg to Bain's Kloof).•

A.' Spur well developed

*B. Leaves in a basal tuft, sometimes dry at flowering (see also **D. glandulosa**)*

arida Vlok Like **D. gladioliflora** but flowers mauve-purple with blue iridescence or pink and petals oblong, minutely tridentate. Mar.–Apr. N-facing, inland sandstone slopes, KM, SE (Rooiberg and Outeniqua Mtns).•

aurata (Bolus) L.Parker & Koop. (= *Disa tripetaloides* (L.f.) N.E.Br. subsp. *aurata* (Bolus) H.P.Linder) Like **D. tripetaloides** but flowers yellow, lateral sepals 14–16 mm long and spurs 0.5–2.5 mm long. Dec.–Jan. Stream banks on sandstone, LB (Langeberg: Swellendam).•

cardinalis H.P.Linder Like **D. tripetaloides** but flowers red and lateral sepals elliptic, 18–28 mm long. Oct.–Dec. Stream banks on N-facing, inland, sandstone slopes, LB, SE (Langeberg: Barrydale to Robinson Pass).•

cochlearis S.D.Johnson & Liltved Slender, tuberous geophyte to 45 cm. Leaves dry at flowering, basal, linear. Flowers few in a lax raceme, white with pale mauve tinge, spur ascending, ± 19 mm long, lateral sepals lanceolate, 10 mm long, lip linear, 8 mm long, with warty tubercle near apex. Jan.–Feb. Clay slopes in renosterveld, KM (Elandsberg).•

draconis (L.f.) Sw. WHITE DISA Slender or robust tuberous geophyte. Leaves dry at flowering, basal, lorate to linear. Flowers few to many in a lax raceme, cream-coloured or white with purple markings, spur 35–45 mm long, lateral sepals oblong, 15–22 mm long, petals lorate, included in median sepal galea. Oct.–Nov. Sandy coastal flats, SW (Yzerfontein to Cape Peninsula).•

esterhuyseniae Schelpe ex H.P.Linder Slender, grass-like, tuberous geophyte to 30 cm. Leaves dry at flowering, basal, lorate to lanceolate. Flowers in a lax raceme, yellow-green suffused with brown, spur cylindrical, horizontal, 6 mm long, lateral sepals lanceolate, 6 mm long. Jan.–Feb. Sandstone slopes, NW (Cedarberg to Hex River Mtns).•

ferruginea (Thunb.) Sw. CLUSTER DISA Slender, tuberous geophyte to 45 cm. Leaves dry at flowering, basal, linear, bracts dry. Flowers many in a condensed raceme, bright red to orange, spur slender, acute, grading imperceptibly into the galea, 7–20 mm long, lateral sepals elliptic, with apiculi up to 4 mm long, lip narrowly ovate to linear-lanceolate, 10–12 mm long. Feb.–Mar. Sandstone slopes, NW, SW, LB (Cape Peninsula to Albertinia).•

gladioliflora Burch. ex Lindl. Slender, tuberous geophyte to 50 cm. Leaves dry at flowering, basal, linear. Flowers few in a lax raceme, white to pink, often with darker markings, spur slender, 6–14 mm long, lateral sepals oblong, 8–16 mm long, petals acute. Feb.–May. Sandstone slopes, KM, LB, SE (Swartberg to Tsitsikamma Mtns).•

harveiana Lindl. LILAC DISA Like **D. draconis** but flowers cream-coloured or mauve with purple or red streaks, spur slender, 20–90 mm long, petals exserted from median sepal. Oct.–Jan. Sandstone slopes, NW, SW, KM (Bokkeveld Mtns to Cape Peninsula, Swartberg and Outeniqua Mtns).•

longicornu L.f. DRIP DISA Slender, subflexuose, tuberous geophyte to 20 cm. Leaves basal, narrowly elliptic. Flower solitary, pale greyish blue, spur cylindrical, 20–35 mm long, lateral sepals ovate, 20–30 mm long. Dec.–Jan. Wet cliffs, SW (Cape Peninsula and Jonkershoek Mtns).•

marlothii Bolus Slender, tuberous geophyte to 35 cm. Leaves mostly basal, narrowly elliptic. Flowers few in a corymbose raceme, purplish red, spur very slender, 15–20 mm long, lateral sepals patent, oblong, 10–15 mm long. Dec.–Jan. Stream banks, NW, SW, SE (Cedarberg to Hex River Mtns, and Tsitsikamma Mtns).•

porrecta Sw. Grass-like, tuberous geophyte to 60 cm. Leaves dry at flowering, basal, linear, bracts dry. Flowers many in a dense raceme, bright red to scarlet with yellow petals and lip, spur cylindrical, ascending, 20–40 mm long, lateral sepals ovate to obovate, 6–8 mm long, apiculi up to 3 mm long. Mainly Mar. Grassland or stony slopes, KM, SE (Kammanassie Mtns to Lesotho).

sagittalis (L.f.) Sw. Slender, tuberous herb to 30 cm. Leaves basal, lorate to narrowly elliptic. Flowers few to many in a lax to dense raceme, white to mauve, median sepal shallowly galeate with lateral extensions, spur 2–3 mm long, lateral sepals oblong, ± 7–8 mm long. Sept.–Nov. Rock pavements or ledges, LB, SE (Swellendam to E Cape).

salteri G.J.Lewis Slender, grass-like, tuberous geophyte to 60 cm. Leaves dry at flowering, basal, linear. Flowers few to many in a lax raceme, brown, spur slender, usually ascending, 20–30 mm long, lateral sepals lanceolate, 2–4 mm long. Apr., usually after fire. Sandstone or shale, NW, SW, KM, SE (Kamiesberg, Cedarberg to Cape Peninsula to George). **gce**

tenuis Lindl. Slender, grass-like, tuberous geophyte to 50 cm. Leaves dry at flowering, basal, linear. Flowers many in a lax raceme, greenish brown to white, spur to 1 mm long, subconical, lateral sepals elliptic-oblong, 3–6 mm long. Mainly Mar.–May. Sandstone slopes, SW (Cape Peninsula to Kleinmond).•

triloba Lindl. Slender, tuberous geophyte to 20 cm. Leaves lorate or elliptic. Flowers few in a subcorymbose raceme, mauve with purple markings, spur slender, ± 5 mm long, lateral sepals narrowly obovate, 8–13 mm long. Dec. Sandstone slopes, NW, SW, LB (Cedarberg to Outeniqua Mtns).•

tripetaloides (L.f.) N.E.Br. Slender, tuberous geophyte to 60 cm, stoloniferous. Leaves basal, narrowly oblanceolate. Flowers few in a lax raceme, white to pink, spur conical to cylindrical, 2–3 mm long, lateral sepals obovate, elliptic or oblong, 8–15 mm long. Nov.–Jan. Stream banks and mountain seeps, SW, LB, SE (Hottentots Holland Mtns to KwaZulu-Natal).

uniflora P.J.Bergius RED DISA Flexuose to erect, tuberous geophyte to 60 cm, stoloniferous. Leaves clustered below, narrowly lanceolate. Flowers 1–few in a lax raceme, carmine-red to orange, spur 10–15 mm long, lateral sepals narrowly ovate, 35–65 mm long. Jan.–Mar. Wet cliffs, streamsides and seeps, NW, SW (Cedarberg to Betty's Bay and Riviersonderend Mtns).•

vaginata Harv. ex Lindl. Slender, tuberous geophyte to 20 cm. Leaves clustered below, lanceolate to lorate. Flowers few in a dense, usually subcorymbose raceme, pink with red spots, spur slender, 5–6 mm long, lateral sepals oblong, 5–6 mm long. Nov.–Dec. Rock outcrops, NW, SW, LB, SE (Cedarberg to Tsitsikamma Mtns).•

vasselotii Bolus ex Schltr. Slender, tuberous geophyte to 25 cm. Leaves 4–10, elliptic. Flowers 1–few in a dense, subcorymbose to corymbose raceme, white, petals with pink and yellow horizontal bars, spur slender, 2–4 mm long, lateral sepals obovate, 9–15 mm long. Nov.–Dec., usually after fire. Mountain seeps LB, SE (Swellendam to Humansdorp).•

B.' Leaves cauline, always green at flowering

aconitoides Sond. Slender, tuberous geophyte to 60 cm. Leaves cauline, lanceolate. Flowers many, mauve, spur massive, conical, laterally flattened, usually with rounded apex, 5–8 mm long, lateral sepals narrowly oblong, 5–7 mm long. Nov.–Dec. Grasslands, SE (Knysna to tropical Africa).

albomagentea E.G.H.Oliv. & Liltved Like **D. obtusa** but flowers white and magenta, spur not longer than broad, and stigma well in front of galea. Nov.–Jan., after fire. Sandstone seeps at high altitude, SW (Hottentots Holland Mtns: Jonkershoek to Sir Lowry's Pass).•

brevipetala H.P.Linder Slender, tuberous geophyte to 20 cm. Leaves cauline, lax, linear. Flowers 5–20 in a subdense raceme, pink to reddish purple, spur 3–4 mm long, lateral sepals 6–7 mm long, petals with a large semi-orbicular basal anticous lobe. Oct.–Nov. Sandstone slopes, SW (Kleinmond).•

caulescens Lindl. Slender, tuberous geophyte to 40 cm. Leaves narrowly lanceolate. Flowers few in a lax raceme, white, petals barred maroon, spur slender, 2–3 mm long, lateral sepals obovate to elliptic, 7.5–11 mm long. Nov.–Jan. Stream banks on sandstone, NW, SW (Cedarberg to Riviersonderend Mtns).•

cedarbergensis H.P.Linder Tuberous geophyte to 18 cm. Leaves cauline, few, linear-lorate. Flowers ± 15 in a subdense raceme, white with purplish galea and spur, spur 3.5 mm long, lateral sepals 6 mm long. Dec. Peaty streamsides at high alt., NW (Cedarberg).•

chrysostachya Sw. Robust, tuberous geophyte to 1 m. Leaves cauline, many, narrowly elliptic. Flowers many in a dense and very narrow raceme, ± 8 mm diam., orange, spur pendent and clavate, 5–11 mm long, lateral sepals 5.5–9 mm long, anther erect. Nov.–Jan. Damp or marshy grasslands, SE (Knysna to Limpopo).

cornuta (L.) Sw. Robust, tuberous geophyte to 1 m. Leaves cauline, imbricate, lanceolate. Flowers many in a dense raceme, purple and silvery green, spur 10–20 mm long, lateral sepals oblong, 12–16 mm long. Sept.–Feb. Sandstone slopes and grasslands, NW, SW, AP, LB, SE (Elands Bay to Zimbabwe).

cylindrica (Thunb.) Sw. Slender, tuberous geophyte to 35 cm. Leaves cauline, lorate. Flowers many in a dense raceme, green, spur subobsolete to 1 mm long, lateral sepals oblong, 4–5 mm long. Oct.–Dec., after fire. Seeps or damp sandstone slopes, NW, SW, AP, LB, SE (Tulbagh to Cape Peninsula to Humansdorp).•

fasciata Lindl. Tuberous geophyte to 25 cm. Leaves cauline, ovate, sheath usually barred with purple. Flowers few in a corymbose raceme, white with some purplish spots, pseudoactinomorphic with sepals and lip borne in the same plane, spur slender, 3–5 mm long, lateral sepals broadly oblong, 8–13 mm long. Mainly Oct., after fire. Sandstone slopes, SW, AP, LB (Cape Peninsula to Riversdale).•

glandulosa Burch. ex Lindl. Slender, glandular-hairy, tuberous geophyte to 20 cm. Leaves dimorphic: basal leaves spreading, elliptic, cauline leaves sheathing. Flowers few in a corymbose raceme, pink with red spots, spur subconical to rarely cylindrical, 2–3 mm long, lateral sepals oblong, 5–6 mm long. Dec.–Jan. Wet moss or turf on rock pavements, SW, LB, SE (Cape Peninsula to Humansdorp).•

hallackii Rolfe Robust, tuberous geophyte to 50 cm. Leaves cauline, imbricate, lanceolate. Flowers with bracts prominent, horizontal, sepals green, petals purplish, spur semipendent, subclavate, 5 mm long, lateral sepals oblong, 10–16 mm long. Oct.–Nov. Sandstone slopes, SW, AP, SE (Cape Peninsula to Port Elizabeth).•

linderiana Bytebier & E.G.H.Oliv. Compact, tuberous geophyte to 16 cm. Leaves cauline, linear-lanceolate, imbricate, partly or entirely suffused beetroot-red. Flowers few to many in a dense raceme, white with red spots, spur pendent, 3–3.5 mm long, lateral sepals ± 6.5 mm long. Oct.–Nov. Sandstone slopes at high alt., NW, SW, KM (Cedarberg, Riviersonderend Mtns and Great Swartberg).•

longifolia Lindl. Tuberous geophyte to 40 cm. Leaves cauline, linear. Flowers few to many in a dense raceme, pink or white, spur pendent, 2–4 mm long, lateral sepals oblong, 5–7 mm long, lip finely hairy. Oct., usually after fire. Peaty sandstone slopes, NW, SW (Cedarberg and Hex River Mtns).•

micropetala Schltr. Slender, tuberous geophyte to 30 cm. Leaves cauline, many, linear. Flowers many in a dense raceme, pink to purple with white base, spur filiform, 1 mm long, lateral sepals 2–4 mm long. Nov.–Dec., usually after fire. Peaty sandstone slopes and ledges, SW, LB, SE (Cape Peninsula to Tsitsikamma Mtns).•

obtusa Lindl. Slender, tuberous geophyte to 40 cm. Leaves cauline, linear. Flowers many in a dense raceme, white to brown or purple, often spotted, sepals 3–8 mm long, spur with a deep dorsal

groove, 0.2–2.2 mm long. Sept.–Dec., after fire. Sandstone seeps, SW, KM, LB, SE (Cape Peninsula to Baviaanskloof and Tsitsikamma Mtns).•

ocellata Bolus Slender, tuberous geophyte to 30 cm. Leaves cauline, linear. Flowers few in a lax raceme, white with dull purple-brown markings, spur 2 mm long, horizontal, clavate, lateral sepals ± 5 mm long. Dec. Sandstone slopes, SW, KM (Cape Peninsula to Swartberg).•

ovalifolia Sond. Tuberous geophyte to 20 cm. Leaves cauline, imbricate. Flowers few in a dense raceme, sepals green, lip brown, spur ascending, 10–15 mm long, lateral sepals oblong, ± 8 mm long. Sept.–Oct. Sandstone slopes, NW, SW (Cedarberg to Cold Bokkeveld Mtns).•

polygonoides Lindl. Slender or robust, tuberous geophyte to 70 cm. Leaves cauline, few, linear to lorate. Flowers many in a dense raceme, red, spur pendent, lateral sepals 6–7 mm long, anther erect. Oct.–Mar. Marshy grasslands, SE (Humansdorp to S Mozambique).

remota H.P.Linder Tuberous geophyte to 15 cm. Leaves cauline, linear-lanceolate. Flowers many in a dense raceme, white and green with purple mottling, sepals 9 mm long, spur laterally compressed, 2.5 mm long; lip with basal lateral lobes. Dec., after fire. Sandstone seeps, NW (Hex River Mtns: Fonteintjiesberg).•

subtenuicornis H.P.Linder Robust, tuberous geophyte to 25 cm. Leaves linear, densely imbricate, clustered below. Flowers many in a dense raceme, white with purple spots, spur pendent, 3 mm long, lateral sepals ± 10 mm long. Dec., after fire. Sandstone seeps at high alt., LB (Langeberg: Riversdale).•

telipogonis Rchb.f. Slender, tuberous geophyte, usually to 6 cm. Leaves linear, as tall as or overtopping raceme. Flowers few in a corymbose raceme, yellow, spur 2–4 mm long, lateral sepals narrowly ovate, 5–6 mm long, petals with long apiculi. Nov. Sandstone outcrops, NW, SW (Cedarberg to Cape Peninsula).•

tenella (L.f.) Sw. Slender, tuberous geophyte to 15 cm. Leaves cauline, linear, spiralling, reaching raceme base. Flowers few to many in a dense raceme, white, pink or red, often with darker mottling, spur slender, to 5 mm long, lateral sepals oblong, 4–6.5 mm long. Aug.–Oct. Sandy flats and slopes, NW, SW (Gifberg to Hottentots Holland Mtns).•

tenuicornis Bolus Robust, tuberous geophyte to 50 cm. Leaves cauline, linear-acuminate, imbricate. Flowers many in a dense raceme, white with red lines and spots, spur pendent, 3–4 mm long, lateral sepals 8–10 mm long. Oct., usually after fire. Sandstone slopes, SW (Cape Peninsula to Babilonstoring).•

tysonii Bolus Robust, tuberous geophyte to 60 cm. Leaves cauline, imbricate, narrowly ovate. Flowers many in a dense raceme, cream-yellow with green veins, lip with purple spots, spur cylindrical to subclavate, 4–6 mm long, lateral sepals oblong-elliptic, 6–8 mm long. Dec.–Jan. Damp, rocky grasslands, SE (Knysna to KwaZulu-Natal).

uncinata Bolus Slender, flexuose, tuberous geophyte to 50 cm. Leaves few, narrowly lanceolate. Flowers few in a lax raceme, white or cream-coloured, spur horizontal and constricted basally, 2–4 mm long, lateral sepals oblong, 5–8 mm long. Oct.–Jan. Mountain streams and wet cliffs, NW, SW, KM, LB, SE (Tulbagh to Knysna).•

Herschelia group

A. Lip spathulate with a long claw

multifida Lindl. (= *Herschelia multifida* (Lindl.) Rolfe) OUPA-MET-SY-PYP Slender, tuberous geophyte to 60 cm. Leaves dry at flowering, basal, linear. Flowers few in a lax raceme, blue with green lip, spur conical, 1–6 mm long, lateral sepals narrowly ovate, 10–15 mm long, lip spathulate with slender claw 30–100 mm long, blade deeply lacerate. Nov.–Dec. Sandstone slopes, NW, SW, AP, KM (Cedarberg to Swartberg).•

spathulata (L.f.) Sw. (= *Herschelia spathulata* (L.f.) Rolfe) OUPA-MET-SY-PYP Slender, tuberous geophyte to 30 cm. Leaves green at flowering, narrow. Flowers few in a lax raceme, maroon to pale lime or green and blue, spur clavate, 1.5–3 mm long, lateral sepals ovate, 6–16 mm long, lip spathulate with slender claw, limb sagittate to trisect. Sept.–Oct. Sandstone and shale, NW, SW, SE (Namaqualand to Caledon, Uniondale). **gce**

A.' Lip sessile and crenulate to lacerate

barbata (L.f.) Sw. (= *Herschelia barbata* (L.f.) Bolus) OUMAN-MET-SY-BAARD Slender, tuberous geophyte to 50 cm. Leaves dry at flowering, basal, linear. Flowers few in a lax raceme, white to

very pale blue, spur conical, 1–5 mm long, lateral sepals narrowly oblong, 15–25 mm long, lip ovate-lacerate. Oct.–Nov. Marshy coastal sands, SW (Darling, extinct on Cape Peninsula).•

hians (L.f.) Spreng. (= *Herschelia hians* (L.f.) A.V.Hall) Slender, tuberous geophyte to 60 cm. Leaves often dry at flowering, basal, linear. Flowers few in a lax raceme, pale to purplish blue, spur conical, 4–6 mm long, lateral sepals oblong, 8–12 mm long, lip oblong-elliptic, crenulate-lacerate, occasionally entire, 7–12 mm long. Dec.–Jan., often after fire. Sandstone slopes, AP, LB, SE (Riversdale to Port Elizabeth).•

lugens Bolus (= *Herschelia lugens* (Bolus) Kraenzl.) BLOUMOEDERKAPPIE Slender, tuberous geophyte to 1 m. Leaves dry at flowering, basal, linear. Flowers few in a lax raceme, cream-green, sometimes almost black, lateral sepals mauve, lip green to grey-green, spur cylindrical, 1–5 mm long, lateral sepals oblong, 8–13 mm long, lip ovate-lacerate. Oct.–Nov. Sandstone slopes, SW, AP, LB, SE (Cape Peninsula to Grahamstown).

procera H.P.Linder (= *Herschelia excelsa sensu* Rolfe) Slender, tuberous geophyte to 60 cm. Leaves linear, green at flowering. Flowers few in a lax raceme, deep cerise-red, spur conical, 2–3 mm long, lateral sepals oblong, 8–10 mm long, lip crenulate to lacerate, rarely entire, 8–10 mm long. Oct. ?, SE (Sedgefield).•

venusta Bolus (= *Herschelia venusta* (Bolus) Kraenzl.) Slender, tuberous geophyte to 60 cm. Leaves dry at flowering, basal, linear, stiff. Flowers few in a lax raceme, blue, spur conical, 1.5–3 mm long, lateral sepals oblong, 12–16 mm long, lip ovate, variably lacerate, shorter than lateral sepals. Jan. Coastal sands, SW, AP (Cape Peninsula to Hermanus, Hogsback Mtns).

*A." Lip entire (see also **D. hians** and **D. procera** above)*

forcipata Schltr. (= *Herschelia forcipata* (Schltr.) Kraenzl.) Slender, tuberous geophyte to 60 cm. Leaves? Flowers few in a lax raceme, greenish yellow, median sepal ± 13 mm long, spur cylindrical, 3–4 mm long, bifid, lip lanceolate. ?. ?, SE (?Knysna).• EXTINCT

forficaria Bolus (= *Herschelia forficaria* (Bolus) H.P.Linder) Tuberous geophyte to 50 cm. Leaves basal, linear or narrowly ovate. Flowers few in a lax raceme, hyperresupinate, sepals greenish red, petals and lip maroon, lateral sepals narrowly ovate, 8–12 mm long, petals acicular, finely hairy, lip reniform, apex finely hairy. Jan.–Feb., after fire. Dry, stony slopes, SW (Wellington, Cape Peninsula to Grabouw).•

graminifolia Ker Gawl. ex Spreng. (= *Herschelia graminifolia* (Ker Gawl ex Spreng.) T.Durand & Schinz) BLOUMOEDERKAPPIE Slender, tuberous geophyte to 1 m. Leaves dry at flowering, basal, linear. Flowers few in a lax raceme, blue to violet-purple, petal apices green, spur clavate, 2–4 mm long, lateral sepals oblong, 13–18 mm, down-curved, lip dark purple, elliptic. Jan.–Mar. Sandstone slopes, SW, LB, SE (Cape Peninsula to Port Elizabeth).•

newdigateae L.Bolus (= *Herschelia newdigateae* (L.Bolus) H.P.Linder) Like **D. forficaria** but petals flattened and obscurely bilobed. Mar.–Apr. Stony slopes, SE (Outeniqua Mtns: Knysna).•

purpurascens Bolus (= *Herschelia purpurascens* (Bolus) Kraenzl.) BLOUMOEDERKAPPIE Like **D. graminifolia** but spur conical and lip margin upcurved. Oct.–Nov. Sandstone slopes and outcrops, SW, AP (Cape Peninsula to Agulhas).•

schlechteriana Bolus (= *Herschelia schlechteriana* (Bolus) H.P.Linder) Tuberous geophyte to 60 cm. Leaves basal, linear. Flowers few in a lax raceme, cream-coloured with mauve veins, spur slender cylindrical, 30–50 mm long, lateral sepals oblong, 20–25 mm long, lip oblong. Dec. N-facing sandstone slopes, LB (Langeberg: near Riversdale).•

***Monadenia* group**

A. Spur longer than median sepal

atrorubens Schltr. (= *Monadenia atrorubens* (Schltr.) Rolfe) Slender, purple-flushed, tuberous geophyte to 40 cm. Leaves lanceolate. Flowers few to many, sepals and spur dull red, lip and petals almost black, spur cylindrical, 15–30 mm long, lateral sepals narrowly oblong, 6–8 mm long. Aug.–Oct., after fire. Sandy flats, NW, SW (Bokkeveld Mtns to Hermanus).•

bolusiana Schltr. (= *Monadenia bolusiana* (Schltr.) Rolfe) Slender or robust, tuberous geophyte to 30 cm. Leaves 2–5, basal, narrowly oblong. Flowers many in a dense raceme, lime-green, sometimes tinted red, spur slender, 16–22 mm long, lateral sepals oblong, 6–8 mm long. Nov.–Dec. Gravelly ridges, SW, KM, LB (Cape Peninsula to Riversdale).•

brevicornis (Lindl.) Bolus (= *Monadenia brevicornis* Lindl.) Slender or robust, tuberous geophyte to 50 cm. Leaves usually narrowly lanceolate. Flowers many in a lax raceme, lime-green and maroon, spur cylindrical, 7–11 mm long, lateral sepals oblong, 5–9 mm long. Nov.–Feb. Montane grasslands, SE (Knysna to tropical Africa and Madagascar).

cernua (Thunb.) Sw. (= *Monadenia cernua* (Thunb.) T.Durand & Schinz) Robust, tuberous geophyte to 60 cm. Leaves basal, narrowly lanceolate. Flowers many in a dense raceme, sepals cream-green mottled maroon, petals and lip lime-green, spur clavate, rounded, 11–17 mm long, lateral sepals oblong, 9–13 mm long. Mainly Oct. Sandy coastal flats, SW, AP, SE (Cape Peninsula to Humansdorp).•

comosa (Rchb.f.) Schltr. (= *Monadenia comosa* Rchb.f.) Erect or subflexuose, tuberous geophyte to 30 cm. Leaves basal, elliptic. Flowers few in a lax raceme, lime-green, sometimes tinted red, spur cylindrical, 17–24 mm long, lateral sepals oblong-ovate, 6–7 mm long. Sept.–Nov. Sandstone slopes and outcrops, NW, SW, AP, KM, LB, SE (Clanwilliam to Kouga Mtns).•

ophrydea (Lindl.) Bolus (= *Monadenia ophrydea* Lindl.) Slender or robust, red-flushed, tuberous geophyte to 40 cm. Leaves narrowly lanceolate. Flowers few in a lax raceme, purple-red, lateral sepals paler and often yellow or white, spur slender, 20–24 mm long, lateral sepals ovate, 8–10 mm long. Oct.–Nov., after fire. Mountain seeps, NW, SW, LB, SE (Cape Peninsula to Van Staden's Mtns).•

reticulata Bolus (= *Monadenia reticulata* (Bolus) T.Durand & Schinz) Like **D. rufescens** but flowers many in a dense raceme, lime-green, sometimes tinted or mottled maroon, spur 10–20 mm long, lateral sepals oblong, 6–7 mm long, bracts with prominent reticulate venation. Nov.–Dec., often after fire. Seasonal seeps, SW, LB, SE (Cape Peninsula to Knysna).•

rufescens (Thunb.) Sw. (= *Monadenia rufescens* (Thunb.) Lindl.) Tuberous geophyte to 40 cm. Leaves linear-lanceolate. Flowers few in a slender raceme, lime-green with purple petals and lip, spur slender, cylindrical, 10–16 mm long, lateral sepals oblong, 6–8 mm long. Sept.–Nov. Seasonal seeps, NW, SW, KM, LB, SE (Cedarberg to Cape Peninsula).•

A.' Spur shorter than to as long as median sepal

bracteata Sw. (= *Monadenia bracteata* (Sw.) T.Durand & Schinz) Slender or robust, tuberous geophyte to 30 cm. Leaves linear-lanceolate. Flowers many in a dense raceme, green with sepals tinted maroon, spur pendent, 3–4.5 mm long, lateral sepals 2.5–3.5 mm long. Sept.–Nov. Fynbos, especially roadsides, NW, SW, AP, KM, LB, SE (Vredendal to E Cape).

conferta Bolus (= *Monadenia conferta* (Bolus) Kraenzl.) Slender, dark red-flushed, tuberous geophyte to 22 cm. Leaves linear, imbricate. Flowers many in a dense raceme, ± 10 mm diam., lime-green at anthesis, sepals soon turning deep red, lateral sepals oblong to narrowly ovate, 2.5 mm long, spur obsolete. Sept.–Dec., usually after fire. Sandy slopes in fynbos, SW, AP (Cape Peninsula to Elim).•

densiflora (Lindl.) Bolus (= *Monadenia densiflora* Lindl.) Slender, tuberous geophyte to 20 cm. Leaves linear-lanceolate, imbricate. Flowers many in a dense, slender raceme, petals and lip dull green, sepals rusty red to green, spur constricted at base, 2–3 mm long, lateral sepals oblong-ovate, 3–5 mm long. Mainly Oct. Sandy soils, SW, AP, SE (Cape Peninsula to Bredasdorp and Storms River Mouth).•

ecalcarata (G.J.Lewis) H.P.Linder (= *Monadenia ecalcarata* G.J.Lewis) Slender, tuberous geophyte to 13 cm. Leaves linear-lanceolate, imbricate. Flowers many in a dense raceme, not resupinate, lime-green, lateral sepals 4 mm long, spur obsolete. Oct. Fynbos, SW (Cape Peninsula).•

nubigena H.P.Linder Slender, tuberous geophyte to 24 cm. Leaves lanceolate. Flowers few to many in a dense raceme, 10–12 mm diam., sepals white, petals and lip yellow-brown, spur 2 mm long. Oct. Restioid vegetation, NW, SW (Hex River Mtns and Cape Peninsula).•

physodes Sw. (= *Monadenia physodes* (Sw.) Rchb.f.) Robust, tuberous geophyte to 60 cm. Leaves linear-lanceolate. Flowers many in a cylindrical raceme, lime-green and often mottled or suffused with maroon, spur clavate, rounded, 7–9 mm long, lateral sepals oblong, 7–10 mm long. Sept.–Oct. Sandstone slopes after fire, NW, SW (Piketberg to Cape Peninsula).•

pygmaea Bolus (= *Monadenia pygmaea* (Bolus) T.Durand & Schinz) Slender, tuberous geophyte to 15 cm. Leaves narrowly ovate. Flowers many in a dense raceme, lime-green, spur ± 2.5 mm long, cylindrical, lateral sepals oblong, 4 mm long. Oct.–Nov., often after fire. Sandy lower slopes, SW (Cape Peninsula to Genadendal).•

sabulosa Bolus (= *Monadenia sabulosa* (Bolus) Kraenzl.) Slender, tuberous geophyte to 10 cm. Leaves lanceolate, imbricate. Flowers many in a dense, obovate raceme, lime-green and yellow, spur pendent, 10–15 mm long, lateral sepals 7–9 mm long. Oct.–Nov. Sandy coastal flats, SW (Cape Peninsula to Hangklip).•

Schizodium group

A. Sepals linear-lanceolate, acuminate

longipetala (Lindl.) Bolus (= *Schizodium longipetalum* Lindl.) Like **D. satyroides** but to 20 cm, flowers greenish yellow, with recurved lateral sepals, 7–12 mm tall, spur 2–3 mm long, petals and lip with a long apical mucro. Aug.–Sept. Proteoid shrubland, NW, SW (Piketberg to Paarl).•

satyroides (L.) Bytebier (= *Schizodium cornutum* (L.) Schltr.) Slender, tuberous geophyte to 30 cm, with wire-like, flexuose stem. Leaves rosulate, obovate-oblanceolate. Flowers few in a lax raceme, white to rose-red, lip pale green, sepals recurved, narrowly lanceolate, median sepal 7–12 mm long and spur 5–10 mm long. Aug.–Sept. Sandy flats, NW, SW (W Karoo to Kleinrivier Mtns). **gce**

A.' Sepals ovate-lanceolate, acute

bifida (Thunb.) Sw. (= *Schizodium bifidum* (Thunb.) Rchb.f.) WIRE ORCHID, KAPOTJIE Slender, tuberous geophyte to 30 cm, with wiry, flexuose stem. Leaves basal, obovate-oblanceolate. Flowers few in a lax raceme, pink, lip apex greenish to purple, sepals lanceolate, 10–15 mm long, spur 10–13 mm long, upcurved. Mainly Sept.–Oct. Sandy flats, NW, SW, AP, KM, LB, SE (Cedarberg and S Karoo to Port Elizabeth).

flexuosa (L.) Sw. (= *Schizodium flexuosum* (L.) Lindl.) BACON-AND-EGGS, SPEK-EN-EIERS Slender, tuberous geophyte to 35 cm, with wiry, flexuose stem. Leaves basal, obovate-oblanceolate. Flowers few in a lax raceme, white with yellow petals, lip yellow with black spots, sepals ovate, 7–11 mm long, spur 2–4 mm long, deflexed. Sept.–Oct. Seasonally moist, sandy flats, NW, SW (Bokkeveld Mtns to Caledon Swartberg).•

inflexa (Lindl.) Bolus (= *Schizodium inflexum* Lindl.) Like **D. bifida** but flowers smaller, sepals 8–10(–12) mm long and spur straight or decurved. Oct.–Nov. Sandstone slopes, NW, SW, KM, LB, SE (Bokkeveld Mtns to E Cape).

obliqua (Lindl.) Bolus (= *Schizodium obliquum* Lindl.) Slender, tuberous geophyte to 30 cm, with wiry flexuose stem. Leaves basal, obovate-oblanceolate. Flowers few in a lax raceme, pink, petals conspicuously lobed at base, lip speckled, sepals lanceolate, 5–14 mm long, spur 3–9 mm long, slender and constricted at base. Mainly Aug.–Sept. Sandstone slopes, NW, SW, LB (Ceres to Cape Peninsula to Riversdale).•

DISPERIS Sw. WITCH ORCHID ± 80 spp., mostly S and tropical Africa and Madagascar, also Australasia

A. Stem hairless

circumflexa (L.) T.Durand & Schinz. Tuberous geophyte to 20 cm. Leaves 2, suberect, linear-lanceolate. Flowers 2–10, greenish and white, lip limb horizontal-canaliculate with tip inflexed, warty within, rostellum arms curled outwards. Aug.–Sept. Sand, clay or granite, NW, SW, LB, SE (Bokkeveld Mtns to Riversdale and Joubertina).•

disiformis Schltr. Slender, tuberous geophyte to 15 cm. Leaves 2, cauline, alternate, ovate. Flowers 1 or few in a lax raceme, whitish or tinged with lilac, lip blade triangular and reflexed, appendage oblong, apical part with papillae. July–Oct. Dry and open woodland, LB, SE (Riversdale, E Cape to KwaZulu-Natal, and Limpopo).

lindleyana Rchb.f. Tuberous geophyte to 30 cm. Leaf 1, spreading, cordate. Flowers 1–4, white, lip limb deflexed, convex-ovate, rostellum arms upcurved. Dec.–Feb. Montane forests, SE (George to Mpumalanga).

paludosa Harv. ex Lindl. Tuberous geophyte to 50 cm. Leaves ± 3, suberect, lanceolate. Flowers 2–7, magenta and green, lip limb horizontal, lanceolate-conduplicate, rostellum arms porrect with outflexed tips. Nov.–Jan., especially after fire. Marshy sandstone slopes, SW, AP, LB, SE (Hex River Mtns to Cape Peninsula to S KwaZulu-Natal).

thorncroftii Schltr. Tuberous geophyte to 25 cm. Leaves 2, spreading, cordate. Flowers 1–3, white or lilac, lip limb deflexed, ovate, rostellum arms porrect with inflexed tips. Nov.–Dec. Montane forests, SE (Knysna and E Cape to Zimbabwe).

A.' Stem hairy

bodkinii Bolus Like **D. macowanii** but flowers smaller and often cleistogamous with green sepals and lip appendage inflexed at tip. Aug.–Sept. Clay flats under scrub, NW, SW, KM (Tulbagh to Cape Peninsula and Anysberg).•

bolusiana Schltr. ex Bolus Tuberous geophyte with shortly hairy stem to 20 cm. Leaves 2 or 3, spreading, ovate. Flower 1, yellowish green to white, lip limb cup-shaped, rostellum arms obsolete with deflexed tip. Sept.–Oct. Clay flats, NW, SW, KM, LB (Bokkeveld Escarpment to Riversdale).•

capensis (L.f.) Sw. Tuberous geophyte with softly hairy stem to 50 cm. Leaves 2, suberect, lanceolate. Flower 1, green and magenta or cream-coloured, sepals conspicuously tailed, lip limb curled downwards, lanceolate, warty, rostellum arms tightly coiled. July–Sept. Sandstone seeps, NW, SW, AP, KM, LB, SE (Pakhuis Mtns to Grahamstown).

cucullata Sw. WITCH ORCHID Tuberous geophyte with shortly hairy stem to 20 cm. Leaves 2, suberect and clasping below, ovate. Flower 1, pale green, lip limb goblet-shaped and apiculate, rostellum arms curled over. Aug.–Oct. Seasonally damp, often sandy flats, NW, SW (Clanwilliam to Riviersonderend Mtns).•

macowanii Bolus Tuberous geophyte with shortly hairy stem to 20 cm. Leaves 2, spreading, ovate. Flower 1, white or mauve, lip limb minute, upcurved, rostellum arms incurled. Feb.–Mar. Damp grasslands, SE (Mossel Bay and Port Elizabeth to Free State).

purpurata Rchb.f. Like **D. bolusiana** but flowers magenta to white with rostellum arms exserted. Aug.–Sept. Clay and granite slopes, NW, KM, SE (Richtersveld and W Karoo to Witteberg, Langkloof). **gce**

villosa (L.f.) Sw. Tuberous geophyte with shortly hairy stem to 20 cm. Leaves 2, lower petiolate, elliptic. Flowers 1–4, yellowish green, lip limb slipper-shaped, rostellum arms corkscrew-twisted. Aug.–Sept. Clay and granite slopes, NW, SW, AP, LB, SE (Clanwilliam to Mossel Bay and Port Elizabeth).•

EULOPHIA R.Br. ex Lindl. HARLEQUIN ORCHID ± 250 spp., pantropical and subtropical

A. Lip crests of low fleshy ridges tapering gradually to lip apex

parviflora (Lindl.) A.V.Hall Rhizomatous geophyte to 50 cm. Leaves emergent at flowering, leathery. Flowers few to many in a dense, elongate raceme, sepals brownish green, petals and lip yellow, lip side lobes tinged purple, median sepal 10–14 mm long, lip crests of low, warty ridges, spur conic to subcylindrical, 2–5 mm long. Aug.–Nov. Grassy fynbos and coastal thornveld, SE (Langkloof to Limpopo).

speciosa (R.Br. ex Lindl.) Bolus Geophyte mostly to 60 cm, with subterranean or partly exposed corms/pseudobulbs. Leaves ± succulent, fully developed at flowering. Flowers few to many, yellow, median sepal 11–13 mm long, lip crests of broad, fleshy ridges, spur conical, 1–3 mm long. Oct.–Jan. Mostly coastal bushveld, SE (Wilderness to tropical Africa).

streptopetala Lindl. Geophyte to 2 m, with partly exposed pseudobulbs. Leaves lanceolate, pleated. Flowers few to many in a lax, elongate raceme, sepals green mottled with brown, petals and lip midlobe yellow, lip side lobes purple, median sepal 11–18 mm long, lip crests of low ridges, spur subcylindrical, 1.5–2.2 mm long. Oct.–Jan. Bush, SE (Uniondale to tropical Africa).

A.' Lip crests of papillae or lamellae abruptly terminating at or lacking on outer third

aculeata (L.f.) Spreng. Rhizomatous geophyte to 25 cm. Leaves partly or fully developed at flowering, linear-lanceolate, pleated. Flowers few to many in a dense raceme, dull ivory to white, tepals scarcely spreading, median sepal oblong, 6–16 mm long, lip crests of ridges and lamellate papillae, spur absent. Nov.–Jan. Fynbos and grasslands, SW, AP, LB, SE (Cape Peninsula to Mpumalanga).

hereroensis Schltr. Rhizomatous geophyte to 55 cm, often with aerial pseudobulbs. Leaves partly to fully developed at flowering, linear-lanceolate. Flowers few to many in a lax raceme, sepals yellowish green, petals and lip pale yellowish green, lip crests pale yellow, median sepal 12–19 mm long, lip crests of lamellae, spur 3–4 mm long. Sept.–Jan. Arid vegetation, SE (Humansdorp to Limpopo, Namibia).

hians Spreng. (= *Eulophia clavicornis* Lindl.) Rhizomatous geophyte to 73 cm. Leaves partly to fully developed at flowering, linear-lanceolate. Flowers few to many in a lax raceme, sepals purplish, petals white tinged pale pink to pale blue or yellow, lip crests pale pink to yellow, median sepal 8–18 mm long, lip crests of pubescent ridges and lamellae, spur slender, 1.4–8.9 mm long. Aug.–Feb. Grasslands, SE (George to tropical Africa and Madagascar).

litoralis Schltr. Rhizomatous geophyte to 66 cm. Leaves usually absent to vestigial. Flowers few to many in a rather lax raceme, sepals yellowish green tinged olive, petals and lip yellow, lip side lobes tinged purple, crests yellow, median sepal lanceolate, 17–24 mm long, lip crests of fleshy ridges and papillae, spur slender, 2.5–4.5 mm long. Nov.–Jan. Coastal dunes, SW, LB, SE (Cape Flats to Plettenberg Bay).•

ovalis Lindl. Rhizomatous geophyte to 65 cm. Leaves leathery, fully developed at anthesis. Flowers few in a lax raceme, sepals purple, petals and lip white and tinged purple, lip crests yellow, median sepal oblong to lanceolate-oblong, 14–36 mm long, lip crests of ridges and papillae, spur conical to cylindrical, 1–5.6 mm long. Nov.–Feb. Grasslands, SE (Humansdorp to Limpopo).

platypetala Lindl. Rhizomatous geophyte to 45 cm. Leaves partly developed at flowering, somewhat leathery. Flowers few in a lax raceme, sepals purple brown, petals and lip greenish yellow, median sepal 15–17 mm long, lip crests of 3–5 lamellae, spur conical, 2–3 mm long. Oct.–Nov. Coastal renosterveld and forest clearings, SW, LB, SE (Swellendam to E Cape).

tabularis (L.f.) Bolus Rhizomatous geophyte to 40 cm. Leaves absent or partly developed at flowering, linear-lanceolate, pleated. Flowers 2–few in a dense raceme, yellow, median sepal narrowly elliptic, 20–22 mm long, lip crest of a single ridge, spur absent. Nov.–Jan., often after fire. Sandy flats and slopes, NW, SW, LB, SE (Biedouw to E Cape).

tenella Rchb.f. Rhizomatous geophyte to 60 cm. Leaves fully developed at anthesis, linear-lanceolate. Flowers few to many in a dense raceme, sepals dark green to purple, petals yellow and brown, lip brown, lip crest bright yellow, median sepal 6–8 mm long, lip crests of fleshy ridges and lamellae, spur stout, cylindrical, 2–3 mm long. Nov.–Jan. Coastal bushveld, SE (Uitenhage to Zimbabwe).

tuberculata Bolus Rhizomatous geophyte to 40 cm. Leaves absent to partly developed at flowering, leathery. Flowers few to many in a lax raceme, sepals yellowish green and purple, petals and lip white tinged maroon, crests yellow, median sepal 6–7 mm long, lip crests of ridges and lamellae terminating abruptly near midlobe apex, spur vestigial. Sept.–Dec. Grasslands and karroid scrub, SE (Knysna to tropical Africa).

EVOTELLA Kurzweil & H.P.Linder• LIVER ORCHID 2 spp., W Cape

carnosa (Lindl.) J.C.Manning & Goldblatt (= *Corycium carnosum* (Lindl.) Rolfe) Slender to fairly robust, tuberous geophyte to 55 cm, turning black on drying. Leaves narrowly lanceolate. Flowers many in a dense raceme, ± 18 × 7 mm, sepals green, petals pink and lip whitish pink, lateral sepals free, lip semi-lunate, appendage a beaked hood over gynostemium. Oct.–Jan., after fire. Mostly sandstone seeps, SW, AP, KM, LB, SE (Cape Peninsula to Port Elizabeth).•

rubiginosa (Sond. ex Bolus) Kurzweil & H.P.Linder (= *Corycium rubiginosum* (Sond. ex Bolus) Rolfe) Slender, tuberous geophyte to 30 cm. Leaves linear-lanceolate. Flowers many in a dense raceme, ± 15 × 15 mm, sepals green tinged maroon, petals rusty red to maroon, lip white tinged with maroon, lip appendage green, lip blade broadly deltate-hastate, appendage erect. Oct.–Nov., after fire. Sandstone flats and seeps, NW, SW (Grootwinterhoek to Hermanus).•

*__GASTRODIA__ R.Br. POTATO ORCHID ± 17 spp., Australasia

*__sesamoides__ R.Br. Slender, rhizomatous saprophyte to 1 m. Leaves reduced, scale-like, membranous. Flowers in a lax raceme, bell-shaped, not resupinate, patent or pendulous, light brown and cream-coloured, sepals and petals fused, lip free, 3-lobed with 2 crests. Nov.–Dec. Forests and plantations, SW (Cape Peninsula, introduced from Australia).

HABENARIA Willd. GHOST ORCHID ± 800 spp., pantropical and subtropical

A. Petals bipartite

falcicornis (Burch. ex Lindl.) Bolus Robust, tuberous geophyte to 70 cm. Leaves many, cauline, lanceolate. Flowers in a fairly dense raceme, green and white, petals bipartite with anterior lobe

elliptic, lip tripartite with spur 20–40 mm long, stigmas 2–4 mm long. Feb.–Apr. Seasonally damp grasslands, LB, SE (Swellendam to Limpopo).

lithophila Schltr. Slender, tuberous geophyte to 30 cm. Leaves 2, basal, adpressed, suborbicular. Flowers in a dense raceme, yellowish green, petals bipartite, puberulous, anterior lobe linear, lip tripartite with spur 8–11 mm long, stigmas 1–2 mm long. Nov.–Mar. Stony grasslands, SE (Mossel Bay to tropical Africa).

A.' Petals entire

anguiceps Bolus Stout, tuberous geophyte to 40 cm. Leaves many, cauline, lanceolate. Flowers in a dense raceme, green, petals obliquely lanceolate, lip oblong with bulbous spur ± 8 mm long, stigmas ± 1 mm long. Nov.–Feb. Grassy slopes, SE (Humansdorp to Mpumalanga).

arenaria Lindl. Slender, tuberous geophyte to 40 cm. Leaves few, mostly basal, spreading, elliptic, often mottled with grey. Flowers in a lax raceme, green, petals lanceolate, lip tripartite with spur 15–20 mm long, stigmas 0.5 mm long. Apr.–July. Coastal scrub and forests, LB, SE (Riversdale to Mpumalanga).

epipactidea Rchb.f. Robust, tuberous geophyte to 50 cm, usually densely leafy. Leaves cauline, lanceolate. Flowers many in a dense raceme, green, with greenish white petals and white lip, petals elliptic to suborbicular, lip oblong with basal whiskers and a spur 20–30 mm long, anther reflexed, stigmas ± 1.5 mm long, central rostellum lobe broadly triangular and covering anther. Nov.–Apr. Savanna and grasslands, SE (E Cape to tropical Africa).

laevigata Lindl. Slender, tuberous geophyte to 40 cm. Leaves many, cauline, elliptic, with cartilaginous margins. Flowers in a dense raceme, green, petals obliquely ovate, lip tripartite with filiform spur 16–35 mm long, stigmas ± 1 mm long. Nov.–Mar. Stony grasslands, LB (George, Grahamstown to Mpumalanga).

HOLOTHRIX Rich. ex Lindl. THREAD ORCHID, TRYPHIA ± 55 spp., Africa, Arabia and Madagascar

A. Scape with bracts

burchellii (Lindl.) Rchb.f. Slender, tuberous geophyte to 50 cm, scape thinly hairy. Leaves 2, basal, ovate. Flowers many in a dense raceme, dimorphic, upper flowers with much longer petals and lip lobes, sepals green, petals and lip cream-coloured, petals with 5–10 filiform lobes, lip spurred and divided into 5–13 filiform lobes. Aug.–Nov. Grasslands, NW, AP, LB, SE (Piketberg to E Cape).

grandiflora (Sond.) Rchb.f. Slender, tuberous geophyte to 25 cm, scape thinly hairy. Leaves 2, basal, ovate, often withered at flowering. Flowers many in a dense raceme, sepals and petals green, lip white with pale green or lilac base, petals divided into 5–9 filiform lobes, lip spurred and divided into 13–26 filiform lobes. Mar. Rock crevices, NW, LB, SE (Vredendal to Port Elizabeth).•

schlechteriana Schltr. ex Kraenzl. Slender, tuberous geophyte to 27 cm, scape thinly hairy. Leaves 2, basal, ovate. Flowers many in a dense raceme, sepals green, petals and lip green or yellow, petals with 4–9 filiform lobes, lip spurred and divided into 5–11 filiform lobes. Oct.–Feb. Among rocks and shrubs, SW, KM, SE (Namaqualand to E Cape).

A.' Scape ebracteate
B. Lip toothed or with oblong lobes, white or cream-coloured

aspera (Lindl.) Rchb.f. Slender, tuberous geophyte to 25 cm, scape thinly hairy. Leaves 2, basal, ovate. Flowers many in a dense raceme, sepals green, petals and lip white with maroon or purple stripes, petals entire, lip spurred and with 7 unequal, rounded lobes. June–Oct. Sandy slopes or rock pavements, NW, SW, LB (Namaqualand and W Karoo to Swellendam). **gce**

longicornu G.J.Lewis Slender, tuberous geophyte to 15 cm, scape deflexed-hairy. Leaves 2, basal, ovate, hairy. Flowers with basally connate sepals, lip spurred and with 3–5 short, oblong lobes. Oct.?, SE (Port Elizabeth).•

mundii Sond. Slender, tuberous geophyte to 16 cm, scape thinly hairy. Leaves 2, basal, ovate, fleshy. Flowers in a condensed raceme, sepals green, petals and lip white, petals entire, lip spurred and with 7 broad lobes. Sept.–Nov. Grasslands, SW, AP, LB, SE (Cape Peninsula to Port Elizabeth).•

parviflora (Lindl.) Rchb.f. Slender, tuberous geophyte to 24 cm, scape glabrous. Leaves 2, basal, ovate, fleshy. Flowers in a dense raceme, sepals green, petals and lip white or marked with purple, petals entire, broadly linear and membranous, lip spurred and with 5 narrow lobes. July–Nov. Damp places and on mossy boulders, SW, LB, SE (Cape Peninsula to KwaZulu-Natal).

pilosa (Burch. ex Lindl.) Rchb.f. Slender, tuberous geophyte to 55 cm, scape densely hairy below. Leaves 2, basal, ovate, densely hairy on reverse. Flowers many in a dense raceme, sepals green, petals and lip white or cream-coloured, petals entire, linear, lip spurred and with 3–7 short, broad fleshy lobes. Nov.–Mar. Dry, stony places, SW, LB, SE (Riviersonderend to Port Elizabeth).•

B.' Lip with filiform lobes, green or cream

brevipetala Immelman & Schelpe Slender, tuberous geophyte to 31 cm, scape stiffly deflexed-hairy. Leaves 2, basal, ovate, stiffly hairy or scaly. Flowers many in a dense raceme, green, petals entire, lip shortly spurred and with 3–5 short, broad lobes. Usually Aug.–Jan. Rock pavements, NW, SW, SE (Cape Peninsula to Port Elizabeth).•

cernua (Burm.f.) Schelpe Slender, tuberous geophyte to 24 cm, scape stiffly deflexed-hairy. Leaves 2, basal, ovate, stiffly hairy or scaly. Flowers many in a dense raceme, green, petals entire, lip spurred and with 3–5(–7) narrow lobes. July–Jan., mostly after fire. Sandstone slopes and flats, NW, SW, AP, LB, SE (Namaqualand to Grahamstown).

exilis Lindl. Slender, tuberous geophyte to 29 cm, scape thinly hairy. Leaves 2, basal, ovate, glabrescent. Flowers few to many in a dense raceme, green, petals entire, lip entire and shortly spurred. Oct.–Mar. Coastal regions, SW, AP, SE (Cape Peninsula to Kei Mouth).

secunda (Thunb.) Rchb.f. Slender, tuberous geophyte to 30 cm, scape thinly hairy. Leaves 2, basal, ovate, fleshy. Flowers many in a lax raceme, sepals green, petals and lip cream-coloured, petals entire and fleshy, lip spurred and with 5 linear lobes. June–Oct. Dry, rocky slopes and pavements, NW, SW, AP, KM, LB (Richtersveld and W Karoo to Breede River Valley and Little Karoo). **gce**

villosa Lindl. Slender, tuberous geophyte to 36 cm, scape silky hairy. Leaves 2, basal, ovate, hairy. Flowers many in a dense raceme, green, petals entire, lip spurred and with 3–5 lobes. Oct.–Jan. Sandstone and granite slopes and pavements, NW, SW, AP, KM, LB, SE (Richtersveld and W Karoo to E Cape, Mpumalanga to Zimbabwe).

LIPARIS Rich. FLY ORCHID ± 250 spp., worldwide

capensis Lindl. Terrestrial herb to 10 cm, with pseudobulbs largely subterranean. Leaves 2 or 3, ovate, spreading. Flowers many in a dense raceme, green, lateral sepals oblong, 4 mm long, lip oblong with obscure side lobes, emarginate. Apr.–July. Sandstone slopes, SW, AP, SE (Cape Peninsula to Algoa Bay).•

remota J.L.Stewart & Schelpe Terrestrial, rarely epiphytic herb to 20 cm, pseudobulbs separated by creeping stems with membranous cataphylls. Leaves 3, elliptic. Flowers 3 in a lax raceme, green, lateral sepals broadly elliptic, 5–6 mm long, largely united, lip spathulate, rhomboid to lunate with a small basal callus. Nov.–Mar. Forests, SE (Knysna to Swaziland).

MYSTACIDIUM Lindl. TREE ORCHID 9 spp., southern and tropical Africa

capense (L.f.) Schltr. Monopodial epiphyte with stems to 2.5 cm. Leaves oblong-oblanceolate, channelled, apically notched. Flowers several in a lax raceme, white, 25–30 mm diam., tepals lanceolate, lip with short side lobes and a filiform spur 35–60 mm long. Sept.–Jan. Montane and lowland forests, SE (George to Swaziland).

PACHITES Lindl.• 2 spp., W Cape

appressa Lindl. Slender geophyte to 40 cm. Leaves 5–12, cauline, linear. Flowers few in a lax raceme, pink but lip pale greenish yellow below, tepals ovate-oblong, 5–7 mm long. Jan.–Feb., after fire. Sandstone slopes, LB (Langeberg: Swellendam to Riversdale).•

bodkinii Bolus Slender or robust geophyte to 20 cm. Leaves 3–7, cauline, linear. Flowers in a dense raceme, dull purplish pink, tepals linear-lanceolate, 12–15 mm long, lip with minute side lobes, anther loculi dark purple. Nov.–Dec., after fire. Sandstone seeps, SW, LB (Cape Peninsula to Mossel Bay).•

POLYSTACHYA Hook. SNOUT ORCHID ± 200 spp., pantropical, but mostly African

ottoniana Rchb.f. Epiphyte to 15 cm, pseudobulbs often forming chains, 10–25 mm long. Leaves 2 or 3, oblong-lanceolate. Flowers few in a lax raceme, not resupinate, cream-coloured or white, lip with a median yellow streak, sepals 7.5–13 mm long, lip hooded and recurved above, with a central ridge-like callus. Aug.–Dec. Forests, LB, SE (Swellendam to Limpopo).

pubescens (Lindl.) Rchb.f. Epiphyte or lithophyte to 20 cm, pseudobulbs clustered, 20–60 mm long. Leaves 1–3, oblong-elliptic. Flowers few in a lax raceme, not resupinate, deep yellow, lip and lateral sepals often with reddish markings, sepals 8–11 mm long, lip 3-lobed, flat, ecallose. Oct.–Dec. Forests or forest margins, SE (Port Elizabeth to Zimbabwe).

PTERYGODIUM Sw. (= *ANOCHILUS*, *CORYCIUM*) BONNET ORCHID, MONKSHOOD ORCHID, MOEDERKAPPIE 32 spp., mostly southern Africa, extending into tropical Africa

Corycium group

A. Petals bright yellow or yellowish tipped brown, straight or flared

crispum (Thunb.) Schltr. (= *Corycium crispum* (Thunb.) Sw.) Robust, tuberous geophyte to 40 cm. Leaves many, lanceolate, margins crisped. Flowers many in a fairly dense raceme, ± 20 × 5 mm, yellow with a green lip appendage, lateral sepals fused for three-quarters of their length, lip with 2 broad apical lobes, appendage with 2 deflexed lobes. Sept.–Oct. Sandy flats, NW, SW, AP, KM, LB (Namaqualand to Albertinia). **gce**

deflexum Bolus (= *Corycium deflexum* (Bolus) Rolfe) Robust, tuberous geophyte to 25 cm. Leaves many, lanceolate, sometimes withered at flowering. Flowers 6–many in a lax to dense raceme, ± 12 × 6 mm, yellow with green lip appendage, lateral sepals fused to ± halfway, lip broadened and 2-lobed apically, appendage shield-like, with 2 strongly deflexed lobes. Mainly Oct. Dry scrub, NW (W Karoo and Cedarberg). **gce**

ingeanum (E.G.H.Oliv.) J.C.Manning & Goldblatt (= *Corycium ingeanum* E.G.H.Oliv.) Fairly robust, tuberous geophyte to 20 cm. Leaves ± 7, erect-spreading, lanceolate. Flowers many in a fairly dense raceme, greenish yellow but sepals membranous-brown, petals tipped reddish to black and lip bright green, lateral sepals fused, lip with 2 spreading lobes apically, appendage shield-like, with 2 lobes arching backwards. Sept. Sandy or clay flats in renosterveld, NW (Bokkeveld Plateau).•

orobanchoides (L.f.) Schltr. (= *Corycium orobanchoides* (L.f.) Sw., *C. vestitum* Sw.) Slender or robust, tuberous geophyte to 42 cm. Leaves many, lanceolate, barred with red below. Flowers many in a dense raceme, ± 5 × 15 mm, yellow-green with purple petal apices, lateral sepals fused, lip with 2 diverging lobes, appendage shield-like, with long horizontal lobes pointing backwards. Sept.–Oct. Sandy flats, NW, SW, AP, KM, LB (Klawer to Albertinia).•

A.' Petals uniformly greenish or brownish, incurved apically

bicolorum (Thunb.) Schltr. (= *Corycium bicolorum* (Thunb.) Sw.) Robust to slender, tuberous geophyte to 40 cm. Leaves narrowly lanceolate. Flowers many in a dense raceme, ± 10 × 4 mm, greenish yellow, lateral sepals fused, lip 2-lobed, appendage forming a shield over gynostemium, with 2 small lateral lobes. Oct.–Nov., after fire. Sandy flats, SW, AP, LB, SE (Cold Bokkeveld to Mossel Bay).•

bifidum (Sond.) Schltr. (= *Corycium bifidum* Sond.) Slender, tuberous geophyte to 15 cm. Leaves short, narrowly triangular. Flowers many in a dense raceme, ± 10 × 4 mm, sepals and petals yellowish green, lip green, lateral sepals fused for most of their length, lip elliptic-deltate, appendage arching forward. Mainly Nov., after fire. Sandy flats, SW (Pringle Bay and Botrivier).•

dracomontanum (Parkman & Schelpe) J.C.Manning & Goldblatt (= *Corycium dracomontanum* Parkman & Schelpe) Slender, tuberous geophyte to 30 cm. Leaves lanceolate to linear. Flowers many in a dense raceme, ± 14 × 6 mm, sepals dry and black at flowering, petals and lip green tinged purple, lip rotund, lateral lobes of appendage oblong and not recurved. Nov.–Mar. Grasslands, SE (Knysna to Mpumalanga, Malawi).

excisum (Lindl.) Schltr. (= *Corycium excisum* Lindl.) Slender to fairly robust, tuberous geophyte to 26 cm, turning black on drying. Leaves many, linear. Flowers many in a dense raceme, ± 8 × 5

mm, lime-green, lateral sepals fused except apically, lip subobdeltate, appendage shield-like with 2 obscure horizontal lobes. Nov.–Dec., after fire. Sandy flats, NW, SW, AP (Piketberg to Agulhas).•

microglossum (Lindl.) Schltr. (= *Corycium microglossum* Lindl.) Robust, tuberous geophyte to 30 cm. Leaves many, linear. Flowers many in a dense raceme, ± 24 × 7 mm, sepals and petals dry, greyish brown, lip appendage green, lateral sepals fused in lower portion, lip linear-attenuate, appendage broadly elongate-ovate, arching over gynostemium. Mainly Nov., after fire. Sandy flats and slopes, NW, SW (Cold Bokkeveld to Cape Peninsula).•

Pterygodium group

A. Lip uppermost (flowers hyper-resupinate)

hallii (Schelpe) Kurzweil & H.P.Linder (= *Anochilus hallii* Schelpe) Like **P. inversum** but lip appendage undivided. Sept.–Oct. Short, dry scrub, NW, SW (Namaqualand and W Karoo to Langebaan). **gce**

inversum (Thunb.) Sw. (= *Anochilus inversus* (Thunb.) Rolfe) Robust, tuberous geophyte to 55 cm. Leaves cauline, imbricate, lanceolate. Flowers many in a dense raceme, ± 25 × 12 mm, pale green, hyper-resupinate, lip appendage ovate-oblong, distinctly bilobed apically. Sept.–Oct. Mostly coastal forelands, NW, SW (Piketberg to Kleinmond).•

A.' Lip lowermost (flowers resupinate)
B. Lip appendage with 2 broad lobes spanning flower

alatum (Thunb.) Sw. Slender, tuberous geophyte to 20 cm. Leaves clustered basally, narrowly elliptic. Flowers 2–many in a fairly dense raceme, ± 24 × 15 mm, pale greenish yellow, lip with 2 broad lobes and a small pointed midlobe, appendage spathulate, 6–8 × 3 mm. Aug.–Oct. Sandy flats and slopes, NW, SW, AP, LB, SE (Cedarberg to Humansdorp).•

caffrum (L.) Sw. Slender to fairly robust, tuberous geophyte to 30 cm. Leaves cauline, ovate-lanceolate. Flowers many in a fairly dense raceme, ± 28 × 15 mm, sepals pale greenish, petals and lip yellow, lip with 2 broad lobes, appendage erect and rather stout. Sept.–Nov. Sandstone slopes, NW, SW, LB, SE (Piketberg to Port Elizabeth).•

pentherianum Schltr. Like **P. caffrum** but flowers smaller and pale green. Aug.–Sept. Clay flats in renosterbos, NW (Clanwilliam to Cold Bokkeveld).•

B.' Lip appendage with lateral lobes small or lacking

acutifolium Lindl. Slender, tuberous geophyte to 35 cm. Leaves cauline, oblong. Flowers few in a lax to subdense raceme, ± 17 × 15 mm, sepals lime-green, petals and lip yellow, lip deltate, appendage triangular, apex smooth and down-curved, 7–10 × 4 mm. Mainly Sept.–Dec., usually after fire. Marshes, rock flushes and seeps in fynbos, NW, SW, AP, LB, SE (Piketberg to Port Elizabeth).•

catholicum (L.) Sw. Like **P. acutifolium** but flowers with yellowish green sepals and lip, often flushed red and apex of lip appendage denticulate. Sept.–Nov., often after fire. Renosterveld, NW, SW, AP, KM, LB, SE (Bokkeveld Mtns to Port Elizabeth).•

cleistogamum (Bolus) Schltr. Slender, tuberous geophyte to 35 cm. Leaves cauline, 2–4, elliptic-oblong. Flowers few in a lax raceme, greenish yellow, cleistogamous, lip without appendage but rostellum with appendages. Mainly Nov. Sandy flats, SE (Knysna to E Cape).

connivens Schelpe Slender, tuberous geophyte to 25 cm. Leaves 1 or 2, linear. Flowers few in a lax raceme, ± 25 × 10 mm, yellowish green, sepals connivent, lip appendage cruciform, ± 8 mm tall. Oct. Marshes in fynbos, SW (Cape Peninsula).•

cruciferum Sond. Slender to fairly robust, tuberous geophyte to 40 cm. Leaves 2 or 3, linear to elliptic. Flowers few in a lax raceme, ± 35 × 30 mm, yellowish green, lip very narrowly linear, appendage cruciform, 8–14 mm tall. Sept.–Nov. Sandy flats, SW, AP (Mamre to Pearly Beach).•

newdigateae Bolus Slender, tuberous geophyte to 35 cm. Leaves cauline, 2–4, elliptic-oblong. Flowers few in a lax raceme, ± 30 × 15 mm, greenish yellow, lip broad, appendage oblong. Nov. Stony slopes or flats, SE (Plettenberg Bay: Forest Hall).•

platypetalum Lindl. Slender, often flexuose, tuberous geophyte to 20 cm. Leaves usually 2, narrowly elliptic. Flowers 1 or 2, ± 18 × 15 mm, pale yellowish green, lip deltate, appendage triangular, central lobe reflexed, lateral lobes erect, 4–5 mm long. Sept.–Oct., often after fire. Sandstone slopes, often on ledges, NW, SW, LB (Piketberg to Swellendam).•

schelpei H.P.Linder Like **P. volucris** but flowers fewer, white. Sept.–Oct. Damp clay flats and slopes, NW, SW, KM (Richtersveld and W Karoo to Stellenbosch). **gce**

vermiferum E.G.H.Oliv. & Liltved Like **P. volucris** but flowers sometimes cleistogamous, ± 15 × 10 mm diam., with shallowly dish-shaped hood, and rostellum arms with extra twisted arms or appendages. Aug.–Oct. Sandy, coastal, limestone flats, AP (Stanford to Gansbaai).•

volucris (L.f.) Sw. Slender, tuberous geophyte to 50 cm. Leaves cauline, ovate-oblong. Flowers many in a lax to dense raceme with deflexed bracts, sepals green, petals and lip lime, ± 15 × 12 mm, lip deltate, appendage cup-like, anther erect. Sept.–Oct. In sandy or clayey soils among bushes, NW, SW, AP, KM, LB, SE (Bokkeveld Mtns to Humansdorp).•

SATYRIUM Sw. (= *SATYRIDIUM*) SATYR ORCHID, TREWWA ± 90 spp., Africa, Madagascar, extending to Asia

A. Spurs absent or saccate

bicallosum Thunb. Slender to stout, tuberous geophyte to 20 cm. Leaves 1–3 near soil surface, partly spreading, ovate, bracts spreading. Flowers many in a dense raceme, dull white, faintly greenish and with a pale purple patch above entrance to spurs, sepals 2–4 mm long, spurs saccate. Oct.–Nov., after fire. Sandy flats and slopes, NW, SW, LB, SE (Cedarberg to Knysna).•

bracteatum (L.f.) Thunb. Slender to stout geophyte to 30 cm. Leaves 3–8, cauline, lanceolate, bracts spreading. Flowers few to many in a lax to dense raceme, dull white or yellow with dark reddish brown markings, sepals 4–6 mm long, lip hemispherical, spurs saccate. Sept.–Nov. Sandy flats or peaty ledges, NW, SW, LB, SE (Cedarberg to Cape Peninsula to Limpopo).

muticum Lindl. Stout, tuberous geophyte to 35 cm. Leaves 1 or 2, adpressed to the ground, broadly ovate to orbicular, bracts deflexed. Flowers few in a dense raceme, pink, petals ivory with purple speckles, sepals 14–16 mm long, spurs minute, saccate or lacking. Aug.–Sept. Moist slopes, LB, SE (Heidelberg to Plettenberg Bay).•

pumilum Thunb. Tuberous, mostly acaulescent geophyte to 5 cm. Leaves 3–5, cauline, lanceolate. Flowers usually 2–4, relatively large, dull green outside, lip inside dull greenish yellow marked with transverse bars of dark maroon, sepals and petals fused for most of their length, 8–11 mm long, spurs saccate. Sept.–Oct. Damp flats and rock ledges, NW, SW, LB (Namaqualand to Riversdale). **gce**

retusum Lindl. Slender, tuberous geophyte to 15 cm. Leaves basal, 1 or 2, broadly ovate, bracts spreading. Flowers many in an elongate raceme, greenish to yellowish white with deep red lines inside lip, sepals 1–4 mm long, spurs saccate. Sept.–Nov., often after fire. Seeps and peaty soils, NW, SW, KM, LB, SE (Cold Bokkeveld to Cape Peninsula to Humansdsorp).•

striatum Thunb. Slender, tuberous geophyte to 10 cm, viscous on most surfaces. Leaves basal, 1 or 2, spreading, broadly ovate, bracts erect. Flowers 1–8 in a lax raceme, dull yellow to greenish white, with dark purple, striped markings, sepals 4–6 mm long, spurs saccate. Sept.–Oct. Moist flats and slopes, NW, SW (Cold Bokkeveld to Cape Peninsula).•

A.' Spurs slender
*B. Spurs shorter than ovary (see also **S. stenopetalum**)*

coriifolium Sw. EWWA-TREWWA Stout, tuberous geophyte to 80 cm. Leaves 2–4, basal and spreading, purple-spotted at base, leathery, elliptic to ovate, bracts deflexed. Flowers 7–20 in a dense raceme, bright yellow to bright orange, sepals 7–13 mm long, spurs 9–12 mm long. Aug.–Oct. Moist clay and sand, NW, SW, AP, KM, LB, SE (Cedarberg to Cape Peninsula to Port Elizabeth).•

emarcidum Bolus Slender or stout, tuberous geophyte to 22 cm. Leaves 1–4, cauline but clustered near stem base, ovate to narrowly ovate, bracts deflexed. Flowers many in a slender raceme, yellowish green, tepals attenuate and soon drying above, sepals 5–7 mm long, spurs 5–7 mm long. Sept. Coastal sands, SW, AP, SE (Cape Peninsula to Storms River Mouth).•

erectum Sw. GEEL TREWWA Stout, tuberous geophyte to 60 cm. Leaves 2, prostrate, ovate-elliptic, bracts deflexed. Flowers 11–37 in a dense raceme, pale to deep pink with darker tinges and spots on petals, spurs 5–11 mm long. July–Oct. Dry, sandstone and clay flats, NW, SW, KM, LB, SE (Namaqualand and W Karoo to Baviaanskloof). **gce**

ligulatum Lindl. Slender or stout, tuberous geophyte, 20–55 cm. Leaves 1–4, cauline but clustered near stem base, ovate to narrowly ovate, bracts deflexed. Flowers many in a slender raceme,

dull creamy white, tepals attenuate and soon drying above, sepals 7–10 mm long, spurs 7–10 mm long. Oct.–Dec. Scrub, forests and grasslands, NW, SW, AP, KM, LB, SE (Namaqualand to KwaZulu-Natal).

rhynchanthum Bolus (= *Satyridium rostratum* Lindl.) Robust, tuberous geophyte to 40 cm. Leaves 2–6, cauline, spreading to partly erect, linear-lanceolate, bracts deflexed. Flowers 10–40 in a rather dense raceme, white to pale pink with dark purple spots, sepals 5–7 mm long, spurs 5–6 mm long. Nov.–Dec., after fire. Marshy sandstone slopes, NW, SW (Cold Bokkeveld to Bredasdorp).•

rupestre Schltr. ex Bolus Slender, tuberous geophyte to 40 cm. Leaves 2–4, borne near ground level, spreading, ovate, bracts deflexed. Flowers few to many in a rather dense raceme, white with pale green tinges, sepals 2–4 mm long, spurs 2–4 mm long. Nov.–Dec. Moist forests and rock ledges, NW, KM, SE (Worcester to Kareedouw).•

B.' Spurs longer than ovary
C. Leaves on separate, sterile shoot

longicauda Lindl. Stout, tuberous geophyte to 80 cm. Leaves 1 or 2, ovate, on a separate shoot next to flowering stem, bracts deflexed. Flowers many in a lax raceme, white to pink and usually partly with pink tinge, spurs filiform, 15–46 mm long. Dec.–Feb. Moist grasslands, SE (Plettenberg Bay to tropical Africa).

parviflorum Sw. Slender or robust, tuberous geophyte to 30 cm, sometimes leafless. Leaves (if present) 2–4, on a separate shoot, elliptic to broadly ovate, bracts deflexed. Flowers many in a lax to dense raceme, yellowish green to maroon, petals drying shortly after anthesis, sepals 2–4 mm long, lip with small entrance and spurs 5–15 mm long. Dec.–Feb. Sandy flats and marshy grasslands, SE (Mossel Bay to Limpopo).

C.' Leaves at base of flowering stem
D. Basal leaves prostrate, adpressed to substrate

acuminatum Lindl. Slender to stout, tuberous geophyte to 60 cm, usually much less. Leaves 2, prostrate, ovate to subrotund, bracts deflexed. Flowers many in a dense raceme, white to pale pink, sepals ± 4 mm long, spurs 12–22 mm long. Sept.–Dec., especially after fire. Damp sandstone slopes, KM, LB, SE (Swellendam to E Cape).

bicorne (L.) Thunb. Stout, tuberous geophyte to 60 cm, stem with conspicuous tubular sheaths. Leaves usually 2, prostrate, ovate to rotund, bracts deflexed. Flowers 4–40 in a dense to lax raceme, pale greenish yellow, sepals 6–9 mm long, spurs 10–22 mm long. Sept.–Oct., especially after fire. Scrub, NW, SW, AP, LB, SE (Namaqualand to Knysna). **gce**

candidum Lindl. WIT TREWWA Stout, tuberous geophyte to 60 cm. Leaves 2, prostrate, broadly ovate to subrotund, bracts deflexed. Flowers few in a lax raceme, white to ivory, faintly pink-tinged, sepals 9–12 mm long, spurs 10–20 mm long. Sept.–Oct., often after fire. Sandy flats, NW, SW (Citrusdal to Hermanus).•

carneum (Dryand.) Sims ROOI TREWWA Stout, tuberous geophyte to 80 cm. Leaves 2–4, thick and fleshy, lowest 2 partly prostrate, bracts deflexed. Flowers many in a dense raceme, pale pink to rose, sometimes white, sepals 13–18 mm long, spurs 14–20 mm long. Sept.–Nov. Coastal flats, SW, AP (Cape Peninsula to Riversdale).•

longicolle Lindl. Slender to stout, tuberous geophyte to 40 cm. Leaves 2, prostrate, broadly ovate to rotund, bracts deflexed. Flowers 10–26 in a lax raceme, pale pink to ivory, petals and sepals with dark purple markings, spurs 19–30 mm long. Oct.–Dec., mainly after fire. Damp slopes, LB, SE (Riversdale to Grahamstown).

membranaceum Sw. Stout, tuberous geophyte to 60 cm. Leaves 2, prostrate, broadly ovate-elliptic, leaf sheaths on the stem dry and membranous, bracts deflexed, dry. Flowers 8–22, pale to deep pink, sepals 9–11 mm long, petal margins lacerate, spurs 20–27 mm long. Sept.–Nov. Grassy slopes, LB, SE (Swellendam to E Cape and Lesotho).

pallens S.D.Johnson & Kurzweil Stout, tuberous geophyte to 50 cm. Leaves 2, prostrate, fleshy, ovate-elliptic, bracts deflexed. Flowers few to many in a dense raceme, white or cream-coloured, sepals 10–15 mm long, spurs 19–22 mm. Oct. Dry, rocky, sandstone slopes and karroid scrub, NW, KM (Karoo Poort to Outeniqua Mtns: Perdepoort).•

princeps Bolus Stout, tuberous geophyte to 70 cm. Leaves 2, very broadly ovate-elliptic, prostrate, leaf sheaths dry and membranous, bracts deflexed, dry. Flowers many in a dense raceme, rose-pink to carmine-red, petals with crisped margins, sepals 11–14 mm long, spurs 16–20 mm long. Mainly Oct. Coastal dunes, SE (Wilderness to Port Elizabeth).•

D.' Basal leaves suberect or spreading but not adpressed

foliosum Sw. Slender or robust, tuberous geophyte to 30 cm. Leaves 2 or 3, near base, ovate, bracts deflexed. Flowers 4–30 in a dense raceme, pale yellowish green, tinged purple-brown on lateral sepals and lip, sepals 5–6 mm long, spurs 20–25 mm. Jan.–Feb. Peaty soil on sandstone slopes, SW (Cape Peninsula and Kogelberg).•

hallackii Bolus Stout, tuberous geophyte to 60 cm. Leaves 4–6, cauline, partly erect, narrowly oblong to elliptic-oblong, bracts partly deflexed. Flowers many in a dense raceme, pink, sepals 6.5–10.5 mm long, spurs 7–31 mm long. Dec.–Jan. Coastal flats and inland marshes, SW, SE (Cape Peninsula to Betty's Bay, Port Elizabeth to Limpopo).

humile Lindl. Slender, tuberous geophyte to 40 cm. Leaves usually 2, spreading near the ground, ovate, bracts deflexed. Flowers many in a dense raceme, pale cream-coloured tinged green, pink or brownish, sepals 6–9 mm long, spurs 12–26 mm long and diverging from ovary. Mainly Oct., especially after fire. Stony sandstone slopes, NW, SW, AP, KM, LB (Citrusdal to Riversdale).•

lupulinum Lindl. Slender to stout, tuberous geophyte to 30 cm. Leaves 1–3, basal, suberect, often purple on reverse, bracts deflexed. Flowers 12–20, in a rather dense raceme, dull yellowish green and usually tinged dark purple, sepals 6–8 mm long, spurs 15–18 mm long. Sept.–Oct., often after fire. Moist, sandy slopes or flats, SW, AP, LB, SE (Cape Peninsula to Port Elizabeth).•

odorum Sond. SOET TREWWA Robust, tuberous geophyte to 55 cm. Leaves 2–6, cauline, ovate to narrowly ovate, bracts deflexed. Flowers few to many in a moderately dense raceme, yellowish green with purple tinge, sepals 3–7 mm long, lip with narrow entrance and spurs 13–18 mm long. Aug.–Oct. Scrub, NW, SW, AP, SE (Saldanha Bay to Riversdale).•

outeniquense Schltr. Slender, tuberous geophyte to 30 cm. Leaves 2–4, basal, bracts deflexed. Flowers few in a lax raceme, pale yellow, lip with 2 spurs 12–16 mm long. Oct.–Nov., mostly after fire. Sandstone slopes, LB, SE (Swellendam to Humansdorp).•

pygmaeum Sond. Slender, tuberous geophyte to 15 cm. Leaves 1–3, spreading near the ground, ovate-acute, bracts deflexed. Flowers many in a moderately dense raceme, dull yellowish green tinged pale to dark purple, sepals 3–4 mm long, spurs 6–10 mm long. Oct.–Nov. Wet, mossy ledges, NW, SW, KM, LB, SE (Citrusdal to Plettenberg Bay).•

situsanguinum Van der Niet & Liltved Slender, tuberous geophyte to 25 cm. Leaves 2, basal, suberect to spreading, cauline sheaths urceolate, bracts deflexed. Flowers 2–31, in a rather dense raceme, white, sepals 8–10 mm long, spurs 15–22 mm long. Oct.–Nov., often after fire. Peaty, mostly moist, sandstone slopes, SW (Du Toitskloof Mtns).•

stenopetalum Lindl. Slender or robust, tuberous geophyte to 60 cm. Leaves stiff-textured, basal, suberect, elliptic, bracts erect. Flowers rather few in a lax raceme, white, sepals 5–13 mm long, spurs 9–30 mm long. Sept.–Dec. Sandstone slopes and rock flushes, NW, SW, AP, KM, LB, SE (Clanwilliam to Humansdorp).•

STENOGLOTTIS Lindl. MADONNA ORCHID 4 spp., southern and tropical Africa

woodii Schltr. Slender, tuberous geophyte to 20 cm. Leaves basal, narrowly elliptic. Flowers few to many in a lax raceme, white to pink, lip 3-lobed, 5–9 mm long, spur 2–3 mm long. Dec.–Mar. Sandstone cliffs, SE (Wilderness and E Cape to Zimbabwe).

TRIDACTYLE Schltr. TRIDENT ORCHID ± 30 spp., southern and tropical Africa

bicaudata (Lindl.) Schltr. Stout, monopodial epiphyte or lithophyte to 35 cm. Leaves leathery, somewhat succulent, oblong, notched apically. Flowers few to many in a dense, axillary raceme, ± 10 mm diam., pale yellowish brown, lip tridentate with side lobes fringed apically, spur 9–13 mm long. Oct.–Feb. Dry forests, SE (George to tropical Africa).

POACEAE

with H.P. Linder, **Ehrharta** by G.A. Verboom

1. Spikelets 2-flowered, lower floret male or sterile (exceptionally bisexual) and upper floret bisexual; lower lemma not dorsally awned; spikelets often falling entire at maturity but if breaking up usually lower floret and glumes persistent (reduction or suppression of lower floret or rarely upper sometimes results in spikelets apparently 1-flowered but such spikelets may usually be distinguished from truly 1-flowered spikelets by being dorsally compressed or not laterally compressed and by falling entire at maturity):
  2. Glumes usually membranous, rarely one or both indurated, often unequal (lower usually shorter); lower lemma like glumes in texture, upper lemma usually firmer, harder and more rigid; spikelets solitary, in pairs, threes or clusters, and ± alike in form:
    3. Upper lemma awned from 2-lobed apex, awn bent and twisted; spikelets laterally compressed, breaking up readily between lower and upper floret; upper floret not conspicuously harder and firmer than lower:
      4. Spikelets sessile or subsessile, arranged in clusters of 3 ..... **Tristachya**
      4.' Spikelets pedicelled, solitary or paired ..... **Arundinella**
    3.' Upper lemma awnless or with straight awn from entire apex; spikelet dorsally compressed or not compressed (rarely laterally compressed), usually falling entire; upper floret usually conspicuously harder and firmer than lower:
      5. Spikelets surrounded by bristles that fall with them at maturity; inflorescence a spike-like panicle:
        6. Bristles flattened below, often spiny, some or all joined together below ..... **Cenchrus**
        6.' Bristles neither flattened nor spiny, free ..... **Pennisetum**
      5.' Spikelets not subtended by bristles or if so these persistent, the spikelets falling without them at maturity:
        7. Upper glume and lower lemma lobed or notched at apex, shortly awned from between lobes; lower glume almost equally wide throughout; spikelets densely hairy with long silky hairs ..... **Melinis**
        7.' Upper glume and lower lemma entire at apex, awnless or with terminal awn; lower glume, if developed, wider at base and ± surrounding the spikelet there, or if not then inflorescence not an open or contracted panicle:
          8. Glumes conspicuously awned, awns viscid; racemes often reduced to small clusters of spikelets ..... **Oplismenus**
          8.' Glumes awnless or minutely awned:
            9. Spikelets, or some of them, subtended by one to many bristles; inflorescence frequently spike-like, dense and cylindrical ..... **Setaria**
            9.' Spikelets not subtended by bristles, pedicels or rachis sometimes hairy but inflorescence not spike-like, dense and cylindrical:
              10. Inflorescence an open or contracted panicle, sometimes spike-like and cylindrical, the branches sometimes reduced to racemes but then not dense and conspicuously one-sided ..... **Panicum**
              10.' Inflorescence a one-sided true or false spike or spike-like raceme, usually 2 to many such units variously arranged:
                11. Upper lemma with flat, translucent margins thinner in texture than surface, covering much or most of palea ..... **Digitaria**
                11.' Upper lemma with narrowly inrolled margins of same texture as surface, exposing much of palea:
                  12. Inflorescence a spike, or of few to many spikes sunk in cavities on central axis ..... **Stenotaphrum**
                  12.' Inflorescence usually of spikes or spike-like racemes variously arranged, not sunk in cavities nor pressed against central axis; rachis of the raceme terminated by a spikelet:
                    13. Lower glume absent or turned away from rachis ..... **Paspalum**
                    13.' Lower glume always present and adjacent to rachis of raceme ..... **Brachiaria**
  2.' Glumes of bisexual or all spikelets usually indurated and equal or almost equal, enclosing florets; lower lemma like upper in texture, both thinly membranous and usually transparent or upper reduced to stalk-like scale at base of stout awn; spikelets often in pairs with one of each pair sessile, the other pedicelled, those of each pair often dissimilar in sex, shape and form, rarely pedicelled spikelet completely suppressed and represented by empty pedicel:
    14. Inflorescence a panicle, open, contracted or spike-like, with racemes shorter than central axis; racemes usually numerous, not supported by spathes:

15. Panicle plumose with white or cream-coloured hairs, small, narrow and usually spike-like; spikelets awnless; stamens 1 or 2; lodicules absent ..... **Imperata**
15.' Panicle light or bright brown or purplish, large and usually contracted; spikelets usually awned; stamens 3 lodicules 2 ..... **Miscanthidium**
14.' Inflorescence various, if paniculate then with racemes either longer than central axis or else supported by spathes individually, in pairs or in groups:
16. Inflorescence of few to many spathe-supported, ± triangular shaped units on slender, usually drooping branches, each unit consisting of 1–5 short racemes, each with an involucre of spikelets at base and supported by a spathe ..... **Themeda**
16.' Inflorescence not as above:
17. Racemes solitary at end of culm and each flowering branch; branches, if present, sometimes numerous so that inflorescence consisting of many solitary racemes; spikelets awned or awnless:
18. Spikelets awnless or with straight or curved awns from glumes, the lemmas awnless:
19. Racemes conspicuously white-hairy; pedicels not fused to rachis ..... **Elionurus**
19.' Racemes glabrous; sessile spikelets ± sunk in depressions on rachis; pedicels flattened, wholly or partly fused to rachis ..... **Hemarthria**
18.' Bisexual sessile spikelets with bent and twisted awn from upper lemma:
20. Spikelets with one of each pair sessile, the other pedicelled; racemes with lowest 1–many sessile spikelets awnless and like pedicelled in shape and sex ... **Heteropogon**
20.' Spikelets all pedicelled; racemes with spikelets of all pairs consisting of one awned and one awnless spikelet ..... **Trachypogon**
17.' Racemes paired, or 3–many arranged subdigitately or on central axis shorter than racemes, the inflorescence consisting of one to many such units; sessile or all spikelets with bent and twisted awn:
21. Spikelets all with bent and twisted or flexuous awn from upper lemma:
22. Racemes almost glabrous; spikelet pairs not crowded; awns flexuous, hair-like; lower glume with narrow longitudinal median groove ..... **Microstegium**
22.' Racemes conspicuously hairy; spikelet pairs crowded; awns twisted and bent; lower glume shallowly or deeply concave ..... **Eulalia**
21.' Sessile (or short-pedicelled) spikelets with bent and twisted awn, pedicelled spikelets awnless or suppressed:
23. Raceme pairs or groups not supported by spathes, or spathes inconspicuous and racemes far exserted from them:
24. Sessile spikelets with upper lemma 2-lobed, awned from between lobes ..... **Andropogon**
24.' Spikelets all pedicelled, the short-pedicelled spikelets with upper lemma gradually passing into awn ..... **Trachypogon**
23.' Raceme pairs or groups supported by and often partly enclosed in spathes:
25. Lower glume of awned, sessile spikelets rounded, or keeled only towards apex; awn from upper lemma hairy on lower part; plants not aromatic ..... **Hyparrhenia**
25.' Lower glume of awned, sessile spikelets sharply keeled near margins throughout; awn from upper lemma glabrous; plants usually aromatic ..... **Cymbopogon**

1.' Spikelets 1–many-flowered, when more than 1-flowered the lowest floret usually bisexual and more rarely male, sterile or greatly reduced, and then spikelet either more than 2-flowered or lower lemma awned from low down on back; spikelets often laterally compressed, breaking up at maturity (floret/s deciduous, glumes persistent):
26. Spikelets strictly 1-flowered, without reduced florets or rudiments above or below:
27. Glumes minute or absent; palea 3–5-nerved; stamens 6 ..... **Leersia**
27.' Both glumes well developed, or lower greatly reduced or absent; palea 2-nerved or nerveless; stamens 1–3:
28. Inflorescence a spike or spike-like raceme or of 2 to many one-sided spikes or spike-like racemes variously arranged:
29. Spikelets arranged in 1 or 2 rows on one side of rachis of 1–many variously arranged spikes or spike-like racemes:
30. Fertile lemma 1-nerved; spikelets falling entire at maturity ..... **Spartina**
30.' Fertile lemma 3-nerved, occasionally with 2–4 additional short nerves (rarely nerveless); glumes often persistent at maturity; inflorescence of 2–many spikes arranged digitately or subdigitately ..... **Cynodon**
29.' Spikelets arranged on opposite sides or all round rachis of solitary spike or spike-like raceme (rarely a panicle):
31. Lemma 5-nerved; glumes present; spikelets in clusters of 3, of which usually only middle one has a bisexual floret, the lateral ones male, sterile and greatly reduced, sometimes to awns ..... **Hordeum**
31.' Lemma 1–3 nerved; lower glume absent except in terminal spikelet; spikelets pressed flat against rachis of the spike, awnless, sessile, glabrous:

32. Both glumes present, placed side by side ..... **Parapholis**
32.' Lower glume absent except in terminal spikelet ..... **Hainardia**
28.' Inflorescence a panicle, open, contracted, or spike-like and sometimes dense:
33. Lemma hardened and rigid at maturity, usually cylindrical and tightly rolled, with 1 or 3 awns from entire or minutely 2-lobed apex
34. Lemma 3-awned:
35. One or more awns plumose ..... **Stipagrostis**
35.' Awns not plumose ..... **Aristida**
34.' Lemma 1-awned:
36. Awn placed off-centre; female-fertile florets swollen ..... **Nassella**
36.' Awn terminal; female-fertile floret not swollen ..... **Stipa**
33.' Lemma membranous, frequently translucent, often laterally compressed, awnless or awned, the awn when present usually dorsal, more rarely terminal or from between 2 short lobes:
37. Spikelets falling entire and in clusters at maturity, burr-like; glumes with hooked hairs ..... **Tragus**
37.' Spikelets breaking up at maturity, not burr-like:
38. Lemma 1–3-nerved, awnless; glumes often shorter than floret, similar to lemma in texture ..... **Sporobolus**
38.' Lemma 3–7-nerved or almost nerveless, often awned; glumes as long as or longer than floret:
39. Ligule a fringe of hairs or a short membrane fringed with hairs ..... **Pentameris** (***Pentaschistis* group**)
39.' Ligule a membrane:
40. Glumes at least 10 mm long, firmer than lemmas; leaves mostly basal ..... **Ammophila**
40.' Glumes 1–7 mm long, similar in texture to lemmas or thinner; leaves not distinctly basally aggregated:
41. Plants softly and densely hairy all over; panicle spike-like, dense, ovoid, woolly from plumose glumes and with long, fine awns from lemmas radiating from it ..... **Lagurus**
41.' Plants glabrous or scantily hairy; panicle open, contracted or spike-like, but not ovoid or woolly; glumes glabrous or shortly hairy:
42. Glumes swollen at base; lemmas densely hairy ..... **Gastridium**
42.' Glumes not swollen below; lemmas glabrous or hairy:
43. Glumes awnless or minutely awned, awn much shorter than glumes, gaping in fruit ..... **Agrostis**
43.' Glumes awned, awn 2–many times as long as glumes, the spike-like panicle bristly from awns ..... **Polypogon**
26.' Spikelets 2–many-flowered, sometimes with only 1 bisexual floret and 1 or more male or sterile florets or rudiments above or below it:
44. Spikelets 3-flowered, the 2 lower florets usually sterile (more rarely male), either well developed or reduced to inconspicuous lemmas, uppermost floret bisexual:
45. Lower florets represented by 2 well-developed lemmas (rarely lower small and inconspicuous), one or both often transversely ridged, awnless or with terminal awn, the upper sometimes with appendages at base; inflorescence various, but not a cylindrical, spike-like, dense panicle of numerous spikelets ..... **Ehrharta**
45.' Lower florets represented either by 2 small inconspicuous awnless lemmas (both shorter than bisexual floret) or well developed and longer than bisexual floret (male or sterile) but then awned from back or from between 2 lobes, neither transversely ridged nor with appendages; inflorescence a spike-like, usually dense ± cylindrical panicle of numerous spikelets, rarely reduced to a scanty raceme:
46. Glumes equal; lower 2 lemmas awnless, reduced to scales or up to half as long as uppermost one (rarely absent); stamens 3 ..... **Phalaris**
46.' Glumes unequal; lower 2 lemmas awned, larger than uppermost one; stamens 2 in bisexual floret ..... **Anthoxanthum**
44.' Spikelets 2- to many-flowered, lowest floret typically bisexual but if not then spikelet with > 1 bisexual floret or with 1 or more reduced florets above bisexual floret or with only 1 male floret below it:
47. Florets enveloped by long, silky hairs from rachilla or lower part of lemmas; lemmas awnless or with terminal awn; tall reed-like grasses with showy, plumose panicles:
48. Plants dioecious, tussock-forming; leaves basal; spikelets unisexual; glumes 1-nerved ..... **Cortaderia**
48.' Plants bisexual, rhizomatous; leaves cauline; spikelets bisexual; glumes 3–5-nerved:
49. Spikelets with lowest floret male or sterile; fertile lemmas glabrous but enveloped by long hairs from callus ..... **Phragmites**

49.' Spikelets with lowest floret bisexual; fertile lemmas with long hairs on back in lower part, callus shortly hairy ..... **Arundo**
47.' Florets not usually enveloped by long, silky hairs; lemmas sometimes conspicuously hairy but then plants either not reed-like with showy, plumose panicles or lemmas with bent and twisted awn from between 2 lobes:
50. Lemmas 9-lobed and 9-awned, awns scabrid or plumose ..... **Enneapogon**
50.' Lemmas awnless or 1–3-awned:
51. Lemmas 1–3 nerved (occasionally with 1–4 additional shorter nerves); ligule never a membrane:
52. Spikelets with 2 to many bisexual florets (rarely 1 but then spikelets not arranged in 1-sided spikes or spike-like racemes and sterile florets smaller but not different in form from bisexual):
53. Lemmas glabrous or with tubercle-based hairs on side nerves:
54. Inflorescence of 1-sided spikes arranged digitately ..... **Eleusine**
54.' Inflorescence paniculate, sometimes contracted:
55. Leaves rigid and pungent; rachis spinescent ..... **Cladoraphis**
55.' Leaves softer; rachis slender ..... **Eragrostis**
53.' Lemmas hairy on side or all nerves, hairs not tubercle-based:
56. Lemmas 3-awned, lobed; awns straight ..... **Triraphis**
56.' Lemmas 1-awned or awnless:
57. Leaves rigid, pungent, cauline ..... **Odyssea**
57.' Leaves not pungent and cauline ..... **Leptochloa**
52.' Spikelets with 1 bisexual floret, exceptionally with 2; spikelets arranged in 1 or 2 rows on one side of rachis of 1–many spikes or spike-like racemes (except in **Fingerhuthia**); reduced florets often different from bisexual in size and form:
58. Inflorescence a spike-like panicle, spikelets densely clustered on short branches and falling entire at maturity ..... **Fingerhuthia**
58.' Inflorescence of 1–many one sided spikes or spike-like racemes variously arranged on central axis; glumes persistent at maturity:
59. Inflorescence a solitary, terminal, 1-sided spike (rarely 2 spikes but then rachis hairy or woolly) ..... **Harpochloa**
59.' Inflorescence of 2–many spikes arranged digitately or subdigitately in 1 or more whorls; spikelets 2-flowered:
60. Lower glume keeled, upper flat or rounded on back, 2-lobed and shortly awned ..... **Eustachys**
60.' Both glumes keeled, awnless ..... **Cynodon**
51.' Lemmas 5–11-nerved (rarely 3-nerved); ligule a fringe of hairs or a membrane:
61. Ligule a fringe of hairs or a short membrane fringed with hairs:
62. Spikelets with 2(1) florets with minute rachilla extension; palea keels parallel; setae inserted in sinuses between lemma lobes and awns:
63. Glumes > 25 mm long ..... **Pseudopentameris**
63.' Glumes usually < 25 mm long; plants often with multicellular glands. . . . **Pentameris**
a. Inflorescence a spike; lemmas awnless; small annuals ..... ***Prionanthium* group**
a.' Inflorescence a raceme or panicle; lemmas muticous or awned:
b. Ovary with hairy cap ..... ***Pentameris* group**
b.' Ovary without hairy cap ..... ***Pentaschistis* group**
62.' Spikelets generally with > 2 florets, if only 2 then with well-developed rachilla extension; palea keels sinuose; setae when present at apices of lemma lobes:
64. Geophytes with persistent, woolly leaf bases; inflorescences ± capitate ..... **Geochloa**
64.' Leaf bases not woolly; inflorescences mostly open, paniculate:
65. Spikelets with tuft of hair at disarticulation point along pedicel; basal florets different from upper florets ..... **Chaetobromus**
65.' Spikelets never with tuft of hair at disarticulation point on pedicel; basal florets same as upper florets:
66. Plants forming robust clumps at least 0.5 m tall; inflorescences plumose with > 100 spikelets:
67. Lemma indumentum in 3 tufts on either side of lemma ..... **Ellisochloa**
67.' Lemma either evenly villous on back, or glabrous below with row of long hairs below sinus ..... **Capeochloa**
66.' Plants < 1 m tall; inflorescences paniculate with < 50 florets:
68. Glumes with tubercle-based hairs or plants stoloniferous or inflorescence spicate; lemmas often awnless ..... **Tribolium**
68.' Glumes lacking tubercle-based hairs, not stoloniferous, and if inflorescence spicate then lemmas with well-developed awns:

69. Lemmas acute or lobed; central awn < 1 mm long; plants < 20 cm tall; often annual ..... **Schismus**
69.' Lemmas lobed; central awn > 5 mm long; plants > 20 cm tall; always perennial ..... **Tenaxia**

61.' Ligule a membrane not fringed with hairs:
70. Inflorescence a spike or spike-like raceme; both glumes developed, sometimes almost reduced to bristles:
71. Lemmas awnless, conspicuously hairy with long, silky hairs; uppermost 2 or 3 florets reduced to lemmas, usually tightly enclosing each other and forming a club-shaped or oblong body; inflorescence a spike-like, often one-sided raceme, the spikelets solitary, frequently drooping; ovary glabrous ..... **Melica**
71.' Lemmas awnless or awned, not conspicuously hairy with long, silky hairs; uppermost 2 or 3 florets not reduced to lemmas; inflorescence a spike or spike-like raceme, the spikelets solitary or in clusters, not drooping; ovary minutely hairy at top or with hairy appendage:
72. Inflorescence a false spike with clusters of spikelets on reduced axes; spikelets of sexually distinct forms on same plant, female-fertile spikelets in triplets, the triplets shed together ..... **Hordeum**
72.' Inflorescence a single spike or raceme; spikelets solitary, all alike:
73. Inflorescence a spike; lemmas 5-nerved, awnless; shoots aromatic ... **Thinopyrum**
73.' Inflorescence a raceme; lemmas 7-nerved, awned; not aromatic .. **Brachypodium**
70.' Inflorescence a panicle, open, contracted or spike-like (rarely a spike but then with lower glume absent except in terminal spikelet):
74. Glumes shorter than spikelet (upper glume sometimes longer); lemmas awnless, or awned from apex or from between 2 short lobes, awn not bent and twisted (see also **Koeleria**):
75. Ovary with conspicuous, hairy terminal appendage, styles arising laterally below it ..... **Bromus**
75.' Ovary glabrous or hairy above but without hairy terminal appendage, styles terminal but sometimes rather far apart on top of ovary:
76. Spikelets mixed, fertile and sterile, rigidly awned ..... **Cynosurus**
76.' Spikelets alike in sex and structure:
77. Lemmas ± as wide as long, cordate at base, closely imbricate, spreading horizontally ..... **Briza**
77.' Lemmas longer than wide, erect or spreading obliquely:
78. Spikelets sessile and solitary on opposite sides of the rachis of a spike (rarely inflorescence scantily branched in lower half); lower glume absent in all but terminal spikelet ..... **Lolium**
78.' Spikelets pedicelled in open or contracted panicles; all spikelets with 2 glumes (rarely not):
79. Lemmas tapering into straight awn longer than body of lemma; plants annual ..... **Vulpia**
79.' Lemmas awnless, or awn shorter than body of lemma and plants perennial:
80. Plants perennial:
81. Lemmas acute or awned ..... **Festuca**
81.' Lemmas obtuse, awnless ..... **Puccinellia**
80.' Plants annual; lemmas awnless:
82. Upper glume 1-nerved, lower 0-nerved ..... **Sphenopus**
82.' Upper glume 2- or 3-nerved, lower 1–3-nerved:
83. Lemmas rounded on back; panicle branches short and rigid, bearing spikelets almost from base; leaf blades attenuate ..... **Catapodium**
83.' Lemmas keeled; panicle branches filiform, spikelets mostly near ends; leaf blades hooded at tips ..... **Poa**
74.' Glumes (at least upper) usually as long as or longer than lowest floret, often longer than rest of spikelet; lemmas awnless or awned from back (rarely from apex or from between 2 lobes), awn often bent and twisted:
84. Lemmas awnless, conspicuously hairy with long, silky hairs; uppermost 2 or 3 florets reduced to lemmas, usually tightly enclosing each other and forming club-shaped or oblong body ..... **Melica**
84.' Lemmas awned (rarely awnless and then glabrous or minutely hairy); uppermost 2 or 3 florets not reduced to lemmas:

85. Spikelets falling entire at maturity, 2-flowered; glumes not shining; lower lemma awnless, upper with short, hooked awn from back near apex ..... **Holcus**
85.' Spikelets breaking up at maturity, 2–6-flowered; glumes shining, at least towards margins; lemmas usually awned but not as above, or awnless:
86. Panicle contracted, usually spike-like and dense; lemmas awned from uppermost quarter or third of back or from between 2 short lobes; awn short, straight or slightly bent:
87. Plants perennial, lemmas 3-nerved, entire, awnless or minutely awned from apex ..... **Koeleria**
87.' Plants annual; lemmas 5-nerved, awned from apex or from back just below apex, this splitting readily into 2 short lobes as far as awn insertion ..... **Lophochloa**
86.' Panicle open, rarely contracted; lemmas awned from near base or middle of back, awn usually bent and twisted:
88. Spikelets 7–35 mm long; lemmas 5–11-nerved; ovary hairy:
89. Plants perennial; spikelets (2)3–5(6)-flowered; glumes 1–3-nerved, shorter than rest of spikelet ..... **Helictotrichon**
89.' Plants annual; spikelets 2- or 3-flowered; glumes 7–11-nerved, usually longer than rest of spikelet ..... **Avena**
88.' Spikelets 2–8 mm long; lemmas 3–5-nerved; ovary glabrous:
90. Plants perennial; spikelets 4–8 mm long; rachilla hairy, produced ..... **Deschampsia**
90.' Plants annual; spikelets 2–4 mm long; rachilla glabrous, not or minutely produced:
91. Awn clavate, with ring of minute hairs in upper part ... **Corynephorus**
91.' Awn tapering, without ring of hairs ..... **Aira**

AGROSTIS L. 150–200 spp., mainly temperate and tropical mountains

***avenacea** C.C.Gmel. Annual to 60 cm. Leaves linear. Spikelets in an open panicle, 2.5–4 mm long. July–Mar. Disturbed areas, SW, AP, SE (Australian weed).

bergiana Trin. Annual or perennial to 75 cm. Leaves linear. Spikelets in a diffuse panicle, 1.5–2.5 mm long, pedicels 5–10 mm long. Oct.–Feb. Damp areas, NW, SW, AP, LB, SE (Saldanha to Mpumalanga and St Helena).

lachnantha Nees VINKAGROSTIS Annual or short-lived perennial to 90 cm. Leaves linear. Spikelets in a narrow, sinuous panicle, 1.5–3 mm long, branches suberect. Oct.–Mar. Damp sites, NW, SW, KM, LB, SE (S and tropical Africa).

***montevidensis** Spreng. ex Nees FOG GRASS Annual to 60 cm. Leaves linear. Spikelets in a diffuse panicle with hair-like branches, 1.5–2.5 mm long, pedicels longer than 20 mm. Nov.–Apr. Montane grasslands, SW, SE (S American weed).

polypogonoides Stapf Perennial to 90 cm. Leaves linear. Spikelets in a panicle, 4–4.5 mm long, glumes awned. Oct.–Jan. Wet places, NW, SW (Bokkeveld Mtns to Stellenbosch).•

schlechteri Rendle Annual to 65 cm. Leaves linear. Spikelets in an open panicle, spikelets green and purple, 3–3.5 mm long, branches ascending. Jan.–Apr. Near water, NW, SW (Tulbagh to Hottentots Holland Mtns).•

***AIRA** L. ± 8 spp., Old World, mainly Mediterranean

***cupaniana** Guss. Annual to 30 cm. Leaves linear. Spikelets in a delicate, open panicle, 2–3 mm long, silvery, awned. Sept.–Dec. Flats and slopes, NW, SW, AP, KM, LB, SE (European weed).

***praecox** L. Annual to 20 cm. Leaves linear, ligule membranous, to 3 mm long. Spikelets in a spike-like panicle, 3 mm long, lemmas awned from halfway up back. Oct. Mountain path margins, SW (Cape Peninsula: Table Mountain, European weed).

***AMMOPHILA** Host MARRAM GRASS 2 spp., N America and Eurasia

***arenaria** (L.) Link Robust, rhizomatous perennial to 1 m. Leaves rolled, rigid. Spikelets in a narrow, spike-like panicle, straw-coloured. Oct.–Dec. Coastal dunes, NW, SW, AP, SE (European weed).

ANDROPOGON L. ± 113 spp., pantropical and subtropical, especially Africa and America

appendiculatus Nees BLUE GRASS Perennial to 1.2 m. Leaves linear. Spikelets in 4–20 narrow racemes per spathe, purple, shortly hairy, paired, sessile spikelet awned. Oct.–Apr. Moist sandstone slopes, NW, SW, AP, LB, SE (Olifants River Mtns to tropical Africa).

eucomus Nees SILVER-THREAD GRASS Perennial to 1 m. Leaves linear. Spikelets in 2–5 racemes per spathe, with white-silky hairs twice as long as spikelets, pedicellate spikelet vestigial, sessile spikelet awned. Nov.–May. Vleis and wet places, NW, SW, LB, SE (Olifants River Mtns to tropical Africa and Madagascar).

ANTHOXANTHUM L. VERNAL GRASS 20 spp., N temperate and tropical mountains, Africa, Europe, Asia

dregeanum (Nees) Stapf SWEET VERNAL GRASS Aromatic perennial to 60 cm. Leaves rigid, linear-lanceolate, often folded, to 9 mm wide. Spikelets in spike-like panicle, 6–7 mm long, lower glume 3-nerved. Oct.–Jan. Upper mountain slopes, NW, SW, LB (Bokkeveld Mtns to Swellendam).•

ecklonii (Nees ex Trin.) Stapf Perennial to 80 cm, culms often bulbous below. Leaves linear-lanceolate, 4–9 mm wide. Spikelets in a spike-like panicle, 6–8 mm long, lower glume 1-nerved. Dec.–Apr. Moist sandstone slopes, LB, SE (Langeberg: Swellendam to tropical Africa).

tongo (Trin.) Stapf Like **A. dregeanum** but diffuse, leaves filiform, to 2 mm wide and panicle scanty. Sept.–Feb. Moist shady slopes, often rock ledges, NW, SW, AP (Grootwinterhoek to Agulhas).•

ARISTIDA L. STEEKGRAS 300 spp., mainly tropical and subtropical

adscensionis L. Annual to 1 m. Leaves linear. Spikelets in a narrow, often spike-like panicle, 10–40 mm long, lower glume mucronate. Dec.–Sept. Stony slopes and flats, often disturbed, KM (widespread in tropical Africa).

congesta Roem. & Schult. KATSTERTSTEEKGRAS Slender, perennial or annual to 90 cm, densely tufted. Leaves linear. Spikelets in a congested panicle, 25–30 mm long, lower glume awned, lemmas articulated above. Dec.–May. Stony, mostly clay slopes, NW, SW, KM (widespread in tropical Africa).

diffusa Trin. BESEMSTEEKGRAS Perennial to 1 m. Leaves linear. Spikelets in an open panicle, 25–45 mm long, lower glume obtuse, lemmas sometimes articulated above. Oct.–Apr. Rocky slopes, NW, SW, AP, KM, SE (widespread in southern Africa).

junciformis Trin. & Rupr. WIRE GRASS Perennial to 90 cm. Leaves linear. Spikelets in a congested panicle, 20–30 mm long, lower glume awned, lemmas without articulation. Nov.–May. Mountain slopes, NW, SW, AP, KM, LB, SE (Cedarberg to tropical E Africa).

*__ARUNDINELLA__ Raddi 55 spp., pantropical

*__nepalensis__ Trin. BEESGRAS, RIETGRAS Robust, rhizomatous perennial to 1.5 m. Leaves linear, densely hairy. Spikelets in a dense panicle, 4–6 mm long, awned. Dec.–Mar. Marshes, NW, SE (Uitenhage through Africa to Asia, introduced weed in the Olifants River Valley).

*__ARUNDO__ L. SPANISH REED 3 spp., Mediterranean and Taiwan

*__donax__ L. SPAANSRIET Robust, bamboo-like perennial to 3 m. Leaves lanceolate, deciduous. Spikelets 12–18 mm long, in a large, compact, plumose panicle 30–60 cm long. Jan.–Mar. River banks and marshes, SW, SE (Mediterranean weed).

*__AVENA__ L. OATS 27 spp., Mediterranean to central Asia, widely introduced as weeds and crop plants

*__barbata__ Pott ex Link WILD OATS, WILDEBAARDHAWER Like **A. byzantina** but lemmas densely hairy. Sept.–Nov. Common in disturbed areas, NW, SW, AP, SE (Asian weed).

*__byzantina__ K.Koch Annual to 1 m. Leaves linear-lanceolate. Spikelets drooping, in an open panicle, 17–35 mm long, lemmas glabrous or sparsely hairy, awned. Sept.–Dec. Disturbed areas, NW, SW, SE (European weed).

*__fatua__ L. COMMON WILD OATS, GEWONE WILDEHAWER Like **A. barbata** but lemma awnless and lemma teeth 1–1.5 mm long. Sept.–Nov. Widespread in disturbed areas, NW, SW, SE (European weed).

*__sativa__ L. OATS, HAWER Like **A. byzantina** but awn with a distinct column, sometimes awnless. Sept.–Nov. Widespread in disturbed areas, NW, SW, LB, SE (cultivated cereal introduced from Europe).

*__sterilis__ L. Like **A. fatua** but spikelets to 46 mm long (versus 32 mm), lemma teeth to 0.5 mm long. Sept.–Nov. Disturbed areas, SW (European weed).

BRACHIARIA (Trin.) Griseb. ± 90 spp., worldwide, tropics and subtropics

serrata (Thunb.) Stapf RED-TOPPED SIGNAL GRASS, FERWEELGRAS Perennial to 75 cm. Leaves linear to lanceolate. Spikelets in short, spike-like branches, with long, silky white or purple hairs. Oct.–May. Grasslands, AP, LB, SE (Bredasdorp to tropical Africa).

BRACHYPODIUM P.Beauv. FALSE BROME ± 17 spp., temperate and tropical mountains

*__distachyon__ (L.) P.Beauv. Annual to 45 cm. Leaves linear. Spikelets sessile, 2–6 in distichous racemes, lemma awn 10–25 mm long. Sept.–Jan. Disturbed areas, NW, SW, AP, KM (Mediterranean weed).

flexum Nees VALSBROMUS Straggling perennial to 90 cm. Leaves linear, soft. Spikelets 5–9 in flexuose racemes, lemma awns 4–8 mm long. Oct.–Apr. Shady slopes, bush and thicket, SW, LB, SE (Saldanha to Sudan).

*__BRIZA__ L. QUAKING GRASS 20 spp., N temperate Old World and S America

*__maxima__ L. GROOTBEWERTJIE Annual to 40 cm. Leaves linear. Spikelets 3–12 in open panicles, drooping, longer than wide, to 25 × 15 mm. July–Dec. Widespread in disturbed areas, NW, SW, AP, LB, SE (Mediterranean weed).

*__minor__ L. KLEINBEWERTJIE Like **B. maxima** but spikelets more than 20 per panicle, ± as wide as long, to 5 × 6 mm. Sept.–Dec. Widespread in disturbed areas, NW, SW, AP, LB, SE (European weed).

BROMUS L. BROME 50 spp., pantemperate

*__catharticus__ Vahl (= *Bromus unioloides* Humb., Bonpl. & Kunth, *B. willdenowii* Kunth) Like **B. commutatus** but spikelets laterally compressed, glumes and lemmas sharply keeled, lemma awns to 3 mm long. Oct.–Apr. Moist or disturbed areas, NW, SW, AP, KM, LB, SE (S American weed).

commutatus Schrad. Like **B. pectinatus** but awns not exceeding lemmas, 3–8 mm long. Sept.–Dec. Disturbed, wet places, SW, LB, SE (Cape Peninsula to Drakensberg).

*__diandrus__ Roth LANGNAALDBROMUS Annual to 1 m. Leaves linear, hairy. Spikelets in a lax panicle, 30–90 mm long, lower glume 1-nerved, upper glume 3-nerved, lemma awn stiff and straight, 30–70 mm long. Sept.–Jan. Roadsides, NW, SW, AP, LB, SE (Mediterranean weed).

*__hordeaceus__ L. SOFT BROME Like **B. commutatus** but panicle dense, contracted with all pedicels shorter than spikelets. Oct.–Feb. Disturbed areas. SW, SE (European weed).

leptoclados Nees MOUNTAIN BROME GRASS Perennial to 1.5 m. Leaves linear-lanceolate. Spikelets in an open panicle, 10–30 mm long, lower glume 3–5-nerved, upper glume 3–5-nerved, lemma awns to 5 mm long. Oct.–Feb. Moist shady places along rivers, SE (Knysna to tropical Africa).

*__pectinatus__ Thunb. (= *Bromus japonicus* auct. non Thunb.) JAPANESE BROME, HOOIGRAS Annual to 80 cm. Leaves linear, hairy. Spikelets in an open panicle, green and purple, 10–30 mm long, drooping, lower glume 1–3-nerved, upper glume 5–7-nerved, lemma awns 6–18 mm long. July–Nov. Disturbed areas on richer soils, NW, SW, AP, KM, LB, SE (Asian weed).

*__rigidus__ Roth. RIPGUT BROME Like **B. diandrus** and often hybridising with it, but panicle usually dense, lemma callus pointed. Sept.–Oct. Disturbed areas, NW, SW (European weed).

CAPEOCHLOA N.P.Barker & H.P.Linder 3 spp., Cape

arundinacea (P.J.Bergius) N.P.Barker & H.P.Linder (= *Merxmuellera arundinacea* (P.J.Bergius) Conert) OLIFANTSGRAS Reed-like perennial to 1 m. Spikelets in a dense plumose panicle, straw-coloured, glumes 1-nerved, lemma 6–8 mm long, backs evenly villous, not tufted, awn 9–13 mm long. Sept.–Nov. Dry sandstone slopes, NW, SW, AP, KM, LB, SE (Bokkeveld Mtns to Bredasdorp and Port Elizabeth).•

cincta (Nees) N.P.Barker & H.P.Linder (= *Merxmuellera cincta* (Nees) Conert) Like **C. arundinacea** but to 2 m, lemma glabrous below, with a transverse median band of tufted, white hairs 5–12 mm long. Oct.–Apr. Streamsides, NW, SW, AP, LB, SE (Olifants River Mtns to E Cape).

setacea (N.P.Barker) N.P.Barker & H.P.Linder (= *Merxmuellera setacea* N.P.Barker) Perennial to 1 m, bulbous below. Leaves linear, rolled, short and pungent. Spikelets in a contracted panicle, glumes 1-nerved, lemmas 8–11 mm long, with a tuft of hairs on each margin, awn 11–15 mm long, geniculate. Nov. Seeps on sandstone and shale slopes, NW (Cold Bokkeveld to Ceres).•

*CATAPODIUM Link 2 spp., Europe

*__rigidum__ (L.) C.E.Hubb. FERN GRASS Annual to 35 cm. Leaves linear. Spikelets in a narrow rigid panicle, 5–7 mm long, awnless. Oct.–Dec. Wasteland, shady areas, SW, AP, SE (European weed).

CENCHRUS L. SANDBURR 22 spp., tropical and warm temperate

ciliaris L. BUFFELSGRAS Perennial to 1 m. Leaves linear. Spikelets in a bristly, false spike, bristles slender, 5–10 mm long, joined below spikelet, straw-coloured or purple. Aug.–Apr. Sandy flats, SW, KM, SE (Saldanha to India).

*__incertus__ M.A.Curtis Annual to 40 cm. Leaves linear. Spikelets in a spiny, open or compact, false spike, bristles/spines 2–5 mm long, joined below to form a hard spiny involucre. Jan.–Mar. Sandy flats, SW, SE (pantropical weed).

CHAETOBROMUS Nees GHAGRAS 1 sp., S Namibia to W Cape

involucratus (Schrad.) Nees (= *Chaetobromus dregeanus* Nees) Stoloniferous or tufted perennial to 40 cm. Leaves linear-lanceolate, sometimes sparsely hairy. Spikelets in a panicle, 12–17 mm long, awned, with a tuft of hair at base of each spikelet; basal lemma different from remaining lemmas in spikelets. Sept.–Nov. Sandy slopes, NW, SW, KM (S Namibia and Karoo to Cape Peninsula).

*__CHLORIS__ Sw. 55 spp., pantropical

*__gayana__ Kunth RHODES GRASS Stoloniferous perennial to 1.2 m. Leaves linear. Spikelets in 1-sided, digitate spike-like racemes, 3–5 mm long, awn to as long as lemma, 1–10 mm. Nov.–May. Disturbed places, SW, SE (Indian weed).

*__truncata__ R.Br. Stoloniferous perennial to 45 cm. Leaves narrowly oblong, obtuse. Spikelets in 1-sided spike-like racemes, awns longer than lemma, 6–12 mm long. June–July. Disturbed places in cultivated paddocks, SW (Australian weed).

*__virgata__ Sw. FEATHERED CHLORIS, KLOSSIEGRAS Like **C. gayana** but lemma with apical tuft of stiff hairs, awns longer than lemma, 2–15 mm long. Dec.–June. Disturbed places, NW, SE (cosmopolitan weed).

CLADORAPHIS Franch. (= *ERAGROSTIS* in part) 2 spp., coastal, W southern Africa

cyperoides (Thunb.) S.M.Phillips (= *Eragrostis cyperoides* (Thunb.) P.Beauv.) STEEKRIET Rhizomatous, spiny, spreading grass, primary branches of panicle widely spaced, to more than twice their length apart and spikelets usually clustered and appressed, 4–8 mm long. Aug.–May. Coastal dunes, NW, SW (Angola to Cape Peninsula).

spinosa (L.f.) S.M.Phillips (= *Eragrostis spinosa* (L.f.) Trin.) VOLSTRUISDORING Spiny, bushy perennial to 60 cm. Leaves lanceolate, rolled, rigid, pungent. Spikelets in rigid panicles, primary branches persistent, spiny, less than their own length apart, 6–18 mm long, perpendicular to

branchlets. Aug.–May. Sandy flats, mostly coastal, NW, AP, KM (Namibia to Agulhas and Little Karoo). **gce**

*CORTADERIA Stapf PAMPAS GRASS ± 16 spp., S America and New Zealand

*__selloana__ (Schult.) Asch. & Graebn. Robust perennial to 3 m, in large tussocks. Leaves linear, keeled, serrulate. Spikelets in dense feathery panicles to 60 cm long, awned. Feb.–Apr. Sandy slopes and flats, SW, SE (Argentinian weed).

*CORYNEPHORUS P.Beauv. 5 spp., Europe

*__fasciculatus__ Boiss. & Reut. Annual to 55 cm. Leaves linear, rolled. Spikelets in a panicle, ± 3 mm long, lemma awn basal. Oct.–Nov. Disturbed sandy soils, SW (European weed).

CYMBOPOGON Spreng. TURPENTINE GRASS ± 40 spp., tropical and subtropical Africa, Asia

__marginatus__ (Steud.) Stapf ex Burtt Davy MOTWORTEL, TERPENTYNGRAS Aromatic perennial to 80 cm. Leaves linear, 3–6 mm wide. Spikelets in paired racemes clustered in leafy spathes, rachis and pedicels long-hairy, spikelets 5–6.5 mm long, lower glume of sessile spikelet winged. Oct.–May. Rocky lower slopes, NW, SW, AP, KM, LB, SE (Namaqualand to E Cape).

__nardus__ (L.) Rendle (= *Cymbopogon validus* (Stapf) Stapf ex Burtt Davy) GIANT TURPENTINE GRASS, TAMBOEKIEGRAS Like **C. prolixus** but culms robust, 1.2–2.4 m tall and leaves broader, 5–10 mm wide. Oct.–Nov. Damp areas, SE (southern Africa to India and Burma).

__pospischilii__ (K.Schum.) C.E.Hubb. (= *Cymbopogon plurinodis* (Stapf) Stapf ex Burtt Davy) BITTER TURPENTINE GRASS Perennial to 1 m. Leaves linear, usually folded, 2–4 mm wide. Spikelets as in **C. marginatus** but lower glume of sessile spikelets deeply concave, wingless. Oct.–May. Grasslands, SW, AP, LB, SE (throughout S and tropical Africa).

__prolixus__ (Stapf) E.Phillips TAMBOEKIEGRAS Like **C. marginatus** but racemes appearing glabrous, rachis and pedicels hairy only on sides. Oct.–Apr. Rocky hillsides, LB, SE (Swellendam to northern S Africa).

CYNODON Rich. QUICK GRASS 8 spp., pantropics and subtropics

__dactylon__ (L.) Pers. Mat-forming perennial to 40 cm. Leaves linear. Spikelets secund, mostly 4 or 5 in digitately branched spikes, 2–2.5 mm, lemma keel wingless, glumes to three-quarters the length of spikelet. Sept.–May. Mountains and flats, NW, SW, AP, KM, LB, SE (throughout Africa).

__incompletus__ Nees KAROO QUICK GRASS, SOETKWEEK Stoloniferous perennial to 30 cm. Leaves linear. Spikelets secund in digitate spikes, 2.5–3 mm long, lemma keel winged, glumes mostly to half as long as spikelet. Nov.–May. ?, NW, KM, SE (Clanwilliam to Free State).

*__transvaalensis__ Burtt Davy TRANSVAAL QUICK GRASS Like **C. dactylon** but spikes usually 2 and reflexed at maturity. Nov.–May. Ruderal and lawns, SW (N African weed).

*CYNOSURUS L. 8 spp., Europe

*__coloratus__ Lehm. ex Nees Like **C. echinatus** but awns purple below, fertile spikelets 1-flowered, anthers 0.4–0.6 mm long. Mar.–Apr. Rocky, mostly calcareous soils, SW (Mediterranean weed).

*__echinatus__ L. DOG'S TAIL Annual to 60 cm. Leaves linear. Spikelets in a congested, softly bristly panicle, sexually dimorphic, 2- or 3-flowered, anthers 3–4 mm long. July–Jan. Rocky soils and roadsides, SW, KM (European weed).

DIGITARIA Haller FINGER GRASS ± 200 spp., pantropical and subtropical

__argyrograpta__ (Nees) Stapf SILVER FINGER GRASS Perennial 60 cm. Leaves linear. Spikelets in paired racemes adhering by tangled hairs, lower lemma hairy, intervein area narrowest next to midrib. Nov.–Mar. Flats and slopes, SW, KM, LB, SE (Riviersonderend to Mozambique).

*__debilis__ (Desf.) Willd. Like **D. sanguinalis** but upper and lower glumes separated by an internode. Nov.–June. Mainly damp places, SW (Mediterranean weed).

eriantha Steud. WOOLLY FINGER GRASS Perennial to 1 m. Leaves linear to lanceolate. Spikelets in 3–15 digitately arranged racemes, lower lemma hairy, intervein area equal or broadest next to midrib. Jan.–Apr. Lower to middle slopes, NW, SW, AP, LB, KM, SE (throughout S Africa).

natalensis Stent Like **D. eriantha** but lower leaf sheaths rusty brown, ligule longer than 4 mm. Dec.–June. Sandy slopes, SW, SE (Cape Peninsula and George to Mpumalanga).

*__sanguinalis__ (L.) Scop. CRAB GRASS, KRUISGRAS Spreading annual to 50 cm. Leaves linear. Spikelets in 3–12 digitately arranged racemes, lemmas scabrid. Nov.–May. Disturbed areas, SW, NW, LB, SE (European weed).

*__scalarum__ (Schweinf.) Chiov. (= *Digitaria abyssinica* auct. non Stapf) Mat-forming perennial to 35 cm. Leaves linear. Spikelets in 3–11 digitately arranged racemes, lemmas glabrous. Nov.–June. Pastures, lawns and ruderal, SW, SE (tropical African weed).

DIPLACHNE P.Beauv. = **LEPTOCHLOA**

*__ECHINOCHLOA__ P.Beauv. MILLET 30–40 spp., pantropics and subtropics

*__crusgallii__ (L.) P.Beauv. BARNYARD MILLET Stoloniferous annual to 1 m. Leaves lanceolate, ligule absent. Spikelets in panicles of short, 2–several-rowed racemes. Jan.–Apr. Marshes, seasonally damp places, SW, LB, SE (Eurasian weed).

EHRHARTA Thunb. ± 36 spp., Africa, Mascarene Islands, SE Asia, Australasia

A. Annuals or weak (facultative) perennials

brevifolia Schrad. Annual to 50 cm. Leaf blades flat. Spikelets in a contracted panicle, glumes equal or longer than spikelet, sterile lemmas smooth, glabrous, truncate to mucronate, the second with a pair of ear-like, basal appendages. Aug.–Nov. Sandy coastal flats, NW, SW, AP (Namaqualand to Agulhas). **gce**

delicatula (Nees) Stapf Annual to 45 cm. Leaf blades flat, with wavy margins. Spikelets in an open panicle, small, green or green and purple, glumes shorter than spikelet, sterile lemmas corrugate, glabrous, blunt, the second with a pair of basal granular appendages. July–Nov. Shady habitats, often under bushes, NW, SW, LB (S Namibia to Swellendam). **gce**

erecta Lam. Sprawling or tufted perennial or annual to 80 cm. Leaf blades flat, with wavy margins. Spikelets in an open panicle, green, glumes shorter than spikelet, sterile lemmas corrugate, glabrous, blunt to mucronate, the second slightly constricted basally. Mainly Sept.–Jan. Shady habitats, often weedy, SW, AP, LB, SE (Cape Peninsula to E Africa).

longiflora Sm. Annual to 90 cm. Leaves linear-lanceolate, margins undulate. Spikelets in a verticillate panicle, spikelets green, sometimes with purple, glumes shorter than spikelet, sterile lemmas smooth to corrugate, glabrous, tapering into a straight awn, the second slightly constricted at base. July–Nov. Damp or shady habitats, sometimes weedy, NW, SW, AP, LB (Namaqualand to Mossel Bay). **gce**

triandra Nees ex Trin. BOKHORINGGRAS Annual to 45 cm. Leaves linear-lanceolate, margins undulate. Spikelets in a verticillate panicle, green sometimes with purple, glumes shorter than spikelet, sterile lemmas corrugate, glabrous, apically tapering and bending outwards to resemble springbok horns. July–Oct. Shady habitats, often among rocks, NW (S Namibia to Cedarberg). **gce**

A.' Perennials
B. Lowest culm internode(s) swollen and bulbous; leaves rolled or flat, often with wavy margins

bulbosa Sm. Spreading perennial to 70 cm, culm base swollen, whitish, matt, globose. Leaves linear-lanceolate, margins undulate. Spikelets in a verticillate panicle, straw-coloured and purple, glumes shorter than spikelet, sterile lemmas corrugate, glabrous, keel sometimes bristly, bilobed, with a straight awn, the second constricted at base. Oct.–Dec., mostly after fire. Flats and lower slopes, NW, SW, AP, LB, SE (Cedarberg to George).•

capensis Thunb. KNOL-EHRHARTA Spreading perennial to 1 m, culm base swollen, yellow, shiny, elongate. Leaves linear-lanceolate, margins thickened, undulate. Spikelets in a verticillate panicle, straw-coloured and purple, glumes shorter than spikelet, sterile lemmas corrugate, glabrous, mucronate to aristate, the second constricted at base. Sept.–Dec., especially after fire. Lower slopes, often on granite, NW, SW, AP, KM, LB, SE (Cedarberg to George).•

eburnea Gibbs Russ. Spreading perennial to 15 cm, culm base swollen, white, shiny, elongate. Leaves linear-lanceolate, margins undulate. Spikelets in a verticillate, raceme-like panicle, green and purple, glumes shorter than spikelet, sterile lemmas smooth, glabrous to shortly villous, keel long-bristly, mucronate. Sept.–Nov. Dolerite areas, KM (W Karoo and Bokkeveld Mtns to Witteberg). **gce**

longifolia Schrad. Perennial to 1.2 m. Leaf blades rolled to tightly rolled, culm base swollen, orange, matt, spherical. Spikelets in a verticillate panicle, straw-coloured and purple, glumes to as long as spikelet, sterile lemmas corrugate, glabrous, truncate to mucronate, the second strongly constricted basally. Nov.–Jan., ?mostly after fire. Sandstone slopes, NW, SW (Cedarberg to Cape Peninsula).•

ottonis Kunth ex Nees Perennial to 1.2 m, culm base swollen, orange, shiny, elongate. Spikelets in a verticillate panicle, straw-coloured or straw-coloured and purple or pink, glumes shorter than spikelet, sterile lemmas corrugate, glabrous, mucronate, the second constricted at base. Sept.–Nov., ?mostly after fire. Rocky sandstone slopes, SW, LB, SE (Cape Peninsula to Uitenhage).•

B.' Lowest culm internode(s) not swollen and bulbous
C. Tufted perennials
D. Spikelets shorter than 8.5 mm; lemmas awnless to aristate

calycina Sm. ROOIGRAS, POLGRAS Perennial (sometimes annual) to 70 cm. Leaf blades linear-lanceolate, sometimes rolled, margins often undulate. Spikelets in an open panicle, green and pink, glumes to as long as spikelet, sterile lemmas villous, mucronate to aristate, the second with a pair of ear-like, basal appendages. Mainly July–Dec. Flats and slopes, NW, SW, AP, KM, LB, SE (Namaqualand to KwaZulu-Natal).

melicoides Thunb. Perennial to 80 cm. Leaves linear-lanceolate, sometimes rolled. Spikelets in an open panicle, small, green or straw-coloured, glumes as long as to slightly longer than spikelet, sterile lemmas smooth, glabrous, blunt, the second with a pair of ear-like, basal appendages. Sept.–Nov. Shale slopes, NW, SW, LB (Namaqualand to Swellendam). **gce**

D.' Spikelets longer than 9 mm; sterile lemmas straight-awned

dura Nees ex Trin. BRANDGRAS Perennial to 80 cm. Leaves linear-lanceolate, flat to rolled. Spikelets in a verticillate panicle, green, glumes shorter than spikelet, sterile lemmas smooth to scabrid, glabrous, tapering into a long straight awn, 2–16 mm long. Oct.–Feb., only after fire. Middle to upper sandstone slopes, NW, SW, LB, SE (Tulbagh to Uitenhage).•

microlaena Nees ex Trin. Tufted perennial, to 1 m. Leaf blades setaceous. Spikelets in a verticillate panicle, green,. glumes shorter than spikelet, sterile lemmas smooth to scabrid, glabrous, tapering into a long straight awn (13–25 mm long). Nov.–Feb. after fire. Damp upper sandstone slopes, NW, SW (Tulbagh to Stellenbosch).•

C.' Branching perennials
E. Leaves evergreen; lemmas blunt with canoe-shaped tips

rupestris Nees ex Trin. Perennial to 45 cm. Leaves in 2 ranks, linear-lanceolate, sometimes rolled. Spikelets in a raceme, green, glumes less than half as long as spikelet, sterile lemmas smooth to granular, blunt, tips canoe-shaped. Nov.–Feb. High, rocky slopes in damp areas, SW, KM, LB, SE (Cape Peninsula to Tsitsikamma Mtns).•

setacea Nees Perennial to 60 mm. Leaves in 2 ranks, linear-lanceolate, rolled. Spikelets in a raceme, green to purple, glumes half to as long as spikelets, sterile lemmas smooth to granular, glabrous, tips canoe-shaped. Sept.–Jan. High, rocky slopes in damp areas, SW, LB (Cape Peninsula to Riversdale).•

E.' Leaves often summer-deciduous, lemmas truncate to aristate

ramosa (Thunb.) Sw. Rigid, branching perennial to 1 m. Leaves linear-lanceolate, flat, short-lived or absent. Spikelets in a raceme-like panicle or raceme, green or whitish, glumes shorter to longer than spikelet, sterile lemmas smooth, glabrous, truncate to mucronate, the second with a pair of

ear-like, basal appendages. Sept.–Jan. Mountain slopes, mainly on sandstone, NW, SW, KM, LB, SE (Cedarberg to Uitenhage).•

rehmannii Stapf Loosely tufted or spreading perennial to 1 m. Leaves linear-lanceolate, flat to slightly rolled. Spikelets in a raceme-like panicle or raceme, green, glumes equal to or longer than spikelet, sterile lemmas weakly corrugate, glabrous, truncate to mucronate, the second with a pair of ear-like basal appendages. Aug.–Jan. Mountain slopes, damp areas and forest margins, SW, AP, LB, SE (Cape Peninsula to Tsitsikamma Mtns).•

thunbergii Gibbs Russ. Rigid, branching perennial to 1.5 m, with well-developed hairy rhizomes. Leaves linear-lanceolate, short-lived. Spikelets in a contracted or verticillate panicle, straw-coloured and purple, glumes shorter than to as long as spikelet, sterile lemmas smooth, villous, mucronate to aristate. Sept.–Dec. Granite and sandstone flats and slopes. NW, SW, KM, LB (Vredendal to Mossel Bay).•

villosa Schult.f. PYPGRAS Perennial to 1.5 m, with well-developed, naked rhizomes with elongate internodes. Leaves linear, fairly short-lived, margins undulate. Spikelets in contracted or verticillate panicle, straw-coloured, glumes to as long as spikelet, sterile lemmas villous, truncate to mucronate. Sept.–Mar. Coastal dunes, SW, AP, SE (St Helena Bay to Port Elizabeth).•

*ELEUSINE Gaertn. 9 spp., mostly tropical Africa

*__coracana__ (L.) Gaertn. AFRICAN FINER MILLET Annual to 60 cm. Leaves linear, often folded. Spikelets in 3–13, digitately arranged, secund spikes, 5–8 mm long. Oct.–May. Disturbed places, NW, SW, SE (tropical African weed).

ELIONURUS Kunth ex Willd. 14 spp., tropical Africa and America, 1 in Australia

muticus (Spreng.) Kuntze WIRE GRASS, DRAADGRAS Perennial to 1 m. Leaves aromatic, linear, rolled. Spikelets crowded in a dense, narrow, white-silky spike. Sept.–May. Grasslands, SE (Plettenberg Bay to tropical Africa, Arabia).

ELLISOCHLOA P.M.Peterson & N.P.Barker 2 spp., southern Africa

papposa (Nees) P.M.Peterson & N.P.Barker (= *Merxmuellera papposa* (Nees) Conert) Perennial to 50 cm. Leaves linear, rolled. Spikelets in a dense panicle, silvery and straw-coloured, glumes 3-nerved, lemmas 9–10 mm long, sparsely hairy below, with 3 tufts of long white hairs ± 6 mm, awn 15–18 mm long, geniculate. Nov.-–Jan. Sandstone slopes, SE (Uitenhage).•

ENNEAPOGON Desv. ex P.Beauv. SUURGRAS 30 spp., pantropics and subtropics

desvauxii P.Beauv. Glandular-hairy perennial or annual to 30 cm. Leaves linear to filiform. Spikelets in a dense spike-like panicle. Lemma awns plumose. Mostly Nov.–Mar. ?, KM (Little Karoo to tropical Africa).

scaber Lehm. KLIPGRAS Perennial to 30 cm. Leaves linear. Spikelets in an open panicle, 3 mm long, lemma 9-awned, awns glabrous to scabrid. Sept.–Mar. Stony upper slopes, NW, SW, KM, LB, SE (Namibia to Knysna). **gce**

ERAGROSTIS Wolf LOVE GRASS 300 spp., cosmopolitan

A. Spikelets > 2 mm wide

bergiana (Kunth) Trin. KALKKWEEK Creeping perennial to 10 cm. Leaves linear, basal sheaths densely woolly. Spikelets in a lax panicle, densely clustered on side branches, straw-coloured and pink, 4–8 × 2–4 mm, lowest lemma obtuse, lateral nerves conspicuous. Sept.–Feb. Flats, LB, SE (Little and Great Karoo, Namibia).

capensis (Thunb.) Trin. HARTJIEGRAS Perennial to 90 cm. Leaves linear. Spikelets in a raceme or sparsely branched panicle, 4–15 × 3–7 mm, plump, straw-coloured and purplish, lowest lemmas obtuse, lateral nerves distinct. Sept.–Apr. Flats and slopes, NW, SW, AP, KM, LB, SE (Clanwilliam to S tropical Africa and Madagascar).

cilianensis (All.) Vignolo. ex Janch. STINKGRAS Annual to 90 cm. Leaves linear-lanceolate, basal sheaths sometimes hairy. Spikelets in a narrow panicle with side branches longer than 40 mm, spikelets 3–20 × 2–4 mm, lemma obtuse. Oct.–June. ?, LB, SE (Swellendam to palaeotropics).

elatior Stapf Like **E. capensis** but spikelets 5–8 × ± 2 mm, lowest lemmas acute, with lateral nerves distinct. Dec.–Mar. Rocky stream banks, SW (Cape Peninsula to Riviersonderend).•

obtusa Munro ex Ficalho & Hiern KWAGGAKWEEK Perennial to 45 cm. Leaves linear. Spikelets in a lax panicle, 3–5 × 3–4 mm, lowest lemma obtuse, lateral nerves distinct. July–May. Mostly near streams, KM, LB, SE (southern Africa).

*__racemosa__ (Thunb.) Steud. SMALHARTJIEGRAS Perennial to 80 mm. Leaves linear, glabrous or thinly silky hairy. Spikelets in a lax panicle, 3–10 × 2–5 mm, olive, lowest lemma with lateral nerves indistinct. Aug.–May. Grassy lower slopes, SW (SE African weed).

A.' Spikelets up to 2 mm wide

chloromelas Steud. Perennial to 80 cm. Leaves filiform, curly, basal sheaths glabrescent. Spikelets in an open much-branched panicle with long hairs in axils, 4–6 × 1–1.5 mm. Dec.–May. SE (Humansdorp to northern S Africa).

curvula (Schrad.) Nees BERG-SOETGRAS, BLOUSAADGRAS Perennial to 1 m. Leaves linear, often rolled and filiform, basal sheaths densely hairy. Spikelets in open, much-branched panicles, 4–10 × 1–1.5 mm, dark green. Jan.–Dec. Disturbed sites and grasslands, NW, SW, AP, KM, LB, SE (throughout S and tropical Africa).

homomalla Nees REËNGRASSIE Annual to 5 cm. Leaves linear. Spikelets in a rigid, sparsely branched panicle, irregularly and densely condensed on primary branches, 2–7 × ± 1 mm. Jan.–May. ?, NW, AP, KM, SE (Namibia to Karoo and Still Bay).

*__mexicana__ (Hornem.) Link (= *Eragrostis virescens* J.Presl & C.Presl) CHILEAN LOVE GRASS Annual to 70 cm. Leaves linear-lanceolate, margins scabrid. Spikelets in an open panicle, 3–4.5 × ± 1 mm. Dec.–Mar. Disturbed sandy soils, NW, SW, KM, SE (S American weed).

*__pilosa__ (L.) P.Beauv. Annual to 70 cm. Leaves linear. Spikelets distant in a delicate open panicle, axils bearded, 3–7 × ± 1 mm. Oct.–May. Sandy soils, NW, SW (Eurasian weed).

plana Nees TAAIPOL-ERAGROSTIS Perennial to 1 m. Leaves linear, basal sheaths strongly compressed, smooth and shiny. Spikelets in a panicle, appressed, 6–10 × ± 1–2 mm. Nov.–May. ?, SE (George to tropical Africa).

planiculmis Nees Perennial to 1.2 m. Leaves linear, rolled, culm bases strongly compacted. Spikelets in open, much-branched panicles, yellow and pink, ± 8 × 2 mm. Nov.–Apr. Damp slopes, SW, LB, SE (Saldanha to Mpumalanga).

sabulosa (Steud.) Schweick. Creeping, rhizomatous perennial to 15 cm. Leaves short, linear, mainly cauline. Spikelets crowded-appressed in narrow, compact panicles, branches appressed, olive, 7 × 2 mm, lower lemma 1.6–2.5 mm. Mainly Oct.–Nov. Coastal dunes, SW (Saldanha to False Bay).•

sarmentosa (Thunb.) Trin. Like **E. sabulosa** but spikelet groups often distant on thick pedicels, lower lemma 1.5 mm long. July–May. Winter-wet sand, NW, SW, AP, LB, SE (Namaqualand to George and tropical Africa).

EULALIA Kunth 30 spp., palaeotropical and subtropical

villosa (Thunb.) Nees Perennial to 1 m. Leaves linear, basal sheaths hairy. Spikelets in digitately arranged spike-like branches, white-hairy, 5–7 mm long, awns 15–20 mm. Sept.–May. Grassy slopes, SE (Humansdorp to India).

EUSTACHYS Desv. HOENDERSPOOR 12 spp., tropical and subtropical America, S Africa

paspaloides (Vahl) Lanza & Mattei BRUINHOENDERSPOOR Perennial to 1 m. Leaves linear-lanceolate, folded. Spikelets secund, in digitately arranged, spike-like branches, brown, 1.5–2.5 mm long. Oct.–May. Grassy slopes, NW, AP, LB, SE (Worcester to Arabia).

FESTUCA L. FESCUE 80 spp., pantemperate and subtropical, tropical mountains

*__arundinacea__ Schreb. MEADOW FESCUE Perennial to 2 m. Leaves linear-lanceolate, dark green, auricles well developed. Spikelets in a nodding panicle, 10–18 mm long, awn to 4 mm. Sept.–Apr. Damp places, SW, SE (Eurasian weed).

scabra Vahl MUNNIKSGRAS Perennial to 90 cm, culms with swollen bases. Leaves linear, often rolled, velvety below, fibrous with age. Spikelets in narrow, contracted panicle, green and straw-coloured, 7–15 mm long, minutely awned. Sept.–Dec. Dry flats and slopes, NW, SW, AP, KM, LB, SE (widespread in southern Africa).

FINGERHUTHIA Nees VINGERHOEDGRAS 2 spp., tropical and southern Africa

africana Lehm. KALKVINGERHOEDGRAS Perennial, sometimes annual to 80 cm. Leaves linear. Spikelets in a dense spike-like raceme or panicle, silvery and purple, glumes densely hairy, lemmas obtuse-awned. Mostly Sept.–Dec. Middle to upper slopes, NW, SW, KM, SE (widespread in southern and S tropical Africa).

sesleriiformis Nees Like **F. africana** but rhizomes and plant more robust, glumes sparsely hairy and lemmas acute-awned. Nov.–Apr. Marshes and along streams, SE (Langkloof to Mpumalanga).

*__GASTRIDIUM__ P.Beauv. 2 spp., Mediterranean

*__phleoides__ (Nees & Meyen) C.E.Hubb. Annual to 60 cm. Leaves linear-lanceolate. Spikelets in a narrow, spike-like panicle, awned, glumes swollen at base. Oct.–Dec. Disturbed flats, SW (Mediterranean weed).

GEOCHLOA N.P.Barker & H.P.Linder• 3 spp., W and S Cape

decora (Nees) N.P.Barker & H.P.Linder (= *Merxmuellera decora* (Nees) Conert) Perennial to 60 cm, culm bases swollen. Leaves linear, rolled, sheaths densely woolly. Spikelets in a loosely contracted, interrupted panicle, straw-coloured and purple, glumes 5–7-nerved, lemmas 9–15 mm long, hairy below with transverse median row of white hairs, awn 12–20 mm long, geniculate. Sept.–Nov. Damp lower slopes, flowering after fire, SW, LB, SE (Cape Peninsula to George).•

lupulina (Thunb.) N.P.Barker & H.P.Linder (= *Merxmuellera lupulina* (Thunb.) Conert) Like **M. rufa** but glumes usually 1-nerved, lemmas 6–8 mm long, awn 4–8 mm long, mostly straight. Oct.–Jan. Sandstone slopes, flowering after fire, SW (Tulbagh to Bredasdorp).•

rufa (Nees) N.P.Barker & H.P.Linder (= *Merxmuellera rufa* (Nees) Conert) BRANDGRAS Perennial to 45 cm, culm bases swollen. Leaves linear, rolled, sheaths densely woolly. Spikelets in a contracted panicle, straw-coloured and purple, glumes 3–5-nerved, lemmas 7–12 mm long, hairy below with transverse median row of white hairs, awn 6–16 mm long, geniculate. Sept.–Nov. Sandstone slopes, flowering after fire, NW, SW (Bokkeveld Mtns to Hermanus).•

*__HAINARDIA__ Greuter 1 sp., Mediterranean and Middle East

*__cylindrica__ (Willd.) Greuter (= *Monerma cylindrica* auct. non (Willd.) Coss. & Durieu.) Annual to 30 cm. Leaves linear. Spikelets in a simple spike, green, 5–8 mm long, alternate and embedded in an articulated rachis, awnless. Nov.–Dec. Moist places, SW, LB, SE (Mediterranean weed).

HARPOCHLOA Kunth CATERPILLAR GRASS 1 sp., S Africa

falx (L.f.) Kuntze Rhizomatous perennial 60 cm. Leaves linear, often rolled. Spikelets secund in an inflexed simple spike, 6–7 mm long. Sept.–Apr. Stony grasslands, SW, LB, SE (Tulbagh to northern S Africa).

HELICTOTRICHON Besser ex Roem. & Schult. 90 spp., pantemperate, including tropical mountains

A. Spikelets mostly > 15 mm long

longum (Stapf) Schweick. HAWERGRAS Rhizomatous perennial to 1.5 m. Leaves linear-lanceolate. Spikelets 15–30 mm long, in a narrow panicle 15–30 cm long, green, loosely flowered, upper glume to half as long as spikelet, lemmas minutely granular. Sept.–Oct. Coastal sandy flats, NW, SW (Namaqualand to False Bay). **gce**

rogerellisii Mashau, L.Fish & A.E.van Wyk Tufted perennial to 60 cm. Leaves setaceous-involute. Spikelets 13–18 mm long, in an open panicle with short, scattered hairs on branches and pedicels, upper glumes two thirds as long as spikelet, lemmas scaberulous, rachilla internodes hairy. Oct. Limestone outcrops, AP (De Hoop).•

A.' Spikelets mostly up to 15 mm long

capense Schweick. Like **H. hirtulum** but spikelets ± 15 mm long. Oct.–Nov. Damp lower slopes, SW, AP, LB, SE (Cape Peninsula to KwaZulu-Natal).

dodii (Stapf) Schweick. Like **H. turgidulum** but spikelets 12–15 mm long, yellowish, lemma lobes above awn longer, 6–8 mm. Oct.–Dec. Damp lower slopes, SW, LB, SE (Cape Peninsula to Lesotho).

hirtulum (Steud.) Schweick. Perennial to 1 m. Leaves linear. Spikelets 8–11 mm long, in a narrow panicle to 20 cm long, upper glume half to two-thirds as long as spikelet, lemmas scabrid. Nov.–Mar. Clay slopes and flats, NW, SW, SE (Bokkeveld Mtns to Limpopo).

leoninum (Steud.) Schweick. Perennial to 50 cm. Leaves linear. Spikelets 12–14 mm long, in a narrow panicle 6–10 cm long, upper glumes ± half as long as spikelet, lemmas dense papillose, rachilla internodes glabrous. Aug.–Nov. Mountain slopes, SW (Cape Peninsula to Hottentots Holland Mtns).•

turgidulum (Stapf) Schweick. Perennial to 1 m. Leaves linear. Spikelets green, 10–12 mm long, in a panicle 7–30 cm long, upper glume two-thirds as long as spikelet, lemmas smooth or papillate, often purple. Oct.–Apr. Wet flats and slopes, SW, LB, SE (Saldanha to northern S Africa).

HEMARTHRIA R.Br. ± 10 spp., Africa, Madagascar, tropical Asia

altissima (Poir.) Stapf & C.E.Hubb. PERDEGRAS Erect or sprawling perennial to over 1 m. Leaves linear. Spikelets in a simple spike, embedded in jointed axis. Oct.–June. Marshes and stream banks, NW, SW, AP, SE (Clanwilliam to tropical Africa).

HETEROPOGON Pers. PYLGRAS 6 spp., Africa, S Europe

contortus (L.) Roem. & Schult. Rhizomatous perennial to 70 cm. Leaves linear. Spikelets in a spike-like raceme, the upper awned, awns twisted together above spikelets. Oct.–June. Flats and slopes, SW, LB, SE (widespread through Africa).

HOLCUS L. 8 spp., Mediterranean, Asia, S Africa

***lanatus** L. VELVET GRASS, FLUWEELGRAS Perennial to 1 m. Leaves linear-lanceolate, softly hairy. Spikelets in a panicle, pink and grey, upper glume awn to 1 mm. Oct.–Dec. Damp areas, SW, LB, SE (Eurasian weed).

setiger Nees Annual to 30 cm. Leaves linear, shortly hairy. Spikelets in a panicle, pale green, upper glume awn 2–6 mm. Oct.–Dec. Damp lower slopes, NW, SW, SE (Namaqualand to George). **gce**

HORDEUM L. BARLEY 20 spp., temperate

capense Thunb. CAPE WILD BARLEY Perennial to 70 cm. Leaves linear, rigid, without auricles, becoming fibrous below. Spikelets in a 2-ranked false spike, green and purple, long-awned. Nov.–Dec. Wet areas or roadsides, SW, KM, LB, SE (Namaqualand to northern S Africa).

***geniculatum** All. (= *Hordeum marinum* Huds.) Like **H. murinum** but glumes of lateral spikelets smooth or scabrid. Sept.–Nov. Disturbed places, NW, SW (Mediterranean weed).

***murinum** L. FALSE BARLEY Annual to 50 cm. Leaves linear, soft, auricled. Spikelets in a 2-ranked false spike, green and purple, long-awned, glumes of lateral spikelets long-ciliate. Oct.–Dec. Disturbed places, NW, SW, AP, KM, LB, SE (European weed).

HYPARRHENIA E.Fourn. 53 spp., mainly Africa and Mediterranean, also tropical America and Asia

***anamesa** Clayton Like **H. hirta** but leaves broader, ± 4 mm wide, racemes 15–25 mm long and raceme pairs with 4–7 awns. Oct.–May. Dry soils, in open places, SW, AP, LB, SE (SE African weed).

hirta (L.) Stapf THATCH GRASS Perennial to 2 m. Leaves linear, 1–2 mm wide. Spikelets in paired racemes 20–40 mm long, subtended by spathes, hairy, raceme pairs with 8–14 awns. Nov.–May. Disturbed areas and grasslands, NW, SW, AP, KM, LB, SE (widespread through Africa and Mediterranean).

IMPERATA Cirillo 10 spp., pantropical and subtropical

cylindrica (L.) Raeusch. SILWERAARGRAS, SYGRAS Strongly rhizomatous perennial to 1 m. Leaves linear-lanceolate, Spikelets in a dense, cylindrical, white-silky panicle, awnless. Jan.–Dec. Wet habitats, NW, SW, SE (Vredendal to Hermanus, Humansdorp through Old World tropics, sometimes invasive).

KARROOCHLOA Conert & Türpe = **TRIBOLIUM**

KOELERIA Pers. ± 60 spp., N and S temperate

capensis (Steud.) Nees (?= *Koeleria cristata* (L.) Pers.) POLGRAS, STRANDGRAS Perennial to 70 cm. Leaves linear. Spikelets 3.5–4 mm long, in a dense, cylindrical, spike-like panicle, sometimes interrupted. Nov.–Feb. Coastal sands and mountain slopes, NW, SW, AP, KM, LB, SE (Namaqualand and throughout Africa).

*__LAGURUS__ L. HARE'S TAIL, HAASSTERT 1 sp., Mediterranean

**ovatus* L. Velvety annual to 40 cm. Leaves lanceolate. Spikelets in a dense, ovoid, silky white, bristly panicle. Oct.–Nov. Disturbed areas, SW, AP, SE (European weed).

LEERSIA Sw. 15 spp., tropical and warm temperate

hexandra Sw. MOERASGRAS, WATERKWEEK Slender, long-rhizomatous perennial to 1 m, hairy at nodes. Leaves linear-lanceolate, scabrid. Spikelets in an open panicle, purple. Jan.–Feb. Shady places near water, SW, SE (Cape Peninsula to Old World tropics).

LEPTOCHLOA P.Beauv. ± 85 spp. temperate areas

fusca (L.) Kunth (= *Diplachne fusca* (L.) P.Beauv. ex Roem. & Schult.) SWAMP GRASS Perennial to 1.5 m. Leaves linear. Spikelets in a panicle, olive, without awns. Oct.–May. Damp to wet areas, NW, SW, AP, KM, LB, SE (throughout Africa and Old World tropics).

*__LOLIUM__ L. RYE 12 spp., temperate Eurasia

multiflorum* Lam. ITALIAN RYE GRASS, DRABOK Like **L. perenne and hybridizing with it but sterile shoots absent, leaves rolled when young and lemmas awned. Oct.–Dec. Disturbed coastal areas, SW, AP, KM, LB, SE (Eurasian weed).

**perenne* L. PERENNIAL RYE Perennial to 50 cm, with sterile shoots. Leaves linear. Spikelets in a simple spike, 10–15 × 3–10 mm, awnless. Oct.–Dec. Disturbed areas, NW, SW, AP, KM, LB, SE (European weed).

**rigidum* Gaudin Annual to 30 cm. Leaves linear. Spikelets in a simple spike, embedded in rachis, 1–3 mm wide, partly concealed by appressed glumes, awned or awnless. Sept.–Jan. Common in dry, disturbed areas, NW, SW, AP, KM, SE (Mediterranean weed).

**temulentum* L. Annual to 1 m. Leaves linear. Spikelets in a simple spike, green, 8–28 mm long, lemmas swollen at maturity. Sept.–Feb. Disturbed areas, NW, SW, LB, SE (European weed).

*__LOPHOCHLOA__ Rchb. ± 85 spp., temperate areas

**cristata* (L.) Hyl. Annual to 40 cm. Leaves linear. Spikelets in a contracted panicle, 3–5 mm long, upper glume glabrous. Oct.–Dec. Dry exposed areas, NW, SW, KM, LB, SE (Mediterranean weed).

*__pumila__ (Desf.) Bor. Like **L. cristata** but upper glume densely pubescent. Sept.–Jan. Dry or rocky places, NW, SW, KM (European weed).

MELICA L. 70 spp., N and S temperate, excluding Australia

racemosa Thunb. HAAKGRAS, DRONKGRAS Perennial to 1 m. Leaves linear, often scabrous. Spikelets in silvery racemes or panicles, lemmas hairy on margins. Oct.–Mar. Slopes and flats, NW, SW, AP, KM, LB, SE (Namaqualand to Lesotho).

MELINIS P.Beauv. ± 26 spp., mostly circum-Indian Ocean, 1 in S America

nerviglumis (Franch.) Zizka (= *Rhynchelytrum setifolium* (Stapf) Chiov.) FERWEELGRAS Like **M. repens** but leaves rolled, sheaths strongly overlapping. Nov.–Dec. Road verges and disturbed areas, SW, LB, SE (Tulbagh to tropical Africa).

*__repens__ (Willd.) Zizka (= *Rhynchelytrum repens* (Willd.) C.E.Hubb.) NATAL RED TOP, BERGROOIGRAS Annual or perennial to 80 cm. Leaves linear, leaf sheaths not overlapping. Spikelets shining red, silver and mauve. Oct.–Feb. Disturbed areas, widespread, NW, SW, LB, SE (SE African weed).

MERXMUELLERA see **ELLISOCHLOA, GEOCHLOA, CAPEOCHLOA** and **TENAXIA**

MICROSTEGIUM Nees 30 spp., mainly tropical and subtropical Asia, also Africa

nudum (Trin.) A.Camus (= *Microstegium capense* (Hochst.) A.Camus) Trailing, tangled annual to 60 cm. Leaves lanceolate, ligule membranous. Spikelets on 3 or 4 slender racemes, green, 3.5–4.5 mm long, long-awned. Jan.–May. Forests, SE (Knysna to tropical Africa).

MISCANTHUS Andersson RUIGTEGRAS 6 or 7 spp., pantropical and subtropical

ecklonii (Nees) Mabb. (= *Miscanthus capensis* (Nees) Andersson, *Miscanthidium capensis* (Nees) Stapf, *Miscanthidium sorghum* (Nees) Stapf) Robust perennial to 2.4 m. Leaves linear-lanceolate. Spikelets in a large silky panicle, reddish, 4–6 mm wide, awned. Dec.–May. River banks and forest margins, SE (Humansdorp to Swaziland).

*__NASSELLA__ (Trin.) E.Desv. 15 spp., S America

*__trichotoma__ (Nees) Hack. ex Arechav. NASSELLA TUSSOCK Densely tufted perennial to 60 cm. Leaves linear, rolled, tough. Spikelets 6–8.5 mm long, in an open panicle, awns slender, 35 mm long. Aug.–Jan. Mountain grasslands, SW, LB (S American invasive weed).

ODYSSEA Stapf. 2 spp., Africa and Arabia

paucinervis (Nees) Stapf Mat-forming perennial to 75 cm, often spinescent. Leaves needle-like, woody, pungent. Spikelets in a contracted panicle, awnless. Oct.–May. Salt marshes, NW (tropical Africa to Rocher Pan).

OPLISMENUS P.Beauv. 5 spp., pantropical

hirtellus (L.) P.Beauv. Trailing perennial, stems to 80 cm. Leaves lanceolate to ovate. Spikelets 6–20 in racemes, awns smooth, sticky. Jan.–June. Forest shade, SE (Knysna to tropical Africa).

undulatifolius (Ard.) Roem. & Schult. Like **O. hirtellus** but spikelets 2–6 in fascicles. Jan.–July. Forest shade, SE (Knysna to tropical Africa).

PANICUM L. PANIC GRASS 600 spp., pantropical and warm temperate

coloratum L./**stapfianum** Fourc. complex WITBUFFELGRAS Perennial to 1 m. Leaves linear, sometimes tubercled-hairy. Spikelets distant in an open panicle with spreading branches, 2.5–3 mm long, lower lemma 7–9-nerved. Oct.–May. Damp places, SW, SE (Cape Peninsula to tropical Africa).

deustum Thunb. RIETBUFFELGRAS Like **P. coloratum** but spikelets 3.5–5.5 mm long, panicle branches with clavellate hairs. Sept.–Apr. Coastal forests or grasslands, LB, SE (Riversdale to tropical Africa).

ecklonii Nees Perennial to 80 cm. Leaves linear, usually densely tubercled-hairy. Spikelets in an open panicle, ± 3 mm long, glumes and lemma pectinate. Sept.–Apr. ?, SE (Langkloof to tropical Africa).

maximum Jacq. GUINEA GRASS Perennial, sometimes annual to 2 m. Leaves lanceolate. Spikelets ± 3 mm long, in an open panicle, purple, secondary branches flexuose, fertile lemma transversely wrinkled. Jan.–May. Shady places, SW, SE (Cape Peninsula to tropical Africa).

repens L. COUCH PANICUM, KRUIPGRAS Rhizomatous perennial to 1 m. Leaves mostly cauline, often pungent. Spikelets in an open panicle, narrowly oblong, 2–3 mm long, lower lemma 7–9-nerved. Oct.–June. Wet sandy soils, NW, SW, LB, SE (Namaqualand to Cape Peninsula, Swellendam to tropical Africa).

schinzii Hack. BLOUSAADGRAS Sprawling annual to 1 m. Leaves linear-lanceolate. Spikelets in an open panicle, 2–3 mm long, lower lemma 9–11-nerved. Nov.–May. Moist sites, NW, SW, SE (Lambert's Bay to Limpopo).

***PARAPHOLIS** C.E.Hubb. 6 spp., Mediterranean and Middle East

***incurva** (L.) C.E.Hubb. Annual to 30 cm. Leaves reduced. Spikelets in a simple spike, 4–7 mm long, laterally compressed, alternate on a straight rachis. Aug.–Oct. Infrequent roadside weed, NW, SW, AP, LB, SE (European weed).

***PASPALUM** L. 250 spp., mainly neotropics and subtropics

***dilatatum** Poir. DALLIS GRASS Rhizomatous perennial to 2 m. Leaves lanceolate. Spikelets in 4–9, subdigitate, spike-like branches, secund, in 4 rows, 3–4 mm long, fringed with white hairs. Oct.–May. Disturbed damp places, NW, SW, LB, SE (S American weed).

***distichum** L. BANKROTKWEEK Perennial hydrophyte to 30 cm. Leaves linear. Spikelets in 2 or 3, digitate, spike-like branches, secund in 2 rows, 2.5–3.5 mm long, upper glume minutely hairy. Nov.–May. Near fresh or brackish water, NW, SW, SE (S American weed).

***urvillei** Steud. LANGBEEN PASPALUM Like **P. dilatatum** but often taller, spikelets 1.6–2.8 mm long, in 10–30 spikes. Oct.–Apr. Near water, SW, SE (S American weed).

***vaginatum** Sw. BRAK PASPALUM Like **P. distichum** but upper glume glabrous, spikelets 3–4.5 mm long, lanceolate. Dec.–Apr. Vlei margins, SW, SE (pantropical weed).

PENNISETUM Rich. 70 spp., warm regions

***clandestinum** Hochst. ex Chiov. KIKUYU GRASS Rhizomatous, mat-forming perennial, sometimes to 30 cm. Leaves linear-oblong. Spikelets 10–20 mm long, enclosed in an upper leaf sheath. Aug.–Apr. Clay and loamy soils, SW, LB, SE (E African weed).

macrourum Trin. BEDDINGGRAS Perennial to 1.7 m. Leaves linear. Spikelets 4–6 mm long, in a congested, cylindrical panicle 12–25 cm long, straw-coloured, involucral bristles as long as spikelets. Nov.–May. Marshes, NW, SW, AP, KM, LB, SE (Bokkeveld Mtns to tropical Africa).

***setaceum** (Forssk.) Chiov. FOUNTAIN GRASS Like **P. macrourum** but bristles 4–5 times as long as spikelets, the inner plumose, spikelets 4–6.5 mm long. Nov.–July. Stony slopes, NW, SW, SE (N African weed).

thunbergii Kunth NAPIER MILLET Like **P. macrourum** but most bristles to twice as long as spikelet, panicle 30–50 mm long, spikelets 3 mm long. Oct.–June. Vlei margins, NW, SW, LB, SE (Tulbagh to tropical Africa and Arabia).

PENTAMERIS P.Beauv. (= *PENTASCHISTIS*, *PRIONANTHIUM*) 83 spp., W Cape to Ethiopia, Cameroon and Madagascar

Pentameris group

A. Glumes to 14 mm; leaves usually softer

distichophylla (Lehm.) Nees (= *Pentaschistis dregeana* Stapf) Bushy perennial with culms to 1.2 m. Leaves largely basal, linear, flat or rolled, hairy, sheaths densely woolly. Spikelets 2-flowered, in dense, ovoid panicle 5–11 cm long, glabrous, 12–15 mm long, glumes 12–15 mm long. Sept.–Dec. Rocky sandstone slopes, NW, SW, KM, LB, SE (N Cedarberg to Kouga Mtns).•

glacialis N.P.Barker Like **P. swartbergensis** but leaves shorter, to 10 cm, panicle to 70 mm long with fewer than 15 spikelets. Oct.–Dec. High, S-facing gulleys, KM (Waboomsberg).•

swartbergensis N.P.Barker Like **P. distichophylla** but leaf sheaths glabrous or pubescent only at margins and lemma lateral bristles shorter, 2.3–5.5 mm. Sept.–Dec. Rocky summit ridges, KM (Klein Swartberg).•

uniflora N.P.Barker Sprawling perennial to 65 cm, with thin, flexuose culms. Leaves linear, mostly cauline. Spikelets 1-flowered, 5–20 in a small panicle 4–6 cm long, glumes 11–12 mm long. Sept.–Dec. Shady, S-facing cliffs on wetter mountains, SW, LB (Riviersonderend Mtns to Robinson Pass).•

A.' Glumes 14–24 mm long; leaves usually needle-like or rigid

hirtiglumis N.P.Barker Like **P. macrocalycina** but leaves rolled, falcate, sheaths pubescent, glumes hairy. Sept.–Nov. Shale bands, SW (Hottentots Holland Mtns).•

longiglumis (Nees) Stapf Robust perennial to 1.5 m, culms sometimes branched at base. Leaves rigid and rolled, sheath sometimes shortly hairy, often with green auricles. Spikelets in a lax, globose panicle 17–30 cm long, glumes 15–24 mm long. Sept.–Dec. High sandstone slopes, SW (Cape Peninsula to Kogelberg).•

macrocalycina (Steud.) Schweick. Branched perennial to 1 m. Leaves terete, filiform, cauline. Spikelets 2-flowered, in a narrow panicle 6–12 cm long, spikelets 16–24 mm long, glumes 6–24 mm long. Sept.–Dec. Middle to upper sandstone slopes, NW, SW, KM, LB, SE (Pakhuis Mtns to Uitenhage).•

obtusifolia (Hochst.) Schweick. (= *Pseudopentameris obtusifolia* (Hochst.) N.P.Barker) Perennial with branched culms from woody base, sometimes to 3 m. Leaves cauline, linear, firm and rolled, to 12 cm. Spikelets in a contracted, ovoid panicle, lower glumes 18–25 mm long, lemmas 4.5–6mm long. Nov.–Jan. Sandstone slopes in fynbos, SW (Hottentots Holland to Kleinrivier Mtns).•

oreophila N.P.Barker Like **P. macrocalycina** but sometimes cushion-like, leaves rolled, falcate, pungent, sheaths pubescent. Sept.–Dec. Shale bands at high alt., NW, SW (Hex River and Riviersonderend Mtns).•

thuarii P.Beauv. Robust, erect or decumbent, branched perennial, culms to 1.7 m. Leaves linear, flat or folded, cauline, sheaths pubescent, with purple auricles. Spikelets 2-flowered, in a lax, globose panicle 7–22 cm long, glumes 16–22 mm long. Sept.–Dec. Lower sandstone slopes, SW, LB, SE (Du Toitskloof to Outeniqua Mtns).•

Pentaschistis group

A. Lemmas muticous; plants with or without stalked glands
B. Annuals

capillaris (Thunb.) Galley & H.P.Linder (= *Pentaschistis capillaris* (Thunb.) McClean) Annual to 40 cm, with stalked glands on leaves and pedicels. Leaves linear, villous beneath. Spikelets ± 3 mm long, in an open panicle, glumes obtuse, lemmas muticous. Sept.–Oct. Sandy flats and lower slopes, NW, SW (Namaqualand to Saldanha). **gce**

B.' Perennials or biennials

ampla (Nees) Galley & H.P.Linder (= *Pentaschistis ampla* (Nees) McClean) Perennial to 70 cm, with woody base. Leaves linear, hairy, glandular. Spikelets 3.3–4.6 mm long, in an open, hemi-

spherical panicle, pedicels glandular, longer than spikelets, lemmas muticous. Dec.–Mar. Sandstone slopes at low to middle alt., NW, SW, LB, SE (Clanwilliam to Somerset East).

aurea (Steud.) Galley & H.P.Linder (= *Pentaschistis aurea* (Steud.) McClean) Perennial to 45 cm. Leaves linear, sometimes hairy, sheath mouth villous. Spikelets 4–5 mm long, in an open panicle, pedicels with obscure linear glands, lemmas muticous, lobe setae obscure, ± 0.1 mm long. Jan.–Mar. Cool, damp, rocky ledges, NW, SW, LB, SE (Namaqualand to S Cape and to Drakensberg).

clavata (Galley) Galley & H.P.Linder (= *Pentaschistis clavata* C.A.Galley) Cushion-forming perennial to 20 cm. Leaves linear, glabrous or sparsely hairy. Spikelets 2.5–3 mm long, single-flowered, in an open panicle, lemmas with clavate hairs. Nov.–Dec. Cool, shady or damp habitats, NW (Cold Bokkeveld: Hexberg).•

ecklonii (Nees) Galley & H.P.Linder (= *Pentaschistis bachmannii* McClean, *Pentaschistis ecklonii* (Nees) McClean) Perennial to 30 cm. Leaves cauline, linear, usually rolled. Spikelets 3–4 mm long, in spike-like panicles, pedicels with stalked glands, lemmas muticous. Jan.–Mar. Seasonally waterlogged soils, often over laterite, SW (Hopefield to Somerset West).•

malouinensis (Steud.) Galley & H.P.Linder (= *Pentaschistis malouinensis* (Steud.) Clayton) Perennial to 30 cm. Leaves linear, often rolled. Spikelets 3.4–4.5 mm long, in a lax, open or narrow panicle, glumes rounded, lemmas muticous. Nov.–Jan. Dry sandstone slopes, often on rocks and ledges, NW, SW, AP, KM, LB, SE (Cedarberg to Humansdorp).•

pusilla (Nees) Galley & H.P.Linder (= *Pentaschistis pusilla* (Nees) H.P.Linder, *Poagrostis pusilla* (Nees) Stapf) Cushion-forming perennial to 12 cm. Leaves linear, rigid, sometimes rolled, sparsely hairy above, recurving with age. Spikelets 2.5–3 mm long, single-flowered, in an open panicle, lemmas muticous. Dec.–Feb. Cool shady or damp habitats, SW (Bain's Kloof to Cape Peninsula and Jonkershoek).•

reflexa (H.P.Linder) Galley & H.P.Linder (= *Pentaschistis reflexa* H.P.Linder) Stoloniferous biennial to 35 cm. Leaves cauline, linear, often rolled. Spikelets 3–4 mm long, reflexed, in an open panicle, pedicels and glumes with stalked glands. Oct.–Dec., after fire. Dry sandstone slopes in arid fynbos, NW (Cedarberg to Piketberg).•

A.' Lemmas awned
C. Plants with stalked glands
D. Annuals

airoides Nees (= *Pentaschistis airoides* (Nees) Stapf) Annual to 35 cm. Leaves linear, villous above. Spikelets 2.5–5 mm long, in an open, hemispherical panicle to 6 cm long, awns much exserted, anthers 0.3–1 mm long. Aug.–Oct. Light shade on lower slopes, NW, SW, KM (Namaqualand and Karoo and Drakensberg).

patula (Nees) Steud. (= *Pentaschistis patula* (Nees) Stapf) Annual to 30 cm, often with stalked glands. Leaves linear, usually hairy, sheath mouth with a ring of bristles. Spikelets 3.3–5 mm long, in an open panicle, lemmas awned. Sept.–Oct. Sandstone slopes and flats, NW, SW (Namaqualand to Elandskloof Mtns and Worcester). **gce**

D.' Perennials

aspera (Thunb.) Galley & H.P.Linder (= *Pentaschistis aspera* (Thunb.) Stapf) Perennial to 60 cm. Leaves linear, ridged above, pseudoserrate, with prominent stalked glands. Spikelets 5–7 mm long, in an open panicle, pedicels and glumes also with stalked glands. Sept.–Dec. Stony coastal slopes, often disturbed, SW (Cape Peninsula to Kleinmond).•

barbata (Nees) Steud. (= *Pentaschistis barbata* (Nees) H.P.Linder) Robust perennial to 60 cm, with stalked glands on leaf blades, pedicels and glumes. Leaves linear, usually villous, flaccid, to 12 mm wide. Spikelets 5–6 mm long, in large panicles, open, soon contracting, lemmas awned. Sept.–Nov. Mainly coastal sands, NW, SW, SE (Elands Bay to Betty's Bay and Knysna).•

cirrhulosa (Nees) Steud. (= *Pentaschistis cirrhulosa* (Nees) H.P.Linder) Perennial to 1 m, with glands on leaf sheaths, pedicels, and glumes. Leaves linear, rolled or margins upcurved, truncate. Spikelets 5–9 mm long in an open panicle. Oct. Sandstone gravels, SW, KM, LB, SE (Villiersdorp to Humansdorp).•

densifolia (Nees) Steud. (= *Pentaschistis densifolia* (Nees) Stapf) Cushion-forming perennial, culms to 25 cm. Leaves linear, villous above, with stalked glands common on margins, often turning pink. Spikelets 3.5–4.5 mm long in an open panicle. Dec.–Jan. Sandstone ledges and in rock cracks at middle elevation, NW, SW, KM, LB (Simonsberg and Cedarberg to Swartberg).•

ellisii H.P.Linder Slender perennial to 60 cm tall. Leaves linear, glabrous, eglandular. Inflorescence widely paniculate, spikelets to 6 mm long, glumes glandular along the keels. Lemma awns to 8 mm long, setae to 2.5 mm. Jan. Sandy soil over sandstone bedrock, 1 000 m, SW (Jonaskop).•

glandulosa (Schrad.) Steud. (= *Pentaschistis glandulosa* (Schrad.) H.P.Linder) Perennial to 35 cm. Leaves linear, grooved, with margins incurved, with scattered raised glands, often white-spotted. Spikelets 4–5.5 mm long, many in large open panicles. Oct.–Dec. Mostly heavy soils, NW, SW, LB, SE (Gifberg to Queenstown).

pallida (Thunb.) Galley & H.P.Linder (= *Pentaschistis pallida* (Thunb.) H.P.Linder; *Pentaschistis thunbergii* (Kunth) Stapf) Loosely tufted to almost matted perennial to 40 cm. Leaves linear, sometimes rolled, often with stalked glands. Spikelets 6–7 mm long, in contracted panicles, awned. Sept.–Oct. Slopes and flats, NW, SW, AP, KM, LB, SE (Namaqualand to E Cape).

scabra (Nees) Steud. (= *Pentaschistis papillosa* (Steud.) H.P.Linder) Tangled perennial to 40 cm. Leaves linear, sometimes hairy below. Spikelets 5–7 mm long, in a loose panicle, pedicels with stalked glands, lemmas awned. Oct.–Nov. Lower sandstone slopes, SW (Cape Peninsula to Hermanus).•

rupestris (Nees) Steud. (= *Pentaschistis rupestris* (Nees) Stapf) Perennial to 1 m, often with stalked glands on leaves and pedicels. Leaves linear, sheaths villous, sheath mouth with a ring of bristles. Spikelets 7–8 mm long, numerous in a large open panicle, awned. Oct. Rocky sandstone slopes, NW, KM (Cedarberg to Cold Bokkeveld and Witteberg).•

tomentella (Stapf) Galley & H.P.Linder (= *Pentaschistis tomentella* Stapf) Perennial to 30 cm, with stalked glands on leaf sheaths, pedicels and glumes. Leaves linear, puberulous or villous. Spikelets 4–5 mm long, in a contracted panicle, lemmas awned. Sept.–Oct. Dry slopes and flats, NW (Namaqualand and W Karoo to Cold Bokkeveld). **gce**

veneta (H.P.Linder) Galley & H.P.Linder (= *Pentaschistis veneta* H.P.Linder) Perennial to 40 cm. Leaves linear, flaccid, villous, margins with stalked glands. Spikelets 5–6.5 mm long, in an open panicle, lemmas 2.8–3 mm long, awned. Dec.–Jan. Seeps and below cliffs on sandstone slopes, NW, SW (Bokkeveld Mtns to Du Toitskloof).•

C.' Plants without stalked glands

acinosa (Stapf) Galley & H.P.Linder (= *Pentaschistis acinosa* Stapf) Erect or cushion-like perennial, culms to 30 cm. Leaves cauline, distichous in a herringbone fashion, lanceolate. Spikelets 9–10 mm long, few in a small, lax panicle, lemmas awned, 4–4.5 mm long. Oct.–Jan. Rock ledges, usually damp S-facing slopes, NW, SW, LB (Cold Bokkeveld to Langeberg).•

alticola (H.P.Linder) Galley & H.P.Linder (= *Pentaschistis alticola* H.P.Linder) Biennial to 30 cm. Leaves linear, rolled, rigid or flaccid, curly. Spikelets 4–6 mm long. Nov.–Jan. High, rocky slopes, NW (Cedarberg to Hex River Mtns).•

argentea (Stapf) Galley & H.P.Linder (= *Pentaschistis argentea* Stapf) Like **P. viscidula** but stoloniferous, culm not swollen at base, leaf blades glabrous. Oct.–Nov. Dry sandstone slopes, SW, AP, LB (Cape Peninsula to Langeberg).•

aristidoides (Thunb.) Galley & H.P.Linder (= *Pentaschistis aristidoides* (Thunb.) Stapf) Perennial with short, compact rhizomes, culms to 1 m. Leaves radical. Spikelets 12–15 mm long, in wide lax panicles 6–11 cm wide, pedicels with obscure linear glands. Sept.–Nov., mostly after fire. Rocky sandstone slopes, NW, SW, AP (Bokkeveld Mtns to Agulhas).•

calcicola (H.P.Linder) Galley & H.P.Linder (= *Pentaschistis calcicola* H.P.Linder) Neatly tufted perennial to 30 cm. Leaves linear, rolled and rigid, hairy beneath and on sheaths. Spikelets 5–6 mm long, in a compact panicle, awned. Oct. Limestone pavements, AP (Gansbaai to Mossel Bay).•

capensis (Nees) Galley & H.P.Linder (= *Pentaschistis capensis* (Nees) Stapf) Tangled perennial, culms to 35 cm, drooping, leaf sheaths white, shiny, persistent. Leaves linear, flaccid. Spikelets 6–9 mm long, in a lax panicle, lemmas with long, soft, curving awns. Dec.–Jan. Rocky streams, often along waterfalls, NW, SW, LB (Cape Peninsula and Hex River Mtns and Riversdale).•

caulescens (H.P.Linder) Galley & H.P.Linder (= *Pentaschistis caulescens* H.P.Linder) Like **P. acinosa** but leaves rigid, margins incurved. Sept.–Oct. Shale bands on dry stony slopes, NW (Hex River Mtns).•

colorata (Steud.) Galley & H.P.Linder (= *Pentaschistis colorata* (Steud.) Stapf) Tangled or caespitose perennial to 60 cm. Leaves linear, rolled, curly, sheath mouth sometimes with a few bristles. Spikelets 8–13 mm long, rather few in a lax, open panicle. Aug.–Dec. Sandstone slopes, sometimes in seeps, SW, LB (Cape Peninsula to Swellendam).•

curvifolia (Schrad.) Nees (= *Pentaschistis curvifolia* (Schrad.) Stapf) Perennial to 50 cm, with shiny white persistent leaf sheaths. Leaves basal, linear, rigid, sometimes rolled, margins thickened. Spikelets 8–12 mm long, in a dense, head-like panicle, ivory, lemmas awned. Oct.–Nov. Sandstone and shale slopes, especially shallow soils and paths, NW, SW, AP, KM, LB, SE (Bokkeveld Mtns to Grahamstown).

elegans (Nees) Steud. (= *Pentaschistis elegans* (Nees) Stapf) Cushion-forming perennial, culms to 30 cm. Leaves linear, villous beneath and on sheaths, sheath mouth with a ring of bristles. Spikelets 7–9 mm long, few in small panicles, lemmas awned. Sept. Calcareous sands, AP (Gansbaai to Agulhas).•

eriostoma (Nees) Steud. (= *Pentaschistis eriostoma* (Nees) Stapf) Perennial to 90 cm, in dense tussocks. Leaves basal, linear, rigid, usually rolled, sheaths and sheath mouth woolly. Spikelets 8–12 mm long, in a lax, open panicle, lemmas awned. Sept.–Nov. Sandstone and clay slopes and flats, NW, SW, KM, LB, SE (Namaqualand to E Cape).

heptameris (Nees) Steud. (= *Pentaschistis heptamera* (Nees) Stapf) Perennial to 30 cm. Leaves basal, linear. Spikelets 5–6 mm long, in a dense panicle, lemmas 5–9-awned. Nov.–Dec. Coastal sands, SE (Humansdorp to East London).

holciformis (Nees) Galley & H.P.Linder (= *Pentaschistis holciformis* (Nees) H.P.Linder) Neatly tufted perennial to 60 cm. Leaves linear, rolled rigid, margins hairy. Spikelets 6–7 mm long, in a lax panicle, lemmas awned, setae 0.3 mm long. Mar.–Apr. Sandstone slopes and plateaus, SW (Jonkershoek to Hermanus).•

horrida (Galley) Galley & H.P.Linder (= *Pentaschistis horrida* Galley) Perennial cushion or ring-forming plant to 50 cm tall. Leaves rolled, rigid, spiny. Inflorescences paniculate, glumes 6.5–7.5 mm long, awns to 8 mm long. Oct.–Nov. Dry, sandy slopes and flats, NW, KM (W Karoo and Cedarberg to Swartberg). **gce**

juncifolia (Stapf.) Galley & H.P.Linder (= *Pentaschistis juncifolia* Stapf) Like **P. eriostoma** but without woolly sheath mouth. Oct. Silcrete outcrops, AP, LB (Bredasdorp to Riversdale).•

montana (H.P.Linder) Galley & H.P.Linder (= *Pentaschistis montana* H.P.Linder) Perennial to 20 cm, with very short stolons. Leaves basal, linear, rolled, rigid. Spikelets 4.5–5 mm long, in an open panicle, lemma awns 5–6 mm long. Nov. Rocky sandstone slopes, NW, KM (Hex River Mtns to Witteberg).•

pallescens (Schrad.) Nees (= *Pentaschistis pallescens* (Schrad.) Stapf) Soft perennial tussocks to 1.2 m. Leaves linear, usually villous above, to 60 cm broad. Spikelets 10–12 mm long, ± 200 in an expanded panicle, pedicels with obscure linear glands, awned. Nov.–Dec. Sandstone slopes, SW (Cape Peninsula to Bain's Kloof and Grabouw).•

pseudopallescens (H.P.Linder) Galley & H.P.Linder (= *Pentaschistis pseudopallescens* H.P.Linder) Biennial to 80 cm, with obscure linear glands. Leaves aggregated basally, linear, densely villous above. Spikelets 10–12 mm long, in a lax panicle, lemmas awned. Oct.–Dec., especially second year after fire. Sandstone slopes at middle alt., NW (Cold Bokkeveld to Hex River Mtns).•

pungens (H.P.Linder) Galley & H.P.Linder (= *Pentaschistis pungens* H.P.Linder) Perennial to 50 cm. Leaves linear, rigid, sometimes pungent, becoming recurved with age. Spikelets 11–15 mm long, in a contracted panicle, lemmas awned. Sept.–Nov. Sandstone slopes at higher alt., NW (Cedarberg to Grootwinterhoek Mtns).•

pyrophila (H.P.Linder) Galley & H.P.Linder (= *Pentaschistis pyrophila* H.P.Linder) Perennial to 60 cm. Leaves linear, rigid and rolled, usually pungent. Spikelets 10–12 mm long, in a lax panicle, awned. Oct.–Jan. Dry stony slopes at high alt., NW, SW, KM, SE (Cedarberg to Great Winterhoek Mtns).•

rigidissima (Pilg. ex H.P.Linder) Galley & H.P.Linder (= *Pentaschistis rigidissima* Pilg. ex H.P.Linder) Neatly tufted perennial to 30 cm tall. Leaves linear, sometimes somewhat pungent. Spikelets 7–8 mm long, in a contracted panicle, lemmas awned. Oct.–Feb. Dry slopes, rock crevices, NW, SW, KM, LB, SE (Kamiesberg, Cedarberg to Great Winterhoek Mtns). **gce**

rosea (H.P.Linder) Galley & H.P.Linder (= *Pentaschistis rosea* H.P.Linder) ROOIGRAS Biennial to 35 cm. Leaves cauline, linear, with linear glands. Spikelets 8–12 mm long, in an open panicle, awned, glumes tuberculate hairy, pedicels with obscure, linear glands. Oct.–Dec., second year after fire. High rocky slopes, NW, SW (Cedarberg and Hex River Mtns to Hottentots Holland).•

scandens (H.P.Linder) Galley & H.P.Linder (= *Pentaschistis scandens* H.P.Linder) Tangled perennial, culms to 50 cm, spreading. Leaves cauline, linear, rigid, truncate. Spikelets 10–11 mm long, few in a small, open panicle, lemmas awned. Aug. Sandy flats, SW, AP (Bredasdorp to Elim).•

tortuosa (Trin.) Nees (= *Pentaschistis tortuosa* (Trin.) Stapf) Tufted perennial to 1 m. Leaves linear, often rolled and curly, to 50 cm long. Spikelets 7–11 mm long, in contracted, often pendent panicles, lemmas awned. Oct.–Dec. Damp sandstone slopes, SW, LB, SE (Tulbagh to Langkloof).•

trifida (Galley) Galley & H.P.Linder (= *Pentaschistis trifida* Galley) Perennial to 20 cm, with 1 to several culms, with linear glands. Leaves linear, reduced, puberulous, sheaths purple. Spikelets 4.5–5.5 mm long, 15–35 in a lax, trichotomously branched panicle, yellowish, awned. Oct.–Nov. Arid sandstone NW (Hex River Mtns: Baviaansberg).•

triseta (Thunb.) Galley & H.P.Linder (= *Pentaschistis triseta* (Thunb.) Stapf) Annual to 60 cm, with 1 to several culms, with obscure linear glands. Leaves linear, villous. Spikelets 15–18 mm long, 3–10 in a lax panicle, reddish, awned. Sept.–Oct., after fire. Sandstone slopes, NW, SW (Bokkeveld Mtns to Cape Peninsula).•

velutina (H.P.Linder) Galley & H.P.Linder (= *Pentaschistis velutina* H.P.Linder) Perennial to 60 cm, culms 1–few, with a swollen, woolly base. Leaves linear, with hairs on adaxial surface directly above ligule often as a web of interlocking hairs. Spikelets 12–15 mm long, in a wide, lax panicle, awned, pedicels with obscure linear glands. Oct.–Nov. Gravel plateaus, NW (Cedarberg to Porterville Mtns).•

viscidula (Nees) Steud. (= *Pentaschistis viscidula* (Nees) Stapf) Perennial to 50 cm, culms with a swollen, woolly base. Leaves radical, sheaths hairy. Spikelets 7–10 mm long, in an open panicle, awned, pedicels with obscure linear glands. Oct.–Nov. Mountain plateaus, NW, SW, LB, SE (Cedarberg to Langkloof).•

Prionanthium group

dentatum (L.f.) Galley & H.P.Linder (= *Prionanthium dentatum* (L.f.) Henrard) Like **P. pholiuroides** but spikelets densely aggregated, not secund, glumes with prominently stalked glands, lemmas pubescent. Sept. Heavy soils, NW (Bokkeveld Mtns).•

ecklonii (Nees) Galley & H.P.Linder (= *Prionanthium ecklonii* (Nees) Stapf) Like **P. pholiuroides** but spikelets arranged alternately in pairs, 4.4–6.1 mm long, glumes with glands prominently stalked. Sept.–Oct. Slopes and flats, NW (Olifants River Mtns and Piketberg).•

pholiuroides (Stapf) Galley & H.P.Linder (= *Prionanthium pholiuroides* Stapf) Annual to 30 cm. Leaves linear. Spikelets 2-ranked and alternate in a simple, secund spike to 60 mm long, spikelets arranged singly, glumes with glands sessile or subsessile, lemmas glabrous. Oct.–Dec. Local in seasonally wet, sandy depressions, SW, AP (Malmesbury and Cape Peninsula to Stellenbosch, and Struisbaai).•

PENTASCHISTIS (Nees) Spach = **PENTAMERIS**

***PHALARIS** L. 15 spp., N and S temperate

***aquatica** L. TOWOOMBA CANARY GRASS Perennial to 1.5 m. Leaves lanceolate. Spikelets 4–8 mm long, in a cylindrical, spike-like panicle 2–11 cm long, glumes broadly winged, sterile floret 1, sometimes 2. Nov.–Apr. Wet disturbed areas, SW (Mediterranean weed).

***canariensis** L. Annual to 60 cm. Leaves linear-lanceolate. Spikelets 7–8 mm long, in a cylindrical spike-like panicle 2–4 cm long, glumes prominently winged, sterile florets 2, ± equal. Oct.–Dec. Disturbed areas, SW, SE (NW Africa and Canary Islands weed).

***minor** Retz. SMALL CANARY GRASS, KANARIEGRAS Like **P. canariensis** but glume narrowly winged, spikelets 4–6 mm long, sterile floret 1. Sept.–Jan. Disturbed ground, NW, SW, AP, KM, LB, SE (Mediterranean weed).

PHRAGMITES Adans. COMMON REED, FLUITJIESRIET 3 spp., cosmopolitan

australis (Cav.) Trin. ex Steud. Robust, reed-like perennial to 3 m. Leaves cauline, lanceolate. Spikelets in a plumose panicle, brown and white, awned. Feb.–May. Marshes, streams and seeps, NW, SW, AP, KM, LB, SE (worldwide).

POA L. ± 300 spp., cosmopolitan

***annua** L. ANNUAL WINTER GRASS Annual, sometimes biennial to 30 cm. Leaves linear-oblong, flaccid. Spikelets in a pyramidal panicle, anthers to 0.8 mm. Jan.–Dec. Disturbed areas, NW, SW, AP, KM, LB, SE (European weed).

binata Nees Rhizomatous perennial to 60 cm. Leaves linear, thick, hooded, old leaf sheaths split into fibres. Spikelets in an ovoid-pyramidal panicle, aggregated on periphery, anthers ± 1 mm long. Sept.–May. Moist, cool grasslands, SE (George to Drakensberg and E Zimbabwe).

*__bulbosa__ L. (= *Poa vivipara* (L.) Willd.) Perennial to 30 cm, culms swollen below ground. Leaves linear-filiform, mostly basal. Spikelets in panicles, producing plantlets directly, rarely making functional flowers. Aug.–Oct. Sandstone slopes in richer soils, often in renosterveld, NW, SW (Mediterranean weed).

*__pratensis__ L. KENTUCKY BLUEGRASS Like **P. binata** but lowest panicle branches whorled, basal sheaths not fibrous and lemmas woolly below. Sept.–Jan. Moist shady areas, SW, SE (European weed).

POLYPOGON Desf. BAARDGRAS 15 spp., pantropical and warm temperate

*__monspeliensis__ (L.) Desf. BRAKBAARDGRAS Annual to 50 cm. Leaves linear. Spikelets in an ovoid, contracted, bristly panicle, pale green, glume awns 4–10 mm long, lemma awns to 2.5 mm. Sept.–Apr. Damp lower slopes, NW, SW, AP, KM, LB, SE (cosmopolitan weed).

strictus Nees Like **P. monspeliensis** but glume awns 10–25 mm long, lemma awns 5–10 mm long. Oct.–Apr. Wet places, SW, AP, SE (Saldanha to E Cape).

*__viridis__ (Gouan) Breistr. Annual or perennial to 60 cm. Leaves linear-lanceolate. Spikelets in an open panicle, glumes and lemmas awnless. Sept.–Jan. Damp lower slopes, NW, SW, KM, LB, SE (European weed).

PRIONANTHIUM Desv. = **PENTAMERIS**

PSEUDOPENTAMERIS Conert• 3 spp., W Cape

brachyphylla (Stapf) Conert Tangled perennial with woody base, culms to 80 cm. Leaves cauline, linear, flat or folded, to 15 cm. Spikelets in a contracted panicle, glumes 27–37 mm long, lemmas entirely pubescent, 5.5–6.5 mm long. Sept.–Oct. Lower sandstone slopes, SW (Hottentots Holland to Kleinrivier Mtns).•

caespitosa N.P.Barker Like **P. macrantha** but tufted with unbranched culms, leaves basal, spikelets and panicle purple, lemmas larger, 8–10 mm long. Oct.–Nov. Lower sandstone slopes, NW, SW (Piketberg to Bredasdorp).•

macrantha (Schrad.) Conert Rhizomatous perennial to 1.5 m, often forming large clumps. Leaves cauline, linear, flat or rolled, to 35 cm. Spikelets in a contracted panicle, glumes 22–50 cm long, lemmas basally glabrous, 5–8 mm long. Aug.–Sept. Sandstone slopes, SW, AP (Cape Peninsula to Still Bay).•

PUCCINELLIA Parl. BRAKGRAS 100 spp., N temperate and S Africa

angusta (Nees) C.A.Sm. & C.E.Hubb. VINKBRAKGRAS Perennial to 60 cm. Leaves linear. Spikelets distant or sometimes shortly overlapping in a narrow panicle 5–15 mm diam., branches appressed or ascending. Aug.–Dec. Disturbed, saline soils, NW, SE (scattered throughout southern Africa).

*__distans__ (L.) Parl. Perennial to 65 cm. Leaves linear. Spikelets in a pyramidal to elongate panicle more than 15 mm diam., closely overlapping, at least some branches naked in lower half and spreading. Apr.–Oct. Rivers, canals and furrows, SE (European weed)

*__fasciculata__ (Torr.) E.P.Bicknell Like **P. distans** but panicle more compact with stiff branches bearing spikelets to the base. Sept.–Jan. Wet habitats, often saline and disturbed, NW, SW, AP (European weed).

SCHISMUS P.Beauv. 5 spp., Africa, Mediterranean to India

barbatus (Loefl. ex L.) Thell. WINTERHAASGRAS Annual to 25 cm. Leaves linear, rolled. Spikelets narrowly lanceolate, 5–10-flowered, in a compact panicle, lemma backs pubescent with club-shaped hairs, mucro to 1 mm. June–Dec. Sandy slopes, NW, SW, AP, KM (Namibia and Karoo to E Cape).

inermis (Stapf) C.E.Hubb. Perennial to 40 cm. Leaves linear. Spikelets 4–6-flowered, in a compact panicle, green or purple, lemmas densely pubescent, with a short mucro to 1 mm. June–Feb. Dry slopes, NW, SW, AP, KM, LB, SE (S Namibia to E Cape).

scaberrimus Nees Like **S. inermis** but lemmas sparsely hairy, hairs often in a row across lemma back. Sept.–Oct. Sandy areas, NW, SW (Namaqualand and W Karoo to Cape Peninsula).

SETARIA P.Beauv. BRISTLE GRASS 140 spp., pantropical and warm temperate

***geniculata** (Lam.) P.Beauv. KNOTROOT Perennial to 80 cm, with a knotty, slender and branching rhizome. Leaves linear. Spikelets 2–3 mm long, in a cylindrical, spike-like panicle, bristles 2 or 3 per cluster, lower glume 2- or 3-nerved. Dec.–Jan. Adventive, SW (American weed).

incrassata (Hochst.) Hack. Rhizomatous perennial to 2 m, culm nodes pubescent. Leaves linear. Spikelets 2.5–3 mm long, in a contracted spike-like panicle often interrupted below, bristles 4–10 per cluster, lower glume 3-nerved. Oct.–May. Moist places, SW, LB, SE (Cape Peninsula to tropical Africa).

sphacelata (Schumach.) Stapf & C.E.Hubb. ex Moss GOLDEN TIMOTHY Rhizomatous perennial to 1 m. Leaves linear, mostly rolled. Spikelets 2–3 mm long, in a spike-like panicle, golden-yellow, bristles 7–15 per cluster, lower glume 3-nerved. Sept.–Mar. Disturbed areas, SW, AP, LB, SE (Cape Peninsula to tropical Africa).

***verticillata** (L.) P.Beauv. BUR BRISTLE GRASS, KLITSSETARIA Annual, often sprawling, to 1 m. Leaves linear-lanceolate. Spikelets 1.5–2.5 mm, in a spike-like panicle often shortly branched and interrupted below, bristles 1–4 per cluster, retrorsely barbed and often tangled, lower glume 1-nerved. Dec.–May. Disturbed places, NW, SW, SE (Old World tropical weed).

***SPARTINA** Schreb. 16 spp., mostly America, Europe, Africa

***maritima** (Curtis) Fernald CORD GRASS, STRANDKWEEK Creeping perennial to 80 cm. Leaves linear, rolled. Spikelets secund, in a spike-like raceme, lower glume three-quarters as long as spikelet, upper glume as long as spikelet. Nov.–Mar. Intertidal mud flats, SW, SE (N Atlantic coastal weed).

***SPHENOPUS** Trin. 2 spp., Mediterranean to Western Asia

***divaricatus** (Gouan) Rchb. Slender annual to 20 cm. Leaves linear, rolled, setaceous. Spikelets 2–3 mm long, in a delicate, open panicle. Aug.–Oct. Coastal mud flats and dune hollows, NW (European weed).

SPOROBOLUS R.Br. DROPSEED 150 spp., pantropical and warm temperate

africanus (Poir.) Robyns & Tournay TAAIPOL Perennial to 1 m. Leaves linear. Spikelets 2–2.8 mm long, in a dense, narrow, ± spike-like panicle, branches short and rigid, not obscuring central axis, glume up to half as long as spikelet. Oct.–Apr. Disturbed soils, SW, AP, LB, SE (Saldanha to Ethiopia).

fimbriatus (Trin.) Nees Like **S. africanus** but to 1.6 m, spikelets 1.4–2.2 mm long, upper glume two-thirds as long, panicle open with branches spreading at ± 60°. Dec.–May. Disturbed areas, SW, LB, SE (Cape Peninsula to tropical Africa).

fourcadei Stent Like **S. africanus** but panicle open and branches almost horizontal at maturity. Nov.–Mar. Flood plain and forest margins, SE (Mossel Bay to KwaZulu-Natal).

***virginicus** (L.) Kunth BRAKGRAS, SEA RUSH GRASS Creeping stoloniferous and rhizomatous perennial to 30 cm. Leaves linear, rolled, pungent. Spikelets in a dense, spike-like panicle. Oct.–Apr. Dunes, beaches and coastal marshes, NW, SW, AP, SE (worldwide).

STENOTAPHRUM Trin. 7 spp., pantropical and subtropical

secundatum (H.Walter) Kuntze BUFFELSGRAS Mat-forming, prostrate perennial, sometimes to 30 cm. Leaves oblong, folded. Spikelets partly embedded in a secund, 2-ranked spike, swollen and rounded on one side. Oct.–Jan. Sandy coastal slopes and flats, SW, AP, SE (Cape Peninsula to pantropical).

STIPA L. BOESMANGRAS 300 spp., mainly temperate to subtropical

capensis Thunb. Annual to 50 cm. Leaves linear, often rolled. Spikelets 12–15 mm long, in an open panicle, glumes ± 15 mm long, awn bent and twisted, 50–80 mm long. Aug.–Nov. Open slopes, often disturbed areas, NW, SW, SE (Namaqualand to Mossel Bay and Eurasia).

dregeana Steud. Perennial to over 1 m. Leaves linear, broad. Spikelets 5–7 mm long, in an open or contracted panicle, glumes 5–10 mm long, awn to 18 mm long. Aug.–May. Forest margins, SW, AP, LB, SE (Cape Peninsula to E tropical Africa).

STIPAGROSTIS Nees BOESMANGRAS ± 50 spp., Eurasia and Africa

anomala De Winter Weak perennial or annual to 60 cm. Leaves linear, rolled, setaceous, often curved, scabrid. Spikelets 9–12 mm long, in a narrow, interrupted panicle, awn solitary, spikelet callus pungent. Jan.–June. Sandy soils and gravel flats, KM (Namibia to Little Karoo). **gce**

ciliata (Desf.) De Winter LANGBEENBOESMANGRAS Densely or laxly tufted perennial to 1 m, culm nodes with collar of stiff hairs. Leaves mainly basal, linear, rolled. Spikelets 6.2–15 mm long in an open or contracted panicle, central awn plumose, spikelet callus pungent. Aug.–Oct. Sandstone slopes, KM (Namibia and Karoo to Swartberg and Free State).

namaquensis (Nees) De Winter STEEKRIETBOESMANGRAS Erect or sprawling shrubby perennial to 100(–200) cm. Leaves cauline, linear, rolled, deciduous to expose dark internode. Spikelets 15–30 mm long, in a narrow, interrupted panicle, all 3 awns distinctly plumose, spikelet callus pungent. (Feb.–)July–Dec. Dry sandy slopes and flats, KM, SE (Namibia and Karoo to Little Karoo and Baviaanskloof).

obtusa (Delile) Nees KORTBEENBOESMANGRAS Compact, densely tufted perennial to 60 cm. Leaves basal, linear, rolled, often curved. Spikelets 11–12 mm long, in an interrupted panicle, central awn plumose, spikelet callus usually bifid. July–May. Dry sandy slopes and flats, KM (Namaqualand and Karoo to Little Karoo).

zeyheri (Nees) De Winter CAPE BUSHMAN GRASS Robust perennial to 1 m. Leaves linear, rolled, setaceous. Spikelets in an open panicle, white and purple, all 3 awns distinctly plumose, spikelet callus pungent. Oct.–Apr. Sandy flats, NW, SW, AP, LB, SE (Namaqualand to Mpumalanga).

TENAXIA N.P.Barker & H.P.Linder 8 spp., Afromontane and Afroalpine regions, reaching the Himalayas

disticha (Nees) N.P.Barker & H.P.Linder (= *Merxmuellera disticha* (Nees) Conert) KOPERDRAAD Perennial to 40 cm. Leaves linear, rolled. Spikelets distichous in a spike-like panicle, straw-coloured and green, glumes 1–3-nerved, lemmas 10–15 mm long, fringed on margins, with a basal tuft of white hairs on each side, awns 10–16 mm long, geniculate. Nov.–Dec. Streams and dry stony slopes, SW, LB, SE (Riviersonderend Mtns to Free State).

stricta (Schrad.) N.P.Barker & H.P.Linder (= *Merxmuellera stricta* (Schrad.) Conert) BOKBAARDGRAS Perennial to 80 cm. Leaves linear. Spikelets in an interrupted panicle, straw-coloured and purple, glumes 3–7-nerved, lemmas 6–9 mm long, with 4 or more tufts of marginal hairs, awn 6–7 mm. Sept.–Dec. Middle to upper slopes, NW, SW, AP, KM, LB, SE (Cold Bokkeveld Mtns to Karoo).

THEMEDA Forssk. 10 spp., tropical and temperate Africa and Asia

triandra Forssk. RED GRASS, ROOIGRAS Perennial to 80 cm. Leaves linear. Spikelets long-awned, in triangular clusters subtended by spathes, reddish, brown and yellow. Oct.–July. Widespread in grasslands, NW, SW, AP, KM, LB, SE (throughout tropical Africa and Asia).

THINOPYRUM A.Löve 5 spp., Europe

distichum (Thunb.) A.Löve (= *Agropyron distichum* (Thunb.) P.Beauv.) COASTAL WHEATGRASS, SEA WHEAT Hard, robust perennial to 80 cm, with strong, thick, creeping rhizomes. Leaves linear, rolled, rigid, pungent. Spikelets in a distichous spike, awnless. Oct.–Jan. Coastal dunes, NW, SW, AP, SE (S Namaqualand to E Cape).

TRACHYPOGON Nees 13 spp., tropical America, Africa, Madagascar

spicatus (L.f.) Kuntze GIANT SPEAR GRASS Perennial to 1.2 m, culm nodes with ring of hairs. Leaves linear, folded, ligule membranous, 3-lobed. Spikelets in a spike-like raceme, awns velvety. Oct.–May. Clay and sandstone slopes, SW, LB, SE (Cape Peninsula to tropical Africa).

*__TRAGUS__ Haller KOUSKLITS 6 spp., tropical Africa, 1 cosmopolitan

*__berteronianus__ Schult. SMALL CARROT-SEED GRASS Loosely tufted annual to 60 cm. Leaves lanceolate, margins roughly ciliate. Spikelets crowded in a narrow false spike, awnless, burr-like with hooked glume hairs. Jan.–Dec. Disturbed places, KM, SE (American weed).

TRIBOLIUM Desv. (= *KARROOCHLOA, LASIOCHLOA, PLAGIOCHLOA, UROCHLAENA*) 14 spp., Namibia to SW Cape and Drakensberg

A. Spikelets distichous

brachystachyum (Nees) Renvoize (= *Plagiochloa brachystachya* (Nees) Adamson & Sprague) Like **T. uniolae** but mostly to 30 cm, spikelets mostly 4–5 mm long and glumes glassy hairy. Nov.–Dec. Sandstone slopes, NW, SW (Cedarberg to Houwhoek).•

uniolae (L.f.) Renvoize (= *Plagiochloa alternans* (Nees) Adamson & Sprague, *P. uniolae* (L.f.) Adamson & Sprague, *T. amplexum* Renvoize) KORINGGRAS Perennial to 60 cm. Leaves linear, with innovation buds extravaginal. Spikelets to 6 mm long, in a distichous spike, lemmas with club-shaped hairs below, awnless. Oct.–Dec. Mostly clay and granite flats, NW, SW, AP, KM, LB, SE (Bokkeveld Mtns to Port Elizabeth).•

A.' Spikelets not distichous
B. Annuals

echinatum (Thunb.) Renvoize (= *Lasiochloa echinata* (Thunb.) Adamson) Annual to 30 cm. Leaves linear, hairy. Spikelets 3–5.5 mm long, in a contracted panicle partly enclosed by upper leaf, glumes glassy hairy, lemma hairy on lower margins, acute, awnless. Sept.–Oct. Flats and lower slopes, often on richer soils, NW, SW, AP (Bokkeveld Mtns to Mossel Bay).•

pusillum (Nees) H.P.Linder & Davidse (= *Urochlaena pusilla* Nees) Annual to 25 cm. Leaves linear. Spikelets 5–6 mm long, in a dense, subglobose panicle subtended by an enclosing, auriculate leaf sheath, disarticulating below sheath, lemmas glassy hairy, awn to 1.5 mm long. Aug.–Sept. Dry slopes, NW (S Namaqualand to Botterkloof and Nardouw Mtns). **gce**

tenella (Nees) G.A.Verboom & H.P.Linder (= *Karroochloa tenella* (Nees) Conert & Türpe) Dwarf annual to 15 cm. Leaves linear, rolled, sparsely hispid. Spikelets in a contracted panicle, green and purple, lemmas with hairs in tufts 0.5–1.2 mm long, awn to 9 mm long. Aug.–Oct. Rocky sandstone slopes, NW, KM (Namaqualand and Karoo to Witteberg).

utriculosum (Nees) Renvoize (= *Lasiochloa utriculosa* Nees) Like **T. echinatum** but spikelets shortly awned and glume and lemma hairs club-shaped. Sept.–Oct. Stony slopes, NW (S Namibia to Piketberg and Hex River Mtns). **gce**

B.' Perennials
C. Lemmas awned or mucronate

curva (Nees) G.A.Verboom & H.P.Linder (= *Karroochloa curva* (Nees) Conert & Türpe) OULANDEGRAS Perennial to 40 cm. Leaves linear, sometimes folded, glabrous, sometimes thinly hairy. Spikelets in a contracted panicle, green, straw-coloured and purple, lemmas densely hairy below, awn 4–6 mm long. Oct.–Dec. Shady lower slopes, NW, SW, AP, KM, LB, SE (Lambert's Bay to KwaZulu-Natal).

pleuropogon (Stapf) G.A.Verboom & H.P.Linder (= *Schismus pleuropogon* Stapf) Perennial to 40 cm. Spikelets 4–6 flowered, in a compact panicle, but lemmas fringed in lower third and mucro 1–1.5 mm. Nov. Damp places, LB (Langeberg: Swellendam to Riversdale).•

purpurea (L.f.) G.A.Verboom & H.P.Linder (= *Karroochloa purpurea* (L.f.) Conert & Türpe) QUAGGAGRAS Perennial to 20 cm. Leaves linear, rolled, sparsely hispid. Spikelets in a contracted panicle, straw-coloured and purple, lemmas with hairs in tufts ± 2 mm long, awn to 7.5 mm long. Sept.–Dec. Flats and slopes often on shales and silcretes, NW, SW, KM (Namaqualand and Karoo to De Hoop).

C.' Lemmas awnless
D. Glumes hispid

ciliare (Stapf) Renvoize (= *Plagiochloa echinatum* (Stapf) Adamson & Sprague) Like **T. hispidum** but to 10 cm, spikelets 2–2.5 mm long, in a lax panicle. Sept. Limestone slopes and flats, AP (Agulhas Peninsula).•

hispidum (Thunb.) Desv. (= *Lasiochloa longifolia* (Schrad.) Kunth) Like **T. obtusifolium** but glumes densely long-bristly, microscabridulous. Sept.–Dec. Flats and slopes, NW, SW, AP, KM, LB, SE (Namaqualand to E Cape).

D.' Glumes glabrous, scabridulous or pilose

acutiflorum (Nees) Renvoize (= *Plagiochloa acutiflora* (Nees) Adamson & Sprague) Like **T. obliterum** but spikelets 4–6 mm long, in terminal and axillary panicles, glume hairs clavate. Sept.–Dec. Mostly clay slopes, NW, SW (Namaqualand to Cape Peninsula).

obliterum (Hemsl.) Renvoize (= *Plagiochloa oblitera* (Hemsl.) Adamson & Sprague) Perennial to 40 cm, often stoloniferous. Leaves linear. Spikelets 3.5–4.5 mm long, in a contracted panicle, 5–10-flowered, florets exserted from glumes, lemmas acute, awnless. Sept.–Nov. Flats and plateaus on loamy soils, NW, SW, AP, LB (Grootwinterhoek to Langeberg).•

obtusifolium (Nees) Renvoize (= *Lasiochloa obtusifolia* Nees) Like **T. obliterum** but spikelets 3–6-flowered, florets largely included, glumes glassy hairy, lemmas stiffly ciliate, acute, awnless. Oct.–Dec. Clay flats, NW, SW, AP, KM, LB, SE (Olifants River Mtns to E Cape).

TRIRAPHIS R.Br. 10 spp., Africa, Australia

andropogonoides (Steud.) E.Phillips KOPERDRAADGRAS Perennial to 1.2 m, with long creeping rhizomes. Leaves linear, rolled. Spikelets in a dense panicle to 30 cm long, 5–15-flowered, shortly awned. Oct.–May. Stony river banks, SW, LB, SE (Potberg to northern S Africa).

TRISTACHYA Nees TRIDENT GRASS ± 20 spp., Africa, Madagascar, tropical America

leucothrix Trin. ex Nees (= *Tristachya hispida* (L.f.) K.Schum.) ROOISAADGRAS Perennial to 90 cm. Leaves linear, roughly hairy, basal leaf sheaths with dense brown hairs at base. Spikelets in threes, long-awned, glumes with tuberculate hairs. Oct.–Mar. Marshy grasslands and sandstone slopes, LB, SE (Swellendam to Mpumalanga).

***VULPIA** C.C.Gmel. ± 25 spp., pantemperate

***bromoides** (L.) Gray SQUIRREL-TAIL FESCUE Annual to 70 m. Leaves linear. Spikelets usually secund, in a panicle exserted from leaf sheaths, glume awns shorter than 3 mm, calluses rounded. Aug.–Jan. Disturbed areas, SW, SE (worldwide weed).

***fasciculata** (Forssk.) Samp. Like **V. bromoides** but upper glume awn 10–20 mm long, calluses pointed. Oct.–Nov. Disturbed areas, SW (European weed).

***muralis** (Kunth) Nees Like **V. bromoides**, but lower glume to half as long as upper glume. Sept.–Dec. Disturbed areas, NW, SW (European weed).

***myuros** (L.) C.C.Gmel. RATS-TAIL FESCUE, LANGBAARD-SWENKGRAS Like **V. bromoides** but panicle partly enclosed in upper leaf sheath, lower glume always less than half a long as upper glume. Sept.–Nov. Disturbed areas, NW, SW, LB, SE (European weed).

POTAMOGETONACEAE (= *ZANNICHELLIACEAE*)

1. Flowers in pedunculate spikes, bisexual; stamens 4; fruit buoyant with aerencymatous pericarp ..... **Potamogeton**
1.' Flowers solitary, unisexual; stamens 1–3:
2. Anther 2–4-locular; leaves opposite or alternate, linear; fruits curved, pectinate ..... **Zannichellia**
2.' Anther 1-locular; leaves crowded above, setaceous; fruits straight, smooth ..... **Althenia**

ALTHENIA F.Petit 1 sp., Cape to Namibia, S Europe

filiformis F.Petit Small, creeping, submerged aquatic annual to 15 cm. Leaves in tufts, filiform. Flowers green. Oct. Brackish pools near the sea, NW, SW, SE (Namibia to Port Elizabeth, southern Europe).

POTAMOGETON L. FONTEINGRAS, FONTEINKRUID ± 100 spp., cosmopolitan

nodosus Poir. (= *Potamogeton thunbergii* Cham. & Schltdl.) Aquatic forming large mats. Leaves submerged and floating, petiolate, floating blades ovate. Flowers on slightly swollen peduncles, inconspicuous. Dec.–Mar. Fresh water or mud banks, KM, SE (Little Karoo to E tropical Africa).

pectinatus L. Submerged aquatic. Leaves linear to filiform, often clustered above, adnate to stipules. Flowers green, detached and floating, inconspicuous. Oct.–Jan. Fresh or brackish water, NW, SW, AP, LB, SE (Namibia to Port Elizabeth, cosmopolitan).

pusillus L. Submerged aquatic. Leaves linear. Flowers green, inconspicuous. Dec.–Mar. Fresh water, NW, SW, SE (Africa and N hemisphere).

schweinfurthii A.W.Benn. Large, submerged aquatic. Leaves sometimes floating, linear-lanceolate. Flowers on swollen peduncles, green. Nov.–Dec. Fresh water pools and streams, SE (Uitenhage to tropical Africa).

trichoides Cham. & Schltdl. Submerged aquatic forming dense mats. Leaves filiform. Flowers green, inconspicuous. ?. Ponds and streams, SE (Uitenhage, Africa and Eurasia).

ZANNICHELLIA L. 2 spp., cosmopolitan

aschersoniana Graebn. Slender, submerged, aquatic annual to 60 cm. Leaves alternate, linear. Flowers minute. Oct.–Nov. Brackish pools near coast, NW, SW, AP (Lambert's Bay to Still Bay).•

palustris L. Submerged, mat-forming annual to 50 cm. Leaves opposite or ternate, linear. Flowers inconspicuous. Nov. Fresh or brackish pools, SW, KM, SE (Cape Peninsula to Port Elizabeth, cosmopolitan except Australia).

*PONTEDERIACEAE

*EICHHORNIA Kunth WATER HYACINTH 7 spp., tropical Africa and America

***crassipes** (Mart.) Solms Free-floating aquatic, mostly 10–30 cm, with feathery roots, forming dense mats. Leaves leathery, suborbicular with inflated petioles. Flowers in a cylindrical spike, pale blue to mauve with yellow and purple blotch on upper tepal. Dec.–Mar. S American weed of freshwater bodies throughout eastern S and tropical Africa.

PRIONIACEAE = THURNIACEAE

RESTIONACEAE

by H.P. Linder

1. Fruit a nut, often with an elaiosome; female tepals membranous-transparent, often shorter than nut; female spikelets (with the exception of *Cannomois*) single flowered:
   2. Male flowers racemose, not aggregated into spikelets; male tepals linear-membranous:
      3. Sheath upper margins ciliate ..... **Ceratocaryum**
      3.' Sheath upper margins not ciliate, more membranous than rest of sheath and soon decaying ..... **Willdenowia**
   2.' Male flowers aggregated into spikelets; male tepals lorate to ovate:
      4. Nuts laterally compressed with small white elaiosome; female spikelets with several flowers ..... **Cannomois**
      4.' Nuts round; elaiosome various; female spikelets always single-flowered:
         5. Bracts and sheaths with long, hair-like awn; plants fine, cushion-forming ..... **Anthochortus**
         5.' Bracts and sheaths acute to obtuse, but never with hair-like awn; plants generally tufted or spreading with rhizome:

6. Culms branching ..... **Mastersiella**
6.' Culms simple:
7. Male bracts mostly acuminate, almost as long as spikelet; fruit a large nut ..... **Hypodiscus**
7.' Male bracts rounded to truncate, much shorter than spikelet; ovary mostly dehiscent, when indehiscent not making a large nut ..... **Nevillea**

1.' Fruit a capsule or a nut; female tepals never membranous-transparent, usually longer than ovary or nut; female spikelets generally several-flowered, if fruit a nut then not single-flowered, except in *Elegia* where spikelet formation is unclear, and never with an elaiosome:
8. Floral bracts reddish brown, bony, with transverse lacunae ..... **Soroveta**
8.' Floral bracts without transverse lacunae:
9. Male spikelets pendulous:
10. Ovary indehiscent; diaspore a nut enclosed in persistent, papery to cartilaginous perianth, which may be winged:
11. Male spikelets linear-oblong; females with single style exserted from floral bracts; perianth a firm winged or keeled structure; sheaths decaying in upper half ..... **Thamnochortus**
11.' Male spikelets ± globose; females with 1–3 styles obscured behind floral bracts; perianth papery, sometimes keeled; sheaths apical margins persistent ..... **Staberoha**
10.' Ovary dehiscent, diaspore a seed:
12. Culms branching; female floral bracts taller than flowers, often with longitudinal striations ..... **Restio**
12.' Culms simple (except for *R. capensis*, where culms have whorled branches); female floral bracts shorter than flowers ..... **Rhodocoma**
9.' Male spikelets erect:
13. Sheaths falling off, sometimes somewhat tardily so, leaving distinct dehiscence ring:
14. Floral bracts membranous, much taller than flowers; ovary dehiscent or tardily dehiscent ..... **Askidiosperma**
14.' Floral bracts leathery to bony, rarely taller than flowers, mostly shorter; ovary either dehiscent or indehiscent ..... **Elegia**
13.' Sheaths persistent:
15. Culms laterally compressed (sometimes only at apex); sheaths green and same colour as culm, with stout mucro, usually with woolly scale in sheath axils ..... **Platycaulos**
15.' Culms cylindrical or laterally compressed but then sheaths brown, clearly different from culm and without woolly axillary scales:
16. Female inflorescences of numerous, poorly organised spikelets arranged at several nodes; bracts not obscuring flowers; spathes much overtopping groups of spikelets at nodes ..... **Elegia**
16.' Female inflorescences of one to many well-organised spikelets, either racemosely or paniculately organised, bracts mostly obscuring flowers; spathes at most as tall as spikelets:
17. Male spikelets cone-like with rounded to truncate bracts much shorter than spikelet ..... **Nevillea**
17.' Male spikelets various, but not as above:
18. Fruit a shiny, black, 2-styled nut; spikelets 1–8 per culm; bracts silvery ..... **Hydrophilus**
18.' Fruit various, but never a shiny, black, 2-styled nut ..... **Restio**

ANTHOCHORTUS Nees• 7 spp., W Cape

capensis Esterh. Dioecious, tangled mat-forming perennial to 50 cm, culms branched, slender, spathes and bracts setaceous, culm overtopping the lateral inflorescence. Aug. Seepage areas, SW (Cape Peninsula).•

crinalis (Mast.) H.P.Linder Dioecious, tangled, often cushion-forming perennial to 80 cm, culms much branched, densely tuberculate. Female flowers single or paired in spikelets, spathes and bracts setaceous, bracts with recurved apices. Aug.–Oct. Damp slopes and seeps, SW, LB (Cape Peninsula to Worcester, Riversdale).•

ecklonii Nees Dioecious, tangled, often cushion-forming perennial to 50 cm, producing stolons, culms sparsely branched, striate. Oct.–Jan. Damp slopes and seeps, NW, SW, LB, SE (Ceres to Oudtshoorn and George).•

graminifolius (Kunth) H.P.Linder Dioecious, tangled, mat-forming perennial, producing stolons, culms branched, compressed, sheaths green, often with large, free blades. June–Nov. Damp slopes and seeps, SW (Peninsula, Franschhoek to Betty's Bay).•

insignis (Mast.) H.P.Linder Dioecious, rhizomatous perennial to 70 cm, culms sparsely branched, sheaths with awns to 10 mm. Female flowers in capitate spikelets, bracts acuminate. May–Oct. Rocky stream banks and seeps, NW (lower mountains slopes, Ceres).•

laxiflorus (Nees) H.P.Linder Dioecious, tufted perennial, 15–50 cm, culms branched, basal sheaths often with leaf-like blade, spathe margins hyaline. Nov.–Dec. Damp slopes and seeps, SW (Cape Peninsula, Sir Lowry's Pass to Kleinmond).•

singularis Esterh. Dioecious, tufted perennial to 30 cm, with slender rhizomes and sparsely branched, densely rugulose culms. Dec. Seasonally wet plateaus, NW (S Cedarberg to Grootwinterhoek Mtns).•

ASKIDIOSPERMA Steud.• 12 spp., W Cape

Caespitose plants, sheaths deciduous; bracts membranous, often lacerated, much taller than the flowers; ovaries (tardily) dehiscent.

albo-aristatum (Pillans) H.P.Linder Dioecious, tufted perennial to 1 m, sheaths deciduous. Flowers with membranous bracts. Female spikelets many-flowered, flower 3.5–4.5 mm long. Sept.–Oct. Streams and seeps. NW (Pakhuis and Cedarberg).•

alticolum (Esterh.) H.P.Linder Dioecious, shortly rhizomatous perennial to 1 m. Membranous floral bracts deeply lacerated. Sheaths flat, deciduous. Female flowers 6–8 mm long. May–June. Seasonally damp sandstone slopes, 1 700–1 950 m, NW (Hex River Mtns).•

andreaeanum (Pillans) H.P.Linder Dioecious, tufted perennial to 80 cm. Flowers of female spikelets 4.5–5.5 mm long, few, obscured by membranous bracts. Dec.–Jan. Rocky sandstone slopes. NW, SW (Cold Bokkeveld–Riviersonderend Mtns).•

capitatum Steud. Dioecious, tufted perennial to 80 cm. Female flowers 7–9 mm long, spikelets aggregated into black, capitate heads. Sept.–Oct. Stony slopes and sandy flats, NW (Cedarberg to Hex R. Mtns).•

chartaceum (Pillans) H.P.Linder Dioecious, tufted perennial to 1 m. Flowers of female spikelets many, 5–6 mm long. Aug.–Sept. Marshy mountain slopes and plateaus, NW, SW (Tulbagh to Kogelberg and Riviersonderend Mtns).•

delicatulum Esterh. Dioecious, tufted perennial to 40 cm, culms slender. Bracts membranous. Female flowers 2.5 mm long. Sandstone slopes, 1 300–1 600 m, NW (Vleiberg).•

esterhuyseniae (Pillans) H.P.Linder Dioecious, robust, tufted perennial, 30–130 cm. Bracts membranous, to 13 mm long: female flowers 2.8–3.4 mm long. Aug.–Sept. Marshes or colluvial, sandy plains, above 1 000 m, SW (Villiersdorp to Hottentots Holland Mtns).•

insigne (Pillans) H.P.Linder Dioecious, robust, clumped perennial, 1–2 m. Female flowers 6–7 mm long. Sept.–Oct. Marshes above 1 500 m, NW (Cold Bokkeveld Mtns to Hex River Mtns).•

longiflorum (Pillans) H.P.Linder Dioecious, tufted perennial to 1.5 m. Female spathes short, bracts brown, flowers 9–11 mm long. Oct.–Nov. Sandstone slopes above 1 400 m, NW (Cold Bokkeveld and Hex River Mtns).•

nitidum (Mast.) H.P.Linder Dioecious, tufted perennial to 1.2 m. Flowers of female spikelets many, 4–5.5 mm long. Aug.–Sept. Sandstone slopes and shale bands, often in seepages, NW, SW (Cedarberg to Caledon).•

paniculatum (Mast.) H.P.Linder Dioecious, shortly rhizomatous perennial to 1 m. Flowers of female spikelets few, 6–8.4 mm long, obscured by spathes. Mar.–Apr. Sandstone mountain slopes, often in seeps, NW, SW, LB (Cold Bokkeveld to Langeberg).•

rugosum Esterh. Dioecious, tufted perennial to 1 m. Female flowers 4.5–5.5 mm long. Aug.–Sept. Shale slopes, 250–450 m, SW (Houwhoek to Arieskraal).•

CALOPSIS P.Beauv. ex Desv. = **RESTIO**

CANNOMOIS P.Beauv. ex Desv.• 13 spp., W Cape to Great Winterhoek Mtns

Robust plants, sheaths closely convolute; male spikelets numerous, globose; female spikelets single to few, 1–3 flowered, nuts black, laterally compressed, with a white elaiosome.

anfracta H.P.Linder Like **C. parviflora** but without rhizomes, and male bracts obtuse to acute. Sept.–Oct. Well-drained sandy slopes and rocky plateaus, NW (Groot Winterhoek and upper Olifants River).•

arenicola H.P.Linder Like **C. parviflora** but with a massively developed rhizome, plants not clumped to 80 cm tall, nut elliptical, wider in middle than at base, and fewer female spikelets per culm. July–Sept. Well-drained sandy flats, SW (Berg River to Somerset West).•

aristata Mast. Dioecious, perennial to 1 m, with long rhizomes, culms simple, sheaths with awns to 10 mm, bracts aristate. Aug. Dry sandy slopes, NW, KM (E Cedarberg to Bonteberg).•

congesta Mast. Dioecious, tufted perennial to 1 m, culms usually drooping, simple, hollow. Flowers with tepals almost as long as nut. July–Sept. Well-drained flats and slopes, often above 1 000 m, NW, SW, AP (Tulbagh to Elim and Riviersonderend Mtns).•

grandis H.P.Linder Like **C. virgata** but tufted, to 5 m tall, culms hollow, female spikelets larger, nuts elliptical, 11–16 mm long. Oct.–Dec. Along streams and seeps, shale or sandstone, sometimes in dense bamboo-like stands, usually on S-facing slopes, NW, SW, KM, LB (Tulbagh to Caledon to Kammanassie Mtns).•

nitida (Mast.) Pillans Dioecious, tufted or rhizomatous perennial to 70 cm, culms simple. Female flowers single per spikelet, bracts acuminate, erect or reflexed with awns to 10 mm. Sept. Sandstone slopes and mountain ridges above 1 100 m, usually well drained, NW, SW, KM (Cedarberg to Swartberg).•

parviflora (Thunb.) Pillans Dioecious, clumped perennial to 1.5 m, with rhizomes often long and creeping, culms simple, spathes and bracts dark, shiny, coriaceous, acute. Flowers with perianth about a tenth as long as the oblong nut. Aug.–Sept. Well-drained sands, NW, SW, KM (Bokkeveld Mtns to Riviersonderend Mtns and Bonteberg).•

primosii (Pillans) H.P.Linder Like **C. congesta** but with tepals milky white, less than half length of nut, male spikelets large, with acuminate bracts. Sept.–Oct. Well-drained sandstone plateaus and slopes, 1 000–1 800 m, NW (Cedarberg to Ceres). •

robusta (Kunth) H.P.Linder Like **C. virgata** but tufted, culms solid, branched above, much leafier growth form, nuts more slender, female spikelets brown, acute. Oct.–Jan. Mountain slopes, often in deeper seepage areas, NW, SW, KM (Bokkeveld Mtns to Du Toitskloof Mtns and Swartberg).•

schlechteri Mast. Dioecious, tufted perennial to 2 m, with spreading rhizomes, often forming large stands. Female inflorescences with up to 10 spikelets hidden behind large bracts, nuts 7–10 mm long, perianth much shorter than nut. June–Aug. Dry sandstone slopes in arid fynbos and *Passerina* scrub, NW (southern Bokkeveld Mtns to Karoopoort).•

scirpoides (Kunth) Mast. (= *Cannomois dregei* Pillans) Dioecious, shortly rhizomatous perennial to 1.5 m, culms usually simple, spathes dark brown, shiny. Flowers with perianth ± a tenth as long as nut. Mar.–Oct. Well-drained slopes, KM, SE (Touws River to Kouga Mtns).•

spicata Mast. Dioecious, rhizomatous, tufted perennial to 2 m tall, culms simple or sparsely branched. Nut very slender, 9.5–10.5 × 3–4 mm, tepals < 2 mm long. June–July. Dry stony slopes, NW, SW (lower slopes around Worcester basin, Buffelshoek Ravine to Jonaskop).•

virgata (Rottb.) Steud. BERGBAMBOE, OLIFANTSRIET Dioecious, rhizomatous, mat-forming perennial to 1.5 m, culms with small hollow, branched above. Female spikelets solitary, sometimes paired, acute, to 30 mm; tepals as long as the 9–12 mm long nut. Oct.–Jan. Usually on shale in high rainfall mountains, sometimes in dense stands, usually on S-facing slopes, NW, SW, KM, LB, SE (Grootwinterhoek Mtns to Humansdorp).•

CERATOCARYUM Nees• 8 spp., W Cape

Stout plants, culms simple; sheaths with a ciliate upper margin; male flowers with linear, membranous tepals, and not organised into spikelets; female spikelets with a single flower; nut massive, sometimes with elaiosome.

argenteum Kunth Dioecious, rhizomatous, tufted perennial to 3 m, sheaths with a ciliate upper margin. Female flowers single, spikelets to 30 mm. Nuts almost round, to 10 mm diam., evenly tuberculate, without elaiosome. Apr.–May. Well-drained loamy sands on flats, SW, AP, LB (Stanford to Albertinia).•

caespitosum H.P.Linder Dioecious, tufted perennial to 1.2 m, sheaths with a ciliate upper margin. Nuts smooth, without elaiosome, 7–9 mm long, with a warty cap. Oct.–Nov. Sandstone slopes, 100–1 000 m, SW (Kogelbaai to Stanford).•

decipiens (N.E.Br.) H.P.Linder Dioecious, rhizomatous, tufted perennial to 1.5 m, sheaths with a ciliate upper margin. Female spikelets to 15 mm, spathes nitid, dark brown, > 5 cm long. Nuts smooth, with elaiosome. Feb.–Apr. Sandstone slopes, SW, LB (Du Toitskloof to Kogelberg and Riversdale).•

fimbriatum (Kunth) H.P.Linder Dioecious, rhizomatous perennial to 1 m, sheaths with a ciliate upper margin, spathes shiny, dark brown, < 3.5 cm. Nuts with elaiosome, rugulose. May–June. Sandstone slopes, NW, SW (Cold Bokkeveld and Hex River Mtns to Du Toitskloof).•

fistulosum Mast. Dioecious, rhizomatous perennial to 2 m, hollow, sheaths with a ciliate upper margin. Nut almost orbicular, without elaiosome. Sept.–Oct. Steep, S-facing slopes, LB (Langeberg: Swellendam to Riversdale).•

persistens H.P.Linder. Dioecious, rhizomatous perennial to 1.5 m forming massive unisexual stands, sheaths with a ciliate upper margin. Nuts to 10 mm long, orbicular, smooth, without elaiosome. Mar.–Apr. Well-drained sandstone slopes, 400–1 100 m, SW (Hottentots Holland Mtns).•

pulchrum H.P.Linder Dioecious, rhizomatous, tufted perennial to 70 cm, sheaths with a ciliate upper margin. Nuts sessile, dark brown, walls rugulose, apex smooth, without elaiosome. Oct. Sandstone slopes, AP (near Elim).•

xerophilum (Pillans) H.P.Linder Dioecious, spreading rhizomatous perennial to 1 m, sheaths with a ciliate upper margin. Spathes shorter than 3.5 cm. Nuts with elaiosome, smooth. Sept.–Dec. Well-drained sandstone slopes above 1 500 m, NW, KM (Hex River Mtns to Klein Swartberg).•

CHONDROPETALUM Rottb. = **ELEGIA**

DOVEA Kunth = **ELEGIA**

ELEGIA L. (= *CHONDROPETALUM, DOVEA*) 48 spp., W to E Cape

Culms mostly simple, sheaths deciduous; flowers not laterally compressed, glabrous, generally densely paniculate with numerous spikelets aggregated at several nodes.

A. Ovaries dehiscent

acockii (Pillans) Moline & H.P.Linder (= *Chondropetalum acockii* Pillans) Dioecious, tufted perennial to 1 m, culms simple, sheaths persistent, several per culm. Mar.–May. Sandy flats, SW (Hopefield to Cape Peninsula).•

aggregata (Mast.) Moline & H.P.Linder (= *Chondropetalum aggregatum* (Mast.) Pillans) Dioecious, robust, tufted perennial to 2 m, sheaths deciduous. Female flowers 3.5–5 mm long, 3 or 4 per spikelet. Jan. Rocky sandstone ridges 1 000–1 400 m, SW (Riviersonderend Mtns).•

decipiens (Esterh.) Moline & H.P.Linder (= *Chondropetalum decipiens* Esterh.) Dioecious, tufted, resprouting perennial to 70 cm, culms 1- or 2-noded, sheaths deciduous. Female flowers 1 or 2 per spikelet, spikelets aggregated into a subcapitate head. Aug.–Oct. Sandstone slopes, SW (Kleinrivier Mtns).•

deusta (Rottb.) Kunth (= *Chondropetalum deustum* Rottb.) Dioecious perennial, culms simple to 70 cm, clustered on a long rhizome, sheaths persistent, solitary per culm. Mar. Mainly S slopes, SW (Cape Peninsula to Bredasdorp).•

ebracteata (Kunth) Moline & H.P.Linder (= *Chondropetalum ebracteatum* (Kunth) Pillans) Dioecious, tufted or rhizomatous perennial to 80 cm, sheaths deciduous. Female flowers 1 or 2 per spikelet, 3–4 mm long. Feb.–May; Oct.–Dec. Sandstone slopes, SW, LB (Cape Peninsula to Langeberg: Riversdale).•

elephantina H.P.Linder OLIFANTSRIET Like **E. tectorum** but larger in all parts, culms to 2 m long. Female flowers 2.2–2.8 mm long. July. Slightly damp coastal sand, NW, SW (Elands Bay to Blouberg).•

hookeriana (Mast.) Moline & H.P.Linder (= *Chondropetalum hookerianum* (Mast.) Pillans) Dioecious, tufted perennial, culms simple, sheaths persistent. Female inflorescences slender (10–15 mm wide) and long; spikelets with single flower 3–4 mm long. Feb.–Mar. Well-drained stony slopes and sandy plains, SW (Victoria Peak to Pearly Beach).•

macrocarpa (Kunth) Moline & H.P.Linder (= *Dovea macrocarpa* Kunth) Dioecious, long-rhizomatous perennial to 1.5 m, culms branched, sheaths deciduous. Female flowers 4–8 mm long, one flower per spikelet. May–June. Sandstone slopes and flats, NW (Cedarberg to Piketberg).•

microcarpa (Kunth) Moline & H.P.Linder (= *Chondropetalum microcarpum* (Kunth) Pillans) Dioecious, rhizomatous mat-forming perennial to 30 cm, culms much branched, sheaths free, persistent. Apr.–July. Coastal sands and limestones, SW, AP, SE (Melkbos to Port Elizabeth).•

mucronata (Nees) Kunth (= *Chondropetalum mucronatum* (Nees) Pillans) BERGRIET Dioecious, robust, rhizomatous, clumped perennial to 2.5 m. Culms simple. Flowers on large inflorescences with spathes 5–10 cm. Oct.–Nov. Marshes and seeps, mainly montane, SW, LB (Bain's Kloof to Langeberg: Riversdale).•

nuda (Rottb.) Kunth (= *Chondropetalum nudum* Rottb.) Like **E. tectorum** but usually rhizomatous, culms to 50 cm and more slender, and petals scabrid on outside. May or Oct. Sandy flats, often in damp areas. SW, AP, LB (Darling to Albertinia).•

tectorum (L.f.) Moline & H.P.Linder (= *Chondropetalum tectorum* (L.f.) Raf.) DEKRIET Dioecious, tufted perennial to 1 m, culms simple, sheaths deciduous. Flowers 1.5–2.3 mm, petals scabrid only in upper half, or smooth. Apr.–June. Marshes and seeps on deep sands, NW, SW, AP, LB, SE (Bokkeveld Mtns to Port Elizabeth).•

A.' Ovaries indehiscent
B. Culms branched

capensis (Burm.f.) Schelpe FONTEINRIET Dioecious, rhizomatous perennial to 3 m, culms with dense, sterile, verticillate branches. Mar. or Oct.–Nov. Mainly sandstone slopes along streams and in seepages, NW, SW, AP, KM, LB, SE (Clanwilliam to Port Elizabeth).•

equisetacea (Mast.) Mast. Dioecious, tufted perennial to 2 m, culms simple or with a few verticillate branches (only in juvenile stages). Female inflorescences with prominent spathellae. Aug.–Oct. Seepages or well-drained habitats, NW, SW, AP, KM, LB, SE (Cedarberg to Van Staden's Mtns).•

grandis (Nees) Kunth Dioecious, tufted perennial to 1.5 m, culms branched, spathes large, persistent, greenish with yellow margins, mostly covering the 5–6.7 mm long flowers. Mar.–May. Dry sandstone slopes, SW (Tulbagh to Riviersonderend Mtns).•

hutchinsonii Pillans Dioecious, rhizomatous perennial to 0.5 m, with persistent sheaths and branching, often glaucous culms. Flowers with bracts ± 2 mm long, flowers 4–5 mm long, styles 3, nut large. Sept.–Oct. Seepage areas, streamsides and ledges, NW, SW (Cold Bokkeveld to Du Toitskloof).•

muirii Pillans Much-branched, dioecious perennial, forming an untidy tussock to 1 m, sheaths persistent, free, spathes larger than sheaths. Flowers with bracts 7–8 mm long, flowers 3.5–5 mm long, styles 3. Apr.–June. Sandy lowlands, sometimes on limestone, AP (Agulhas to Gouritsmond).•

neesii Mast. Dioecious mat-forming perennial to 1 m, with or without rhizome, culms sparsely branched, sheaths green, closely convolute, female spikelets single-flowered. Oct.–Dec. Sandstone slopes, often damp, NW, SW, LB, SE (Cedarberg to George).•

prominens Pillans Dioecious, untidy, tufted perennial to 0.8 m, with culms much branched. Sheaths persistent. Female flowers 0.7–1.3 mm long, with ovary exceeding perianth. Aug.–Sept. Coastal sand flats, SW, AP (Yzerfontein to Bredasdorp).•

stipularis Mast. Dioecious perennial to 1 m, with or without rhizomes, culms much branched, sheaths persistent, like the spathes. Female flowers 2–3 mm long, styles slender, 2. June–July. Well-drained sandy flats and slopes, SW, AP, LB (Cape Peninsula to Mossel Bay).•

stokoei Pillans Dioecious, tufted perennial to 0.7 m, with culms simple or sparsely branched, sheaths persistent. Spathes mottled red with a paler margin. Female flowers 3–4 mm long, styles 2. June–Sept. Drier slopes, SW, LB (Tulbagh: Elandskloof Mtns to Montagu).•

B.' Culms simple

amoena Pillans Similar to **E. racemosa**, but is a robust, tufted perennial to 2 m, without rhizomes. Feb. Sandstone or shale slopes above 1 400 m, SW (Slanghoek Mtns).•

asperiflora (Nees) Kunth Dioecious, rhizomatous perennial to 50 cm, culms slightly compressed, sheaths persistent or tardily deciduous, floral bracts as tall as the flowers, margins somewhat lacerated. Nov.–Mar. Seeps and damp areas, NW, SW, KM, LB, SE (Cedarberg to E Cape).•

atratiflora Esterh. Dioecious, tufted perennial to 70 cm, sheaths dark brown, paler in upper third, deciduous or persistent. Spathellae conspicuous. Flowers papillose, reddish. Sept. Seeps on shales and sandstones, SW (Hottentots Holland Mtns to Kleinrivier Mtns).•

caespitosa Esterh. Dioecious, tufted perennial to 60 cm, rhizomes absent, culms compressed, sheaths persistent or deciduous, bracts > twice as long as flowers. Nov.–Feb. Seeps and streams, SW, LB (Bain's Kloof to Langeberg).•

coleura Mast. Dioecious, mat-forming, rhizomatous perennial to 90 cm, culms slightly compressed, sheaths deciduous or weakly persistent. Dec.–Feb. Seasonally damp sands, SW, AP, LB, SE (Cape Peninsula to Ceres and Riviersonderend Mtns).•

cuspidata Mast. BLOMBIESIE Dioecious, tufted perennial to 1 m. Inflorescences dense. Female flowers not obscured by spathes, bracts and spathellae acuminate to setaceous, chestnut-brown. Oct.–Jan. Locally common on seasonally wet sand flats, SW (Malmesbury to Kleinmond).•

dregeana Kunth. (= *Elegia asperiflora* (Nees) Kunth in part) Dioecious, tufted, culms compressed, sheaths persistent and loosely convoluted. Inflorescences globose, bracts taller than the flowers. Nov.–Feb. Seepages and wet habitats, NW, SW (Cedarberg to Franschhoek).•

esterhuyseniae Pillans Dioecious, rhizomatous, often mat-forming perennial to 40 cm, sheaths deciduous. Flowers in linear inflorescences, spathes variegated, obscuring 5–8 mm long female flowers. Oct.–Nov. Slopes and seeps, usually above 1 400 m, NW, SW (Cedarberg to Riviersonderend Mtns).•

extensa Pillans Dioecious, mat-forming perennial with long, spreading rhizomes, culms to 60 cm. Oct.–Dec. Seasonally damp gravels over sands or shales below 200 m, SW, AP (Wolseley, Joostenberg and Bredasdorp).•

fenestrata Pillans Dioecious, rhizomatous, robust, clumped perennial to 1.4 m, sheaths deciduous, dark brown below. Spathes not obscuring female flowers, spathellae prominent, bracts 1–1.3 mm, shorter than flowers. Oct. Seeps on coastal flats, SW, AP (Cape Peninsula to Bredasdorp, and Humansdorp).•

filacea Mast. Dioecious, neatly tufted perennial to 80 cm, culms slender, sheaths when present golden-tan. Female flowers not obscured by spathes. Oct.–Feb. Locally common on damp flats and sandy slopes to 2 100 m, NW, SW, AP, KM, LB, SE (Cedarberg to Port Elizabeth).•

fistulosa Kunth Dioecious, tufted perennial to 1.1 m, culms hollow, often spreading through vegetation, sheaths deciduous. Inflorescence almost square in outline, styles red. Apr.–July, Nov. Seeps, SW, AP, LB, SE (Malmesbury to Van Staden's Mtns).•

fucata Esterh. Dioecious, neatly tufted perennial to 40 cm tall, sheaths deciduous. Inflorescences compact to 5 cm long, spathes and spathellae somewhat reflexed, turning red, female flower 1.2–1.8 mm long. Nov. Seepages above 1 500 m, SW (Jonaskop).•

galpinii N.E.Br. Dioecious, rhizomatous perennial to 2 m, with culms clustered on rhizomes, sheaths and female spathes deciduous, almost black. Dec.–May. Dry sandstone slopes below 500 m, KM, LB (Rooiberg and inland slopes of the Langeberg: Montagu to Attaquaskloof).•

grandispicata H.P.Linder Dioecious, tufted, rhizomatous perennial to 1.5 m, forming large stands, sheaths deciduous, culms sometimes rough, often glaucous. Spathes not obscuring flowers, spathellae prominent, bracts acuminate, taller than flowers. May–Aug. Locally dominant in montane seeps above 450 m, NW, SW, LB (Cedarberg to Langeberg: Riversdale).•

intermedia (Steud.) Pillans (= *Restio intermedius* Steud.) Dioecious, rhizomatous perennial to 2 m, culms rough to the touch, sheaths deciduous. Flowers on crowded inflorescences, spathes papery. Dubiously distinct from **E. grandispicata.** Oct.–Nov. Moist sites above 600 m, SW (Cape Peninsula).•

juncea L. Dioecious, rhizomatous, clumped perennial to 1 m, sheaths deciduous. Spathes largely obscuring female flowers, spathellae absent. Oct.–Feb. Slopes, usually above 600 m, NW, SW, AP, KM, LB (Grootwinterhoek Mtns and Cape Peninsula to Swartberg).•

persistens Mast. Dioecious, tufted perennial to 1 m, sheaths deciduous, spathes variegated, completely obscuring female flowers. Mar.–May. Sandstone slopes, SW (Kogelberg to Stormsvlei).•

racemosa (Poir.) Pers. Dioecious, rhizomatous, clumped perennial to 1 m, sheaths deciduous. Flowers concealed by large spathes, spathe margins pale. Dec.–Feb. Sandstone slopes, SW, LB, SE (Du Toitskloof Mtns to Uitenhage).•

recta (Mast.) Moline & H.P.Linder (= *Chondropetalum rectum* (Mast.) Pillans) Dioecious, mat-forming perennial to 60 cm, with long, slender rhizomes, culms slender, sheaths deciduous. Aug.–Sept. Damp flats, often on clay, occasionally on silcrete, NW, SW, AP (Redelinghuys to Potberg).•

rigida Mast. Dioecious, neatly tufted perennial to 50 cm. Female spathes 1–2 cm long, overlapping, apices reflexed, completely obscuring flowers. Jan.–Mar. Seasonally wet plateaus, NW, SW (Cold Bokkeveld to Bain's Kloof Mtns).•

spathacea Mast. Dioecious, neatly tufted perennial to 80 cm. Female spathes 2–3 cm long, overlapping, apices reflexed, completely obscuring flowers. Oct.–Feb. Sandstone slopes, NW, SW (Ceres to Kogelberg and Riviersonderend Mtns).•

squamosa Mast. Dioecious perennial to 20 cm, with spreading rhizomes, sheaths deciduous. Culms closely spaced on rhizome. July–Aug. Seasonally wet shale and silcrete flats, SW, LB (Malmesbury to Mossel Bay).•

thyrsifera (Rottb.) Pers. Dioecious, clumped perennial to 2 m, with slender spreading rhizomes, sheaths deciduous. Spathes not obscuring flowers, spathellae conspicuous, bracts 2–4.5 mm, equalling flowers. Nov.–Jan. Damp mountain slopes and seepages, SW, AP, LB, SE (Cape Peninsula to Storms River).•

thyrsoidea (Mast.) Pillans Robust, dioecious perennial to 1.3 m, with spreading rhizomes, spathes without pale margins. Flowers obscured by overlapping spathes. Mainly Sept. Peaty slopes, SE (Outeniqua and Tsitsikamma Mtns).•

vaginulata Mast. Dioecious, often mat-forming, perennial to 50 cm, with culms arising from spreading rhizomes, sheaths deciduous. Oct.–Jan. Sandstone or granite slopes, often seasonally damp, NW, SW, AP, KM, LB, SE (Cedarberg to E Cape).

verreauxii Mast. Dioecious perennial to 40 cm, with slender spreading rhizomes, culms in groups along rhizome, sheaths deciduous. July–Oct. Damp sandy flats, SW, AP (Hopefield to Potberg).•

[**Species excluded** Known only from the type collection and probably taxonomic artefacts: **E. altigena** Pillans, **E. fastigiata** Mast., **E. marlothii** (Pillans) Moline & H.P.Linder (= *Chondropetalum marlothii* (Pillans) Pillans)]

HYDROPHILUS H.P.Linder 1 sp., W to E Cape

rattrayi (Pillans) H.P.Linder Dioecious, tangled perennial to 1 m, forming spreading clumps, culms simple or sparsely branched, sheaths persistent. Spikelets 15–25 mm, bracts papery, pale to silver. Sept.–Nov. Seepages and stream banks in dry mountains, NW, KM (Cedarberg to Swartberg and Hogsback).

HYPODISCUS Nees 15 spp., Namaqualand to SW Cape

A. Culms ± striate

argenteus (Thunb.) Mast. Dioecious, tufted or rhizomatous perennial to 1 m, culms simple, round. Male spikelets many, to 5 mm, bracts silvery; female spikelets reddish, to 20 mm, styles dark red. Nuts without perianth. Mar.–Aug. Stony slopes, NW, SW, LB (Clanwilliam to Riversdale).•

neesii Mast. Dioecious, tufted or mat-forming perennial to 1 m, culms simple, round, sometimes striate. Male and female spikelets dissimilar, male spikelets several, bracts papery to transparent. Nut without elaiosome. June–Sept. Dry, lower mountain slopes, NW, KM (Cedarberg to Witteberg).•

procurrens Esterh. Dioecious perennial to 20 cm, with long, creeping rhizomes, culms simple, round, striate. Floral bracts acuminate. July–Aug. Coastal limestones and adjacent sands. AP (Stanford, Struisbaai, Mossel Bay).•

rigidus Mast. Dioecious, neatly tufted perennial to 60 cm, culms simple, round. Floral bracts acuminate. Nuts 3–5 mm long, elongate, base concave, with elaiosome. July. Coastal limestones, AP (Soetanysberg to Still Bay).•

striatus (Kunth) Mast. Dioecious, clumped, rhizomatous perennial, 20–60 cm, culms simple, round, striate, bluish. Female spikelet solitary, rarely paired, bracts acuminate. Jan.–July. Drier slopes, NW, SW, AP, LB, SE (Namaqualand to Port Elizabeth). **gce**

sulcatus Pillans Dioecious, rhizomatous perennial, 20–50 cm, stout culms flexuose, hollow, striate, green, round. Female spikelets solitary. Nut ± 10 mm long, with elaiosome. Sept.–Oct. Shale slopes, KM (Witteberg and Bonteberg).•

willdenowia (Nees) Mast. Dioecious, rhizomatous perennial to 40 cm, culms evenly spaced on rhizome, simple, compressed, striate. Spikelets solitary. Nut smooth. May–Aug. Sandy slopes and flats, NW, SW, AP, LB, SE (Cold Bokkeveld to Humansdorp).•

A.' Culms smooth

albo-aristatus (Nees) Mast. Dioecious, rhizomatous or tufted perennial to 50 cm, culms simple, round, with a single node. Male and female spikelets similar, to 10 mm, bracts long-acuminate. Nut smooth to tuberculate. May–Sept. Slopes, mostly on shale bands, NW, SW, AP, KM, LB, SE (Grootwinterhoek Mtns to Swartberg and Humansdorp).•

alternans Pillans Dioecious, tufted perennial to 55 cm, culms simple, round, with several nodes. Male spikelets 5–10 mm, bracts reddish, acute. Nut ornamented. Nov. Seeps on shale band, 150 m, SW (Palmiet River Valley).•

aristatus (Thunb.) C.Krauss Dioecious, rhizomatous or tufted perennial to 1.2 m, culms simple, round. Male and female spikelets similar, to 20 mm, floral bracts long-acuminate. Nuts smooth, 7.5–11 mm long, often without a perianth. May–Sept. Well-drained soils, NW, SW, AP, KM, LB, SE (Clanwilliam to Baviaanskloof Mtns).•

laevigatus (Kunth) H.P.Linder Dioecious, rhizomatous or tufted perennial to 1 m, culms simple, often slightly compressed. Male and female spikelets similar, 5–10 mm, bracts acute. Nut black, ornamented, with small green crown. Feb.–May. Well-drained sandstone and shale slopes, NW, SW, LB (Bokkeveld Mtns to Riversdale).•

montanus Esterh. Dioecious, rhizomatous or tufted perennial to 40 cm, culms simple, obscurely sulcate. Spikelets entirely obscured by spathes, sheaths persistent. Spathes reddish with pale margins. Nut smooth. Feb. Rocky summits, LB (Langeberg: Misty Point).•

rugosus Mast. Dioecious, rhizomatous perennial to 60 cm, culms often somewhat compressed. Sheaths persistent. Male and female spikelets similar, to 7 mm, bracts acuminate. July–Sept. Coastal shale or sand flats, often seasonally damp, SW, AP (Malmesbury to Potberg).•

squamosus Esterh. Dioecious, rhizomatous perennial to 60 cm, culms simple, compressed. Nut rounded, smooth., small. Feb.–Mar. Gravelly sandstone slopes above 900 m, SW (Riviersonderend Mtns).•

synchroolepis (Steud.) Mast. Dioecious, rhizomatous or tufted perennial to 70 cm, culms simple. Male and female spikelets similar, 5–10 mm, bracts acuminate. Nuts ornamented, with an apical crown of linear, fleshy lobes. Feb.–Mar. Rocky slopes, KM, LB, SE (Swartberg to Riversdale and Humansdorp).•

ISCHYROLEPIS Steud. = **RESTIO**

MASTERSIELLA Gilg-Ben.• 3 spp., W Cape

Much-branched plants; sheaths closely rolled; males spikelets somewhat reflexed; female spikelets very different, with a single flower, with 2 styles; ovary indehiscent, shiny, black, elliptical.

digitata (Thunb.) Gilg-Ben. Dioecious, decumbent-tufted perennial to 70 cm, culms branched, finely rugose, spreading to erect. Male spikelets cone-like, 5–15 mm, much exceeding spathes, reflexed. Jan.–May, Sept. Sandy flats and slopes, SW, AP (Cape Peninsula to Potberg).•

purpurea (Pillans) H.P.Linder Dioecious, erect-tufted perennial to 1.5 m, culms branched, purple at base, finely rugose, spreading to rarely erect. Male spikelets to 5 mm, as long as bracts. Female bracts purplish. Feb.–May. Rocky and sandy slopes, KM, LB, SE (Montagu to Willowmore).•

spathulata (Pillans) H.P.Linder Dioecious, decumbent-tufted perennial to 60 cm, culms branched, somewhat compressed near apices, smooth or finely rugose, spreading to decumbent. Male spikelets and bracts to 5 mm. Sept.–Apr. Well-drained sandy flats and slopes, SW, AP, LB, SE (Gansbaai to Willowmore).•

NEVILLEA Esterh. & H.P.Linder• 3 spp., W Cape

Robust, rhizomatous clumped plants; culms simple, sheaths persistent with apical margin-like body; male spikelets cone-like; female spikelets with 1–3 flowers; ovary dehiscent, styles.

obtusissima (Steud.) H.P.Linder Dioecious, rhizomatous perennial to 1 m, culms simple, hollow. Sheaths rounded apically. Male spikelets 10–20 mm, obtuse, bracts rounded, to 4 mm. Female spikelets shorter than spathes. Feb.–Mar. Marshy slopes, SW (Tulbagh: Elandskloof Mtns to Kogelberg).•

singularis Esterh. Dioecious, rhizomatous perennial to 60 cm, culms simple, hollow. Sheaths obtuse. Male spikelets 8–14 mm. Female spikelets taller than spathes. Aug.–Sept. Marsh edges on shale bands at ± 1 000 m, SW (Riviersonderend Mtns: Genadendal).•

vlokii H.P.Linder *ined.* Dioecious, rhizomatous perennial to 1 m, culms simple, hollow. Sheaths rounded apically. Male spikelets 8–11 mm. Female spikelets shorter than spathes. Nov.–Feb. Marshy slopes, 500–1 500 m, LB (eastern Langeberg).•

PLATYCAULOS H.P.Linder 13 spp., W Cape to Madagascar and Congo

Culms ± compressed, sheaths persistent with a stout mucro similar in colour and texture to body; female spikelets with one to several laterally flattened flowers; ovary with three styles, dehiscent.

acutus Esterh. Dioecious, tufted, tangled to mat-forming perennial to 1 m, culms compressed, branched, smooth or finely warty. Female spikelets solitary, ovary unilocular, female flower 5–6 mm long. Feb.–Mar. Montane marshes, LB (Langeberg: Swellendam).•

anceps (Mast.) H.P.Linder Dioecious, mat-forming perennial to 1 m tall, culms ± compressed, branched, ribbed. Female spikelets numerous per branch, ovary unilocular. Oct.–Nov. Seeps or S-facing sandstone slopes above 400 m, SW, LB, SE (Kleinrivier Mtns to Tsitsikamma Mtns).•

callistachyus (Kunth) H.P.Linder Dioecious, rhizomatous, erect perennial to 2.5 m, culms branched, rugose, only culm tips compressed. Female spikelets solitary, ovary bilocular. Mar.–Apr. Seepage areas, especially along streams, NW, SW, AP, KM, LB, SE (Ceres to Uitenhage).•

cascadensis (Pillans) H.P.Linder Dioecious, stoloniferous or tufted, mat-forming perennial to 1 m, culms compressed, faintly papillose, thickened at margins, branched, usually trailing through vegetation. Female spikelets solitary or paired, ovary bilocular. Mar.–May, Sept. Streams and waterfalls, SW (Kogelberg to Betty's Bay).•

compressus (Rottb.) H.P.Linder Dioecious, rhizomatous, erect perennial to 1 m, culms branched, compressed, smooth or finely rugulose. Female spikelets several, 10–20 mm, ovary bilocular. Aug.–Nov. Seeps and wet, S-facing slopes, NW, SW, LB, SE (Gifberg to Grahamstown).

depauperatus (Kunth) H.P.Linder Dioecious, tufted, tangled perennial to 1 m, culms branched, compressed, flexuose, smooth or finely rugulose. Female spikelets solitary, ovary unilocular. Feb.–Mar. Seeps and damp ledges, SW (Tulbagh Waterfall to Stellenbosch).•

major (Mast.) H.P.Linder Dioecious, tufted, erect perennial to 1.5 m, culms branched, compressed, smooth or finely rugulose. Female spikelets usually several, 10–40 mm. Mar. Seeps and moist S slopes, SW, LB, SE (Cape Peninsula to Outeniqua Mtns).•

subcompressus (Pillans) H.P.Linder Dioecious, stoloniferous or tufted perennial to 40 cm, culms tangled, branched, compressed, smooth or finely rugulose. Female spikelets solitary, ovary bilocular. Oct. Seeps and streamsides above 750 m, SW (Bain's Kloof to Elgin).•

RESTIO Rottb. (= *CALOPSIS*, *ISCHYROLEPIS*) ± 167 spp., W Cape to Richtersveld, Roggeveld, Madagascar and Congo

Subgen. ***Calopsis***

Culms ± square or angular; plants tall; inflorescences large and paniculate.

paniculatus Rottb. (= *Calopsis paniculata* (Rottb.) Desv.) BESEMGOED, BESEMRIET Dioecious perennial to 2 m, with long rhizomes, culms round to semi-circular, branched. Flowers in compound inflorescences with numerous spikelets on main branches, ovary indehiscent. May–June. Mainly along streams, NW, SW, KM, LB, SE (Cedarberg to KwaZulu-Natal).

quadratus Mast. VIERKANTSTAMRIET Dioecious, rhizomatous perennial to 2 m, culms square or triangular, ± 5 mm diam., branched. Inflorescence much branched, side branches as tall as main axis. Ovary dehiscent. July–Sept. Mainly montane seeps and damp, S-facing cliffs and gulleys, SW (Cape Peninsula to Riviersonderend Mtns).•

tetragonus Thunb. Dioecious, rhizomatous perennial to 1 m, culms square, ± 3 mm diam., sometimes branched. Inflorescence compound, side branches of inflorescence much shorter than main axis. Ovary dehiscent. July–Aug. Damp clays and loamy sands, usually below 600 m, NW, SW, AP, LB, SE (Redelinghuys to Tsitsikamma Mtns).•

Subgen. ***Craspedolepis***

Mostly with relatively robust spikelets; bracts with hollow honeycomb cells along upper margins; flowers laterally flattened with villous tepal keels; ovary with three free styles and two dehiscent locules.

acockii Pillans Dioecious, tufted perennial to 1 m, culms compressed, sparsely branched, smooth or finely rugulose. Spikelets narrowly elliptic, bracts with purple apices. Mar.–Apr. Coastal sand plains, SW (Malmesbury to Cape Flats).•

aureolus Pillans Dioecious, tufted perennial to 30 cm, culms smooth or finely warty. Female spikelets solitary or paired, elliptic, to 8 mm, bracts with hyaline margins. Apr. or Oct. Rocky slopes above 1 500 m, NW (Grootwinterhoek and Hex River Mtns).•

bifurcus Nees ex Mast. Dioecious, tufted perennial to 40 cm, culms sparsely branched, finely rugulose. Inflorescences with ± 10 spikelets. July–Aug. Rocky slopes, often damp, SW, KM (Darling and Cape Peninsula to Caledon, and Witteberg).•

bolusii Pillans Dioecious, tufted perennial to 1 m, culms sparsely branched, finely warty. Female spikelets 10–20 mm, ellipsoid, acute, flowers fewer than 6 per spike. Mar.–Apr. Usually rocky slopes, NW, SW (Hex River Mtns to Elgin and Riviersonderend Mtns).•

brachiatus (Mast.) Pillans Dioecious, tufted perennial to 2 m, culms branched. Female spikelets in a compound raceme, bracts with hyaline margins. Differs from **C. cymosus** by the 3–5 flowered female spikelets. Sept.–Oct. Seasonally damp slopes above 1 000 m, NW, SW, KM (Tulbagh and Swartruggens to Swartberg).•

brunneus Pillans Dioecious, tufted perennial to 2 m, culms sparsely branched, smooth. Spikelets 10–20 mm, bracts acuminate with spreading apices. Aug.–Sept. Seasonal seeps and streams above 1 000 m, NW (N and central Cedarberg).•

burchellii Pillans Dioecious, tufted perennial to 60 cm, culms sparsely branched, smooth or finely warty. Spikelets ellipsoid, acute, to 10 mm. Oct.–Nov. Usually rocky, well-drained slopes, NW, SW, KM (Cold Bokkeveld to Kleinrivier Mtns and Witteberg).•

capillaris Kunth Dioecious, tangled perennial to 60 cm, culms slender, branched, finely warty. Spikelets single or several, bracts chartaceous. Aug.–Oct. Marshy mid-slopes, NW, SW, LB (Paarl to Swellendam).•

cymosus (Mast.) Pillans Dioecious, tufted perennial to 1.5 m, culms sparsely branched. Female spikelets numerous, several-flowered, bract margins hyaline. Differs from **C. brachiatus** by the 1–3 female flowers. Sept. Usually along seasonal streams, NW (Kamiesberg to Cold Bokkeveld Mtns). **gce**

filiformis Poir. Dioecious, tufted perennial to 60 cm, culms erect, sparsely branched, smooth or finely rugulose. Female spikelets 1–6, flowers and bracts subequal. Aug.–Oct. Rocky sandstone slopes, NW, SW, LB (Bokkeveld Mtns to Riversdale).•

fusiformis Pillans Dioecious, tufted perennial to 50 cm, culms sparsely branched. Male and female spikelets ellipsoid, acute, 10–15 mm. May, Sept. Seepage areas above 300 m, SW (Hottentots Holland Mtns).•

insignis Pillans Dioecious, tufted perennial to 1 m, culms sparsely branched, smooth. Spikelets globose to ovate, 20–30 mm long, solitary or paired. Oct. Rocky sandstone slopes, NW (Clanwilliam to Ceres).•

inveteratus Esterh. Dioecious, tufted perennial to 1 m, culms sparsely branched, smooth or finely rugulose. Female spikelets laxly racemose, elliptic. Aug. Rock ledges and stream banks above 800 m, SW (Bain's Kloof to Du Toitskloof).•

nodosus Pillans Dioecious, tufted or stoloniferous perennial to 40 cm, culms branched, finely or roughly warty. Spikelets solitary, globose, to 10 mm, bract apices crisped, black. Sept.–Nov. Shallow, rocky soils above 1 200 m, often seasonally wet, NW (Hex River Mtns).•

obscurus Pillans Dioecious, tufted perennial to 60 cm, culms simple or sparsely branched, smooth or finely rugulose. Spikelets subglobose, ± 5 mm diam., bract apices stout, reflexed, black. Sept. Rocky sandstone slopes above 1 000 m, SW (Bain's Kloof to Stellenbosch).•

occultus (Mast.) Pillans Dioecious, tufted perennial to 1.5 m, culms branched. Spikelets numerous, male spikelets pendent. Aug.–Sept. Seepage areas, often along streams, NW, SW, KM (Cedarberg to Hex River Mtns and Witteberg).•

pachystachyus Kunth Dioecious, tufted perennial to 1 m, culms sparsely branched. Female spikelets 10–20 mm, bracts acuminate. May. Rocky sandstone slopes, NW, SW (mainly Elandskloof Mtns, also Hex River Mtns and Caledon Swartberg).•

patens Mast. Dioecious, tangled perennial to 60 cm, culms branched, finely warty. Spikelets 1 to several per branch, bracts with hyaline margins. Mar.–Apr. Rocky sandstone slopes above 400 m, NW (Cedarberg to Hex River Mtns).•

perplexus Kunth Dioecious, stoloniferous, tangled perennial to 60 cm, culms slender, much branched, tuberculate. Spikelets single, bracts with hyaline margins. July–Aug. Rocky slopes and ledges, usually S-facing, NW, SW, LB (Cold Bokkeveld Mtns and Cape Peninsula to Langeberg).•

perseverans Esterh. Dioecious, tufted perennial to 40 cm, culms branched, smooth. Female spikelets solitary, to 15 mm. Feb. Peaty upper sandstone slopes, LB (Langeberg: Swellendam to Riversdale).•

praeacutus Mast. Dioecious, tufted perennial to 1 m, culms flattened or grooved, smooth or finely warty, sparsely branched. Female spikelets several, racemose. Aug. Well-drained sandstone slopes and flats, NW, SW (Bokkeveld Mtns to Paarl and Mamre).•

pulvinatus Esterh. Dioecious, tufted-tangled, stoloniferous perennial to 30 cm, culms branched, finely rugulose. Spikelets solitary or paired. Oct. S-facing rock ledges above 1 000 m, SW (Du Toitskloof to Somerset Sneeukop).•

rupicola Esterh. Dioecious, tufted perennial to 1 m, culms branched, smooth. Spikelets numerous, elliptic, 7–10 mm, 1- or 2-flowered. Sept. Rocky sandstone slopes at ± 1 200 m, NW (Matroosberg).•

strobilifer Kunth Dioecious, tufted perennial to 1 m, culms sparsely branched, smooth or finely warty. Spikelets 10–20 mm, ellipsoid, acute, solitary or paired. Aug.–Oct. Well-drained to seasonally damp, sandstone slopes and plateaus, NW (Cedarberg to Keeromsberg).•

Subgen. ***Eremorestio***

Like Locapsis but floral bracts diverging from spikelet, giving a bristly appearance.

levynsiae (Pillans) H.P.Linder & C.R.Hardy (= *Calopsis levynsiae* (Pillans) H.P.Linder) Dioecious, tufted perennial to 1.5 m, culms branched, sheaths closely convolute. Bracts brittle, apices reddish, female flowers many in 10–20 mm long spikelets, styles 3. June–Sept. Sandy plateaus with rocks, NW (Cold Bokkeveld and Swartruggens).•

rigidus (Mast.) H.P.Linder & C.R.Hardy (= *Calopsis rigida* (Mast.) H.P.Linder) Dioecious, rhizomatous perennial to 50 cm, with trailing, branched culms, sheaths slightly convolute. Spathes overtopping spikelets and soon become grey and lacerated. Flowers obscured by cartilaginous, acuminate bracts. Mar.–Apr. Dry stony slopes and summit ridges, NW, KM (Cold Bokkeveld to Witteberg and Swartberg).•

Subgen. ***Ischyrolepis***

Ovary dehiscent, styles two, basally fused into a persistent peg.

A. Sheaths loosely convoluted, or free-standing from culm

capensis (L.) H.P.Linder& C.R.Hardy (= *Ischyrolepis capensis* (L.) H.P.Linder) Dioecious, untidy, tufted perennial to 50 cm, culms branched, often sterile, tubercled. Sheaths spreading, topped with long, membranous lobes. Floral bracts long-acuminate, recurved, ovaries often smutted. Oct.–Nov. Variable, but mostly stony clay slopes, NW, SW, AP, KM, LB, SE (S Namaqualand and Bokkeveld Mtns to Port Elizabeth). **gce**

cederbergensis H.P.Linder Dioecious, tangled perennial to 60 cm tall, culms sparsely branched, sheaths spreading. Male inflorescence with 6–12 spikelets, female with 1–5, 5–11 mm long spikelets; bracts acuminate, awn less than half as long as bract, spreading. Styles 2, basally fused. Apr. Stony mountain slopes, NW (S and central Cedarberg).•

elsieae H.P.Linder Dioecious, tufted perennial to 45 cm tall, culms simple. Sheaths spreading. Male spikelets densely clustered. Female spikelet solitary, bracts acuminate, awn-like apices as long as body and spreading. Styles 2, basally fused. Summit ridges above 1 600 m, NW (Hex River Mtns).•

fraternus Kunth (= *Ischyrolepis fraterna* (Kunth) H.P.Linder) Similar to **R. ocreatus**, differs by its sprawling habit and the smaller female spikelets 6–18 mm long. Among rocks on mountain summits and ridges in fire-refuge habitats, SW (Du Toitskloof to Sir Lowry's Pass).•

fuscidulus Pillans (= *Ischyrolepis fuscidula* (Pillans) H.P.Linder) Dioecious, rhizomatous or tufted perennial to 50 cm, culms simple or sparsely branched. Sheaths spreading. Female spikelets subglobose, 11–25 mm long. Mar.–Apr. Dry rocky slopes, NW (Worcester: Audensberg).•

gaudichaudianus Kunth (= *Ischyrolepis gaudichaudiana* (Kunth) H.P.Linder) Dioecious, stoloniferous, tangled or tufted perennial to 1.2 m, culms branched, obscurely tubercled, sheaths spreading, often golden-speckled, floral bracts obtuse to acute. Mar.–Apr. Dry rocky slopes to 1 200 m, NW, SW, AP, KM, LB (Namaqualand to Uniondale). **gce**

longiaristatus (H.P.Linder) H.P.Linder& C.R.Hardy (= *Ischyrolepis longiaristata* Pillans ex H.P.Linder) Dioecious, tufted perennial to 50 cm, sheaths loosely convolute, broadly membranous, culms branched, tubercled. Spikelets several flowered. Oct. Rocky sandstone slopes, often along streams, NW (Bokkeveld Mtns to Gifberg).•

ocreatus Kunth (= *Ischyrolepis ocreata* (Kunth) H.P.Linder) Dioecious, tufted perennial to 1 m, culms branched, sheaths spreading. Female spikelets 1–7 cm long, male spikelets densely clustered, floral bracts long-acuminate, recurved. Nov.–Feb. Dry rocky slopes, NW, SW, KM (Namaqualand to Jonkershoek and Swartberg). **gce**

subverticellatus (Steud) Mast. (= *Ischyrolepis subverticillata* Steud.) TUINRIET Dioecious, tufted perennial to 2.4 m, branches numerous, verticillate, mostly fertile. Floral bracts obtuse to acute. Mar.–Apr. Stream banks and riverine bush, SW (Bain's Kloof to Riviersonderend).•

A.' Sheaths closely rolled around culm
B. Usually with a woolly scale exserted at nodes (need to search whole plant)

aridus Pillans (= *Ischyrolepis arida* (Pillans) H.P.Linder) Dioecious, untidy, tufted perennial to 50 cm, culms finely tuberculate, branched, sheaths often with an exserted woolly bract. Stony slopes, NW, KM (Bokkeveld Mtns and Hex River Mtns to Witteberg).•

coactilis Mast. (= *Ischyrolepis coactilis* (Mast.) H.P.Linder) Dioecious, tufted perennial to 50 cm, culms branched, leaf sheaths with a woolly bract. Oct. Seasonal seeps on mid-altitude plateaus, SW (Tulbagh to Wellington).•

distractus Mast. (= *Ischyrolepis distracta* (Mast.) H.P.Linder) Dioecious, stoloniferous, tangled perennial to 40 cm, culms branched and curly, finely and densely tuberculate, sheaths with exserted woolly bract. Oct.–Dec. High, rocky slopes and plateaus, NW, KM, LB, SE (Cedarberg to Willowmore, Karoo and E Cape).

gossypinus Mast. (= *Ischyrolepis gossypina* (Mast.) H.P.Linder) Dioecious, stoloniferous or tufted perennial to 50 cm, culms slender, branched, with woolly bracts in sheath axes. Style base conspicuously villous. Sept.–Dec. Seeps and moist slopes, NW, SW, KM (Namaqualand and W Karoo to Hottentots Holland Mtns and Swartberg). **gce**

helenae Mast. (= *Ischyrolepis helenae* (Mast.) H.P.Linder) Dioecious, stoloniferous, mat-forming perennial to 80 cm, culms branched, sparsely punctate, sheaths obtuse. Spikelets subulate to cylindrical, acute. Feb.–Apr. Streams and lower slopes, NW, SW, LB, KM, SE (Cold Bokkeveld to Riviersonderend Mtns and E Cape to KwaZulu-Natal).

laniger Kunth (= *Ischyrolepis laniger* (Kunth) H.P.Linder) Dioecious, stoloniferous perennial to 40 cm, culms branched, often flexuose, smooth, leaf axils with woolly scales. Sept.–Dec. Rocky sandstone slopes, sometimes seasonally wet, mostly above 1 200 m, NW, SW, KM (Gifberg to Swartberg).•

unispicatus (H.P.Linder) H.P.Linder & C.R.Hardy (= *Ischyrolepis unispicata* H.P.Linder) Dioecious, stoloniferous mat-forming perennial to 40 cm, culms branched, bluish, densely and finely tubercled. Female spikelets solitary. Oct.–Jan. Seasonally dry, sandy (suurvlaktes) plateaus, NW, SW, KM (Cedarberg to Swartberg).•

venustulus Kunth (= *Ischyrolepis sieberi* var. *venustulus* Kunth) Dioecious, tufted-tangled plants to 1.5 m tall, culms branching, smooth, with prominent woolly scales. Female spikelets spindle-shaped, 6–20 mm long. Dec. Among rocks near mountain summits, above 1 200 m, NW, SW (Cedarberg to Piketberg and Du Toitskloof).•

B.' Never with woolly scale exserted at nodes (need to search whole plant)
C. Sheaths (excluding membranous lobes) truncate;
generally also with 1 or 2 flowers in female spikelet

curviramis Kunth (= *Ischyrolepis curviramis* (Kunth) H.P.Linder) Dioecious, tangled, stoloniferous, often mat-forming perennial to 40 cm, leaf sheaths with coriaceous section truncate. Culms

flexuose, smooth or rough. Aug.–Oct. Sandy flats and rocky ledges, usually seasonally damp, NW, SW, LB, SE (Cedarberg to George).•

duthieae Pillans (= *Ischyrolepis duthieae* (Pillans) H.P.Linder) Dioecious, tufted perennial 40 cm, culms branched, finely tuberculate. Sheaths with tall membranous shoulders. Many female spikelets along culm. Aug.–Oct. Seasonally damp flats, often on granitic soils, SW (Malmesbury and Worcester to Cape Flats).•

eleocharis Nees ex Mast. (= *Ischyrolepis eleocharis* (Nees ex Mast.) H.P.Linder) Dioecious, mat-forming, rhizomatous perennial to 40 cm, culms much branched, widely spaced on rhizome. Spikelets solitary, terminal. Coastal sands, SW, AP, SE (Cape Peninsula to East London).

leptoclados Mast. (= *Ischyrolepis leptoclados* (Mast.) H.P.Linder) Dioecious, tufted perennial to 50 cm, culms erect, with numerous verticillate branches. Spikelets solitary, terminal. Mar., July–Aug. Coastal sands and limestones, SW, AP, SE (Betty's Bay to Humansdorp).•

macer Kunth (= *Ischyrolepis macer* (Kunth) H.P.Linder) Dioecious, tufted perennial to 40 cm, culms branched, smooth or tubercled. Sheaths truncate, Sheaths with tall membranous shoulders. Male spikelets large, curved, female spikelets with up to 15 flowers, 5.5–20 mm long. Aug.–Nov. Sandy flats and plateaus, often seasonally damp, NW, SW, LB (southern Namaqualand and Bokkeveld Mtns to Bredasdorp and Swellendam). **gce**

monanthos Mast. (= *Ischyrolepis monanthos* (Mast.) H.P.Linder) Dioecious, tufted perennial to 70 cm, culms branched. Spikelets mostly single flowered, long stylar peg. Aug.–Oct. Sandy flats and plateaus, NW, SW (Kamiesberg to Bredasdorp Mtns). **gce**

nanus (Esterh.) H.P.Linder & C.R.Hardy (= *Ischyrolepis nana* Esterh.) Dioecious, stoloniferous perennial to 35 cm, forming small cushions, culms branched, subflexuose, smooth or warty. Sept.–Nov. Sandy plateaus above 1 200 m, often seasonally wet, NW, SW (Cedarberg to Goudini).•

papillosus (Esterh.) H.P.Linder & C.R.Hardy (= *Ischyrolepis papillosa* Esterh.). Dioecious, stoloniferous perennial to 35 cm, culms branched and flexuose, often swollen at base, reddish. Sept.–Oct. Seasonally wet flats and lower slopes, SW, AP, SE (Malmesbury to Elim, and Langkloof).•

pratensis (Esterh.) H.P.Linder & C.R.Hardy (= *Ischyrolepis pratensis* Esterh.) Dioecious, stoloniferous perennial to 25 cm, culms branched, warty. Sheaths with tall membranous shoulders. Male spikelets 10–15 mm long. Sept.–Oct. Seasonally wet, loamy sands, NW, SW (Wolseley to Cape Peninsula).•

rottboellioides Kunth (= *Ischyrolepis rottboellioides* (Kunth) H.P.Linder) Dioecious, tufted perennial to 45 cm, culms branched, finely tuberculate. Female spikelets closely rolled around culm. Aug.–Sept. Seasonally damp sands and loams, NW (Namaqualand to Piketberg). **gce**

sabulosus Pillans (= *Ischyrolepis sabulosa* (Pillans) H.P.Linder) Dioecious, rhizomatous perennial to 35 cm, culms branched. Sheaths with tall membranous shoulders. Dec. Seasonally wet, coastal flats, SW, AP (Cape Flats to Bredasdorp).•

saxatilis (Esterh.) H.P.Linder & C.R.Hardy (= *Ischyrolepis saxatilis* Esterh.) Dioecious, much-branched, tufted perennial to 30 cm, forming small tangled cushions. Culms flexuose. Sheaths with tall membranous shoulders. Nov.–Feb. Rocky slopes and seeps, SW (Hottentots Holland Mtns).•

sporadicus (Esterh.) H.P.Linder & C.R.Hardy (= *Ischyrolepis sporadica* Esterh.) Dioecious, stoloniferous perennial to 25 cm, culms branched, flexuose, finely tuberculate, spreading. Sept.–Oct. Sandy coastal flats, often seasonally wet, SW, AP (Saldanha to Bredasdorp).•

tenuissimus Kunth (= *Ischyrolepis tenuissima* (Kunth) H.P.Linder) Dioecious, tangled, tufted or stoloniferous perennial to 30 cm, culms slender, rough, branched. Spikelets usually solitary, tiny, 2–5 mm long. Nov.– May. Seepages, NW, SW, AP, LB (Piketberg and Cold Bokkeveld to Bredasdorp and Langeberg).•

C.' Sheaths (excluding membranous lobes) truncate, acute, acuminate or awned
D. Female spikelets with 1 or 2 flowers

anomalus H.P.Linder Dioecious, neatly tufted, perennial to 25 cm tall, culms branching, finely warty. Sheaths closely rolled, acute. Sept. Sandy plains on coastal platform below 200 m, AP (Elim, Soetanysberg and Viljoenshof).•

caespitosus (Esterh.) H.P.Linder & C.R.Hardy (= *Ischyrolepis caespitosa* Esterh.) Dioecious, tufted perennial to 20 cm, culms much branched, smooth or tubercled, usually flexuose. Female flowers with 4 tepals and a unilocular ovary. July. Flats and slopes, SW (Kogelberg and Riviersonderend Mtns to Bredasdorp).•

cincinnatus Mast. (= *Ischyrolepis cincinnata* (Mast.) H.P.Linder) Dioecious, rhizomatous or tufted perennial to 40 cm, culms much branched, tubercled, flexuose. Female flowers with 6 tepals, unilocular. May, Oct.–Nov. Sandy flats and rocky ledges, SW (Cape Peninsula to Riviersonderend Mtns).•

femineus (Esterh.) H.P.Linder & C.R.Hardy (= *Ischyrolepis feminea* Esterh.) Dioecious, tufted perennial to 30 cm, culms much branched just below inflorescence. Style solitary. Dec. Marshy flats, SW (Rooiels to Betty's Bay).•

karooicus (Esterh.) H.P.Linder & C.R.Hardy (= *Ischyrolepis karooica* Esterh.) Dioecious, tufted perennial to 30 cm, culms ± erect, branched, prominently tubercled. Stylopodium pilose. Sept.–Oct. Stony upper slopes, NW, KM (Karoopoort to Touws River).•

nubigenus (Esterh.) H.P.Linder & C.R.Hardy (= *Ischyrolepis nubigena* Esterh.) Like **R. sieberi** but forming compact cushions and seeds shiny, culms thicker. Mar. Rocky sandstone slopes above 1 400 m, NW, SW, LB (Grootwinterhoek Mtns to Limietberg and Langeberg).•

paludosus Pillans (= *Ischyrolepis paludosa* (Pillans) H.P.Linder) Dioecious, stoloniferous perennial to 40 cm, culms branched, not flexuose, bases swollen, reddish, sheaths setaceous. Nov.–Dec. Seasonally wet sands, NW, SW (Citrusdal to Bredasdorp).•

parthenocarpos H.P.Linder Dioecious, tufted perennial to 40 cm tall, culms sparsely branched. Female inflorescence with 1–5, 10–15 mm long spikelets. Sept.–Oct., damp colluvial sand, NW (Cold Bokkeveld: Agterwitzenberg Vlakte to the Zuurvlakte).•

rivulus (Esterh.) H.P.Linder & C.R.Hardy (= *Ischyrolepis rivula* Esterh.) Dioecious, tangled, mat-forming, stoloniferous perennial to 40 cm, culms branched. Spikelets usually solitary. Feb. Sandy flats seeps and stream banks, NW (S Cedarberg and Cold Bokkeveld Mtns).•

D.' Female spikelets with 3–20 flowers

affinis (Esterh.) H.P.Linder & C.R.Hardy (= *Ischyrolepis affinis* Esterh.) Dioecious, tufted perennial to 70 cm, culms branched, warty. Floral bracts acuminate. ?. Moist upper slopes, at about 1 000 m, LB (Langeberg: Swellendam).•

constipatus H.P.Linder Dioecious, clumped perennials to 0.5 m tall or low mat-forming plant; culms branching, smooth. Male spikelets aggregated into a tight head, 7–25 mm diam. Female spikelet often solitary, 10–20 mm long, 5–15 flowered. Sept.–Dec. Summit ridges and among summit rocks on mountains above 1 600 m, NW, SW, KM, SE (Cedarberg to Franschhoek to Uniondale).•

curvibracteatus (Esterh.) H.P.Linder & C.R.Hardy (= *Ischyrolepis curvibracteata* Esterh.) Dioecious, tufted perennial to 20 cm, culms simple. Sheaths wrapped tightly around culm. Female spikelets single. Floral bracts acuminate, recurved. Flowering time unknown. Sandstone and shale slopes above 1 200 m, SW (Du Toitskloof to Hottentots Holland Mtns).•

esterhuyseniae Pillans (= *Ischyrolepis esterhuyseniae* (Pillans) H.P.Linder) Dioecious, tufted, often tangled perennial to 50 cm, culms branched, prominently tubercled. Stylopodium glabrous. Sept. Stony slopes, NW, KM (Karoopoort to Touwsriver).•

hystrix Mast. (= *Ischyrolepis hystrix* (Mast.) H.P.Linder) Dioecious, erect-tufted perennial to 1.2 m, culms branched. Floral bracts reddish, long-acuminate, erect. July–Sept. Well-drained sandstone slopes, NW, KM, LB, SE (Ceres to Langkloof).•

luxurians (Pillans) H.P.Linder (= *Ischyrolepis gaudichaudiana var. luxurians* Pillans) Dioecious, untidy tussocks to 1.5 m tall, culms branching and smooth. Sheaths closely rolled. Female spikelets 6–12 mm long, with 4–10 flowers. Mar.–Apr. Bokkeveld shale in renosterveld, SW, KM, LB (inland valleys, Worcester to Uitenhage).•

marlothii Pillans (= *Ischyrolepis marlothii* (Pillans) H.P.Linder) Dioecious, stoloniferous or tufted perennial to 60 cm, culms branched, tubercled. Female spikelets solitary, large, floral bracts acuminate. May–June, Oct. Rocky lower slopes, often seasonally damp, NW, KM (Gifberg to Witteberg).•

pygmaeus Pillans (= *Ischyrolepis pygmaea* (Pillans) H.P.Linder) Dioecious, stoloniferous or tufted perennial to 25 cm, culms branched, warty, sheaths loosely convolute. Bracts acuminate, recurved. Spikelets small. Oct.–Dec. Slopes and plateaus above 1 300 m, NW (Witzenberg and Hex River Mtns).•

setiger Kunth (= *Ischyrolepis setiger* (Kunth) H.P.Linder) Dioecious, tufted perennial to 1.3 m, culms sparsely branched, leaf sheaths closely convolute. Floral bracts long-acuminate, recurved. Sept. Shallow sands over sandstone, NW (N Cedarberg: Brandewyn River).•

sieberi Kunth (= *Ischyrolepis sieberi* (Kunth) H.P.Linder) Dioecious, stoloniferous or tufted, sometimes tangled perennial to 1 m, culms branched, frequently with shorter sterile culms, sheaths always golden-speckled. Dec.–May. Rocky slopes and flats, especially after fire, NW, SW, AP, KM, LB, SE (Namaqualand to E Cape).

triflora Rottb. (= *Ischyrolepis triflora* (Rottb.) H.P.Linder) Dioecious, tufted perennial to 60 cm, culms finely punctate, branched, branches often sterile, young sheaths with membranous shoulders. Spikelets narrowly elliptic, often curved. Jan.–Apr. Mostly shale and silcrete flats, SW, AP, LB, SE (Malmesbury to E Cape).

virgeus Mast. (= *Ischyrolepis virgea* (Mast.) H.P.Linder) Dioecious, stoloniferous or tufted perennial to 50 cm, culms branched. Spikelets densely clustered, floral bracts acuminate, erect. Single to many female spikelets. Nov.–Mar. Stony upper slopes, NW, SW (Cedarberg to Riviersonderend Mtns).•

wallichii Mast. (= *Ischyrolepis wallichii* (Mast.) H.P.Linder) Dioecious, stoloniferous or tufted perennial to 70 cm, culms simple or sparsely branched, finely spotted, sheaths setaceous. Spikelets subulate to cylindrical, acute. Apr.–May. Rock crevices in stream flood lines, NW, SW (Bokkeveld Mtns to Riviersonderend).•

wittebergensis (Esterh.) H.P.Linder & C.R.Hardy (= *Ischyrolepis wittebergensis* Esterh.) Dioecious, tufted perennial to 60 cm, culms usually simple, smooth. Spikelets densely aggregated. Aug.–Sept. Rocky slopes above 1 200 m, NW, KM (Hex River Mtns to Klein Swartberg).•

Subgen. ***Locapsis***

Culms usually branching; sheaths often free-standing; tepals papery, enclosing an indehiscent unilocular ovary; styles three.

adpressus (Esterh.) H.P.Linder & C.R.Hardy (= *Calopsis adpressa* Esterh.) Dioecious, tufted perennial to 50 cm, culms branched, spreading, sheaths loosely convolute, but not flat, awn often recurved. June–Aug. Coastal sands, associated with limestone, SW, AP (Cape Hangklip to Still Bay).•

albotuberculatus H.P.Linder & C.R.Hardy (= *Calopsis burchellii* (Mast.) H.P.Linder) Dioecious, tufted perennial to 45 cm, culms branched, densely white-tuberculate, sheaths loosely convolute. Dec.–June. Mostly on silcrete plateaus, LB, SE (Riversdale to Humansdorp).•

andreaeanus (Pillans) H.P.Linder & C.R.Hardy (= *Calopsis andreaeana* (Pillans) H.P.Linder) Dioecious, tufted perennial to 60 cm, culms branched, sheaths closely convolute. Flowers on spikelets 8–12 mm long. Mar.–May. Sandstone slopes, KM (Rooiberg and Swartberg).•

calcicola H.P.Linder & C.R.Hardy (= *Calopsis fruticosa* (Mast.) H.P.Linder) Dioecious, tufted perennial to 60 cm, culms spreading, branched, sheaths loosely convolute, with awns to 5 mm, ± a third as long as sheath. Female spikelets 5–10 mm long. Apr.–Nov. Mainly coastal limestone, SW, AP (Cape Peninsula to Gouritz River).•

durus (Esterh.) H.P.Linder & C.R.Hardy (= *Calopsis dura* Esterh.) Dioecious, tufted perennial to 60 cm, culms branched, obscurely tubercled or smooth, spreading, sheaths loosely convolute. Female flowers solitary on spikelets. Feb. Sandy plateaus above 1 000 m, NW (S Cedarberg to Cold Bokkeveld).•

muirii (Pillans) H.P.Linder & C.R.Hardy (= *Calopsis muirii* (Pillans) H.P.Linder) Dioecious, loosely tufted perennial to 2 m, culms spreading, branched, sheaths loosely convolute, margins and apices hyaline, awn < one third as long as sheath. Female flowers in crowded spikelets. May–Aug. Lower sandstone slopes, LB (Langeberg: Riversdale).•

ramosissimus H.P.Linder & C.R.Hardy (= *Calopsis gracilis* (Mast.) H.P.Linder) Dioecious, tufted perennial to 60 cm, culms slender, much branched, white-tubercled, sheaths tightly convolute. Female spikelets solitary, to 5 mm long. July–Oct. Well-drained sandstone slopes, SW (Cape Peninsula).•

rigoratus (Mast.) H.P.Linder & C.R.Hardy (= *Calopsis rigorata* (Mast.) H.P.Linder) Dioecious, tufted perennial to 50 cm, culms branched, sheaths erect, spreading, rounded. Aug.–Oct. Seasonally waterlogged flats, often on shales or ferricretes. SW, AP (Malmesbury to Agulhas and upper Breede River Valley).

rudolfii H.P.Linder & C.R.Hardy (= *Calopsis marlothii* (Pillans) H.P.Linder) Dioecious, tufted perennial to 1 m, culms sparsely branched, sheaths free, awns < one third as long as sheath.

Female spikelets well-spaced in compound inflorescences. Apr.–June. Stony slopes, NW, KM, LB (Namaqualand and Cedarberg to Little Karoo Mtns and Langeberg).•

tenuispicatus H.P.Linder & C.R.Hardy (= *Calopsis filiformis* (Mast.) H.P.Linder) Dioecious, tufted perennial to 60 cm, culms branched, sheaths tightly convolute, awn straight. Female spikelets to 5 mm. June–Oct. Sandstone and ferricrete slopes, SW, AP (Sir Lowry's Pass to Agulhas).•

vimineus Rottb.(= *Calopsis viminea* (Rottb.) H.P.Linder) Dioecious, tufted perennial to 1 m, culms spreading, rugulose, branched, sheaths spreading, with awns to 5 mm long. Female flowers several on spikelets. Apr.–Oct. Well-drained slopes and flats. NW, SW, AP, KM, LB, SE (Namaqualand to Port Elizabeth). **gce**

Subgen. ***Pendulostemon***

Ovary dehiscent; styles three; male spikelets pendent; female bracts longitudinally striate.

egregius Hochst. Dioecious, tufted perennial to 2.4 m, culms sparsely branched, smooth. Male spikelets paniculate, pendent, female spikelets solitary 20–40 mm,. Feb.–Mar. Rocky sandstone slopes, SW (Cape Peninsula to Caledon Swartberg and Bredasdorp).•

micans Nees Dioecious, tufted, perennial to 1 m, culms sparsely branched, often compressed below, smooth or finely rugulose. Male spikelets pendent, female spikelets narrow-elliptic, to 20 mm. Female bracts striate. Aug. Seasonally wet sandy flats, SW (Darling to Cape Flats).•

Subgen. ***Restio***

Culms generally branching; sheaths persistent; male spikelets erect; female flowers mostly laterally compressed, villous on keels; ovary often unilocular, sometimes indehiscent.

*A. Tepals glabrous or rarely sparsely villous (**R. arcuatus**, **R. degenerans**, **R. paludicola**, **R. scaberulus**)*

arcuatus Mast. Dioecious, tangled perennial to 50 cm, culms branched, with ultimate branches flexuose, sheaths loosely convolute. Spikelets solitary, 5 mm. Dec.–Feb. Steep, S-facing slopes below 1 200 m, LB (Langeberg: Swellendam to Riversdale).•

clandestinus (Esterh.) H.P.Linder & C.R.Hardy (= *Calopsis clandestina Esterh.*) Dioecious, tangled to tufted perennial to 40 cm, culms branched, densely tuberculate, sheaths with long hyaline apices. Spikelet internodes elongate, perianth glabrous. Nov.–Dec. Marshy coastal slopes, 300–900 m, SW (Kogelberg to Kleinrivier Mtns).•

colliculospermus H.P.Linder Dioecious, tangled perennial to 1 m, culms slender, branched, obscurely rugulose. Spathes shorter than spikelets. Oct. Damp, S-facing, peaty slopes above 1 300 m, SW, LB (Riviersonderend Mtns: Pilaarkop and Langeberg: Swellendam).•

decipiens (N.E.Br.) H.P.Linder Dioecious, stoloniferous perennial to 50 cm, culms much branched, finely warty. Female spikelets solitary, shorter than spathes. Oct.–Nov. Seeps and steep S-facing slopes, LB (Langeberg: Swellendam to Riversdale).•

degenerans Pillans Dioecious, perennial, tangled, to 1 m tall, culms branching, sheaths with a minimal hyaline apex. Female spikelets solitary, spathe shorter than spikelet , bracts not much taller than flowers. Jan.–Mar. Often associated with rocky or scree slopes, SW (Baileys Peak to Somerset Sneeukop). •

distichus Rottb. Dioecious, stoloniferous perennial to 50 cm, culms branched, smooth or finely rugulose. Female spikelets several per branch, bracts cartilaginous, narrowly lanceolate, apices hyaline. Female flowers keeled or winged. Oct.–Dec. Usually on dry, stony slopes, NW, SW, KM, LB (Cedarberg to Cape Peninsula, Swartberg and Langeberg).•

dodii Pillans Dioecious, tufted perennial to 1 m, culms sparsely branched, smooth or finely rugulose, upper half of sheaths and bracts abruptly hyaline. Jan. or Aug. Seasonally to permanently wet, sandy flats, SW, AP (Cape Peninsula and Gansbaai to Arniston).•

festuciformis Nees ex Mast. GROENGRASRIET Dioecious, stoloniferous or neatly tufted perennial to 70 cm, culms sparsely branched, smooth or finely rugulose. Spikelets numerous, lax, bracts narrowly lanceolate, chartaceous, acute. July–Aug. Seasonally damp, sandy or loamy flats, SW (Hottentots Holland to Elim).•

fragilis Esterh. Dioecious, stoloniferous, tangled perennial to 40 cm, culms slender, rugulose, branched. Sept.–Oct. Seeps and damp S-facing slopes above 900 m, LB (Langeberg: Swellendam).•

harveyi Mast. Dioecious, tufted to mat-forming, stoloniferous perennial to 15 cm, culms slender, much branched, tuberculate. Mar.–Apr. Well-drained clay and gravel flats, SW, AP (Cape Peninsula to Agulhas).•

hyalinus (Mast.) H.P.Linder & C.R.Hardy (= *Calopsis hyalina* (Mast.) H.P.Linder) Dioecious, tufted, rhizomatous perennial to 50 cm, culms branched, with white tubercles, spathes with hyaline apices. Flowers 2 or 3 on distichously branched spikelets 6–8 mm long, styles 3. Aug.–Nov. Well-drained sands on flats, SW, LB, AP (Sir Lowry's Pass to Agulhas).•

implicatus Esterh. Dioecious, tangled perennial to 60 cm, culms slender, rugulose, sheaths loosely convolute. Spikelets solitary or paired. Flowers glabrous. Dec. Damp slopes above 1 400 m, LB (Langeberg: Swellendam).•

impolitus Kunth (= *Calopsis impolita* (Kunth) H.P.Linder) Dioecious, tufted perennial to 60 cm, culms branched, with white tubercles. Flowers 2 or 3 on distichously branched spikelets 10–15 mm long. May–July. Acid sand flats, NW, SW (Hopefield, Gouda to Cape Peninsula).•

nudiflorus (Pillans) H.P.Linder & C.R.Hardy (= *Calopsis nudiflora* (Pillans) H.P.Linder) Dioecious, tufted perennial to 20 cm, culms branched and tangled, roughly tubercled. Flowers exceeding bracts, sepals obtuse. Sept.–Dec. Damp ledges and seepages, SW (Jonkershoek to Kogelberg and Hermanus).•

paludicola H.P.Linder Dioecious, tangled perennial, culms branched, warty, to 0.8 m long. Female spikelets 2–10, 9–14 mm long usually single-flowered. Ovary unilocular, dehiscent. Mar.–Apr. Marshes, SW (Kleinrivier Mtns: above Hermanus).•

pumilus Esterh. Dioecious, tufted perennial to 20 cm, culms branched, roughly warty, sheaths loosely convolute with wide hyaline margins. Sept. S-facing rocky ledges, SW (Hottentots Holland to Riviersonderend Mtns).•

scaberulus N.E.Br. (incl. **R. fourcadei** Pillans) Dioecious, tufted perennial to 2 m, culms roughly and densely tuberculate, subverticillately branched. Spikelets solitary or paired. Moist S-facing slopes and riverine forests. Apr.–May. LB, SE (Swellendam to Humansdorp).•

secundus (Pillans) H.P.Linder Dioecious, stoloniferous perennial to 50 cm, culms branched, smooth or tuberculate. Spikelets several, obscured by spathes with wide hyaline apices. Feb.–Mar. S-facing peaty slopes and seeps, LB (Langeberg: Swellendam to Riversdale).•

singularis Esterh. Dioecious, stoloniferous, tangled perennial to 50 cm, culms branched, densely tuberculate, sheaths loosely convolute, with large hyaline shoulders. Mar. Rocky slopes and ledges above 1 700 m, usually S-facing, SW (Wemmershoek and Du Toitskloof Mtns).•

stokoei Pillans Dioecious, tufted perennial to 1 m, culms branched, tubercled. Spikelets racemose. Mar.–Apr. Rocky sandstone slopes above 600 m, usually S-facing, SW, LB (Hottentots Holland Mtns to Langeberg: Swellendam).•

verrucosus Esterh. Dioecious, tufted, tangled perennial to 40 cm, culms slender, much branched, roughly and unevenly tuberculate. Aug. Seeps on shale bands at 400 to 600 m, SW (Houwhoek Mtns).•

versatilis H.P.Linder Dioecious, tangled, tufted or stoloniferous perennial to 30 cm, culms much branched, obscurely tubercled. Spikelets 1 to several, female flowers tightly wrapped, cylindrical. Sept.–Nov. Sandy flats and slopes, SW (Villiersdorp to Kleinmond).•

zwartbergensis Pillans Dioecious, stoloniferous, tangled perennial to 30 cm, culms much branched, with flat-topped tubercles, sheaths loosely convolute. Aug.–Oct. Sparse, gravelly slopes up to 1 000 m, SW (Jonkershoek and Du Toitskloof to Riviersonderend Mtns).•

*A.' Lateral tepals hairy on keels, or rarely glabrous(**R. arcuatus**, **R. degenerans**, **R. paludicola**, **R. scaberulus**)*

alticola Pillans Dioecious, untidy tufted perennial to 60 cm, culms much branched, smooth, sheaths free. Spikelets solitary. Feb. Rocky slopes and ledges above 1 500 m, SW (Bain's Kloof to Paarl).•

asperus (Mast.) H.P.Linder & C.R.Hardy (= *Calopsis aspera* (Mast.) H.P.Linder) Dioecious, tufted perennial to 50 cm, culms branched, coarsely tubercled, spathes with wide hyaline apices. Inflorescence paniculate. Flowers in spikelets 6–8 mm long. Nov.–Jan. Well-drained sandy slopes below 500 m, SW (Gordon's Bay to Kleinmond, Shaw's Mtns).•

communis Pillans Dioecious, tufted perennial to 70 cm, culms branched, conspicuously tuberculate, sheaths with prominent awns. Female spikelets solitary or paired, bracts and spathes membranous to chartaceous, often speckled. Apr.–May. Sandy plateaus, SW (Cape Peninsula: Constantiaberg to Elsie's Peak).•

corneolus Esterh. Dioecious, tufted perennial to 90 cm, culms sparsely branched, quite straight, smooth or obscurely rugulose. Spikelets 1 to several. Floral bracts concolorous, chartaceous, awned. Apr.–May. Slopes above 300 m, sometimes in seeps, SW (Franschhoek Mtns to Betty's Bay).•

dispar Mast. Dioecious, tufted or stoloniferous, erect perennial to 1.7 m, culms branched, smooth. Spikelets 20–50 mm, spathes reddish with yellow speckling, exceeding spikelets. Mar.–Apr. Usually along streams, usually below 800 m, SW (Cape Peninsula and Worcester to Caledon).•

ejuncidus Mast. Dioecious, stoloniferous perennial to 50 cm, culms often tangled, branched, with white tubercles. Spikelets with long acute chartaceous bracts. Mar.–May. Rocky, often damp areas, NW, SW, LB (Porterville Mtns to Langeberg: Swellendam).•

inconspicuus Esterh. Dioecious, stoloniferous perennial to 1 m, culms spreading, smooth, branched. Spikelets 4–8, imbricate. Mar.–Apr. Peaty, upper, S-facing slopes, LB, SE (Swellendam to George).•

ingens Esterh. Dioecious, tufted or stoloniferous perennial to 1 m, culms often much branched towards apex, roughly tuberculate. Spikelets solitary, bracts and spathes chartaceous. Dec.–Jan. Sandstone slopes above 1 200 m, SW (Riviersonderend Mtns).•

leptostachyus Kunth Dioecious, tangled, often pendulous stoloniferous perennial to 70 cm, culms branched. Female spikelets solitary, bracts chartaceous, acute, setaceous. Feb.–May. Seepages and S-facing rock ledges, SW (Paarl to Hottentots Holland and Riviersonderend Mtns).•

montanus Esterh. Dioecious, tufted to sprawling perennial to 60 cm, culms much branched towards apices, tangled, basally roughly tubercled, sheaths loosely convolute, hyaline above. Sept. Damp cliffs at 1 500 m, SW (Slanghoek Mtns).•

multiflorus Spreng. Dioecious, tufted or stoloniferous perennial to 1 m, culms sparsely branched, smooth to rough. Flowers slightly longer than bracts. Ciliate bract margins. July–Aug. Cooler, usually loamy slopes, NW, SW (Piketberg to Bredasdorp).•

parvispiculus H.P.Linder & C.R.Hardy (= *Calopsis membranacea* (Pillans) H.P.Linder) Dioecious, rhizomatous perennial to 30 cm, with culms branched, spreading through the vegetation, spathes membranous above. Flowers exceeding bracts, sepals acute. Apr.–June. Stony slopes, NW, SW (Tulbagh and Cape Peninsula to Garcia's Pass).•

peculiaris Esterh. Dioecious, tufted perennial to 45 cm, culms branched, stout, densely tuberculate, bracts and sheaths with wide hyaline margins. Jan. Rocky summits, LB (Langeberg: Swellendam).•

pillansii H.P.Linder Dioecious, tufted perennials to 50 cm tall, culms branching, smooth to finely warty, sheaths without membranous apical margins. Female spikelets partially enclosed in spathes. Feb.–Mar. Rocky slopes or slopes near rock, SW (Villiersdorp to Pilaarkop and Maanschynkop).•

pulcher (Esterh.) H.P.Linder & C.R.Hardy (= *Calopsis pulchra* Esterh.) Dioecious, untidy, tufted perennial to 50 cm, culms sparsely branched, densely tuberculate. Spikelet internodes much elongated, perianth villous. Sept. Shale and sandstone flats, SW, AP (Pearly Beach to Elim and Agulhas).•

purpurascens Nees ex Mast. (incl. **R. involutus** Pillans) Dioecious, tufted or stoloniferous, erect perennial to 1.8 m, culms branched, coarsely papillate, somewhat compressed. Ovary bilocular. Spikelets 15–25 mm, bracts purplish. Mar.–Apr. Damp upper slopes, often in seeps, SW (Wellington to Cape Peninsula and Caledon).•

rarus Esterh. Dioecious, tufted perennial to 40 cm, culms branched, finely tuberculate-rugulose. Spikelets solitary. Ovary bilocular. Feb.–Mar. Rocky sandstone slopes above 1 300 m, often damp, KM (Klein Swartberg: Towerkop).•

saroclados Mast. Dioecious, tufted perennial to 50 cm, culms smooth or finely rugulose, branched, sheaths with awns 5–10 mm. Floral bracts narrowly lanceolate, chartaceous, concolorous, acute. Mar.–Apr. Seepage areas, SW (Cape Peninsula and Jonkershoek to Kleinrivier Mtns).•

scaber Mast. Dioecious, stoloniferous perennial to 40 cm, culms sparsely branched, roughly tubercled, tangled. Spikelets solitary. Apr. Seepage areas along streams at 500 to 800 m, SW (Caledon Swartberg).•

sejunctus Mast. Dioecious, stoloniferous perennial to 60 cm, culms much branched, smooth or warty. Flowers and bracts equal. Apr.–June. Rocky slopes above 600 m, SW, KM, LB, SE (Worcester to KwaZulu-Natal and Karoo).

strictus N.E.Br. Dioecious, rhizomatous perennial to 50 cm, culms sparsely branched, smooth, sheaths membranous in upper half. Spikelets 1–3, to 15 mm. Sept. Upper sandstone slopes, SW, LB, SE (Elgin and Riviersonderend Mtns to George).•

triticeus Rottb. Dioecious, tufted or stoloniferous perennial to 50 cm, culms often with sterile branches below, white-tubercled. Female spikelets usually with a slight curvature. Feb.–Apr. Stony, well-drained soils, SW, KM, LB, SE (Malmesbury to E Cape).

tuberculatus Pillans Dioecious, tufted perennial to 50 cm, culms stout, erect to decumbent, much-branched above, roughly tuberculate. Female spikelets exceeding bracts. July–Sept. Rocky sandstone slopes and ledges above 700 m, NW (Matsikamma Mtns to central Cedarberg).•

vallis-simius H.P.Linder Dioecious, tufted perennial to 1 m, culms branched. smooth. Flowers with cartilaginous bracts without hyaline margins, symmetrical. May. Upper rocky, S-slopes, SE (Baviaanskloof Mtns).•

villosus H.P.Linder & C.R.Hardy (= *Calopsis sparsa* Esterh.) Dioecious, tufted perennial to 50 cm, culms branched, rugose, spathes with wide hyaline apices. Flowers in spikelets 10–15 mm long; female tepals densely villous in lower half. Nov. Rocky sandstone slopes, SW (Kogelberg).•

Subgen. ***Simplicaulis***

Culms mostly simple; ovary dehiscent; styles three.

bifarius Mast. Dioecious, tufted perennial to 1 m, culms sparsely branched. Male spikelets numerous, pendulous. Female spikelets oblong, solitary or paired, bracts 10–20 mm long, flat, reddish, margins undulate. Apr.–May. Stony slopes, SW (Jonkershoek and Hottentots Holland Mtns).•

bifidus Thunb. (incl. **R. exilis** Mast.)MDioecious, tufted perennial to 70 cm, culms sparsely branched. Female spikelets oblong, bracts flat, brown, concolorous, to 10 mm. Mar.–Apr. Seepage areas, SW, AP (Cape Peninsula to Riviersonderend and Elim).•

confusus Pillans Dioecious, tufted perennial to 1 m, culms simple, sheath mucro ± half sheath length. Spikelets button-like, 2–8 per branch. Oct.–Dec. Marshes above 1 000 m, NW, SW (Cedarberg to Hex River Mtns and Du Toitskloof).•

distylis H.P.Linder & C.R.Hardy (= *Calopsis esterhuyseniae* (Pillans) H.P.Linder) Dioecious, shortly rhizomatous perennial to 40 cm, culms simple, with flat-topped tubercles, sheaths closely convolute. Spikelets 5–8 mm long, button- to spindle-shaped, styles 2. Sept.–Nov. Shale, granite, or sandstone slopes above 900 m, NW, SW, KM, (Cold Bokkeveld to Stellenbosch, and Little Karoo).•

echinatus Kunth Dioecious, tufted perennial to 50 cm, culms scarcely branched, smooth or finely warty. Floral bracts acuminate, reflexed. July–Sept. Seepage areas above 900 m, NW, SW (Bain's Kloof to Sir Lowry's Pass).•

miser Kunth Dioecious, tufted perennial to 50 cm, culms slender, simple. Spikelets button-like, several, racemose. Apr.–May. Perennially wet seeps above 800 m, SW (Bain's Kloof to Franschhoek Mtns).•

monostylis (Pillans) H.P.Linder & C.R.Hardy (= *Calopsis monostylis* (Pillans) H.P.Linder) Dioecious, tufted perennial to 40 cm, culms simple, coarsely tubercled, sheaths closely convolute. Female spikelets to 8 mm long, button-like, style solitary. Feb. Seeps above 900 m, LB (Langeberg: Misty Point to Garcia's Pass).•

nuwebergensis Esterh. Dioecious, tufted perennial to 45 cm, culms simple, smooth or finely warty. Female spikelets oblong, 10–20 mm diam., with numerous recurved bracts. Apr.–May. Rocky slopes at 800–1 000 m, SW (Hottentots Holland Mtns).•

papyraceus Pillans Dioecious, stoloniferous perennial to 80 cm, culms simple, sheaths with apices decaying, loosely convolute. Spikelets globose, 15–20 mm. Mar. Rocky slopes above 1 600 m, usually S-facing ledges, KM (Klein Swartberg).•

pedicellatus Mast. Dioecious, tufted or stoloniferous perennial to 40 cm, generally forming dense tufts, culms simple, slender, bases thickened. Spikelets oblong, often black. Aug.–Oct. Sandy slopes and flats above 300 m, often seasonally wet, NW, SW (Bokkeveld Mtns to Kogelberg).•

stereocaulis Mast. Dioecious, tufted perennial to 40 cm, culms compressed, often tangled, simple or sparsely branched, sheath with awns to 5 mm. Spikelets button-like. Sept. Marshy areas and damp ledges, usually above 600 m, NW, SW (Bain's Kloof to Franschhoek Mtns, and Ceres Mtns).•

subtilis Nees ex Mast. Dioecious, tangled, tufted perennial to 50 cm, culms simple, rarely branched, basal sheaths chartaceous. Spikelets several, button-like, to 4 mm. Oct. Marshes seeps and streamsides above 300 m, SW (Hottentots Holland Mtns).•

uniflorus H.P.Linder Dioecious, tufted perennial with simple culms, a widely open inflorescence, persistent sheaths, and single-flowered spikelets. Sept.? Marshes, 1 400 m, KM (Great Swartberg).•

Subgen. ***Varirestio***

Female inflorescences with < 5 spikelets; sheaths often with mucro as long as sheath blade; ovary dehiscent, with 3 free styles, 1 or 3 locular.

debilis Nees Dioecious, spreading, tufted perennial to 60 cm, culms branched, sheaths with awns to 4 mm. Mar.–May. Sandy slopes and slightly damp areas, NW, SW (Ceres to Hottentots Holland Mtns and Riviersonderend Mtns).•

distans Pillans Dioecious, stoloniferous perennial to 30 cm, culms smooth or finely rugulose, much branched, spikelets 4–8, to 5 mm long. Nov.–Dec. Slopes and ledges above 900 m, SW (Jonkershoek to Hottentots Holland Mtns).•

quinquefarius Nees Dioecious, tufted perennial to 80 cm, culms branched. Sheaths with long awns. Female spikelets solitary, 10–20 mm, bracts ± 5 mm. Aug. Sandy coastal flats, NW, SW (Lambert's Bay to Cape Peninsula).•

similis Pillans Dioecious, tufted perennial to 60 cm, culms slender, simple or sparsely branched, sheaths with awns to 5 mm. Spikelets solitary or paired. Mar. Well-drained slopes up to 1 500 m, NW, SW, AP (Ceres to Agulhas).•

RHODOCOMA Nees 8 spp., W Cape to KwaZulu-Natal

Plants with tightly rolled sheaths, decaying apically; male spikelets slender, drooping; female spikelets stiffly erect, tepals bony, all the same, glabrous; ovary dehiscent.

alpina H.P.Linder & Vlok Dioecious, rhizomatous perennial to 50 cm, rhizomes elongate, culms simple, smooth or finely rugose. Flowers with spikelets obscured by large papery spathes. Jan.–Feb. Rocky sandstone slopes above 1 600 m, KM (Swartberg).•

arida H.P.Linder & Vlok Dioecious, tufted perennial to 2 m, culms simple, without basal sterile branches. May–July. Sandstone and quartz outcrops, KM (Little Karoo).•

capensis Nees ex Steud. Dioecious, tufted perennial to 2 m, culms smooth, with numerous whorled branches, the upper terminating in spikelets. Oct.–Nov. Seasonally damp sites or rocky outcrops, NW, KM, SE (Cedarberg to Grahamstown).

foliosa (N.E. Br.) H.P.Linder Dioecious, rhizomatous perennial to 2 m, culms simple, with basal sterile branches. Female flowers < 5mm long. Sept.–Oct. Well-drained slopes, often on S-slopes and shale bands, LB (Langeberg: Swellendam to Riversdale).•

fruticosa (Thunb.) H.P.Linder Dioecious, rhizomatous perennial to 80 cm, culms simple, smooth. Male flowers in drooping, paniculate spikelets. Apr.–July. Drier rocky slopes, NW, SW, AP, KM, LB, SE (Cape Peninsula to KwaZulu-Natal).

gigantea (Kunth) H.P.Linder Dioecious, tufted perennial with fertile culms to 3 m. Male spikelets paniculate, pendent. Old culms with dense, whorled sterile branches. June–July. Moist coastal slopes, LB, SE (Langeberg to Tsitsikamma Mtns).•

gracilis H.P.Linder & Vlok Dioecious, tufted perennial to 70 cm, slender culms usually simple, up to 1 mm diam. at apex. Mar.–July. Shallow sand over bedrock, often seasonally damp, LB, KM, SE (Robinson Pass to Kammanassie Mtns).•

vleibergensis H.P.Linder Dioecious, tufted or rhizomatous perennial to 1.5 m, culms simple, smooth. Male spikelets paniculate, pendent. Sept. Dry, rocky slopes above 1 000 m, NW, KM (Bokkeveld Sneeukop to Bonteberg).•

SOROVETA H.P.Linder & C.R.Hardy• 1 sp., W Cape

ambigua (Mast.) H.P.Linder & C.R.Hardy (= *Restio ambiguus* Mast.) Dioecious, tufted or possibly rhizomatous, clumped perennial to 60 cm, culms branched and often tangled, sheaths and spathes red-brown and pock marked, acuminate. Female flowers with recurved sepals. Ovary stipitate. Oct.–Dec. Seeps and shale bands, SW (Cape Peninsula to Riviersonderend and Kleinrivier Mtns).•

STABEROHA Kunth• 9 spp., W Cape

Tufted plants with simple culms and persistent sheaths; male spikelets ball-like, pendulous; female inflorescence with 1 to several erect spikelets; bracts much taller than flowers; styles white to transparent, laterally flattened; fruit a soft-walled nutlet dispersed with persistent perianth.

aemula (Kunth) Pillans Dioecious, tufted perennial to 60 cm. Culms simple, smooth or finely rugulose. Female flowers winged, tepals obtuse, male spikelets globose. All months except July–Aug. Sandy plateaus above 900 m, NW, SW, KM (Cedarberg to Prince Albert).•

banksii Pillans Dioecious, tufted perennial to 1 m, culms simple. Female spikelets 2.5–5 cm long, bracts 1.2–1.5 cm long. Mar.–Apr. Sandstone slopes and flats usually below 800 m, NW, SW, AP (Worcester and Cape Peninsula to Bredasdorp).•

cernua (L.f.) T.Durand & Schinz Dioecious, tufted perennial to 60 cm, culms simple. Female flowers with finely lacerate wings, male spikelets numerous, 5–7 mm wide. Aug.–Mar. Sandstone slopes, usually well drained, NW, SW, KM, LB (Cedarberg and Sandveld to Cape Peninsula and Swartberg).•

distachyos (Rottb.) Kunth Dioecious, rhizomatous perennial to 75 cm, culms simple. Female spikelets solitary, ± half as wide as long, bracts large, 11–16 mm long. Jan.–Dec. Well-drained sandy flats and plateaus, NW, SW, AP, LB, SE (Bokkeveld Mtns to Cape Peninsula and Mossel Bay).•

multispicula Pillans Dioecious, tufted perennial to 50 cm, culms simple. Female spikelets several. Apr.–Sept. Sandy flats, AP (Gansbaai to Potberg).•

ornata Esterh. Dioecious, tufted perennial to 40 cm, culms simple. Inflorescence spathes reddish. Lateral sepals lobed. Aug.–Oct. Seasonally damp, sandy, mountain plateaus, NW (Cedarberg to Hex River Mtns).•

remota Pillans Dioecious, tufted perennial to 50 cm, culms simple, sheaths dark. Female spikelets compact, solitary, obtuse, female flowers with keeled lateral sepals. Oct.–Nov. Seasonally damp rocky slopes above 1 500 m, NW, SW (Hex River Mtns and Bain's Kloof to Jonkershoek Mtns).•

stokoei Pillans Dioecious, tufted perennial to 25 cm, culms simple. Female spikelet solitary, male spikelets erect. Apr. S-facing ledges above 1 800 m, KM (Swartberg: Prince Albert to Meiringspoort).•

vaginata (Thunb.) Pillans Dioecious, tufted perennial to 65 cm, culms usually simple. Female spikelets several, slender. Female flowers with keeled lateral sepals, bracts 0.6–1 cm long. Perianth shorter than fruit. Mar.–Apr., Oct. Rocky slopes, NW, SW, KM (Cedarberg to Cape Peninsula and Swartberg).•

THAMNOCHORTUS P.J.Bergius ± 31 spp., Namaqualand to KwaZulu-Natal

Culms rarely branching, sheaths tightly rolled on culms but with upper half soon decaying; male spikelets lorate, pendulous; female spikelets stiffly erect; bracts much taller than the flowers; female perianth persistent around soft-walled nut, lateral tepals keeled to widely winged.

A. Culms velvety pubescent

acuminatus Pillans Dioecious, tufted perennial to 50 cm, culms obscurely velvety pubescent, sheaths often subimbricate and obscuring the culms, spathes hyaline with reddish keels. Oct. Dry sandstone slopes above 1 300 m, NW, KM (Cedarberg to Worcester and Laingsburg).•

cinereus H.P.Linder SILWERRIET Dioecious, tufted perennial to 80 cm, fertile culms simple, with long and soft sterile branches clustered at nodes. May–Sept. Usually on S-facing slopes, NW, SW, KM, LB, SE (Hex River and Riviersonderend Mtns to Humansdorp).•

fruticosus P.J.Bergius Dioecious, rhizomatous perennial, often widely spreading, to 60 cm, often with tufts of sterile branches on the simple culms, velvety pubescent. July–Nov. Usually on stony slopes below 1 300 m, NW, SW, AP, KM, SE (S Cedarberg to KwaZulu-Natal).

rigidus Esterh. Dioecious, tufted perennial to 1 m, fertile culms velvety, usually with stout and firm sterile branches clustered at nodes. July–Nov. Dry sandstone slopes, NW, KM, SE (S Cedarberg to Baviaanskloof Mtns).•

A.' Culms glabrous
B. Fruits shorter than to as long as wide

amoena H.P.Linder Dioecious, tufted perennial to 1 m, culms smooth, with dense clusters of sterile branches at nodes, sheaths tattered. Female spikelets 3 or 4, 40–60 mm long, bracts membranous, silvery. June. Rocky N-facing slopes, LB (Langeberg).•

arenarius Esterh. Dioecious, rhizomatous perennial to 80 cm, culms simple, sterile shoots much branched. Nutlet smooth. May–June. Sandy slopes below 600 m, SW (Cape Peninsula to Hermanus and Franschhoek Pass).•

bachmannii Mast. STEENBOKSRIET Dioecious, tufted perennial to 1.2 m, culms simple, often obscurely grooved and finely rugulose. Female spikelets to 10 mm. June–Sept. Deep sandy flats, NW, SW (Hondeklip Bay to Malmesbury and Worcester). **gce**

erectus (Thunb.) Mast. WYFIERIET Dioecious, rhizomatous perennial to 1.5 m, culms simple. Spikelets subglobose, to 10 mm. July–Oct. Well-drained sand flats, SW, AP, LB, SE (Malmesbury to Knysna).•

gracilis Mast. Dioecious, tufted perennial to 30 cm, fertile culms sparsely branched, spreading, slender. Female spikelets to 10 mm, bracts acuminate, margins transparent above. Mar.–Apr. Usually on well-drained sandy soils, SW (Cape Peninsula to Riviersonderend and Bredasdorp).•

insignis Mast. MANNETJIESRIET; DEKRIET Dioecious, tufted perennial to 2 m, fertile culms simple, smooth. Female spikelets 15–25 mm, pale brown. Mar.–Apr. Alkaline and acid coastal sands, AP, LB (Agulhas to Gouritsmond; naturalized as far as Cape Peninsula and Cape St Francis).•

karooica H.P.LinderMDioecious, tufted perennial to 2 m, fertile culms simple, smooth. Female spikelets 5–27, 15–25 mm long. Apr.–May. Low, sandstone slopes, LB (N foothills of Langeberg: Barrydale to Attaquaskloof).•

lucens (Poir.) H.P.Linder JAKKALSSTERTRIET Dioecious, tufted perennial to 60 cm, culms simple, smooth, sometimes with sterile much-branched culms. Female spikelets 10–20 mm, bracts cartilaginous. Mar.–May. Dry mountain slopes, NW, SW, AP, LB (Bokkeveld Mtns to Cape Peninsula to Bredasdorp and Langeberg).•

platypteris Kunth Dioecious, tufted perennial to 1 m, culms simple, smooth or finely rugulose. Floral bracts entirely or largely transparent, female flowers 6–9mm long, with wide wings. Aug.–Sept. Well-drained sandy soils above 600 m, NW (Bokkeveld Mtns to Pakhuis Pass).•

punctatus Pillans STEENBOKSRIET Dioecious, tufted or rhizomatous perennial to 1 m, culms simple, finely punctate. Female spikelets to 20 mm. Mar.–May. Sandy flats and slopes, NW, SW (S Namaqualand and Bokkeveld Mtns to Cape Peninsula). **gce**

spicigerus (Thunb.) Spreng. DUINERIET Dioecious, rhizomatous perennial to 2.5 m, culms slightly flexuose, simple, robust, smooth, dark green. Flowers wider than bracts, female spikelets to 20 mm, dark brown. Apr.–May. Alkaline to neutral coastal sands and limestone, SW (Velddrif to Cape Peninsula).•

sporadicus Pillans Dioecious, rhizomatous perennial to 1 m, fertile culms simple, sometimes with sterile branched culms, bracts cartilaginous. Female spikelets 10–15 mm. Oct.–Nov. Mostly on alluvial terraces below 400 m, NW, SW (Piketberg to Cape Peninsula and Riviersonderend Mtns).•

sp. 1 (*Thamnochortus kammanassiae* H.P.Linder *ms.*) Dioecious, tufted perennial to 1 m tall, fertile culms simple, smooth. Female inflorescence with 1–5, 20–35 mm long spikelets. Diaspore with oblong, 4.5–7 mm long, lateral tepals with wide membranous wings. June. Sand plains, KM (western base of Kammanassie Mtns).•

B.' Fruits longer than wide

dumosus Mast. Dioecious, tufted perennial to 50 cm, fertile culms simple, sterile branched culms to 10 cm. Female floral bracts transparent and acuminate. Sepals forming a box around the nut. May. Seasonally wet sands below 600 m, SW (Hottentots Holland to Bredasdorp).•

ellipticus Pillans Dioecious, tufted perennial to 60 cm, fertile culms simple, sometimes with sterile branches in second year. May. Lower, N-facing, gravelly slopes, LB (Langeberg: Riversdale).•

fraternus Pillans Dioecious, tufted perennial to 70 cm, culms simple. Female spikelets to 20 mm, bracts narrowly lanceolate, erect, acute, reddish, female tepals decurrent on stipe, leaving narrow strips of stipe exposed. Apr.–July Coastal limestone, SW, AP (Cape Peninsula to Gouritz River).•

glaber (Mast.) Pillans Dioecious, rhizomatous or tufted perennial to 1.2 m. Culms smooth, simple. Female spikelets to 30 mm. Aug.–Sept. Coastal slopes on sands and granite loams, SE (George to E Cape).

guthrieae Pillans Dioecious, tufted perennial to 60 cm, culms simple, stout, sometimes with sterile branches at nodes. Female spikelets 10–15 mm, bracts cartilaginous. May–June. Lower slopes, often gravelly, SW, AP (Malmesbury to Bredasdorp).•

levynsiae Pillans Dioecious, rhizomatous perennial to 1 m, culms sparsely branched, robust, spathes as tall as or taller than spikelets. Mar.–Apr. S-facing rock ledges in southeast cloud zone, SW (Cape Peninsula).•

muirii Pillans Dioecious, tufted perennial to 1.2 m, culms simple. Female spikelets several, to 15 mm. July–Sept. Coastal sands, usually associated with limestone, AP, LB (Agulhas to Mossel Bay).•

nutans (Thunb.) Pillans Dioecious, tufted perennial to 60 cm, culms simple, sometimes with sterile much-branched culms. Female spikelets to 20 mm, bracts cartilaginous. Aug.–Sept. Shallow soils above 900 m, seasonally wet, SW (Cape Peninsula: Constantiaberg and Table Mountain).•

obtusus Pillans Dioecious, rhizomatous perennial to 40 cm, culms simple, sterile branched culms produced from rhizomes. Female spikelets to 15 mm, floral bracts cartilaginous. Feb.–Mar. Coastal sand flats, SW, AP (Bokbaai to Cape Peninsula and Potberg).•

paniculatus Mast. Dioecious, rhizomatous perennial to 1 m, culms simple. Female spikelets 20–30 mm, dark brown, bract apices somewhat reflexed, female flowers with tepals decurrent on stipe, leaving narrow strips of stipe exposed. Sept.–Nov. Mainly limestone slopes and flats, AP (Agulhas to Still Bay).•

papyraceous Pillans Dioecious, tufted perennial to 60 cm, culms simple. Floral bracts entirely transparent. Sept. Rocky slopes, mostly above 1 800 m, KM (Klein Swartberg).•

pellucidus Pillans Dioecious, tufted perennial to 60 cm, fertile culms simple, sterile culms branched, to 20 cm. Female spikelets to 20 mm, several aggregated into a head. July. Coastal sands, SW, AP (Betty's Bay to Cape Agulhas).•

pluristachyus Mast. Dioecious, tufted perennial to 1 m, culms simple, sheaths tightly convolute. Spikelets numerous. Female spikelets narrowly elliptic, to 10 mm. Female flowers 2–3.5 mm long. Apr.–June. Limestone flats and slopes, AP (Agulhas to Still Bay).•

pulcher Pillans Dioecious, tufted perennial to 60 cm, fertile culms simple, sterile branched culms produced from base. Male spikelets large, elliptical grey-brown. Female spikelets to 20 mm, bracts slender-acuminate. July–Aug. Well-drained stony slopes, usually below 800 m, SW (Stellenbosch to Bredasdorp).•

schlechteri Pillans (= *Thamnochortus scabridus* Pillans) Dioecious, rhizomatous perennial to 1 m, clumped or even forming fairy rings, culms simple. Bracts chartaceous, ± transparent. Aug.–Nov. Well-drained sandy slopes, mostly above 1 200 m, NW, KM (Cedarberg to Witteberg and Anysberg).•

stokoei Pillans Dioecious, tufted perennial to 40 cm, culms simple. Female spikelets 10–25 mm, bracts with wide transparent margins. Sept.–Nov. Well-drained stony slopes above 1 000 m, SW (Du Toitskloof to Caledon Swartberg and Riviersonderend Mtns).•

WILLDENOWIA Thunb. 12 spp., Namaqualand to W Cape gce

Robust, rhizomatous plants, culms mostly branching, sheaths with upper 1/3 membranous and soon decaying; male flowers with linear membranous tepals, not organised into spikelets; female spikelets with single flowers, fruit a hard-walled nut, styles 2.

A. Perianth stipitate; nuts with an elaiosome

arescens Kunth Dioecious, rhizomatous perennial to 1 m, culms branched, smooth, sheath apices hyaline. Female flowers in spikelets to 15 mm, tepals narrowing towards base, styles red. Nuts pitted. Aug.–Nov. Usually well-drained sandy flats and plateaus, NW, SW (Kamiesberg to Touws River and Villiersdorp). **gce**

bolusii Pillans Dioecious, tufted perennial to 1.5 m, culms branched, striate. Spathes greenish with red margins, partly obscuring flowers, styles white. Large, fluted elaiosome. May–July. Lower sandstone slopes, LB, KM (inland slopes of Langeberg and Little Karoo Mtns).•

glomerata (Thunb.) H.P.Linder Dioecious, rhizomatous perennial to 1.5 m, culms branched, smooth, sheath apices hyaline. Flowers with tepals minute or lost, styles white. Nuts smooth, black. Mar.–Apr. or Aug.–Sept. Well-drained, stony slopes, NW, SW, KM, SE (Bokkeveld Mtns to Uniondale).•

sulcata Mast. Dioecious, rhizomatous perennial to 60 cm, culms spreading, branched, striate. Nuts pitted. Sept.–Jan. Sandy flats and stony slopes, NW, SW (Cedarberg to Riviersonderend Mtns).•

teres Thunb. Dioecious, rhizomatous perennial to 1 m, culms branched, smooth or finely rugose. Spikelets greyish. Flowers with tepals widening below. Nut smooth or sparsely pitted. July–Oct. Well-drained sandy flats and slopes, NW, SW, AP, KM, LB, SE (Ceres to Uniondale).•

A.' Perianth sessile; nuts without an elaiosome

affinis Pillans Dioecious, tufted perennial to 80 cm, culms branched. Female spikelets to 20 mm. Nut sparsely pitted. May. Well-drained slopes, probably granite, at 300 m, SW (Cape Peninsula: Kloof Corner of Table Mountain).• EXTINCT

humilis Mast. Dioecious, tufted or rhizomatous perennial to 1 m, culms simple or sparsely branched. Female spikelets closely adpressed to scape. Nut tuberculate, cylindrical, greenish, with up pointed lobes covering surface. Sept.–Nov. Seasonally damp sands, NW, SW (Clanwilliam to Gansbaai).•

incurvata (Thunb.) H.P.Linder SONKWASRIET Dioecious, rhizomatous perennial to 1.6 m, culms striate, olivaceous and branched. Nuts pitted, with very short style. Apr.–June. Sandy flats, especially on coastal plain, NW, SW, KM (Hondeklip Bay to Cape Peninsula and Witteberg). **gce**

purpurea Pillans Dioecious, stoloniferous perennial to 50 cm, culms branched, smooth or finely rugulose, sheaths with awns to 7 mm. Flowers with female spikelets enclosed by spathes. Nut smooth, elliptical in side view. Nov. Marshy sandstone flats, SW (Franschhoek Mtns to Viljoen's Pass).•

rugosa Esterh. Dioecious, rhizomatous or tufted perennial to 40 cm, culms simple, finely warty, olivaceous, sheaths only at base. Nut with several rows of ridges, wall tuberculate. Mar.–Apr. Damp stony slopes below 500 m, SW (Hottentots Holland Mtns: Kogelberg).•

stokoei Pillans Dioecious, rhizomatous perennial to 50 cm, culms usually simple, smooth, green or golden, up to 2.6 mm diam. at apex. Female spikelets clustered. Red brown spathes encase spikelets. Nuts pitted, spindle shaped. Oct.–Dec. Well-drained stony slopes above 1 000 m, NW, KM (Cedarberg to Keeromsberg and Swartberg).•

sp. 1 (*Willdenowia pilleata* H.P.Linder *ms.*) Dioecious, tangled tussock to 0.4 m tall, culms branching, striate. Nut pitted, with a large 4-lobed stylopodium and sessile style. Feb.–Mar. Damp, sandy flats, AP (SE base of Soetanysberg).•

RUPPIACEAE

RUPPIA L. 2 spp., temperate and subtropical

maritima L. Submerged, grass-like aquatic perennial. Leaves linear to filiform, acute. Flowers on short, straight peduncles. Sept.–Mar. Salt pans or brackish streams, SW, SE (Namibia to Port Elizabeth, cosmopolitan).

spiralis L. Similar to **R. maritima** but flowers on long, spirally coiled peduncles. Mostly Dec.–Feb. Brackish coastal pools, NW, SW, AP, SE (Namaqualand to Port Elizabeth, cosmopolitan).

RUSCACEAE (= *CONVALLARIACEAE, DRACAENACEAE, ERIOSPERMACEAE*)

1. Small, deciduous, tuberous geophytes, usually leafless at flowering; flowers < 10 mm long; fruit a capsule with woolly seeds ..... **Eriospermum**
1.' Robust, evergreen, rhizomatous perennials or shrubs; flowers > 20 mm long; fruit a fleshy berry:
2. Trees or shrubs with cauline leaves; inflorescence paniculate ..... **Dracaena**
2.' Rhizomatous herbs with basal leaves; inflorescence racemose ..... **Sansevieria**

DRACAENA L. PALM-LILY ± 60 spp., pantropical, mostly tropical Africa

aletriformis (Haw.) Bos (= *Dracaena hookeriana* K.Koch) Single-stemmed or sparsely branched tree to 5 m. Leaves crowded apically, lanceolate, with white cartilaginous margins. Flowers tufted, in dense panicles, greenish white. Jan.–Feb. Forests and coastal bush, SE (Van Staden's Mtns to Kenya).

ERIOSPERMUM Jacq. ex Willd. COTTONSEED ± 102 spp., sub-Saharan Africa, especially W Cape to Namaqualand

A. Tepals equal or subequal
B. Filaments oblong-ovate, erect around ovary

bayeri P.L.Perry Tuberous geophyte to 45 cm. Leaf erect, sword-shaped, margins wavy. Flowers star-shaped, nearly sessile, pale greenish, filaments erect, oblong. Mar.–May. Shale slopes in renosterveld, NW, SW (W Karoo to Robertson Karoo).•

bifidum R.A.Dyer Tuberous geophyte to 30 cm. Leaf erect, lanceolate to heart-shaped, leathery. Flowers star-shaped, yellowish, on long pedicels, filaments erect, oblong-bifid. Jan.–Apr. Shale flats, KM, SE (Namaqualand and W Karoo to Grahamstown).

brevipes Baker Tuberous geophyte to 30 cm. Leaf spreading, heart-shaped, sparsely hairy. Flowers cup-shaped, white, fragrant, filaments erect, oblong. Jan.–Mar. Sandstone slopes, grasslands or fynbos, SE (Plettenberg Bay to E Cape).

breviscapum Marloth ex P.L.Perry Tuberous geophyte to 12 cm. Leaf prostrate, heart-shaped, fleshy. Flowers crowded, star-shaped, white, fragrant, filaments erect, oblong. Feb.–Mar. Shale slopes in renosterveld and succulent karoo, SW, AP (Robertson to Still Bay).•

cernuum Baker Tuberous geophyte to 35 cm. Leaf erect, lanceolate to heart-shaped, margins sometimes red. Flowers cup-shaped, white, filaments erect, oblong. Feb.–Apr. Damp sites on sandstone soils, NW, SW, KM (Clanwilliam to Bredasdorp).•

crispum P.L.Perry Tuberous geophyte to 35 cm. Leaf erect, sword-shaped, leathery, margins crisped. Flowers star-shaped, white, filaments erect, oblong. Mar.–Apr. ?, KM (Calitzdorp).•

porphyrium Archibald Tuberous geophyte to 70 cm. Leaf prostrate, heart-shaped. Flowers star-shaped, cream-coloured to greenish, fragrant. Dec.–May. Clay soils in grasslands, SE (Kouga Mtns to Limpopo).

rhizomatum P.L.Perry Tuberous geophyte to 50 cm, spreading by rhizomes to form tufts. Leaf spreading, heart-shaped, leathery. Flowers cup-shaped, nearly sessile, tepals suberect, white, filaments erect, oblong. Feb.–Mar. Sandstone rocks in shade, KM (Calitzdorp to Oudtshoorn).•

zeyheri R.A.Dyer Tuberous geophyte to 50 cm. Leaf prostrate, heart-shaped. Flowers star-shaped, cream-coloured to greenish, fragrant, filaments erect, oblong. Dec.–Mar. Clay soils in renosterveld, SW, KM, LB, SE (McGregor to Grahamstown).

B.' Filaments subulate, spreading
*C. Flowers bright yellow (see also **E. spirale**)*

ciliatum P.L.Perry Tuberous geophyte to 24 cm. Leaf prostrate, ovate to heart-shaped with ciliate margins. Flowers star-shaped, bright yellow. Feb.–Apr. Sandstone slopes, fynbos or grasslands, SE (Humansdorp to Port Elizabeth).•

flavum P.L.Perry Tuberous geophyte to 6 cm. Leaf erect, terete, stem wiry and coiled. Flowers star-shaped, bright yellow, on long, persistent pedicels. May. Sandstone outcrops NW, SW (Nardouw Mtns to Wellington).•

schlechteri Baker Tuberous geophyte to 23 cm. Leaf erect, elliptic, surface ribbed. Flowers on long pedicels, star-shaped, bright yellow. Mar.–Apr. Sandstone slopes in fynbos, SW (Kogelberg to Napier).•

C.' Flowers whitish

aequilibre Poelln. Tuberous geophyte to 45 cm. Leaf erect, sword-shaped, rugose with prominent veins. Flowers star-shaped, nearly sessile, light green. Mar.–Apr. Rocky succulent karoo, KM (De Rust to Kammanassie Mtns).•

aphyllum Marloth Tuberous geophyte to 8 cm. Leaf erect, filiform. Flowers star-shaped, whitish to pink, on long, persistent pedicels. Mar.–Apr. Hard, stony clay, NW (Namaqualand and W Karoo to Nardouw Mtns). **gce**

arenosum P.L.Perry Tuberous geophyte to 20 cm. Leaf erect, heart-shaped. Flowers star-shaped, white, on long pedicels. Mar.–Apr. Coastal sands, NW (Namaqualand to Aurora). **gce**

bruynsii P.L.Perry Tuberous geophyte to 25 cm. Leaf erect, sword-shaped, petiole hairy. Flowers star-shaped, nearly sessile, pale green. Mar.–Apr. ?, KM (Calitzdorp).•

dielsianum Schltr. ex Poelln. Tuberous geophyte to 25 cm. Leaf erect, lanceolate to heart-shaped, petiole and blade hairy. Flowers star-shaped, white. Jan.–Apr. Mostly sandstone soils, NW, SW, AP, KM, LB, SE (Cold Bokkeveld to Port Elizabeth and W Karoo). **gce**

inconspicuum P.L.Perry Tuberous geophyte to 8 cm. Leaf erect, elliptic to ovate, rugose with prominent veins. Flowers star-shaped, white. Apr. Sandstone soils in fynbos, SW, LB, SE (Caledon to Outeniqua Mtns).•

paradoxum (Jacq.) Ker Gawl. Tuberous geophyte to 10 cm. Leaf blade small, bearing a woolly, plumose appendage. Flowers crowded, star-shaped, white, fragrant, Apr.–May. Sandy and clay soils, NW, SW, AP, KM, LB, SE (Namaqualand to Grahamstown).

parvifolium Jacq. Tuberous geophyte to 30 cm. Leaf erect, elliptic-ovate. Flowers star-shaped, white. Mar.–Apr. Stony clay soils, NW (Namaqualand to Bokkeveld Escarpment). **gce**

patentiflorum Schltr. Tuberous geophyte to 40 cm. Leaf erect, ovate to sword-shaped, minutely white-pilose, petiole abruptly swollen, red, persisting as loosely sheathing collars. Flowers star-shaped, white, on long pedicels. Mar. Rocky slopes in arid fynbos, NW (S Namaqualand to Olifants River Valley). **gce**

pumilum Salter Tuberous geophyte ± 10 cm. Leaf erect, elliptic, petiole hairy, margins red. Flowers star-shaped, white. Mar.–Apr. Sandstone slopes, NW, SW (Namaqualand and W Karoo to False Bay). **gce**

spirale C.H.Bergius ex Schult. Tuberous geophyte to 6 cm, peduncle wiry and coiled. Leaf terete. Flowers star-shaped, white or yellow, on long, persistent pedicels. Apr.–June. Sandstone flats and granite outcrops, NW, SW (Gifberg to False Bay).•

A.' Tepals dimorphic
*D. Leaves with enations (see also **E. paradoxum**)*

alcicorne Baker Tuberous geophyte to 8 cm. Leaf ovate, sometimes hairy, often with several enations. Flowers crowded, inner tepals erect, white. Jan.–Apr. Clay and sandstone soils, NW, KM (Namaqualand to Willowmore). **gce**

bowieanum Baker Tuberous geophyte to 10 cm. Leaf blade reduced, bearing simple or branched, terete enations. Flowers crowded, subsessile, inner tepals erect, white. Feb.–Mar. Clay soils, NW, SW (Worcester to Stormsvlei).•

dregei Schönland Tuberous geophyte to 14 cm. Leaf reduced, bearing simple or branched, terete, hairy enations. Flowers with inner tepals erect, white. Mar. Grasslands, KM, SE (Montagu to Grahamstown).

erinum P.L.Perry Tuberous geophyte to 20 cm. Leaf suberect, ovate-cordate, bearing short, cylindrical enations each with an apical tuft. Flowers on long pedicels, inner tepals erect, whitish. Feb.–Apr. Tillite flats in renosterveld, NW (Bokkeveld Mtns).•

flabellatum P.L.Perry Tuberous geophyte to 8 cm. Leaf blade reduced, bearing branched, terete enations. Flowers crowded, inner tepals erect, white. Mar.–Apr. Shale slopes, KM (Montagu to Barrydale and W Karoo). **gce**

proliferum Baker Tuberous geophyte to 30 cm, sometimes in clumps. Leaf small, with thread-like processes, petioles hairy. Flowers on long pedicels, inner tepals erect, white. Feb.–Mar. Clay and sand, NW, SW, AP, KM, SE (Namaqualand to Baviaanskloof Mtns). **gce**

D.' Leaves without enations
E. Leaves glabrous

capense (L.) Thunb. Tuberous geophyte to 50 cm, sometimes clumped. Leaf spreading, heart-shaped, often with red ridges, margins sometime ciliate. Flowers with inner tepals erect, on long pedicels, yellowish. Nov.–Mar. Mainly clay soils, NW, SW, AP, KM, LB, SE (Namaqualand to Grahamstown).

cordiforme Salter Tuberous geophyte to 40 cm. Leaf spreading, heart-shaped, surface wrinkled. Flowers crowded, pedicels short, inner tepals erect, cream-coloured. Jan.–Feb. Sandstone and granite soils, SW, LB, SE (Darling to Alexandria).

dissitiflorum Schltr. Tuberous geophyte to 40 cm. Leaf erect, elliptic to lanceolate. Flowers with inner tepals erect, white. Jan.–Apr. Clay and sandstone soils, fynbos and renosterveld, LB, SE (Riversdale to E Cape).

exigium P.L.Perry Tuberous geophyte to 15 cm. Leaf erect, sword-shaped, petiole wiry. Flowers with inner tepals erect, white. Mar. Sandstone rocks, NW (Bokkeveld Mtns to Gifberg).•

exile P.L.Perry Tuberous geophyte to 30 cm. Leaf erect, sword-shaped. Flowers nearly sessile, inner tepals erect with attenuate tips, white to pale yellow. Jan.–Mar. Quartzite and shale in shade, NW, KM (Worcester to De Rust).•

lanceifolium Jacq. Tuberous geophyte to 40 cm. Leaf erect, sword-shaped, leathery, bluish, margins wavy, sometimes hairy. Flowers sometimes nearly sessile, inner tepals erect, white. Mar.–Apr. Sandstone or granite soil, NW, SW, KM, LB (Olifants River Mtns to Albertinia).•

laxiracemosum P.L.Perry Tuberous geophyte to 30 cm. Leaf erect, sword-shaped. Flowers on long pedicels, inner tepals erect, white. Feb.–Apr. Sandstone rocks, NW (Gifberg to Pakhuis Mtns).•

nanum Marloth Tuberous geophyte to 30 cm. Leaf spreading, heart-shaped. Flowers on long pedicels, inner tepals erect, cream-coloured. Feb.–May. Sandstone soils, NW, SW, AP (Pakhuis Mtns to De Hoop).•

orthophyllum (Archibald) P.L.Perry Tuberous geophyte to 40 cm. Leaf erect, lanceolate to elliptic, leathery, margins yellow or purple. Flowers on long pedicels, inner tepals erect, white. Jan.–Feb. Sandy soils, SE (Port Elizabeth to Transkei).

subtile P.L.Perry Tuberous geophyte to 20 cm. Leaf erect, ovate. Flowers on long pedicels, inner tepals erect with attenuate tips, white. Mar.–Apr. Shale in renosterveld, NW, KM (Bokkeveld Mtns to Koo).•

*E.' Leaves ciliate or ± pubescent (see also **E. capense, E. lanceifolium**)*

glaciale P.L.Perry Tuberous geophyte to 5 cm. Leaf erect, elliptic-lanceolate, white-woolly beneath. Flowers nearly sessile, few. Inner tepals erect, white. Apr. Clay flats in renosterveld, NW (Bokkeveld Mtns).•

graminifolium A.V.Duthie Tuberous geophyte to 30 cm. Leaf long and sword-shaped, margins and petiole hairy. Flowers on long pedicels, inner tepals erect, white. Feb.–Apr. Sand and clay, NW, SW, AP, KM, LB, SE (Bokkeveld Mtns to George).•

lanuginosum Jacq. Tuberous geophyte to 38 cm. Leaf spreading, heart-shaped, white-woolly. Flowers with erect inner tepals, cream-coloured. Feb.–Mar. Sandstone slopes in fynbos, NW, SW (Bokkeveld Mtns to Gouda).•

marginatum Marloth ex P.L.Perry Tuberous geophyte to 25 cm. Leaves prostrate, heart-shaped, leathery, margins hairy. Flowers on long pedicels, inner tepals erect, white. Jan.–Mar. Stony slopes in karroid scrub, NW, KM (Namaqualand and W Karoo to Barrydale). **gce**

minutipustulatum P.L.Perry Tuberous geophyte to 12 cm. Leaf small, prostrate, ovate-cordate, sparsely pustulate-hairy. Flowers with erect inner tepals, white. Mar. Clay slopes, NW (Kobee Pass).•

pubescens Jacq. Tuberous geophyte to 30 cm, sometimes in clumps. Leaf prostrate, heart-shaped, with adpressed straight hairs. Flowers on long pedicels, inner tepals erect, white. Feb.–Apr. Mainly clay soil in renosterveld, NW, SW, KM, LB, SE (Ceres to Somerset West to Knysna).•

pustulatum Marloth ex A.V.Duthie Tuberous geophyte to 40 cm. Leaf prostrate, heart-shaped, silvery white, hairy and pustulate. Flowers on long pedicels, inner tepals erect, white. Nov.–Dec. Clay in succulent karoo, NW (Nardouw Mtns to Karoo).

subincanum P.L.Perry Tuberous geophyte to 25 cm. Leaf prostrate, heart-shaped, shiny green above, densely white-woolly beneath, margins undulate and red. Flowers on long pedicels, inner tepals erect, yellowish green. Feb.–Mar. Rocky outcrops, NW (Gifberg to Biedouw).•

vermiforme Marloth ex P.L.Perry Tuberous geophyte to 15 cm, forming clumps from stolons. Leaf heart-shaped, margins ciliate. Flowers with inner tepals erect, white. Feb.–Mar. Sandstone flats, LB (Mossel Bay).•

villosum Baker Tuberous geophyte to 20 cm. Leaf erect, lanceolate, grey, densely hairy. Flowers on long pedicels, inner tepals erect, white. Dec.–Feb. Granite and shale, NW (Namaqualand to Piketberg). **gce**

SANSEVIERIA Thunb. MOTHER-IN-LAW'S TONGUE ± 12 spp., dry palaeotropics and subtropics, mainly Africa

hyacinthoides (L.) Druce WILDEDATEL Acaulescent succulent to 50 cm, spreading from branched rhizomes. Leaves sword-shaped, leathery, irregularly banded with grey, margins red and white. Flowers in tufts on elongate racemes. Nov.–Mar. Dry bush and scrub, SE (Uitenhage to S tropical Africa).

STRELITZIACEAE

STRELITZIA Aiton CRANE-FLOWER 4 spp., E Cape to Zimbabwe

alba (L.f.) Skeels KAAPSE WILDEPIESANG Large, single-stemmed tree to 10 m. Leaves with large, oblong blades. Flowers white, petals hastate at base. July–Dec. Forests, SE (George to Humansdorp).•

reginae Aiton (= *Strelitzia juncea* Link) BIRD-OF-PARADISE Evergreen perennial to 1.5 m. Leaves long-petiolate with small to large, ovate blades, or bladeless. Flowers orange with blue (rarely white) petals. Jan.–May. River banks, in coastal bush and thickets, SE (Humansdorp to Transkei).

TECOPHILAEACEAE

1. Stem erect or scandent, sometimes prickly, with cauline leaves; flowers axillary, actinomorphic; corm naked ..... **Walleria**
1.' Stem erect with basal, usually rosulate leaves; flowers in racemes or apparently solitary, zygomorphic; corm with fibrous tunics ..... **Cyanella**

CYANELLA L. LADY'S-HAND, RAAPTOL 9 spp., southern Africa

alba L.f. TOE-TOE-UINTJIE Cormous geophyte, 12–25 cm. Leaves filiform-terete. Flowers enantiostylous, in a congested raceme thus apparently solitary on long, erect peduncles, white to pink or yellow, fragrant, with 5 upper and 1 larger lower stamen, filaments free nearly to base. Aug.–Oct. Stony tillite and sandstone or clay slopes, NW (Bokkeveld Mtns to Karoopoort and W Karoo). **gce**

hyacinthoides L. BLOURAAPTOL Cormous geophyte, 25–40 cm. Leaves linear-lanceolate, smooth to finely or roughly hairy. Flowers in branched racemes, mauve, sometimes white, stamens bright yellow, fragrant, pedicels geniculate, with 5 upper and 1 larger lower stamen, filaments fused ± halfway. Aug.–Nov. Mostly clay and granite slopes, often in renosterveld, also limestone, NW, SW, KM, LB (Namaqualand to Riversdale). **gce**

lutea L.f. GEELRAAPTOL Cormous geophyte, 12–25 cm. Leaves linear-lanceolate. Flowers in branched racemes, yellow, sometimes pink, fragrant, pedicels suberect, with 5 upper and 1 larger lower stamen, filaments free nearly to base. Sept.–Oct. Mostly clay, or limestone flats, NW, SW, AP, KM, LB, SE (S Namibia to southern Free State and E Cape).

orchidiformis Jacq. Cormous geophyte, 30–40 cm. Leaves lanceolate, soft, often undulate. Flowers in branched racemes, mauve to purple with darker markings, fragrant, pedicels suberect, with 3 upper and 3 larger lower stamens. July–Sept. Rocky flats and lower slopes, often wet sites, NW (S Namibia to Clanwilliam). **gce**

pentheri Zahlbr. Like **C. hyacinthoides** but leaves linear-involute with long, shaggy hairs along margins towards base only, and cataphyll purple-fenestrate. Aug.–Oct. Rocky outcrops, NW (Clanwilliam to Bokkeveld Mtns.)•

WALLERIA J.Kirk POTATO-LILY 3 spp., W Cape to tropical Africa

gracilis (Salisb.) S.Carter Slender, scrambling, tuberous geophyte to 30 cm, with prickly stems. Leaves linear, ending in tendrils, midribs prickly beneath. Flowers axillary, nodding, white with purple centre, fragrant, anthers yellow with purple tips. June–July. Low sandstone outcrops, NW (Richtersveld and Gifberg to Pakhuis Mtns). **gce**

THURNIACEAE (= *PRIONIACEAE*)

PRIONIUM E.Mey. PALMIET 1 sp., W Cape to S KwaZulu-Natal

serratum (L.f.) Drège ex E.Mey. Robust shrub to 2 m. Leaves lanceolate, glaucous, crowded, margins sharply serrate. Flowers in large panicles, minute, brown. Sept.–Feb. Streams and rivers, often forming dense stands, NW, SW, AP, LB, SE (Gifberg to S KwaZulu-Natal).

TYPHACEAE

TYPHA L. BULRUSH, PAPKUIL 10 spp., cosmopolitan

capensis (Rohrb.) N.E.Br. Monoecious, tufted perennial to 2 m. Leaves strap-like, twisted, spongy. Flowers small, in cylindrical spikes, male flowers above and females below, brown. Dec.–Mar. Stream banks and marshes, NW, SW, AP, KM, LB, SE (southern and tropical Africa).

XYRIDACEAE

XYRIS L. YELLOW-EYED GRASS ± 250 spp., pantropical and subtropical

capensis Thunb. Grass-like perennial, 8–50 cm. Leaves linear. Flowers in tight clusters among brown bracts, yellow, lasting a few hours. Oct.–Apr. Marshes and seeps, NW, SW, LB, SE (Clanwilliam to tropical Africa, India, Brazil).

ZANNICHELLIACEAE = POTAMOGETONACEAE

ZOSTERACEAE

ZOSTERA L. SEAGRASS 11 spp., cosmopolitan in temperate regions

capensis Setch. Submerged, mat-forming marine perennial to 12 cm. Leaves 2–4 in fascicles, linear. Flowers inconspicuous. Mostly Oct.–Mar. Brackish or sea water, SW, SE (Saldanha to Mozambique and Madagascar).

EUDICOTYLEDONS

ACANTHACEAE

by K. Balkwill, except **Dicliptera**

1. Capsule globose-rostrate; seeds not borne on retinacula (modified, woody funicles); calyx concealed by 2 large foliaceous bracts, mostly 10–18-fid; stigma funnel-shaped and 2-lobed; unarmed perennials or vines with large, funnel-shaped flowers, and ± actinomorphic corolla (subfamily THUNBERGIOIDEAE) ..... **Thunbergia**
1.' Capsule club-shaped or ellipsoid; seeds borne on retinacula (modified, woody funicles) (subfamily ACANTHOIDEAE):
  2. Corolla 1-lipped with adaxial suture not slit; stamens 4, anthers all monothecous; bracts spiny or pungent:
    3. Anticous (outer) filaments with a short process near apex; stigma lobes short, subequal **Blepharis**
    3.' Anticous (outer) filaments without a process; stigma lobes unequal, anticous lobe enlarged and flattened and posticous lobe minute ..... **Acanthopsis**
  2.' Corolla actinomorphic or 2-lipped, adaxial suture not slit; stamens usually 2, rarely 4 but then at least 2 with bithecous anthers; bracts mostly unarmed:
    4. Style carried in distinct median channel in upper lip:
      5. Pollen spheroidal, biporate, and spinose; anthers attached at right angles to filaments; flowers in narrow spikes with bracts and calyx glandular-hairy ..... **Isoglossa**
      5.' Pollen prolate, bi- or tricolporate, without spines; anthers attached parallel to filaments; flowers 1 or few in axils with bracts and calyx glabrous or hairy but not glandular:

6. Seeds 1 per locule, smooth and shiny ..... **Monechma**
6.' Seeds 2 per locule, rough and dull ..... **Justicia**
4.' Style not carried in median channel in upper lip:
7. Corolla resupinate, with ascending imbricate aestivation; seeds without hygroscopic hairs:
8. Anthers monothecous ..... **Hypoestes**
8.' Anthers bithecous ..... **Dicliptera**
a. Bracts subtending individual flowers small and sepal-like; capsules dehiscing normally, sides not separating from raphe ..... ***Peristrophe* group**
a.' Bracts subtending individual flowers large and leaf-like; capsules dehiscing elastically, sides separating from thickened raphe ..... ***Dicliptera* group**
7.' Corolla not resupinate, usually with contorted aestivation (if imbricate not ascending); seeds with hygroscopic hairs:
9. Stamens not didynamous nor attached to a flange of tissue; calyx 4-fid, 2 outer lobes large; bracts sometimes spiny and pungent ..... **Barleria**
9.' Stamens didynamous (unequal in length with 2 short and 2 long), often attached to a flange of tissue decurrent on corolla; calyx 5-fid; bracts never spiny:
10. Stamens 2 or 4 (sometimes with 2 staminodes); anthers tailed; ovules 2 per locule; corolla 2-lipped ..... **Dyschoriste**
10.' Stamens 4; anthers not tailed; ovules > 2 per locule; corolla nearly actinomorphic .... **Ruellia**

ACANTHOPSIS Harv. 7 spp., southern Africa

disperma Nees Spiny, acaulescent perennial to 10 cm. Leaves tufted, oblanceolate, incised, and spinescent. Flowers in dense spikes among spiny bracts, blue, sometimes white; bracts reflexing in fruit. Mar.–Oct. Stony slopes and flats, KM (Namibia and Karoo to Little Karoo).

BARLERIA L. 250 spp., pantropical, but only 1 sp. in Americas

irritans Nees Stiffly branched, shortly hairy, spiny shrublet to 20 cm. Leaves opposite, ovate-elliptic, pungent, margins white. Flowers in dense axillary clusters, blue; outer bracts forming long spreading spines. Dec.–Apr. Karroid scrub and dry bush, KM, SE (Little Karoo to E Cape and Karoo).

obtusa Nees Sprawling, shortly hairy shrub to 2 m. Leaves opposite, ovate, often obtuse. Flowers in lax axillary cymes, mauve to blue; bracts subspathulate, glandular-hairy. Feb.–Dec. Bush and forest margins, SE (Humansdorp to Zimbabwe).

pungens L.f. Stiffly branched, thinly felted, spiny shrublet to 40 cm. Leaves opposite, subsessile, sharply toothed, and pungent. Flowers in axillary clusters, mauve, pink, or white; bracts ovate, spiny, and pungent. Oct.–May. Stony flats, LB, SE (Swellendam to E Cape).

BLEPHARIS Juss. 80 spp., Africa to East Indies and Mediterranean

A. Prostrate dwarf shrubs

ilicina Oberm. Prostrate, dwarf shrublet to 10 cm, velvety on young branches. Leaves opposite, elliptic-oblanceolate, prickly-toothed. Flowers clustered in short spikes, white with brown veins; bracts lanceolate, glabrous, pungent, and spiny with prominent white veins. Sept.–Mar. Dry stony slopes in thickets, SE (Mossel Bay to Port Elizabeth).•

integrifolia (L.f.) E.Mey. ex Schinz. RANKKLITS Prostrate, shortly hairy shrublet to 10 cm. Leaves opposite, elliptic. Flowers solitary in axils, blue or pink; bracts oblanceolate, shortly hairy, with short, barbed spines. Oct.–Apr. Grassy slopes, LB, SE (Riversdale to tropical Africa and India).

procumbens (L.f.) Pers. Prostrate, glabrescent subshrub to 5 cm. Leaves narrowly oblanceolate, margins slightly revolute, toothed, and softly prickly. Flowers in dense terminal spikes, blue; bracts obovate, shortly hairy, with thin marginal setae. July–Mar.. Scrub and coastal bush, SE (Jeffreys Bay to Port Elizabeth).•

A.' Erect shrublets

aequisepala Vollesen Gnarled, dwarf shrublet to 30 cm. Leaves narrowly oblong-oblanceolate, prickly-toothed, conspicuously white-dotted. Flowers clustered in spikes, cream-coloured with brownish veins; bracts lanceolate, whitish green, silky, sharply toothed, and spine-tipped. Oct.–Dec. Gravelly slopes, KM (Calitzdorp: Gamkapoort).•

capensis (L.f.) Pers. Stiffly erect, spiny shrub, mostly to 1.5 m. Leaves appearing dimorphic, oblanceolate, margins revolute and spiny, tufted in axils of hard, spreading spines. Flowers clustered in terminal spikes, whitish; bracts stiff, oblanceolate, sharply toothed, and spine-tipped, white on nerves. Mainly Dec.–Apr. Dry slopes on sand or clay, SW, AP, KM, LB, SE (?Langebaan, Struis Bay to E Cape and Karoo).

hirtinervia (Nees) T.Anderson Like **B. capensis** but outer bracts obovate, with few small teeth. Jan.–Dec. Karroid bush, LB, SE (Riversdale to E Cape: Bathurst).

inermis (Nees) C.B.Clarke Twiggy, dichotomously branched, spiny shrublet to 30 cm. Leaves in axillary tufts, oblanceolate, margins revolute. Flowers in dense clusters at branch tips, white or cream-coloured, outer bracts spiny, inner bracts oblanceolate, pungent. Oct.–Dec. Karroid areas, KM (Ladismith to Garcia's Pass).•

CHAETACANTHUS Nees = **DYSCHORISTE**

DICLIPTERA Juss. (= *PERISTROPHE*) ± 170 spp., cosmopolitan in warm and tropical areas

***Peristrophe* group**

cernua (Hook. ex Nees) J.C.Manning & Goldblatt (= *Peristrophe cernua* Hook. ex Nees) Sprawling, shortly hairy shrublet to 50 cm. Leaves opposite, ovate. Flowers in axillary cymes, magenta; floral bracts small and sepal-like. Capsules not dehiscing elastically. Mainly Mar.–Sept. Valley bushveld, SE (Gamtoos River to KwaZulu-Natal).

***Dicliptera* group**

capensis Nees Shortly hairy, lax to dense shrublet to 50 cm. Leaves opposite, ovate, 10–20 mm long. Flowers in short axillary clusters to 10 mm long, pink or white; floral bracts large and leaf-like. Capsules dehiscing elastically. Mar.–Dec. Valley bushveld, SE (Port Elizabeth to E Cape).

extenta S.Moore (= *Dicliptera zeylanica* auct.) Lax, stoloniferous perennial to 60 cm. Leaves opposite, ovate, acute to attenuate, 30–80 mm long. Flowers in axillary clusters, 9–50 mm long, white; floral bracts large and leaf-like. Capsules dehiscing elastically. Apr.–Sept. Forests, SE (Knysna to Zimbabwe).

DYSCHORISTE Nees (= *CHAETACANTHUS*) ± 80 spp., cosmopolitan in tropical and subtropical areas

setigera (Pers.) J.C.Manning & Goldblatt (= *Chaetacanthus setiger* (Pers.) Lindl.) Sprawling, shortly hairy, twiggy shrublet to 30 cm. Leaves opposite, obovate, obtuse, axillary leaves sparsely glandular-hairy. Flowers few in axils, white, sometimes blue. Aug.–Jan. Grasslands and renosterveld, LB, SE (Mossel Bay to Mpumalanga).

sp. 1 Like **D. setigera** but axillary leaves associated with inflorescences glabrous or sparsely eglandular-hairy. Sept.–Dec. Grasslands, LB, SE (Riversdale to E Cape).

HYPOESTES Sol. ex R.Br. > 150 spp., Africa, Asia, and Australia

aristata (Vahl) Sol. ex Roem. & Schult. SEEROOGBLOMMETJIE Erect, shortly hairy subshrub to 1.5 m. Leaves opposite, ovate; bracts aristate. Flowers in axillary clusters, appearing verticillate, mauve, calyx 4-fid. Jan.–May. Coastal forest margins, AP, SE (De Hoop to tropical Africa).

forskaolii (Vahl) R.Br. Like **H. aristata** but bracts subspathulate, flowers white, sometimes mauve, in slender axillary clusters, not appearing verticillate and calyx 5-fid. Jan.–Apr. Forest margins, LB, SE (Mossel Bay to NE Africa).

ISOGLOSSA Oerst. ± 50 spp., Old World tropics

ciliata (Nees) Lindau (incl. **I. sylvatica** C.B.Clarke) Sprawling, glabrescent subshrub sometimes to 1 m. Leaves opposite, ovate. Flowers in axillary spikes arranged in panicles, pink or white with spotted throat; bracts glandular-hairy but fringed with eglandular hairs. Feb.–Nov. Forests and forest margins, SE (Knysna to KwaZulu-Natal).

origanoides (Nees) Lindau Like **I. ciliata** but bracts not fringed with eglandular hairs. Mainly Apr.–Nov. Forests and forest margins, SE (E Cape to KwaZulu-Natal).

JUSTICIA L. (= *SIPHONOGLOSSA* in part) ± 420 spp., cosmopolitan in warm and tropical areas

A. Corolla tube longer than lips

leptantha (Nees) Lindau (= *Siphonoglossa leptantha* (Nees) Immelman) Sprawling, shortly hairy shrub to 50 cm. Flowers solitary in uppermost axils, white to lilac with pink spots in throat. Dec.–June. Coastal bush and forest margins, SE (Knysna to KwaZulu-Natal).

A.' Corolla tube shorter than lips

capensis Thunb. Sprawling, shortly hairy shrub to 2.5 m. Leaves opposite, ovate to obovate. Flowers few in axillary cymes, white or magenta. Sept.–July. Bush and forest margins, SE (Humansdorp to KwaZulu-Natal).

cuneata Vahl BLOUBOS Twiggy shrublet to 60 cm, with stiffly erect, whitish stems. Leaves opposite, small, sessile, ascending, elliptic. Flowers solitary in axils, pedunculate, cream-coloured with pink markings. July–Sept. Sandy and rocky flats, NW, KM, LB, SE (Namaqualand to Clanwilliam, Little Karoo to Port Elizabeth and S Karoo). **gce**

orchioides L.f. Like **J. cuneata** but sometimes thorny and flowers smaller, shorter than 10 mm. Sept.–Mar. Dry stony slopes, KM, SE (Little Karoo to E Cape and NW Province).

MONECHMA Hochst. ± 40 spp., Africa and India

incanum (Nees) C.B.Clarke Silvery grey, gnarled, spreading shrublet to 40 cm, rooting from branches; hairs T-shaped. Leaves opposite, grey-mealy, thin-textured, subsessile. Flowers mostly solitary in axils, often with axillary tufts, subsessile, white. Mainly July–Nov. Dry stony slopes, KM (Little Karoo, drier parts of southern Africa).

robustum Bond Grey, stiffly branched shrublet to 40 cm. Leaves opposite, greenish grey-mealy, leathery, shortly petiolate, often with axillary tufts. Flowers solitary in axils, subsessile, white. Mainly July–Nov. Dry stony slopes, KM (W Little Karoo).•

spartioides (T.Anderson) C.B.Clarke Glabrescent shrub to 2 m, often with horizontal branching. Leaves opposite, linear to ovate, usually glabrous, yellowish green. Flowers solitary in axils, white, cream-coloured, pale mauve, or blue. Feb.–Dec. Dry stony slopes, NW, KM (Namibia to Rocher Pan, Karoo to Little Karoo).

PERISTROPHE Nees = **DICLIPTERA**

RUELLIA L. 150 spp., pantropical

pilosa L.f. Sprawling, shortly hairy, twiggy shrublet to 8 cm. Leaves opposite, obovate, obtuse, minutely ciliate. Flowers solitary in axils, blue to mauve. Sept.–Mar. Clay slopes in renosterveld, LB (Swellendam to Mossel Bay).•

SIPHONOGLOSSA Oerst. = **JUSTICIA**

THUNBERGIA Retz. 100 spp., Old World tropics

capensis Retz. Softly hairy, sprawling perennial to 40 cm. Leaves opposite, subrotund. Flowers 1 or 2 in axils on hairy pedicels, creamy to yellow. Oct.–Apr. Grasslands and coastal bush, SE (Knysna to E Cape).

dregeana Nees Glabrescent vine. Leaves broadly sagittate, obscurely toothed. Flowers solitary in axils on glabrescent pedicels, dull orange-yellow. Nov.–Feb. Forest margins and streamsides in bush, SE (Humansdorp to KwaZulu-Natal).

ACHARIACEAE (= *KIGGELARIACEAE*)

1. Dioecious shrub or small tree; leaves simple, variously toothed; petals free; stamens 8–10 **Kiggelaria**
1.' Monoecious herb, shrubby or climbing; leaves palmately lobed; corolla campanulate; stamens 3–5:
2. Herbaceous climber; male flowers in short racemes; corolla not winged, lobes ciliate **Ceratiosicyos**
2.' Shrubby herb; male flowers solitary or paired; corolla usually winged ..... **Acharia**

ACHARIA Thunb. 1 sp., S Africa

tragodes Thunb. Monoecious, thinly hairy perennial to 40 cm. Leaves palmatisect, toothed. Flowers 1–few in axils, nodding, greenish. Sept.–Mar. Scrub and forest margins, SE (Uitenhage to KwaZulu-Natal).

CERATIOSICYOS Nees. 1 sp., S Africa

laevis (Thunb.) A.Meeuse Monoecious herbaceous climber. Leaves palmately 5–7-lobed, toothed. Flowers axillary, male flowers in racemes, female flowers solitary, greenish. Fruits cylindrical. Apr.–Aug. Forest margins, SE (Knysna to Limpopo).

KIGGELARIA L. WILD PEACH 1 sp., tropical and southern Africa

africana L. Dioecious, semideciduous tree with smooth grey bark to 17 m. Leaves elliptic, usually toothed, with hairy pockets in lower vein axils, male flowers in axillary cymes, female flowers solitary in axils, yellowish. Fruits round, pale inside with red seeds. Feb.–July. Forest margins and rocky slopes, NW, SW, AP, KM, LB, SE (Namaqualand to tropical Africa).

AIZOACEAE

by C. Klak, except **Acrosanthes**, **Aizoon**, **Galenia** and **Tetragonia**; **Oscularia** by M.H. Buys

1. Petaloid staminodes absent:
2. Fruit indehiscent, a winged or horned nut; ovary inferior or half-inferior (subfamily TETRAGONIOIDEAE) ..... **Tetragonia**
2.' Fruit a loculicidal or septicidal capsule; ovary superior (subfamily AIZOOIDEAE):
3. Ovary incompletely 2-locular; ovules basal, solitary in each locule ..... **Acrosanthes**
3.' Ovary completely 2–5-locular; ovules mainly pendulous, 1–few in each locule:
4. Ovary 4- or 5-locular with 2–many ovules in each locule; capsules with distinct expanding keels ..... **Aizoon**
4.' Ovary 2–5-locular with 1 ovule in each locule; capsules with expanding tissue lacking or rudimentary ..... **Galenia**
1.' Petaloid staminodes present:
5. Placentation axile; keels reaching centre of fruit; nectaries a series of separate grooves (subfamily MESEMBRYANTHEMOIDEAE) ..... **Mesembryanthemum**
5.' Placentation basal or parietal, rarely axile; keels never reaching centre of fruit; nectaries a series of small teeth in a continuous ring or in groups (subfamily RUSCHIOIDEAE):
6. Fruit an indehiscent, fleshy berry ..... **Carpobrotus**
6.' Fruit dry:
7. Fruit a nut, finally disintegrating into nutlets, or breaking into separate units:
8. Leaves triangular to terete in cross section ..... **Conicosia**
8.' Leaves flat:
9. Flowers white; fruit 3–5-chambered:
10. Leaves with idioblasts ..... **Saphesia**
10.' Leaves without idioblasts:
11. Fruit xerochastic, 2 seeds per locule enclosed in chambers of outer wall of capsule ..... **Caryotophora**
11.' Fruit 3-chambered, woody, disintegrating into 2-seeded mericarps ..... **Skiatophytum**
9.' Flowers yellow; fruit > 5-chambered:
12. Idioblasts on leaves differentiated as hairs ..... **Carpanthea**
12.' Leaves without hairs:

13. Stigmas free or shortly connate; fruit hygrochastic with 2 seeds per locule totally enclosed in seed pockets ..... **Apatesia**
13.' Stigmas connate; fruit disintegrating into 1-seeded mericarps ..... **Hymenogyne**

7.' Fruit a loculicidal capsule:
14. Annuals, often flat leaves, with conspicuous bladder cells ..... **Cleretum**
14.' Perennials and shrubs:
15. Capsule opening once only, expanding keels breaking after opening:
16. Locules 8 ..... **Stayneria**
16.' Locules 5:
17. Leaves very soft; flowers yellow ..... **Scopelogena**
17.' Leaves hard; flowers white to pale pink ..... **Stoeberia**
15.' Capsule opening repeatedly, expanding keels remaining functional:
18. Leaves with diadem or terminal whorl of hairs ..... **Trichodiadema**
18.' Leaves without diadem:
19. Fruits 5 or 6(7)-locular:
20. Fruits with closing body:
21. Flowers yellow:
22. Epidermis of leaves a little rough, valve wings very narrow ..... **Rhombophyllum**
22.' Epidermis of leaves smooth, valve wings absent ..... **Bijlia**
21.' Flowers white, magenta, or pink:
23. Closing body very large:
24. Plants with a thick tap-root dividing with age ..... **Marlothistella**
24.' Plants with fibrous roots:
25. Closing body lens-shaped; plants compact; leaf margins with scattered cartilaginous teeth ..... **Acrodon**
25.' Closing body stalked; plants compact or shrubby; leaf margins smooth ..... **Antimima**
23.' Closing body small to medium-sized:
26. Fruits scarcely woody; closing body bipartite ..... **Disphyma**
26.' Fruits woody; closing body rod-shaped:
27. Valve wings present:
28. Fruits 5-locular ..... **Amphibolia**
28.' Fruits 6-locular ..... **Octopoma**
27.' Valve wings absent:
29. Base of fruit funnel-shaped, valves opening to vertical position ..... **Ruschia**
29.' Base of fruit bowl-shaped, valves opening to horizontal position ... **Brianhuntleya**
20.' Fruits without closing body:
30. Flowers yellow:
31. Leaves slender, fairly soft to the touch:
32. Young stems hirsute or rough ..... **Drosanthemum**
32.' Young stems smooth:
33. Surface of ovary (flower) concave, forming hypanthium ..... **Circandra**
33.' Surface of ovary flat to raised ..... **Lampranthus**
31.' Leaves highly succulent, hard to the touch:
34. Leaves united for most of their length, forming a corpuscle ..... **Conophytum**
34.' Leaves only shortly fused at base:
35. Plants with thickened rootstock ..... **Bergeranthus**
35.' Plants without thickened rootstock:
36. Flowers sessile or subsessile:
37. Epidermis with conspicuous elevations ..... **Stomatium**
37.' Epidermis smooth ..... **Faucaria**
36.' Flowers stalked:
38. Leaves laterally compressed in upper part, smooth ..... **Hereroa**
38.' Leaves trigonous, margins with at least some teeth, rarely toothless:
39. Epidermis smooth ..... **Carruanthus**
39.' Epidermis with numerous raised dots:
40. Covering membranes absent or as ledges of septa ..... **Rhinephyllum**
40.' Covering membranes ± complete ..... **Chasmatophyllum**
30.' Flowers white, magenta or pink:
41. Leaves deciduous:
42. Plants tiny, compact, to 30 mm high ..... **Diplosoma**
42.' Plants shrubby, > 50 mm high:
43. Leaves isophyllous ..... **Drosanthemum**
43.' Leaves heterophyllous:
44. Stems nonsucculent ..... **Dicrocaulon**

44.' Stems succulent ..... **Monilaria**
41.' Leaves persistent:
45. Plants short-stemmed, either compact or trailing:
46. Leaves united for most of their length:
47. Petals basally connate forming tube; old leaves forming persistent sheath over new leaves during dry season ..... **Conophytum**
47' Petals free to shortly fused towards base; old leaves persistent throughout dry season ..... **Lithops**
46.' Leaves with at least upper parts free:
48. Fruits 5-locular:
49. Leaves triquetrous-apiculate, with serrate and cartilaginous keel and margins ..... **Braunsia**
49.' Leaves trigonous, keel often oblique ..... **Cerochlamys**
48.' Fruits mostly 6(7)-locular:
50. Top of fruit almost flat ..... **Vlokia**
50.' Top of fruit raised:
51. Leaves basally fused forming sheath ..... **Gibbaeum**
51.' Leaves almost free ..... **Antegibbaeum**
45.' Plants shrubby:
52. Plant with large, tuberous rootstock ..... **Mestoklema**
52.' Plants not tuberous:
53. Covering membranes reduced to narrow rims:
54. Leaves soft to the touch; fruits 5-locular ..... **Delosperma**
54.' Leaves hard to the touch; fruits mostly 6(–10)-locular ..... **Corpuscularia**
53.' Covering membranes ± complete:
55. Young stems hirsute or rough ..... **Drosanthemum**
55.' Young stems smooth:
56. Surface of ovary (flower) concave, forming a hypanthium ..... **Erepsia**
56.' Surface of ovary (flower) flat to raised:
57. Fruits without or with very narrow wings:
58. Fruits 6-locular ..... **Ruschia**
58.' Fruits 5-locular:
59. Subepidermal tannin cells visible as small dark dots ..... **Hammeria**
59.' Leaves without visible subepidermal tannin cells ..... **Esterhuysenia**
57.' Fruits with broad wings:
60. Nectaries consisting of a series of small teeth arranged in 5 groups ..... **Oscularia**
60.' Nectaries consisting of a series of small teeth in a continuous ring:
61. Leaves distinctly fused into sheath at base:
62. Upper part of fruit raised ..... **Phiambolia**
62.' Upper part of fruit almost flat ..... **Hammeria**
61.' Leaves only slightly or not fused into a sheath at base:
63. Lower part of fruits bell-shaped and easily breaking off **Ruschiella**
63.' Lower part of fruits funnel-shaped (rarely bell-shaped), fruits not breaking off ..... **Lampranthus**
19.' Fruits more than 7-locular:
64. Plants with a thickened rootstock:
65. Leaf surface rough from raised dots or warts ..... **Aloinopsis**
65.' Leaves velvety ..... **Deilanthe**
64.' Plants without a thickened rootstock:
66. Plants shrubby:
67. Fruits with closing body:
68. Capsules ± 10-locular ..... **Leipoldtia**
68.' Capsules to 8-locular:
69. Shrub with spines developing after capsules have been shed ..... **Arenifera**
69.' Shrubs not spinescent ..... **Octopoma**
67.' Fruits without closing body:
70. Leaves united at base and continuous with stem ..... **Smicrostigma**
70.' Leaves free or shortly fused towards base but never continuous with stem:
71. Leaves soft to the touch ..... **Malephora**
71.' Leaves hard to the touch:
72. Shrubs 30–100 cm tall; flowers large, to 50 mm diam. ..... **Erepsia**
72.' Shrubs to 20 cm tall; flowers to 30 mm diam.:
73. Fruits with narrow or no valve wings ..... **Zeuktophyllum**
73.' Fruits with broad valve wings ..... **Corpuscularia**

66.' Clump-forming or creeping shrublets:
74. Plants creeping:
75. Leaves soft ..... **Malephora**
75.' Leaves hard:
76. Capsules with small closing body ..... **Jordaaniella**
76.' Capsules with large closing body ..... **Cephalophyllum**
74.' Plants clump-forming or with a central clump and long straggling branches:
77. Leaves heterophyllous ..... **Vanzijlia**
77.' Leaves homophyllous or anisophyllous in a pair:
78. Leaves soft ..... **Glottiphyllum**
78.' Leaves hard:
79. Leaves with conspicuous dark dots:
80. Fruit dark brown, > 10 mm diam. ..... **Pleiospilos**
80.' Fruit light brown, < 10 mm diam. ..... **Tanquana**
79.' Leaves without dark dots:
81. Leaves cylindrical or ± terete ..... **Cylindrophyllum**
81.' Leaves sabre-shaped or triangular:
82. Leaves sabre-shaped ..... **Machairophyllum**
82.' Leaves triangular, basally rounded:
83. Epidermis minutely papillate; fruit with persistent erect or decumbent pedicel ..... **Cheiridopsis**
83.' Epidermis smooth; fruit with pedicels mostly decumbent, rarely erect ..... **Cephalophyllum**

ACRODON N.E.Br.• 6 spp., SW Cape

bellidiflorus (L.) N.E.Br. (= *Ruschia constricta* L.Bolus, *R. duplessiae* L.Bolus, *R. longifolia* L.Bolus, *R. macrophylla* L.Bolus) Tufted, succulent perennial. Leaves trigonous, keel and margins smooth or with 3 or 4 broad-based, flexible teeth. Flowers white to pale pink, ± 35 mm diam. Fruits longer than 20 mm. Apr.–July. Renosterveld, grasslands, or coastal fynbos, SW, KM, LB (Bredasdorp and McGregor to Little Karoo).•

deminutus Klak Spreading, tufted, succulent shrublet to 10 cm. Leaves trigonous, free almost to base, margins toothed. Flowers with petals magenta at base and tips, white between, staminodes white with magenta tips, 15–20 mm diam. Capsule 5-locular, 7–8 mm diam. Sept. Stony quartz outcrops on clay, SW, LB (Swellendam to Bredasdorp).•

parvifolius R.du Plessis Prostrate, succulent perennial with visible internodes. Leaves trigonous, keel smooth or with up to 4 broad-based flexible teeth, margins mostly smooth. Flowers white to pink, ± 20 mm diam. Fruits shorter than 20 mm. Aug.–Sept. Clay streambeds, SW (Hermanus coast).•

purpureostylus (L.Bolus) Burgoyne (= *Cerochlamys purpureostyla* (L.Bolus) H.E.K.Hartmann, *Ruschia purpureostyla* (L.Bolus) Bruyns) Tufted succulent to 15 cm, sometimes with horizontal runners. Leaves trigonous, very fleshy, 25–35 × 4–8 mm, margins and keel sparsely toothed. Flowers on pedicels 20–40 mm long, pale pink to white with a central pink stripe. Capsule 4–6-locular. June. Stony slopes, SW (McGregor to Stormsvleikloof and Montagu).•

quarcicola H.E.K.Hartmann Compact, tufted, succulent perennial. Leaves scimitar-shaped, keels and margins minutely toothed, smooth with age, 15–20 mm long. Flowers pink, petals with dark lateral and central stripes. Fruits shorter than 20 mm. ?. Quartzitic slopes, AP (Agulhas Peninsula).•

subulatus (Mill.) N.E.Br. (= *Ruschia leptophylla* L.Bolus) Compact, tufted, succulent perennial. Leaves subulate, keel and margin often with few broad-based flexible teeth. Flowers white or pale pink, petals with darker central stripe and margins. Fruits longer than 20 mm. Nov.–Apr. Lower slopes in renosterveld and coastal fynbos, SW (Caledon to Stanford).•

ACROSANTHES Eckl. & Zeyh.• SPEKVYGIE 6 spp., SW Cape

anceps (Thunb.) Sond. Sprawling shrublet to 10 cm, branches often trailing. Leaves oblanceolate, mucronate, fleshy, 10–20 mm. Flowers solitary at nodes, white, stamens 15–20. Sept.–Nov. Stony sandstone slopes, NW, SW (Piketberg and Clanwilliam to Goudini).•

angustifolia Eckl. & Zeyh. Like **A. anceps** but leaves to 10 mm. Nov.–Dec. Sandstone slopes, NW (Pakhuis Mtns to Worcester).•

humifusa (Thunb.) Sond. Sprawling, mat-forming shrublet to 5 cm. Leaves bright yellow-green, oblanceolate, apiculate, fleshy, 4–6 mm. Flowers solitary at nodes, subsessile or shortly peduncu-

late, stamens ± 10. Dec.–Jan. Rocky ridges and sandy plateaus, NW, SW (Matsikamma to Riviersonderend Mtns).•

microphylla Adamson Like **A. angustifolia** but leaves blackish green, elliptic-ovate, pseudopetiolate, 4–6 mm, stamens 8–10. Oct.–Dec. Rocky sandstone ridges and summits, NW, KM (Cedarberg to Witteberg.).•

parviflora J.C.Manning & Goldblatt Like **A. humifusa** but flowers smaller, ± 2 mm long, and stamens 5–7. Nov.–Dec. Rocky summit ridges at high altitude, NW (Matroosberg).•

teretifolia Eckl. & Zeyh. Sprawling, diffuse perennial to 80 cm, with woody base. Leaves opposite, subterete, 10–20 mm, fleshy, mucronate. Flowers solitary at nodes, white, stamens > 25. Oct.–Feb. Stony flats and slopes, NW, SW, AP (Tulbagh to Agulhas).•

AETHEPHYLLUM N.E.Br. = **CLERETUM**

AIZOON L. SPEKVYGIE 13 spp., northern Africa extending to India and Afghanistan; southern Africa

A. Flowers terminal

paniculatum L. Prostrate or sprawling subshrub to 50 cm, adpressed-hairy when young. Leaves mostly basal and opposite, oblanceolate. Flowers sessile in flattened, dichotomous paniculate cymes, magenta, sometimes cream-coloured. July–Oct. Dry sandstone and clay slopes and flats, NW, SW (Bokkeveld Mtns to Cape Peninsula).•

sarmentosum L.f Like **A. paniculatum** but leaves subterete, flowers 1–3(–5) at branch tips, white. June–Oct. Dry flats and lower slopes, NW, SW (Namaqualand to Montagu). **gce**

A.' Flowers apparently axillary

canariense L. Prostrate, annual or short-lived perennial to 30 cm, shortly hairy when young. Leaves pseudopetiolate, oblanceolate-spathulate, adpressed-hairy. Flowers sessile in flattened, axillary clusters, yellow-green; sepals small, upcurving. July–Sept. Dry stony flats, often disturbed ground, NW, SE (Namaqualand to Clanwilliam, Karoo to N Africa and Arabia).

glinoides L.f. Like **A. rigidum** but with silky, spreading hairs, and capsules smooth above. Oct.–Jan. Dry stony flats, SE (Langkloof to KwaZulu-Natal).

karooicum Compton Gnarled shrublet to 20 cm. Leaves elliptic-lanceolate, often folded, retrorsely adpressed-hairy. Flowers sessile, apparently axillary, yellow. Mar.–June. Stony flats, often on quartz outcrops, NW, KM (Worcester to Little Karoo).•

rigidum L.f. Grey, adpressed-hairy, prostrate subshrub to 15 cm. Leaves obovate-spathulate, pseudopetiolate. Flowers sessile, solitary in axils, yellow. Capsules sharply angled above. Sept.–Oct. Dry stony slopes, often near the sea, SW, AP, KM, SE (Gansbaai and Little Karoo to East London).

ALOINOPSIS Schwantes ± 8 spp., Karoo to E Cape

rosulata (Kensit) Schwantes Compact, dwarf succulent, with a thick, truncate rootstock to 20 cm long, 2 or 3 leaf pairs to a branch, forming a rosette. Leaves ± erect, spathulate with an apical thickening developing a triangle, ± 30 mm long, 17 mm broad, 5–6 mm thick, with prominent warts. Flowers 1–3, petals yellow with a red stripe. Fruits 10-locular, without closing body. Aug.–Sept. Decomposed shales, in flats or lower slopes, SE (Beaufort West to Willowmore and Steytlerville).

schooneesii L.Bolus Similar to **A. rosulata**, but leaves sunken in the ground, the apical area flat and level with the soil surface, only the triangular tips visible. Aug. Silty flats, SE (Willowmore to Steytlerville).

AMPHIBOLIA L.Bolus ex Herre ± 5 spp., S Namibia and Karoo to W Cape

laevis (Aiton) H.E.K.Hartmann (= *Amphibolia hutchinsonii* (L.Bolus) H.E.K.Hartmann, *Ruschia hutchinsonii* L.Bolus) Sprawling shrublet to 20 cm. Leaves pale green to grey, club-shaped, ± 15

× 6 mm. Flowers solitary, pink, to 20 mm diam. Fruits 5-locular, base funnel-shaped, valve wings present. July. Coastal plains, NW, SW (Vredendal to Melkbosstrand).•

ANTEGIBBAEUM Schwantes ex C.Weber• BASTERVOLSTRUISTONE 1 sp., SW Cape

fissoides (Haw.) Schwantes ex C.Weber Perennial to 8 cm, branched from base into clumps. Leaves in unequal pairs, curved, blunt. Flowers on short pedicels with 2 pairs of bracts below flower, violet-red, to 60 mm diam. Fruits 6- or 7-locular, closing bodies absent. Seeds short and spiny. Aug. Quartz patches, often with *Gibbaeum*, KM (W Little Karoo).•

ANTIMIMA N.E.Br. (= *RUSCHIA* in part) KUSSINGVYGIE ± 100 spp., S Namibia to E Cape

A. Leaves moderately fused, old leaves not forming a sheath

granitica (L.Bolus) H.E.K.Hartmann (= *Antimima limbata* (N.E.Br.) H.E.K.Hartmann, *Ruschia granitica* (L.Bolus) L.Bolus, *R. limbata* (N.E.Br.) Schwantes) Creeping shrublet, branches to 35 cm, rooting at nodes. Leaves trigonous, finely velvety, sharply keeled, keel and margins often reddish, margins finely serrulate, 10–15 × 6 mm at base. Flowers solitary, pink, 18 mm diam. Fruits 5-locular. May–July. Granite or gneissic rocks, often near the sea, NW, SW (Hondeklip Bay to Saldanha). **gce**

hantamensis (Engl.) H.E.K.Hartmann & Stüber Erect, succulent shrub to 25 cm. Leaves trigonous, 10–15 mm long, smooth. Inflorescence with peripheral spines and 1–7 flowers. Fruit with high valve rims. July–Aug. Stony shale soil, NW (Cedarberg to Matjiesfontein). **gce**

lokenbergensis (L.Bolus) H.E.K.Hartmann (= *Ruschia lokenbergensis* L.Bolus) Erect shrublet to 16 cm. Leaves ascending, adaxial surface flat, 5–15 mm long. Flowers solitary, rarely 2 or 3, 15–19 mm diam. May. S-facing, rocky slopes in arid fynbos, NW (Bokkeveld Mtns: Lokenberg to NE Cedarberg).•

maxwellii (L.Bolus) H.E.K.Hartmann (= *Ruschia maxwellii* L.Bolus) Robust shrublet to 6 cm, with branches to 9 mm diam. Leaves enclosing internodes, ascending, mucronate, 17 mm long, sheath 3 mm long. Flowers solitary, stalked, pink, 20 mm diam. ?. KM, SE (Oudtshoorn and Willowmore to Knysna).•

radicans (L.Bolus) Klak (= *Ruschia radicans* L.Bolus) Similar to **A. granitica**, but leaves trigonous without distinct margins, margins smooth, not reddish. June. Loamy sand, NW (Clanwilliam to Eendekuil).•

tuberculosa (L.Bolus) H.E.K.Hartmann (= *Ruschia tuberculosa* L.Bolus) Robust shrublet to 8 cm. Leaves trigonous, epidermis with low papillae, ± 15 mm long, ± 4 mm broad and diam. Flowers solitary, pink, 20 mm diam. July. In pans on granitic rocks, NW (Clanwilliam).•

ventricosa (L.Bolus) H.E.K.Hartmann Compact, resembling a species of *Cheiridopsis*, to 10 cm. Leaves dimorphic, free parts trigonous, papillate, 40–80(–120) mm long, ± 13 mm diam. Flowers solitary, magenta or white, 54 mm diam. Fruits 4–6-locular, without valve wings. June–July. Sandy, stony soil, NW (Hondeklip Bay to Clanwilliam). **gce**

A.' Leaves distinctly fused, old leaves forming a dry sheath around new set of leaves

aristulata (Sond.) Chesselet & G.F.Sm. (= *Antimima concinna* (L.Bolus) H.E.K.Hartmann, *A. menniei* (L.Bolus) H.E.K.Hartmann, *Ruschia aristulata* (Sond.) Schwantes, *R. concinna* L.Bolus, *R. menniei* L.Bolus) Spreading shrublet to 7 cm, with short shoots in axils. Leaf pairs dimorphic, erect to 4 mm, shiny green, with a bristle at apex, margins finely ciliate. Flowers pale pink or magenta to 15 mm diam. Aug. Loamy shale, SW (Malmesbury to Cape Peninsula).•

biformis (N.E.Br.) H.E.K.Hartmann (= *Ruschia biformis* (N.E.Br.) Schwantes) Caespitose to 2.5 cm. Leaves heterophyllous, one pair almost free, 2–7 × 2–3 mm, trigonous, acute to somewhat acuminate, second pair forming a body of 2–5 mm length. Flowers solitary, pedicels 3–4 mm long. Fruits valve wings absent, 4–5 mm diam. ?. Shaly sandstone crevices in succulent karoo, LB (Swellendam).•

brevicarpa (L.Bolus) H.E.K.Hartmann (= *Ruschia brevicarpa* L.Bolus) Tufted shrublet to 20 cm, with branches covered with old leaf remains. Leaves velvety, 4–12 mm long, sheath 2–4 mm long. Flowers pink, ± 15 mm diam. Oct. Rock outcrops at high alt., NW (Clanwilliam, Ceres).•

brevicollis (N.E.Br.) H.E.K.Hartmann (= *Ruschia brevicollis* (N.E.Br.) Schwantes) Low, tufted shrublet. Leaves free, shortly fused below, abaxial surface sharply keeled, pale grey-green. Flowers short-stalked, pink, to 12 mm diam. ?. ?, KM (Ladismith).•

condensa (N.E.Br.) H.E.K.Hartmann (= *Ruschia condensa* (N.E.Br.) Schwantes) Like **A. propinqua** but leaves 6–8 mm long, not hairy and flowers short-stalked, 10 mm diam., pink. ?. ?, LB (Montagu).•

dasyphylla (Schltr.) H.E.K.Hartmann (= *Ruschia concava* L.Bolus, *R. dasyphylla* (Schltr.) Schwantes) Compact shrublet to 20 cm, with branches at first 2-angled. Leaves fused basally, 3–5 mm long, trigonous, keeled, keel and margins finely ciliate. Flowers solitary, magenta, 12 mm diam. Aug. Rocky mountains, NW, KM (W Karoo, Bokkeveld Mtns and Cedarberg to Ladismith). **gce**

distans (L.Bolus) H.E.K.Hartmann (= *Ruschia distans* (L.Bolus) L.Bolus) Erect shrublet 10–12 cm, stems to 4 mm diam. Leaves dimorphic, first pair conical, spreading at the apices, second pair connate, the sheath ventricose, the free portion 3-angled, 4–8 mm long. Flowers solitary, magenta, 15 mm diam. Aug. Stony, flattish areas on sandstone, 450–700 m, NW (Clanwilliam and Ceres Karoo). **gce**

fergusoniae (L.Bolus) H.E.K.Hartmann (= *Ruschia fergusoniae* L.Bolus) Tufted shrublet, with branches to 15 mm long. Leaves thick, adaxial surface keeled, 2–4 mm long. Flowers solitary, sessile, pink with white centre, 10 mm diam. Sept. ?, KM (Barrydale).•

gracillima (L.Bolus) H.E.K.Hartmann (= *Ruschia gracillima* L.Bolus) Slender shrublet to 25 cm. Leaves slender, erect, with a recurved bristly tip, margins and keel finely hairy, green, 13 mm long. Flowers on pedicels to 20 mm long, purplish, 10 mm diam. July–Sept. ?, NW (Nieuwoudtville).•

hamatilis (L.Bolus) H.E.K.Hartmann (= *Ruschia hamatilis* L.Bolus) Decumbent shrublet, with grey branches to 8–12 cm long. Leaves ascending, with flat adaxial surface, tip with small bristle, velvety. Flowers magenta, 14 mm diam. June–Sept. Karroid hills, NW (Worcester).•

insidens (L.Bolus) Chesselet (= *Ruschia insidens* L.Bolus) Densely branched shrublet to 15 cm, with grey stems ± 2 mm thick. Leaves trigonous, to 11 × 3 mm, papillate. Flowers pink, 18 mm diam. Fruits unknown. Apr. ?, NW (Bokkeveld Mtns to Gifberg).•

intervallaris (L.Bolus) H.E.K.Hartmann (= *Ruschia intervallaris* L.Bolus) Succulent shrub, with erect and decumbent branches to 28 cm long, internodes ochre to brown, 30–40 mm long, up to 4 mm diam. First leaf pair with long, loose sheaths enclosing subsequent leaves, free parts up to 35 mm long and 11 mm broad and 9 mm thick, second leaf pair shortly fused, only 9–15 mm long, both types papillate. Flowers solitary, on pedicels up to 15 mm long. Fruit 5-locular. May. Sandstone, NW (Vanrhynsdorp, Clanwilliam, Tanqua Karoo). **gce**

leipoldtii (L.Bolus) H.E.K.Hartmann (= *Ruschia leipoldtii* L.Bolus) Like **A. peersii** but with longer, more slender branchlets, leaves erect, mucronate, sheath 2–3 mm long, and flowers 16 mm diam. Aug.–Oct. Loamy flats or gentle quartzitic slopes, NW (Worcester to Robertson).•

microphylla (Haw.) Dehn (= *Ruschia microphylla* (Haw.) Schwantes) Wiry stemmed shrublet to 10 cm. Leaves crowded on short shoots, enclosed by dried older leaves, 4–5 mm long, set with large transparent dots. Flowers solitary on short pedicels, white with pink tips, ± 20 mm diam. Aug. ?, NW, SW (Piketberg to Paarl and Worcester).•

minutifolia (L.Bolus) H.E.K.Hartmann (= *Ruschia minutifolia* L.Bolus) Compact shrublet to 8 cm. Leaves apiculate, with ciliate margins, dissimilar, lower ones ovate, 3 mm long, upper lanceolate, to 4 mm long. Flowers magenta, 12–15 mm diam. July. Upper rocky slopes, NW (Clanwilliam).•

mucronata (Haw.) H.E.K.Hartmann (= *Ruschia mathewsii* L.Bolus, *R. mucronata* (Haw.) Schwantes) Rigid shrublet to 20 cm. Leaves laterally compressed, keeled adaxially, acute, bristle-tipped, velvety, 10–15 mm long, old leaves dry and persisting. Flowers solitary, pink, 16 mm diam. Apr.–June. Clayish soils, SW (Malmesbury).•

paucifolia (L.Bolus) H.E.K.Hartmann (= *Ruschia paucifolia* L.Bolus) Erect shrublet to 20 cm. Leaves small, 4–5 mm long. Flowers solitary, magenta, ± 10 mm diam. May–July. Rocky, sandstone slopes in dry fynbos, NW (Bokkeveld Mtns).•

peersii (L.Bolus) H.E.K.Hartmann (= *Ruschia peersii* L.Bolus) Lax Low shrubs to 8 cm, 15–30 cm diam. Leaves fused below, sheath 8 mm long, keeled abaxially, to 2 cm long, slender, old leaves persisting. Flowers solitary, magenta with stripe, ± 22 mm diam. Sept. In gravel among renosterbos, NW, LB (Robertson: Bushman's River, Riversdale).•

persistens (L.Bolus) H.E.K.Hartmann (= *Ruschia persistens* L.Bolus) Shrubs to 15 cm. Leaves basally fused into a sheath, acute, green with translucent dots, older leaves drying and persisting. Flowers pink, to 15 mm diam. Aug. ?, KM, LB (Montagu, Ladismith).•

propinqua (N.E.Br.) H.E.K.Hartmann (= *Ruschia propinqua* (N.E.Br.) Schwantes) Caespitose to 2.7 cm. Leaves heterophyllous, one pair almost free, 5–6 × 2–3 mm, trigonous, second pair connate, all glaucous green. Flowers subsessile, pink with dull stripe, 8–16 mm diam. ?. ?, LB (Montagu).•

prostrata (L.Bolus) H.E.K.Hartmann (= *Ruschia prostrata* L.Bolus) A small-leaved version of **A. brevicarpa**, *i.e.* leaves 3 mm long, sheath 2 mm long. Flowers subsessile. ?. Along edges of exposed flat rock surfaces in shallow pockets, at 1 000–1 200 m, NW (Clanwilliam).•

pygmaea (Haw.) H.E.K.Hartmann (= *Ruschia pygmaea* (Haw.) Schwantes) Small, mat-forming shrublet. Leaves dimorphic, upper pair fused almost to tips, 4–5 mm long, drying and enveloping a later pair of free, widely spreading leaves. Flowers solitary, 18 mm diam. Fruits 6-locular. July–Aug. Tillite outcrops, NW, KM (Worcester to Matjiesfontein). **gce**

roseola (N.E.Br.) H.E.K.Hartmann (= *Ruschia roseola* (N.E.Br.) Schwantes) Sprawling shrublet. Leaves fused below, 6–8 mm long, blunt, set with transparent dots. Flowers pale pink, ± 15 mm diam. ?. In gravelly flats, KM (Montagu, Swellendam).•

saturata (L.Bolus) H.E.K.Hartmann (= *Ruschia saturata* L.Bolus) Erect shrublet to 10 cm. Leaves ascending, glossy, tapering, bristle-tipped, margins ciliate. Flowers pink with magenta reverse. ± 18 mm diam. July. ?, NW (Tulbagh).•

sobrina (N.E.Br.) H.E.K.Hartmann (= *Ruschia sobrina* (N.E.Br.) Schwantes) Caespitose to 2.7 cm. Leaves heterophyllous, one pair almost free, trigonous, the second pair connate to above the middle, 3–5 mm long. Flowers magenta with stripe, petals ± 8 mm long. ?. ?, LB (Riversdale).•

stokoei (L.Bolus) H.E.K.Hartmann (= *Ruschia stokoei* L.Bolus) Compact shrublet to 5 cm, with stiff, spreading branches. Leaves united below, sheath 5–11 mm, free part of leaf 9 mm long, mucronate. Flowers magenta with stripe, ± 22 mm diam. July–Aug. Upper slopes, NW, SW (Worcester, Caledon).•

subtruncata (L.Bolus) H.E.K.Hartmann (= *Ruschia subtruncata* L.Bolus) Creeping shrublet, with branches to 25 cm long. Leaves dimorphic, shorter ones to 6 mm long, longer ones 6–10 mm long, fused below. Flowers solitary, stalked, pink, 25 mm diam. Sept. In karroid formation, also in sand or on sandstone, NW (Nieuwoudtville to Sutherland). **gce**

triquetra (L.Bolus) H.E.K.Hartmann (= *Ruschia triquetra* L.Bolus) Erect to decumbent shrubs to 15 cm. Leaves triquetrous, ± 6–8 mm long, with long papillae along keel and margins, mucro erect. Flowers solitary, pedicel 10–15 mm long, petals pink, vittate. June. ?, NW (Clanwilliam).•

verruculosa (L.Bolus) H.E.K.Hartmann (= *Ruschia verruculosa* L.Bolus) Compact shrublet to 7 cm, with red branches later fading grey, minutely papillate when young. Leaves shortly fused basally, bristle-tipped, margins glabrous, to 4 mm long. Flowers short-stalked, magenta, 12 mm diam. Feb.–Sept. ?, NW (Hex River Mtns).•

viatorum (L.Bolus) Klak (= *Antimima bina* (L.Bolus) H.E.K.Hartmann, *Ruschia bina* L.Bolus) Spreading shrublet to 15 cm. Leaves papillate, fused below, free parts to 8 mm long. Flowers solitary, ± 16 mm diam., petals pink, staminodes white, apically dark purple. Aug.–Sept. On gravel or shale in open patches of dense, shrubby vegetation, NW (Bitterfontein to Clanwilliam). **gce**

wittebergensis (L.Bolus) H.E.K.Hartmann Plants caespitose, isophyllous, to 5 cm. Leaves subcymbiform, ± 4 mm long and broad, 2 mm diam. Flowers solitary, petals and filamentous staminodes pinkish purple. Fruits 5- or 6-locular, with narrow valve wings, closing body small. Aug. Karoo veld, KM (Touws River to Laingsburg, W Little Karoo). **gce**

APATESIA N.E.Br.• 3 spp., SW Cape

helianthoides (Aiton) N.E.Br. Annual to 15 cm. Leaves flat, slightly succulent, margins with idioblasts. Flowers yellow. Fruits flat at base, 5-angular, conical above, valve wings lacking. Seeds smooth, light brown. Sept.–Oct. Sandy places, NW (Vanrhynsdorp to Tulbagh).•

pillansii N.E.Br. Annual to 15 cm. Leaves flat, slightly succulent, margins with idioblasts. Flowers yellow with whitish centre. Fruits with a shallow base, slightly domed above, valve wings represented by very narrow membranous rims. Seeds slightly papillate, light brown. Sept. Coastal dunes, SW (Velddrif to Cape Peninsula).•

sabulosa (Thunb.) L.Bolus (= *Apatesia maughanii* N.E.Br.) Annual to 20 cm. Leaves flat, slightly succulent, margins with idioblasts. Flowers yellow. Fruits with a shallow base, flat to slightly domed above, tips of valves forming a cone, valve wings narrow. Seeds papillate, brown. Aug.–Sept. Sandy places, NW (Clanwilliam to Tulbagh).•

APTENIA N.E.Br. = **MESEMBRYANTHEMUM**

ARENIFERA A.G.J.Herre PLAKKERTJIE 4 spp., Richtersveld to W Cape and Karoo

spinescens (L.Bolus) H.E.K.Hartmann (= *Ruschia spinescens* L.Bolus) Shrublet to 40 cm, branches becoming spiny after capsules have been shed. Leaves sticky, trigonous. Flowers in cymes, pink, filamentous staminodes white with pink tips. Fruits 8-locular, complete covering membranes, closing bodies present. ?. Gravel and loamy flats, NW (S Namaqualand and W Karoo to Ceres). **gce**

ARIDARIA N.E.Br. = **MESEMBRYANTHEMUM**

BERGERANTHUS Schwantes 10 spp., E Cape

multiceps (Salm-Dyck) Schwantes Clump-forming perennial. Leaves suberect, tapering, trigonous. Flowers on slender pedicels from a short, branched stem, yellow with pink reverse, 30–40 mm. Fruits 5-locular. Mainly Nov.–Jan. Sandstone outcrops, SE (Joubertina to E Cape: Keiskamma River).

BIJLIA N.E.Br. PRINCE ALBERT VYGIE 2 spp., N and W Cape

tugwelliae (L.Bolus) S.A.Hammer Densely leafy, clump-forming shrublet. Leaves suberect, sabre-shaped, trigonous, to 60 mm long. Flowers ± sessile, yellow, 40–50 mm diam. Fruits 5-locular. Aug. Sandstone outcrops, KM (Bosluiskloof to Prince Albert). **gce**

BRAUNSIA Schwantes ± 5 spp., W Cape and Karoo

apiculata (Kensit) L.Bolus Like **B. geminata** but leaves velvety hairy. July–Sept. Mainly sandstone, NW, KM (Ceres Karoo and Cedarberg to Little Karoo). **gce**

geminata (Haw.) L.Bolus Dwarf, woody perennial, with ascending branches to 15 cm long. Leaves erect, trigonous, united in lower half, scarcely gaping above, smooth. Flowers solitary, white, to 40 mm diam. Fruits woody, 5-locular. Apr.–June. Shale slopes, KM, LB (Ceres Karoo to Little Karoo, Prince Albert). **gce**

maximiliani (Schltr. & A.Berger) Schwantes (= *Lampranthus maximiliani* (Schltr. & A.Berger) L.Bolus) Prostrate shrublet with branches trailing and rooting at nodes, to 17 cm long, fertile branches erect, densely 4-leaved. Leaves velvety, swollen, trigonous, boat-shaped, grey-green. Flowers solitary, pink, filaments reddish at tips, ± 20 mm diam. Fruits small, woody, 5-locular. July–Sept. Rock pavements, NW (Bokkeveld Mtns to Clanwilliam).•

vanrensburgii (L.Bolus) L.Bolus Prostrate perennial with erect flowering branches. Leaves pale glaucous, shiny, erect, trigonous. Flowers solitary on pedicels to 7 mm long, white, to 50 mm diam. Fruits woody, 5-locular. Dec.–Apr. Limestone in shallow pockets of soil, AP (Agulhas Peninsula).•

BRIANHUNTLEYA Chesselet, S.A.Hammer & I.Oliver.• 1 sp., Worcester Karoo

intrusa (Kensit) Chesselet, S.A.Hammer & I.Oliver (= *Ruschia intrusa* (Kensit) L.Bolus) Tufted succulent 7–10 cm, with spreading branches, bearing persistent dry leaves. Leaves swollen-trigonous, obtuse, entire, ± 55 × 8 mm, grey-green. Flowers solitary, to 35 mm diam., with an intrusive calyx tube, pale rose-magenta. Fruits 5-locular. June–July. Shale slopes, NW (Worcester Karoo).•

BROWNANTHUS Schwantes = **MESEMBRYANTHEMUM**

CARPANTHEA N.E.Br.• VETKOUSIE 1 sp., SW Cape

pomeridiana (L.) N.E.Br. (= *Carpanthea calendulacea* (Haw.) L.Bolus, *C. pilosa* (Haw.) L.Bolus) Annual to 20 cm, with softly hairy-papillate stems. Leaves flat, slightly succulent, margins with hair-like papillae. Flowers yellow, calyx with hair-like papillae. Fruits hygrochastic, expanding

keels well developed, breaking into mericarps seed bags incomplete. Sept.–Nov. Sandy flats, NW, SW (Bokkeveld Mtns to Cape Peninsula).•

CARPOBROTUS N.E.Br. HOTTENTOT FIG, SUURVY 13 spp., W Cape to KwaZulu-Natal, Chile, California, Australia

A. Receptacle top-shaped, tapering into pedicel

edulis (L.) L.Bolus Succulent perennial with trailing stems to 2 m long. Leaves straight or slightly curved. Flowers yellow, fading to pink with age, stigmas ± as long as stamens, receptacle top-shaped, tapering into pedicel. Fruits clavate to subglobose, yellowish. Aug.–Oct. Coastal and inland slopes, NW, SW, AP, KM, LB, SE (Namaqualand to E Cape).

mellei (L.Bolus) L.Bolus (= *Carpobrotus pageae* L.Bolus, *C. pillansii* L.Bolus) Succulent perennial with trailing stems to 1.5 m long. Leaves ± straight, 8–18 mm diam. Flowers pink or magenta, 50–80 mm diam., stigmas overtopping stamens, receptacle top-shaped, tapering into pedicel. Fruits clavate, bicarinate when still green. Sept.–Jan. Sandstone slopes, SW, KM, LB (W Cape to Little Karoo).•

A.' Receptacle subclavate to globose, narrowed abruptly into pedicel

acinaciformis (L.) L.Bolus (= *Carpobrotus concavus* L.Bolus, *C. vanzijliae* L.Bolus) Succulent perennial with trailing stems. Leaves robust, sabre-shaped, 15–25 mm diam. Flowers magenta, 70–100 mm diam., top of ovary flattish or depressed towards centre, receptacle bicarinate, oblong or subglobose, not tapering into pedicel. Fruits ovoid. Aug.–Dec. Coastal sands, SW, AP (Saldanha to Mossel Bay).•

deliciosus (L.Bolus) L.Bolus (= *Carpobrotus dulcis* L.Bolus, *C. fourcadei* L.Bolus) Robust, succulent perennial with trailing stems. Leaves almost straight, 12–18 mm diam. Flowers magenta, pink, or white, 60–80 mm diam., top of ovary raised towards centre, receptacle bicarinate, subglobose, not tapering into pedicel. Fruits globose to subglobose. June–Oct. Sand dunes to rocky grasslands, AP, SE (Riversdale to KwaZulu-Natal).

muirii (L.Bolus) L.Bolus Like **C. deliciosus** but leaves narrow, 5–7 mm diam., and flowers 60–90 mm diam., top of ovary depressed in centre. Sept.–Nov. Coastal areas, AP (De Hoop to Still Bay).•

quadrifidus L.Bolus (= *Carpobrotus sauerae* Schwantes) Succulent perennial with trailing stems to 2.5 m long. Leaves straight, 18–25 mm diam. Flowers white, pale pink, or purplish, 120–150 mm diam., receptacle bicarinate, subclavate, not tapering into pedicel, top of ovary convex or flat. ?. Sandy lowlands, NW, SW (S Namaqualand to Saldanha). **gce**

CARRUANTHUS (Schwantes) Schwantes• TIERBEKVYGIE ± 2 spp., SW Cape

peersii L.Bolus Like **C. ringens** but flowers short-stalked, pedicels to 11 mm long and leaves with few or no teeth along the margins. Sept.–Nov. Reddish, sandstone cliffs, SE (Willowmore).•

ringens (L.) Boom (= *Carruanthus caninus* (Haw.) Schwantes) Short-stemmed, branching perennial with fleshy roots. Leaves crowded, lanceolate, trigonous, finely toothed along margins and towards apex, to 60 × 18 mm. Flowers solitary or in dichotomous cymes on pedicels to 100 mm long, yellow, 40–50 mm diam. Fruits 5-locular. Aug.–Oct. On conglomerate in shallow pockets of soil, KM, SE (Calitzdorp to Willowmore).•

CARYOTOPHORA Leistner• 1 sp., SW Cape

skiatophytoides Leistner Weakly succulent perennial, with spreading branches. Leaves flat, fleshy, lanceolate-spathulate. Flowers terminal on pedicels 3–10 cm long, white, 40–60 mm diam. Fruits with nut-like, woody mericarps. Oct.–Nov. Sandy flats, AP (Agulhas Peninsula: Brandfontein).•

CEPHALOPHYLLUM (Haw.) N.E.Br. 30 spp., S Namibia to W Cape

A. Leaves trigonous

curtophyllum (L.Bolus) Schwantes (= *Cephalophyllum rhodandrum* L.Bolus) Compact or sprawling succulent. Leaves trigonous, pointed, dark green, 30–55 mm long. Flowers cream-coloured

with magenta filaments or magenta with white filaments and yellow anthers. Fruits with narrow valve wings, covering membranes narrowly recurved. Aug. Open slopes or in karroid scrub, NW (Cedarberg and W Karoo). **gce**

diversiphyllum (Haw.) H.E.K.Hartmann (= *Cephalophyllum bredasdorpense* L.Bolus, *C. caledonicum* L.Bolus, *C. vandermerwei* L.Bolus) Like **C. subulatoides** but flowering stems annual. Sept. Coastal renosterveld or fynbos, SW, AP, LB (Bredasdorp to Mossel Bay).•

subulatoides (Haw.) N.E.Br. (= *Cephalophyllum diminutum* (Haw.) L.Bolus) Compact succulent with short, thickened stems. Leaves trigonous, dark green. Flowers magenta, filamentous staminodes white. Fruits usually with rounded base, 12-locular, with persistent stalks. July–Aug. Humus-rich soils under shrubs, KM, LB (Little Karoo).•

A.' Leaves terete

alstonii Marloth ex L.Bolus (= *Cephalophyllum franciscii* L.Bolus) Clump-forming succulent. Leaves 60–120 mm long, whitish grey, erect. Flowers in many-flowered cymes, magenta. Fruits 18–20-locular, stalks persistent. June–Sept. Dry sandstone slopes, NW (W Karoo and Clanwilliam to Ceres). **gce**

loreum (L.) Schwantes (= *Cephalophyllum cedrimontanum* L.Bolus, *C. decipiens* (Haw.) L.Bolus) Compact to sprawling succulent. Leaves terete. Flowers yellow with whitish stamens. Fruits 15–17-locular, to 16 mm diam. June–Aug. Sandstone slopes in loam above 600 m, NW (Gifberg to Swartruggens).•

parviflorum L.Bolus Prostrate succulent? Leaves to 50 mm. Flowers < 25 mm diam., yellow. Fruits unknown. July. Sandy coastal flats, SW (Saldanha to Milnerton).•

parvulum (Schltr.) H.E.K.Hartmann (= *Cheiridopsis parvula* (Schltr.) N.E.Br. Compact succulent. Leaves rounded, short, 10–17 mm long. Flowers pink. Fruits unknown. ?. ?, NW (Clanwilliam).• EXTINCT

purpureo-album (Haw.) Schwantes (= *Cephalophyllum gracile* L.Bolus, *C. littlewoodii* L.Bolus, *C. middlemostii* L.Bolus, *C. worcesterense* L.Bolus) Clump-forming succulent. Leaves terete, dark green. Flowers yellow with white or pale yellow stamens. Fruits 13–17-locular, stalks slender, ephemeral. May–Sept. Gravel flats, SW, KM, LB (Little Karoo, Robertson Karoo).•

rostellum (L.Bolus) H.E.K.Hartmann (= *Vanzijlia rostellum* [sphalm.] L.Bolus) Prostrate perennial with trailing branches with long internodes. Leaf pairs adpressed like a beak, to 20 mm long, magenta-tinged. Flowers magenta. Fruits small, 7–9 mm diam. June. Humus-rich soils near the sea, SW (Saldanha).•

tricolorum (Haw.) Schwantes (= *Cephalophyllum crassum* L.Bolus, *C. tenuifolium* L.Bolus) Prostrate succulent. Leaves terete, usually dark green. Flowers yellow with orange-magenta filaments and magenta anthers. Fruits without persisting stalks, 15–17-locular. July–Sept. In low karroid bush, NW (S Namaqualand to Clanwilliam). **gce**

CEROCHLAMYS N.E.Br.• PRONKVINGERTJIES 3 spp., Little Karoo

gemina (L.Bolus) H.E.K.Hartmann Compact perennial, tufted with age. Leaves trigonous, grey, 25–35 mm long. Flowers solitary, terminal, pink, to 30 mm diam.; sepals 6. Fruits 6-locular, closing bodies obscure. May–July. Sandstone rocks and scree, KM (Witteberg and Swartberg).•

pachyphylla (L.Bolus) L.Bolus Compact perennial, tufted with age. Leaves trigonously clavate, smooth, to 40 mm long. Flowers 1–3, terminal, subsessile, pink, to 30 mm diam. Fruits 5-locular, closing bodies absent or obscure. May–July. Sandstone rocks, KM (Barrydale to Oudtshoorn).•

trigona N.E.Br. Compact perennial. Leaves trigonous, keeled, mostly as broad as thick. Flowers magenta with white centre, 30–40 mm diam., staminodes in a central cone. Fruits 5-locular. ?. Stony flats, LB, SE (Swellendam, Oudtshoorn).•

CHASMATOPHYLLUM Dinter & Schwantes 7 spp., Namibia, E Cape, Free State, Karoo to S parts of Mpumalanga

braunsii Schwantes (incl. **C. willowmorense** (L.Bolus) L.Bolus) Low, tiny, succulent shrub with 1 or 2 leaves per branch, internodes invisible. Leaves semi-ovate, covered in white warts, 7–14 mm long, 3–5 mm broad and thick. Flowers almost sessile, petals in two rows, 6–9 mm long, yellow,

filamentous staminodes absent. Fruits top almost flat, closing body very small, valve wings ending in awns, 5-locular. Nov. ?, SE (Laingsburg to Willowmore).

musculinum (Haw.) Dinter & Schwantes Compact to shrubby succulent plants with short, thickish rhizomes forming adventitious roots. Leaves trigonous to triquetrous, keel and margins with 0–4 teeth, epidermis rough, 10–25 mm long, 4–5 mm broad and thick. Flowers almost sessile, petals deep yellow, outside reddish suffused, flowers open in the afternoon. Fruits long stalked, top almost flat, 5-locular. Nov.–Dec. In flats, in shale or coarser sand or gravel, SE (as for genus).

stanleyi (L.Bolus) H.E.K.Hartmann Low, succulent shrub, 7–9 cm, with stout, woody rootstock, branches ascending, internodes basally to 7 mm diam. Leaves trigonous, keel with prominent, recurved tooth below apex, epidermis cells raised, 10–13 mm long, 3 mm broad, to 4 mm thick. Flowers solitary, 20–24 mm diam., flowering branches protruding above plants, yellow. Fruit valve wings very broad, 5-locular. Sept.–Oct. On stony to shaly slopes, SE (Laingsburg to E Cape and Karoo).

CHEIRIDOPSIS N.E.Br. 23 spp., Namibia to W Cape

namaquensis (Sond.) H.E.K.Hartmann (= *Cheiridopsis cigarettifera* (A.Berger) N.E.Br., *C. duplessii* L.Bolus) Like **C. rostrata** but leaves with serrated keels and fruits > 10-locular, with narrow flag-shaped valve wings. July–Sept. Shale slopes and flats, 300–900 m, NW, SW, KM, LB (Namaqualand and W Karoo to Little Karoo). **gce**

rostrata (L.) N.E.Br. (= *Cheiridopsis carnea* N.E.Br., *C. inspersa* (N.E.Br.) N.E.Br., *C. purpurascens* (Salm-Dyck) N.E.Br., *C. velutina* L.Bolus) Compact, densely branched succulent. Leaves weakly heterophyllous, drying to form a cylindrical, papery sheath. Flowers yellow fading red. Fruits < 10-locular, valve wings awn-shaped. July–Sept. Granite outcrops, NW, SW (Namaqualand to Darling). **gce**

CIRCANDRA N.E.Br.• 1 sp., SW Cape

serrata (L.) N.E.Br. (= *Erepsia serrata* (L.) L.Bolus) Sparsely branched shrublet to 60 cm. Leaves to 35 mm long, trigonous, acute, free at bases, margins toothed. Flowers solitary, yellow, to 50 mm diam., filamentous staminodes absent. Fruits 5-locular, ± 12 mm diam. Nov.–Jan. Shale fynbos, 400–500 m, NW, SW (Tulbagh to Villiersdorp).•

CLERETUM N.E.Br. (= *AETHEPHYLLUM, DOROTHEANTHUS, MICROPTERUM*) 14 spp., W Cape, Karoo, Namaqualand

A. Leaves lyrate to pinnatifid

herrei (Schwantes) Ihlenf. & Struck (= *Micropterum herrei* Schwantes) Prostrate, papillose annual. Leaves lyrate. Flowers small, sessile, white. Fruits with large valve wings. Aug. Frequent after fires at lower slopes, SW, AP, SE (Cape Peninsula to Potberg, Knysna and Nature's Valley).•

lyratifolium Ihlenf. & Struck Prostrate to decumbent, succulent annual. Leaves irregularly lyrate, stem-clasping. Flowers short-stalked or sessile, solitary, 4–5 mm diam., white. Fruit with a 30–40 mm long stalk. Aug.–Sept. In gravel, NW (Swartruggens to Laingsburg and Fraserburg).

pinnatifidum (L.f.) N.E.Br. (= *Aethephyllum pinnatifidum* (L.f.) N.E.Br.) Prostrate annual. Leaves flat, lyrate, papillate. Flowers solitary, small, yellow. Fruits 5-locular with funnel-shaped base. Sept.–Oct. Recently burnt areas, 500–550 m, NW, SW (Gifberg to Paarl).•

A.' Leaves linear to spathulate
B. Flowers subsessile or short-stalked

apetalum (L.f.) N.E.Br. (= *Dorotheanthus apetalus* (L.f.) N.E.Br., *D. gramineus* (Haw.) Schwantes) Small, tufted annual. Leaves linear to ligulate. Flowers subsessile, white, petals shorter than sepals. Fruits with small, half-circular closing bulge. July–Sept. Coastal flats, SW, AP (Yzerfontein to Cape Agulhas).•

papulosum (L.f.) N.E.Br. (= *Micropterum papulosum* (L.f.) Schwantes) Trailing, papillose, annual succulent. Leaves ligulate to spathulate. Flowers small on a short pedicel, yellow. Fruits with high rims. Sept.–Oct. Sandy places, NW, SW, KM, LB (Namaqualand and Bushmanland to Mossel Bay).

B.' Flowers long-stalked

bellidiforme (Burm.f.) Rowley (=*Dorotheanthus acuminatus* L.Bolus, *D. bellidiformis* (Burm.f.) N.E.Br., *D. bidouwensis* L.Bolus, *D. flos-solis* (A.Berger) L.Bolus, *D. hallii* L.Bolus, *D. littlewoodii* L.Bolus, *D. martinii* L.Bolus, *D. muirii* N.E.Br., *D. oculatus* N.E.Br., *D. ululari*s Brusse) BOKBAAIVYGIE Tufted annual. Leaves ligulate to spathulate. Flowers on pedicels to 25 mm long, red, yellow, salmon or white, 20–30 mm diam., petals longer than sepals. Fruits with large or small closing bulge. Aug.–Sept. Mostly on sandy flats, NW, SW, AP, KM, LB (Namaqualand to Still Bay). **gce**

clavatum (Haw.) Klak (= *Dorotheanthus clavatus* (Haw.) Struck, *D. gramineus* auct.) Tufted annual. Leaves linear. Flowers stalked, orange, white or pink, petals much longer than sepals. Fruits with small, half-circular closing bulge. Aug.–Sept. Saline places, SW (Hopefield to Darling).•

CONICOSIA N.E.Br. GANSIES, SNOTWORTEL, VARKSLAAI 2 spp., Namaqualand to E Cape

elongata (Haw.) N.E.Br. Prostrate perennial with tuberous rootstock. Leaves cylindrical to half-cylindrical in section. Flowers white or yellow, styles free. Fruits xerochastic, shed at maturity. Sept. Sandy flats, NW, SW (Richtersveld and Karoo to Touws River).

pugioniformis (L.) N.E.Br. (= *Conicosia australis* L.Bolus) Tufted perennial to 40 cm, with thick tap root. Leaves trigonous. Flowers yellow, styles free. Fruits xerochastic. Sept.–Nov. Sandy flats, mostly coastal, NW, SW, AP, LB, SE (Richtersveld to Port Elizabeth). **gce**

CONOPHYTUM N.E.Br. TOONTJIES, CONE PLANT 86 spp., S Namibia to W Cape

A. Flowers diurnal

albiflorum (Rawe) S.A.Hammer Succulent perennial forming dense flat mats. Leaf bodies 8–15 mm long, lobes acutely keeled, glabrous, spotted and streaked, sheath whitish or reddish brown, persistent. Flowers diurnal, white. Fruits 4- or 5-locular. Mar.–June. Depressions in granite outcrops, NW, SW (S Namaqualand to St Helena Bay). **gce**

bicarinatum L.Bolus Like **C. luckhoffii** but leaf bodies much larger, 12–30 × 8–15 × 5–10 mm, and lighter green. ?. Sandstone kloofs in shaded crevices or ledges, NW (Clanwilliam to Porterville).•

luckhoffii Lavis Densely tufted perennial with very short internodes. Leaf bodies bilobed, keeled, spotted and streaked, mostly 8–15 × 4–8 × 2–5 mm, sheath papery, pale brown, spotted, persistent. Flowers diurnal, outer petals magenta, inner white. Fruits 4- or 5-locular. Mar.–June. ?, NW (Bokkeveld Mtns to Citrusdal).•

minusculum (N.E.Br.) N.E.Br. Succulent perennial forming low mats. Leaf bodies 5–15 mm long, often depressed or slightly keeled, spotted and streaked, glabrous or papillate, sheath light brown or white, spotted and streaked, persistent. Flowers diurnal, tube yellow, petals magenta, sometimes white, filamentous staminodes white to gold. Fruits 4- or 5-locular. Mainly Mar.–June. Sandstone slopes and pavements, NW (Bokkeveld Mtns to Gifberg).•

minutum (Haw.) N.E.Br. Succulent perennial forming mats or cushions. Leaf bodies 15–20 mm long, obconic, truncate, sometimes concave, glabrous or minutely papillate, spotted, sheath papery, whitish or pale brownish, persistent and forming collars. Flowers diurnal, magenta to pink, sometimes white. Capsule 4- or 5-locular. Mar.–June. Quartzite, calcrete, shale or granite, NW (Namaqualand to Olifants River Mouth). **gce**

swanepoelianum Rawe (= *Conophytum rubrolineatum* Rawe) Tufted perennial forming mats or domes. Leaf bodies 5–8 × 2–8 × 2–8 mm, cylindrical to obconic, top flat to convex, keeled or depressed, smooth or papillate, greyish green or purplish brown, with radiate spots or streaks, sheath white, persisting. Flowers diurnal, white, pink, magenta or yellow. Fruit 4–6-locular. Mar.–May. In moss on sandstone pavements, NW (Bokkeveld Mtns).•

turrigerum (N.E.Br.) N.E.Br. Succulent perennial forming loose tufts. Leaf bodies 5–25 mm long, clavate and bilobed at 'turreted' or faceted apex, usually spotted and lined, sheath whitish, spotted, not persisting. Flowers diurnal, pale pink, lilac or white. Fruits (3)4- or 5-locular. Apr. Granite outcrops, SW (Darling to Paarl).•

A.' Flowers nocturnal

comptonii N.E.Br. Succulent perennial forming cushions to 20 mm. Leaf bodies 3–5 mm long, obconic, glabrous, markings radiate, sheath dark brown, persistent. Flowers nocturnal, yellowish

pink to pale orange or brownish. Fruits 4- or 5-locular. Mar.–June. Sandstone pavements, NW (Bokkeveld Mtns to Matsikamma).•

ficiformе (Haw.) N.E.Br. Succulent perennial forming compact mats or domes. Leaf bodies 20–30 mm long, fig-shaped, often 2-lobed, glabrous or slightly pubescent, spotted or streaked, sheath yellowish to white, wrinkled, marked with tannin spots, persistent. Flowers initially vespertine later diurnal, occasionally paired, pale yellow, pink or whitish. Fruits 4–6-locular. Mar.–June. Laminated, upturned shales or tillites, NW, SW (Worcester, Robertson, Montagu).•

joubertii Lavis Succulent perennial forming tight domes to 30 mm. Leaf bodies 5–9 mm long, elongate-pyriform or top-shaped, sometimes slightly bilobed and keeled, glabrous, often shiny, faintly streaked, sheath pale tan, spotted, persisting as a collar. Flowers initially nocturnal, tube to 4 mm long, petals white to pale yellow. Fruits 4-locular. Mar.–June. Shale, quartzite, KM (Barrydale to Vanwyksdorp).•

minimum (Haw.) N.E.Br. (= *Conophytum pictum* (N.E.Br.) N.E.Br., *C. wittebergense* de Boer) Succulent perennial forming loose mats or domes. Leaf bodies 8–15 mm long, elliptic in outline, glabrous to finely papillate, finely spotted and streaked, sheath white, often striate, persistent. Flowers nocturnal, white, pale yellow or pale pink. Fruits 4- or 5-locular. May–June. Shale or sandstone rocks, KM (Witteberg and Little Karoo).•

obcordellum (Haw.) N.E.Br. (= *Conophytum parviflorum* N.E.Br., *C. spectabile* Lavis) Succulent perennial, forming dense mats or cushions, sometimes single or double. Leaf bodies 8–20 mm diam., round, elliptic, reniform or roughly hexagonal in outline, spotted and streaked, sheath papery, whitish to rusty brown, densely spotted, persistent. Flowers nocturnal, white to yellowish or pink. Fruits 4–6-locular. Mar.–June. Sandstone, NW (Namaqualand and W Karoo to Ceres). **gce**

piluliformе (N.E.Br.) N.E.Br. (= *Conophytum archeri* Lavis, *C. subconfusum* Tischer) Succulent perennial forming mats or domes. Leaf bodies pill-shaped, 4–8 mm long, finely spotted and streaked, sheath white or brownish, often spotted, semipersistent. Flowers nocturnal, maroon, pink, salmon or purplish. Fruits 4-locular. May. Exposed shale bands, with or without quartz, KM, LB (Little Karoo).•

truncatum (Thunb.) N.E.Br. (= *Conophytum muirii* N.E.Br., *C. multipunctatum* Tischer, *C. pisinnum* (N.E.Br.) N.E.Br.) Succulent perennial forming domes to 15 cm diam. Leaf bodies 6–30 mm long, obconic to cylindrical, truncate, marked with tannin spots, sheath whitish, spotted, papery, persistent. Flowers nocturnal, tube white or yellow, petals white, grey or amber. Fruits 4–7-locular. Mar.–Apr. In between stones, in crevices or under bushes, NW, LB, SE (Robertson to Steytlerville).

uviformе (Haw.) N.E.Br. Succulent perennial forming mats or domes. Leaf bodies 8–25 mm long, subglobose, sometimes flattened, glabrous or slightly papillate, often streaked or lined, sheath brownish grey, persistent. Flowers nocturnal, white to pink or yellow. Fruits 5- or 6-locular. Mar. Quartzite patches on shales, granites or calcretes, NW (Namaqualand to W Karoo and Bokkeveld Mtns). **gce**

CORPUSCULARIA Schwantes ± 8 spp., E Cape

lehmannii (Eckl. & Zeyh.) Schwantes (= *Delosperma lehmannii* (Eckl. & Zeyh.) Schwantes) Compact, densely leafy perennial with some long shoots and later with numerous short shoots. Leaves trigonous, hard to the touch, glaucous. Flowers orange or yellow. Fruits 6(–10)-locular. Nov.–Apr. Karroid slopes, SE (Uitenhage to Port Elizabeth).•

CYLINDROPHYLLUM Schwantes ± 5 spp., W Cape and Karoo

comptonii L.Bolus Cushion-like, branched perennial 13 × 25 cm. Leaves erect to spreading, subcylindrical, acuminate or acute, to 90 × 10 mm. Flowers solitary, terminal, silvery white, 75 mm diam. Fruits 5–8-locular, with small closing bodies. Sept.–Dec. Karroid veld, KM (Prince Albert and Little Karoo). **gce**

DEILANTHE N.E.Br. 3 spp., Little and Great Karoo to Free State

peersii (L.Bolus) N.E.Br. Perennial with fleshy, turnip-like roots. Leaves thick, triangular, velvety. Flowers nocturnal, solitary, yellow, to 25 cmm diam. Fruits 8–12-locular, with small closing bodies. Sept. Shale gravel, silt or quartz pebbles, KM (Matjiesfontein to Uniondale and Karoo).

DELOSPERMA N.E.Br. SKAAPVYGIE ± 158 spp., W Cape and Namibia to E Africa

A. Plants sprawling or prostrate

guthriei Lavis Sprawling, succulent perennial. Leaves ascending, triangular, apiculate, smooth, to 20 mm long. Flowers solitary on pedicels to 20 mm long, white, to 26 mm diam., filamentous staminodes recurved. Fruits unknown. Feb.–Mar.. Coastal sand or rocks, SW (Caledon).•

hollandii L.Bolus Creeping, succulent perennial, with 2-angled stems to 30 cm. Leaves suberect, apiculate, acute. Flowers in threes on pedicels to 15 mm long, white, to 25 mm diam. Fruits 5-locular, 5–6 mm diam. Feb.–June. ?, SE (Uitenhage to Port Elizabeth).•

inconspicuum L.Bolus Prostrate perennial with branches to 40 cm from a woody caudex. Leaves suberect, acuminate, recurved. Flowers in many-flowered cymes, white, small. Fruits 5-locular. Feb.–Apr. ?, LB, SE (Swellendam to Knysna).•

litorale (Kensit) L.Bolus KALKKLIPVYGIE Decumbent shrublet to 15 cm, with trailing stems to 35 cm long. Leaves spreading, subfalcate with white margins. Flowers in threes on pedicels to 20 mm long, white. Fruits unknown. Apr. Coastal limestone flats, NW, SW, AP, SE (Lambert's Bay to Humansdorp).•

macrostigma L.Bolus Tufted shrub with slender branches. Leaves spreading, subterete, papillate. Flowers 1–3 in groups, white or pale pink, to 20 mm diam. Fruits ?-locular, ± 7 mm diam., with rims of valves elevated. Jan.–Apr. ?, LB (Swellendam).•

mariae L.Bolus Similar in habit to **D. guthriei**, but leaves minutely papillate, and shorter, *i.e.* to 15 mm long. Flowers 1-3, purplish, to 10 mm diam. Fruits 5-locular, with narrow rims from septa. Jan.–Feb. Limestone flats, AP (Agulhas Peninsula).•

multiflorum L.Bolus Prostrate to ascending shrublet, with finely papillate branches to 25 cm long. Leaves spreading, subterete to terete. Flowers in many-flowered cymes, pink, to 12 mm diam. Fruits unknown. Mar.–July. ?, SE (George to Hankey).•

uitenhagense L.Bolus Densely branched, prostrate to decumbent shrublet, stems to 30 cm long. Leaves spreading, subterete. Flowers in cymes on pedicels 2–5 mm long, white, to 20 mm diam. Fruits ?-locular, ± 5 mm diam. Mar.–Apr. ?, SE (Uitenhage).•

uncinatum L.Bolus Sprawling, succulent perennial, with grey stems to 45 cm long. Leaves very smooth, recurved, 15–30 mm long, 2–4 mm broad and thick. Flowers in cymes on pedicels to 15 mm long, white. Fruits 5-locular, ± 6 mm diam. Mar.–Apr. ?, SE (Uitenhage).•

A.' Plants decumbent to erect
B. Dwarf shrubs < 10 cm high

parviflorum L.Bolus Tufted shrublet to 6 cm. Leaves spreading, to 14 mm long. Flowers solitary, subsessile, bright yellow to golden, to 8 mm diam. Fruits ?-locular, ± 5 mm diam. Jan.–Mar.. ?, SE (Uitenhage).•

patersoniae (L.Bolus) L.Bolus Dwarf shrublet with compressed stems. Leaves trigonous, recurved, margins ciliate. Flowers 1–3 in groups on pedicels to 15 mm long, white. Fruits unknown. Nov.–Mar.. ?, SE (Port Elizabeth).•

saxicola Lavis Tufted succulent to 4 cm. Leaves spreading, linear, acute. Flowers solitary on pedicels to 6 mm long, pink. Fruits unknown. Oct. Coastal cliffs, SE (Humansdorp).•

B.' Shrublets > 10 cm high

burtoniae L.Bolus Erect, densely branched shrublet to 15 cm, stems slightly papillate. Leaves acute, recurved, to 25 mm long, narrow. Flowers yellow or coppery red, to 30 mm diam. Fruits 5-locular. Jan. ?, NW (?Hex River Mtns).•

calitzdorpense L.Bolus Densely branched shrublet to 10 cm, with grey stems. Leaves spreading, keeled. Flowers 1–3, white. Fruits unknown. Dec. ?, KM (Calitzdorp).•

crassum L.Bolus Erect, succulent shrub, to 30 cm, basal stem up to 45 mm diam., stems shiny yellowish brown. Leaves erect to spreading, subterete, 15–25 mm long, up to 3 mm thick, bright green. Flowers solitary, up to 25 mm diam., petals straw-coloured. July–Aug. Stony ground, NW (Namaqualand to Vredenburg). **gce**

ecklonis (Salm-Dyck) Schwantes Diffuse shrublet with slender branches. Leaves trigonous, recurved, papillate, to 25 mm long, narrow. Flowers in cymes, white. Fruits 5-locular. July–Oct. ?, SE (Humansdorp to Uitenhage).•

esterhuyseniae L.Bolus Compact to cushion-like shrublet, with stems covered by old leaves. Leaves subclavate, erect, apex rounded. Flowers solitary, white, 35 mm diam. Fruits with high rims on valves. Nov.–Mar. Rock crevices and cliffs, SE (Uniondale and Langkloof).•

fredericii Lavis Shrublet to 25 cm. Leaves trigonous, acute, 10–15 mm long, narrow. Flowers in many-flowered cymes on pedicels 6–13 mm long, pale brick-coloured, fading darker. Fruits unknown. Feb.–Apr. ?, SE (Uitenhage).•

gratiae L.Bolus (= *Delosperma longii* L.Bolus) Erect shrublet to 60 cm. Leaves suberect, S-shaped. Flowers in lax cymes on pedicels 5–10 mm long, magenta. Fruits with valves often gaping. Dec.–June. ?, SE (Port Elizabeth).•

inaequale L.Bolus Erect shrublet to 20 cm. Leaves suberect. Flowers several on pedicels to 20 mm long, magenta, ± 40 mm diam. Fruits ?-locular, 6 mm diam., rims erect. Sept. ?, SW (Bredasdorp).•

neethlingiae (L.Bolus) Schwantes Slender, tuberous-rooted shrublet to 15 cm, with papillate stems. Leaves subterete, apically recurved, with apical papillae resembling a diadem. Flowers 1–3 in groups, magenta, to 13 mm diam. Fruits 5-locular. Apr.–Sept. ?, SW, LB (Caledon to Mossel Bay).•

pageanum (L.Bolus) L.Bolus Erect shrublet to 30 cm. Leaves spreading, papillate. Flowers 1–3 in groups on papillate pedicels, magenta, to 16 mm diam. Fruits ± 4 mm diam., valve wings broad, septa without rims. May–June. Karroid hills, NW, KM (Worcester, Montagu).•

pubipetalum L.Bolus Erect, lax, deciduous shrublet to 30 cm. Stems papillate. Leaves ± erect, subterete, papillate. Flowers solitary, pink. Fruits ?-locular, ± 7 mm diam. Dec. ?, KM (Montagu).•

subincanum (Haw.) Schwantes Erect, branched shrubs to 60 cm. Leaves soft, young ones finely papillate, trigonous, apically recurved, < 25 mm long. Flowers mostly ternate, petals white. Fruits 5-locular. Sept.–Oct. Among karroid shrubs, KM, SE (Matjiesfontein to E Cape and Great Karoo).

virens L.Bolus Erect shrublet to 50 cm. Leaves falcate, bright green. Flowers solitary, magenta, to 35 mm diam. Fruits ?-locular, with narrow valve wings. Jan.–May. Limestone hills, LB (Mossel Bay).•

DICROCAULON N.E.Br. 7 spp., Namaqualand to Tanqua Karoo

microstigma (L.Bolus) Ihlenf. Robust, cushion-forming shrubs, 10 × 30 cm. Leaves heterophyllous, deciduous, papillate. Flowers solitary on pedicels to 40 mm long, magenta. Fruit mostly 6-locular. Aug.–Sept. Shallow soil, often in quartz pebble patches, NW (Vanrhynsdorp to Klawer and Tanqua Karoo). **gce**

DIPLOSOMA Schwantes EENDEVOETVYGIE 2 spp., S Namaqualand to W Cape

retroversum (Kensit) Schwantes (= *Diplosoma leipoldtii* L.Bolus) Tufted, stemless, deciduous perennial to 3 cm, with fibrous roots. Leaves paired, to 25 mm long, fused basally or up to half way on one side, soft, pulpy, with some hyaline dots. Flowers solitary, purplish, ± 18 mm diam. Fruits 6- or 7-locular, without a tubercle. Sept. Quartzitic gravel over clay, NW (Eendekuil to Piekenierskloof).•

DISPHYMA N.E.Br. ± 4 spp., W Cape coast, Australia and New Zealand

crassifolium (L.) L.Bolus Mat-forming perennial, rooting at nodes. Leaves 25–35 mm long, trigonous, shortly acuminate, smooth, dark green, with translucent dots. Flowers 1–3, terminal, white to rose-red, 40 mm diam. Fruits 5-locular, pale yellow, sponge-like. July–Oct. Coastal rocks just above high-tide mark, NW, SW, AP, SE (Lambert's Bay to Port Elizabeth, S Australia).

dunsdonii L.Bolus Like **D. crassifolium** but leaves 5–9 mm long and flowers 20–25 mm diam. Sept.–Oct. Salt pans, SW, AP (Bredasdorp).•

DOROTHEANTHUS Schwantes = **CLERETUM**

DROSANTHEMUM Schwantes DOUVYGIE 110 spp., Namibia to E Cape

A. Bladder cells on stems hair-like

attenuatum (Haw.) Schwantes Like **D. striatum** but prostrate with slender stems and petals white with red stripes. Nov. ?, SW, LB (Caledon to Riversdale).•

austricola L.Bolus Laxly branched, decumbent, papillate shrublet, stems to 15 cm. Leaves terete, obtuse. Flowers solitary, magenta. Fruits 5-locular. Sept. Limestone flats, AP (Agulhas Peninsula).•

barkerae L.Bolus Erect, papillate shrublet to 60 cm. Leaves terete, obtuse. Flowers solitary on short shoots, 22 mm diam., magenta. Fruits unknown. ?. ?, KM (Oudtshoorn).•

calycinum (Haw.) Schwantes Sprawling, papillate shrublet to 50 cm. Leaves cylindrical, obtuse, with shiny papillae. Flowers in cymes, white, filamentous staminodes in a cone, later recurving. Fruits 5-locular, false septum present. Sept.–Nov. Stony slopes, NW, SW (Clanwilliam to Ceres and Malmesbury).•

candens (Haw.) Schwantes Mat-forming, papillate shrublet. Leaves cylindrical, incurved, obtuse, grey, glittering. Flowers in cymes, pale pink or white. Fruits unknown. Oct.–Jan. Coastal rocks, SW, AP (Cape Peninsula to Bredasdorp).•

floribundum (Haw.) Schwantes Sprawling, papillate shrublet to 30 cm. Leaves subterete, shiny. Flowers solitary on short shoots, magenta with white centre. Fruits 5-locular. Sept.–Dec. Often near the sea, NW, SW, KM, LB, SE (W to E Cape). •

hispidum (L.) Schwantes Erect or spreading shrublet to 60 cm, with red, mostly hispid branches. Leaves terete, obtuse, bending downwards, densely papillate. Flowers solitary, magenta. Fruits 5-locular. Sept.–Dec. Pioneer, NW, SW, AP, KM, LB, SE (dry parts of southern Africa).

hispifolium (Haw.) Schwantes Low shrublet with hispid branches. Leaves hispid. Flowers 20–30 mm diam., white with magenta midvein. Fruits with high, undulate rims, endocarpal closing bodies present, without false septa. Aug.–Sept. Slopes after fire, SW (Malmesbury).•

lignosum L.Bolus Tufted shrublet to 15 cm, with yellow branches with scattered, large papillae. Leaves terete, obtuse, densely papillate. Flowers magenta. Fruits with low rims. Oct. ?, NW (Ceres).•

marinum L.Bolus Mat-forming shrublet, with yellowish, hispid branches. Leaves terete, obtuse, densely papillate. Flowers in cymes, pink or magenta. Fruits with low rims, false septa present. Aug.–Sept. Seashores, SW (Langebaan to Yzerfontein).•

muirii L.Bolus Erect shrublet to 40 cm, with yellowish, hispid branches. Leaves terete, obtuse, densely papillate. Flowers pink or red. Fruits 5-locular. Oct. Rocky habitats, LB (Riversdale).•

papillatum L.Bolus (= *Delosperma papillatum* (L.Bolus) L.Bolus) Sprawling, deciduous shrublet to 20 cm, stems brown with white papillae. Leaves spreading, subterete, obtuse, long and narrow. Flowers solitary, white, to 60 mm diam. Fruits 5-locular. Nov.–Feb. ?, NW (Worcester).•

prostratum L.Bolus Prostrate shrublet, with yellowish, hispid branches to 35 cm. Leaves terete, obtuse, densely papillate. Flowers to 30 mm diam., reddish. Fruits 5-locular, false septa present. Aug. ?, NW (Clanwilliam).•

pulchellum L.Bolus Prostrate, mat-forming shrublet, branches hispid when young. Leaves subterete, obtuse, densely papillate. Flowers to 25 mm diam., brilliant pink. Fruits 5-locular, false septa present. July–Sept. ?, NW (Clanwilliam).•

stokoei L.Bolus Mat-forming, papillate shrublet with beige branches. Leaves crowded, terete, obtuse. Flowers to 17 mm diam., pink, filamentous staminodes in a cone, later spreading. Fruits 5-locular. Aug.–Jan. Coastal rocks, SW (Simon's Town to Kleinmond).•

striatum (Haw.) Schwantes PORSELEINBOS Like **D. hispifolium** but leaves covered with scattered, round papillae. Aug.–Sept. Loamy soils exposed to occasional fires, NW, SW, KM (Tulbagh to Montagu).•

A.' Bladder cells on stems apically rounded
B. Petals yellow, orange or red (rarely white); flowers often large; staminodes white or black when present
C. Staminodes lacking

anomalum L.Bolus Tufted, papillate shrublet, branches to 17 cm long, from a tuberous caudex. Leaves subterete. Flowers in cymes, golden-yellow. Fruits 5-locular. Aug.–Oct. ?, KM, LB (Montagu, Swellendam).•

cereale L.Bolus Erect, papillate shrublet to 15 cm, with slender, red stems. Leaves ± trigonous, tips recurved. Flowers solitary, yellow, margins red at tips, without staminodes. Fruits 5-locular, with high rims. Dec.–Feb. ?, NW, SW (Ceres, Caledon).•

chrysum L.Bolus Diffusely branched shrubs, with slender stems. Leaves papillate, semi-terete, apically recurved. Flowers solitary, golden, 5–18 mm long, without staminodes. Fruits 5-locular, with high rims. Oct. Foot hills, KM (Swartberg).•

flammeum L.Bolus Erect, papillate shrublet to 25 cm. Leaves trigonous. Flowers 1–3 in cymes, orange, without staminodes. Fruits 5-locular, without false septum. Oct. ?, NW (Robertson).•

flavum (Haw.) Schwantes Low shrublet to 15 cm, with slender, roughly scabrous stems. Leaves subterete to cylindrical, papillate, with magenta tips. Flowers solitary, few petals, yellow, without staminodes. Fruits 5-locular. Sept.–Oct. Rocky, shale outcrops within renosterveld, SW, LB (Caledon, Bredasdorp, Swellendam).•

leptum L.Bolus Erect shrublet to 35 cm, branches with scattered, flat papillae. Leaves trigonous, slightly recurved, densely papillate. Flowers solitary, without staminodes, colour unknown. Fruits 5-locular. Oct. Rocky ravines, NW (Robertson).•

thudichumii L.Bolus Woody shrub to 1 m, branches papillate on young parts. Leaves subterete, pointed, densely papillate. Flowers 1–3, white, orange or yellow, without staminodes. Fruits 5-locular, shed when mature leaving a blunt spine, false septa absent. Oct.–Nov. ?, NW (Worcester).•

zygophylloides (L.Bolus) L.Bolus Sprawling shrublet to 14 cm, branches red, with small papillae. Leaves subterete, obtuse, ± smooth, very soft. Flowers in many-flowered cymes, mustard-yellow. Fruits 5-locular. Sept.–Oct. On shale with quartz pebbles, NW (Pakhuis to Piketberg).•

C.' Staminodes present
D. Staminodes white

acuminatum L.Bolus Slender, papillate shrublet to 20 cm. Leaves suberect, terete. Flowers 1–3 in groups, golden, staminodes white. Fruits 5-locular. Sept.–Oct. Sheltered sandstone slopes, KM (Montagu).•

aureopurpureum L.Bolus Slender, papillate shrublet to 20 cm, stems red with white papillae. Leaves trigonous. Flowers in cymes, golden-yellow with magenta reverse, staminodes white. Fruits 5-locular. Aug.–Oct. ?, LB (Swellendam).•

bicolor L.Bolus Erect, rigid shrub to 1 m, stems with small papillae when young. Leaves subterete, erect, with small papillae. Flowers 1–3, golden-yellow with maroon tips, staminodes white. Fruits 5-locular, with very high rims. Oct.–Dec. Stony sandstone slopes, KM (Little Karoo).•

collinum (Sond.) Schwantes Erect shrub to 30 cm, with slender, rough branches. Leaves cylindrical to trigonous, erect, blunt, papillate. Flowers 12 mm diam., yellow, staminodes white. Fruits unknown. Dec. ?, NW (Worcester).•

semiglobosum L.Bolus Slender, papillate shrublet to 40 cm, with reddish branches. Leaves subterete, recurved apically. Flowers solitary, golden with red tips, stigmas red, staminodes white. Fruits 5-locular. Nov. ?, NW (Worcester).•

D.' Staminodes black

bellum L.Bolus Laxly branched, papillate shrublet to 30 cm, with red stems. Leaves subterete, apically recurved. Flowers solitary, to 50 mm diam., pink, cream-coloured or white, staminodes black. Fruits 5-locular. Sept.–Dec. ?, NW (Ceres to Worcester).•

edwardsiae L.Bolus Low shrubs with sparsely-leaved, decumbent, outer branches, 15–25 cm, to 40 cm diam. Leaves thickest in middle, apically hooked, smooth from many, small, bladder cells. Flowers solitary, petals brilliant red or rosy purple, staminodes black. Fruits 5-locular, with high rims. Aug.–Nov. Mainly calcareous outcrops and cliff edges above the sea, SE (George).•

hallii L.Bolus Papillate shrublet to 25 cm. Leaves terete, densely papillate. Flowers solitary, yellow, staminodes black. Fruits 5-locular. Sept.–Oct. Stony slopes, NW (Worcester).•

insolitum L.Bolus Slender shrublet to 15 cm, with hispid branches. Leaves apically recurved, slightly papillate. Flowers yellow, staminodes black. Fruits unknown. Nov. ?, SW (Caledon).•

lavisii L.Bolus Erect, densely branched, papillate shrublet, with red branches. Leaves S-shaped, terete, pointed. Flowers solitary on long shoots, reddish, coppery on reverse, staminodes black. Fruits 5-locular. Sept. Shale outcrops, SW (Greyton to Bredasdorp).•

micans (L.) Schwantes Densely branched shrublet to 60 cm, with scabrid branches. Leaves subulate to subcylindrical, papillate. Flowers solitary, pedicels to 40 mm, petals red, staminodes black. Fruits 5-locular. Oct. ?, NW, LB (Worcester, Swellendam).•

pulchrum L.Bolus (= *Drosanthemum croceum* L.Bolus) Low, broad shrubs with long, decumbent branches, 15–25 cm, to 60–80 cm diam. Leaves slender, margins parallel, narrowing towards tips, smooth from many, small, bladder cells. Flowers with pedicels to 50 mm, petals deep orange to brilliant red, also yellow, with a basal greenish centre, filamentous staminodes black. Fruits 5-locular. Oct.–Nov. Mainly on shale within renosterbosveld, NW (NE of Worcester).•

speciosum (Haw.) Schwantes (= *Drosanthemum pickhardii* L.Bolus, *D. splendens* L.Bolus) Stout shrubs 15–35 cm, 25–60 cm diam., occasionally straggly when growing in shrubby vegetation. Leaves thickest in middle, obtuse, smooth from many, small, bladder cells. Flowers red to orange, also yellow, staminodes black. Fruits 5-locular. Aug.–Oct. Mostly on shale, NW, KM, LB (Worcester to Heidelberg).•

strictifolium L.Bolus Erect, papillate shrublet to 30 cm, with reddish branches. Leaves subterete, pointed. Flowers in small cymes, to 50 mm diam., golden-yellow with red tips, pedicels 30–60 mm, staminodes black. Fruits unknown. Oct. ?, LB (Riversdale).•

B.' Petals pink, magenta or white, staminodes never black
E. Leaves triangular in cross section or flat

asperulum (Salm-Dyck) Schwantes (= *Delosperma asperulum* (Salm-Dyck) L.Bolus, *Drosanthemum bredai* L.Bolus) Erect, succulent shrub to 50 cm, ± 1 m diam., with stems brownish grey, papillate when young. Leaves trigonous, spreading, apically recurved, 8–22 × 2.5 mm. Flowers solitary on pedicels to 10 mm long, pale pink. Fruits 4-locular. Aug.–Oct. Pioneer, NW, SW, LB (Klawer to Riversdale).•

capillare (Thunb.) Schwantes (incl. **Drosanthemum acutifolium** (L.Bolus) L.Bolus) Low-growing shrublet to 7 cm, stems deep maroon. Leaves trigonous, 6–8 mm long, 2–3 mm broad and thick. Flowers solitary, small, to 12 mm diam., magenta. Fruits 5-locular. Oct. Shale, KM, LB (Montagu to Riversdale).•

diversifolium L.Bolus Shrublet to 12 cm. Leaves cymbiform, papillate, to 10 × 4 × 5 mm, those on long, upper shoots subterete, basally broadened, to 35 × 3.5 × 4 mm. Flowers solitary, petals magenta, pink, or almost white, to 30 mm diam. Fruits 6-locular. July–Sept. Deep soil, usually with a covering of quartz pebbles, NW (Namaqualand to Clanwilliam). **gce**

fourcadei (L.Bolus) Schwantes Erect shrublet to 25 cm, with maroon, scarcely papillate branches Leaves subcymbiform, densely papillate. Flowers solitary, to 15 mm diam., reddish. Fruits 6-locular. Oct.–Dec. Stony slopes, SE (Hankey).•

longipes (L.Bolus) H.E.K.Hartmann (= *Delosperma grandiflorum* L.Bolus, *D. longipes* L.Bolus) Erect, deciduous shrublet to 30 cm, with tuberous rootstock, branches reddish brown and papillate. Leaves deciduous, flat, papillate. Flowers solitary, magenta to reddish golden, to 80 mm diam. Fruits 5-locular, valve wings narrow. Aug.–Oct. Stony slopes, NW (Botterkloof to N Cedarberg).•

macrocalyx L.Bolus Robust shrublet to 30 cm, with red, rough branches with short spines at bases of leaf pairs. Leaves subcymbiform, obtuse, papillate. Flowers to 35 mm diam., pink. Fruits with high valves and a central dip, false septa present, covering membranes reduced. ?. Rocky sandstone slopes, KM (Ladismith, Montagu).•

parvifolium (Haw.) Schwantes Sprawling shrublet to 15 cm, with rough, slender, reddish branches to 80 cm long. Leaves trigonous, spreading, densely papillate, to 3 mm long. Flowers solitary or in small cymes on short branches, pedicels to 14 mm, magenta. Fruits 5-locular, false septa absent, bracteoles persisting as 2 spines below fruit. Oct.–Dec. Disturbed places, sandstone or quartzitic slopes, SW (Bredasdorp).•

praecultum (N.E.Br.) Schwantes (= *Drosanthemum montaguense* L.Bolus) Like **D. macrocalyx** but fruits smaller and less papillate, tops of capsules lower, with covering membranes broad, and false septa hardly developed. Oct.–Nov. Loamy soils with quartz pebbles, KM, LB (Montagu, Swellendam).•

quadratum Klak Like **D. asperulum** but plants smaller, to 15 cm high, with thicker leaves 2–4 mm wide, and wider capsules 5–10 mm diam. Sept.–Oct. Stony quartz outcrops on clay slopes, SW (Swellendam to Bredasdorp).•

subcompressum (Haw.) Schwantes (= *Drosanthemum barwickii* L.Bolus, *D. roridum* L.Bolus) Erect shrub to 70 cm, stems papillate when young, blackish with age, with short spines between bases of leaf pairs. Leaves trigonous, falcate, papillate. Flowers solitary, magenta. Fruits 6-locular, top with low rims. Sept. Loam on sandstone on lower slopes, KM, LB (Montagu to Langeberg: Swellendam).•

E.' Leaves subcylindrical in cross section
F. Plants prostrate or sprawling

ambiguum L.Bolus Mat-forming, papillate shrublet, with woody stems to 50 cm. Leaves terete, obtuse. Flowers in cymes, magenta. Fruits 5-locular, false septum present. Nov.–Jan. Pioneer, often in disturbed sites, SW (Malmesbury to Bredasdorp).•

giffenii (L.Bolus) Schwantes Low, sprawling shrublet, with red, slightly papillate branches. Leaves trigonous, densely papillate. Flowers solitary, pink. Fruits 5-locular, false septum absent. Oct.–Nov. Brackish places, KM, LB (Little Karoo).•

gracillimum L.Bolus Sprawling shrublet to 20 cm, with slender, red, scarcely papillate branches. Leaves terete to subterete, obtuse, sparsely papillate. Flowers to 15 mm diam., magenta. Fruits 5-locular, with high rims, valve wings rather narrow. May–Aug. Mountain slopes, in grass or climbing in bushes, 400–800 m, KM, LB, SE (Robertson to Uniondale).•

intermedium (L.Bolus) L.Bolus Sprawling shrublet with slender, papillate branches. Leaves subterete, densely papillate. Flowers solitary on erect, short shoots, to 25 mm diam., magenta. Fruits 5-locular, endocarpal closing bodies, false septa occasionally present. Aug.–Sept. Coastal rocks, SW, AP, LB (Simon's Town to Mossel Bay).•

laxum L.Bolus Low shrublet to 10 cm, with red, sparsely papillate branches. Leaves terete, obtuse, densely papillate. Flowers in spreading cymes, magenta. Fruits 5-locular. Feb. ?, NW (Robertson).•

tuberculiferum L.Bolus Mat-forming, papillate shrublet with branches to 15 cm long. Leaves terete. Flowers solitary on short shoots, to 25 mm diam., magenta. Fruits 5-locular, base flat, rims low, false septa present. Sept.–Oct. Open karroid veld on gravelly loam, NW (Worcester).•

vandermerwei L.Bolus Prostrate, papillate shrublet, with reddish branches to 40 cm long. Leaves subterete to terete, obtuse. Flowers to 27 mm diam., pink. Fruits 5-locular. Sept.–Oct. ?, NW, LB (Worcester, Swellendam).•

F.' Plants erect

albiflorum (L.Bolus) Schwantes Slender, much-branched, papillate shrublet to 15 cm. Leaves terete, obtuse. Flowers solitary at branch tips, white. Fruits 5-locular. Oct. ?, KM, LB (Matjiesfontein to Little Karoo). **gce**

autumnale L.Bolus Densely branched, papillate shrublet to 45 cm, with red stems. Leaves terete, obtuse. Flowers 3 or 4 in groups, magenta. Fruits 5-locular, deciduous, pedicel spinescent. Mar.–Apr. Coastal, LB (Mossel Bay).•

crassum L.Bolus Stiff shrublet to 26 cm, with yellow-brown stems papillate when young, becoming twisted with age. Leaves ovate, papillate. Flowers solitary. Fruits 5-locular, deciduous, pedicels bluntly spinescent. Sept. Karroid scrub in loamy sand, KM (Tanqua Karoo to Little Karoo). **gce**

cymiferum L.Bolus Erect shrublet to 15 cm, stems spreading at right angles, papillate when young. Leaves terete, obtuse, papillate. Flowers 3–5 in cymes, lateral flowers shed leaving a spiny pedicel. Fruits 5-locular. Nov.–Dec. Dwyka tillites, NW (E Cedarberg and Tanqua Karoo to Kenhardt).

delicatulum (L.Bolus) Schwantes Stiffly branched shrublet to 10 cm, with red, sparsely papillate stems. Leaves subglobose, papillate. Flowers solitary, subsessile, to 10 mm diam., pale pink. Fruits 5-locular, with low rims. Oct.–Nov. Shale slopes, KM, LB (Montagu, Swellendam).•

duplessiae L.Bolus Erect, papillate shrublet to 20 cm, with ochre to reddish stems. Leaves terete, obtuse. Flowers pink. Fruits 5-locular, with low rims, without false septum. Jan. ?, KM (Oudtshoorn).•

expersum (N.E.Br.) Schwantes (= *Delosperma expersum* (N.E.Br.) L.Bolus) Slender shrublet to 30 cm, stems finely papillate when young. Leaves terete, obtuse, to 9 mm long, narrow. Flowers solitary, pink to red. Fruits unknown. Nov.–Jan. Rock ledges at high alt., NW (Bokkeveld Mtns to Worcester).•

glabrescens L.Bolus Rigid, erect shrublet to 20 cm, with brown, scarcely papillate branches. Leaves subterete, obtuse, densely papillate. Flowers 20–30 mm diam., magenta. Fruits 5-locular, with high rims, false septum present. Sept. Loams, NW (Nieuwoudtville to Bokkeveld Mtns).•

globosum L.Bolus Erect, much-branched shrublet to 45 cm, with brown, minutely papillate branches. Leaves globose, densely papillate. Flowers to 17 mm diam., magenta. Fruits 5-locular, almost star-shaped. June–July. Loamy soils, KM (Laingsburg to Montagu and Prince Albert). **gce**

inornatum (L.Bolus) L.Bolus Erect shrub to 30 cm, stems shiny, reddish, basally blackish. Leaves deciduous, subcylindrical, green, to 19 mm long, to 3 mm broad and thick. Flowers solitary, to 20 mm diam., magenta. Fruits 5-locular. July-Aug. Dry, stony, loamy slopes, NW (Namaqualand to Clanwilliam). **gce**

leipoldtii L.Bolus Stiffly erect shrublet to 30 cm, with papillate branches. Leaves terete, densely papillate. Flowers to 17 mm diam., magenta. Fruits 5-locular, with low rims. Oct. ?, NW (Clanwilliam to Piketberg).•

lique (N.E.Br.) Schwantes Erect shrublet to 45 cm, with rough branches. Leaves spreading widely, cylindrical, obtuse, papillate, to 11 mm long. Flowers stalked, solitary, ± 22 mm diam., magenta,

filamentous staminodes in a cone around stamens. Fruits 5-locular. Oct.–Feb. Loamy soils, often a pioneer, SE (Humansdorp to Uitenhage).•

opacum L.Bolus Robust shrubs to 30 cm, with decumbent branches to 50 cm long, papillate when young. Leaves terete, obtuse, densely papillate. Flowers on short shoots, to 22 mm diam., pink. Fruits 5-locular. Oct. W-facing shale slopes, NW (Tulbagh).•

salicola L.Bolus Compact, densely branched, papillate shrublet to 25 cm. Leaves globose to subglobose. Flowers solitary, pale pink. Fruits 5-locular. Oct.–Nov. Saline flats near the coast, NW (Alexander Bay to Piketberg). **gce**

vespertinum L.Bolus Laxly branched, papillate shrublet to 30 cm. Leaves subglobose to subcylindrical. Flowers to 14 mm diam., white or pale pink, opening in late afternoon. Fruits 5-locular, false septa only partly developed. July. ?, NW, KM (Loeriesfontein to Karoopoort, Little Karoo to Prince Albert).•

wittebergense L.Bolus Erect, papillate shrublet to 25 cm. Leaves subterete to subulate. Flowers 1 or 2, petals magenta or white, without filamentous staminodes. Fruits 5-locular. Nov. At 1 200 m, KM (Witteberg).•

worcesterense L.Bolus Densely branched, erect shrublet to 30 cm, with yellow, papillate branches. Leaves terete, obtuse, densely papillate. Flowers in cymes, pale pink. Fruits 5-locular. Nov. ?, NW (Worcester).•

[**Species excluded** Insufficiently known and possibly conspecific with one of the above or outside our area: **D. maculatum** (Haw.) Schwantes]

EREPSIA N.E.Br.• (= *KENSITIA, SEMNANTHE*) ALTYDVYGIE 29 spp., SW Cape

A. Leaves broader, usually 5–10 mm diam.; walls of hypanthium sloped (except **E. inclaudens***)*

babiloniae Liede Dwarf shrublet to 20 cm, branched from base. Leaves 3–5 mm diam. Flowers ? Fruits 6–9-locular, 10–15 mm diam., base funnel-shaped. ?. After fire. Rocky sandstone slopes, 700–1 000 m, SW (Babilonstoring).•

dunensis (Sond.) Klak (= *Lampranthus dunensis* (Sond.) L.Bolus) Compact, sprawling shrublet, branches decumbent or creeping. Leaves laterally compressed, sharply keeled, 25–45 × 3–5 mm. Flowers on erect branchlets 3–6 cm high, white, to 35 mm diam. Sept.–Oct. Sand dunes on limestone, SW (Cape Peninsula and Cape Flats).•

forficata (L.) Schwantes (= *Erepsia mutabilis* (Haw.) Schwantes, *Ruschia filamentosa* (L.) L.Bolus, *R. forficata* (L.) L.Bolus) Shrublet to 30 cm, branching from base, branches erect, becoming decumbent. Leaves 5–8 mm diam. Flowers mostly solitary, whitish to pink, petals very numerous, reproductive parts partly hidden. Fruits 9–11 mm diam. May–June. Rock crevices, 300–900 m, SW (Cape Peninsula).•

heteropetala (Haw.) Schwantes Sprawling shrublet to 20 cm, stems to 4.5 mm diam. Leaves > 5 mm diam. Flowers mostly solitary, whitish to pink, petals very numerous, reproductive parts partly hidden. Fruits 10–13 mm diam. Oct.–Feb. Rock ledges, at 400–1 300 m, SW (Du Toitskloof and Jonkershoek Mtns).•

inclaudens (Haw.) Schwantes Densely branched shrublet to 40 cm. Leaves with red tips, 6–8 mm diam. Flowers in cymes, deep mauve, petals spathulate, reproductive parts hidden. Fruits 5-locular, base funnel-shaped, 8–10 mm diam. Oct.–Dec. Rock crevices at 300–1 300 m, SW (Du Toitskloof to Caledon).•

lacera (Haw.) Liede (= *Semnanthe lacera* (Haw.) N.E.Br.) Erect, sparsely branched shrub to 80 cm, branches to 10 mm diam. Leaves > 5 mm diam., toothed. Flowers in dichasia, magenta, petals very numerous, reproductive parts partly hidden. Fruits 9–11-locular, 13–15 mm diam. Oct.–Nov. Granitic slopes at 300–700 m, SW (Malmesbury to Stellenbosch).•

pillansii (Kensit) Liede (= *Kensitia pillansii* (Kensit) Fedde) Erect, sparsely branched shrublet to 80 cm, with branches 4–8 mm diam. Leaves falcate, > 5 mm diam. Flowers in dichasia, magenta, filamentous staminodes white, 30–60 mm diam., reproductive parts hidden. Fruits (9)10(–13)-locular, ± 13 mm diam. Aug.–Sept. Sandstone slopes, 500–1 000 m, NW (Piketberg).•

simulans (L.Bolus) Klak (= *Lampranthus simulans* L.Bolus) Laxly branched, succulent shrublet to 16 cm. Leaves shortly fused toward base, narrowed near tips, acute to obtuse. Flowers silvery white tipped with pink. Capsules 7-locular. Oct. Limestone flats, AP (Agulhas Peninsula: Brandfontein).•

steytlerae L.Bolus Shrublet to 20 cm, branches to 4 mm diam. Leaves 4–7 mm diam. Flowers mostly solitary, magenta, filamentous staminodes yellow, petals numerous, reproductive parts hidden. Fruits ± 10 mm diam. Jan.–Feb. In rocks along the coast, SW (Kleinmond).•

A.' Leaves narrower, usually < 5 mm diam.; walls of hypanthium erect

anceps (Haw.) Schwantes Slender, erect shrublet to 30 cm, sparsely branched from base. Leaves < 5 mm diam. Flowers in monochasia, pink or magenta, remaining open, petals spathulate, filamentous staminodes papillate, bright yellow, reproductive parts hidden. Fruits 4–8 mm diam. Dec.–Mar., mainly after fire. Sandstone slopes to 1 000 m, NW, SW (Tulbagh to Cape Peninsula and Caledon).•

aperta L.Bolus Mat-forming shrublet to 15 cm, branching from base. Leaves < 5 mm diam. Flowers 1–few at branch tips, pink, petals spathulate, filamentous staminodes pale yellow, reproductive parts only partly hidden. Fruits with reduced covering membranes. Dec.–Jan., after fire. Rock ledges at high alt., NW (Grootwinterhoek and Hex River Mtns).•

aspera (Haw.) L.Bolus (= *Erepsia tuberculata* N.E.Br.) Shrublet to 40 cm, branching from base, stems slender, 0.7–1.5 mm diam. Leaves < 5 mm diam. Flowers in monochasia, magenta, remaining open, filamentous staminodes whitish or yellow, papillate at least at base, reproductive parts hidden. Fruits 5–6 mm diam. Dec.–Mar., often after fires. Rocky slopes to 2 000 m, NW, SW, LB (Cedarberg to Riversdale).•

bracteata (Aiton) Schwantes (= *Erepsia caledonica* L.Bolus) Erect shrublet to 50 cm, sparsely branched from base, stems 2–4 mm diam. Leaves to 5 mm diam. Flowers in monochasia, magenta, remaining open, filamentous staminodes pale yellow, papillate at least at base, reproductive parts hidden. Fruits 6–8 mm diam. Jan.–Apr. Rocky slopes to 500 m, NW, SW (Cedarberg to Langeberg).•

brevipetala L.Bolus Robust shrublet to 20 cm, densely branched from base. Leaves < 5 mm diam. Flowers in reduced dichasia, magenta, remaining open, filamentous staminodes whitish, reproductive parts hidden. Fruits 6–8 mm diam. Nov.–Feb. Open strandveld, salt-tolerant, SW (Malmesbury).•

distans L.Bolus Erect shrublet to 70 cm, branching from base, stems to 2.5 mm diam. Leaves < 5 mm diam. Flowers in monochasia, magenta, remaining open, petals linear, filamentous staminodes whitish, reproductive parts hidden. Fruits 4–6 mm diam. Nov.–Mar., after fire. At 700–1 000 m, NW (Cedarberg).•

dubia Liede Erect shrublet to 40 cm, densely branched from base, stems slender, < 1 mm diam. Leaves < 3 mm diam. Flowers in many-flowered cymes on short pedicels, pink, filamentous staminodes whitish, reproductive parts only partly hidden. Fruits 6–7 mm diam. ? Pioneer, at 100 m, LB (Swellendam).•

esterhuyseniae L.Bolus Mat-forming shrublet, branched from base, to 15 cm. Leaves < 5 mm diam. Flowers 1–few, magenta, petals spathulate, filamentous staminodes whitish, reproductive parts only partly hidden. Fruits 4–6 mm diam., with reduced covering membranes. Dec.–Feb., after fire. High sandstone slopes, SW (Bain's Kloof to Riviersonderend Mtns).•

gracilis (Haw.) L.Bolus (= *Erepsia carterae* L.Bolus) Slender shrublet to 30 cm, branching from base, branches to 2.5 mm diam. Leaves < 5 mm diam. Flowers in monochasia, magenta, remaining open, filamentous staminodes yellow, reproductive parts hidden. Fruits 4–6 mm diam. Feb.–Apr., after fires. Sandstone slopes at 300–2 000 m, NW, SW (Cedarberg to Riviersonderend Mtns).•

hallii L.Bolus Erect, regularly branched shrublet to 30 cm, stems slender, 1.5–2.5 mm diam. Leaves < 5 mm diam. Flowers in monochasia, sessile, small, < 15 mm diam., white, closing at night, filamentous staminodes yellow with red tips, reproductive parts hidden. Fruits 4–6 mm diam. Feb.–May. Granite hills, SW (Darling).•

insignis (Schltr.) Schwantes Dwarf shrublet to 15 cm, branching from base, stems 1–2 mm diam. Leaves < 5 mm diam. Flowers solitary, magenta, filamentous staminodes whitish, reproductive parts partly hidden. Fruits 6–7 mm diam., with reduced covering membranes. Oct.–Nov. Rocky slopes at 1 200–1 700 m, SW (Bain's Kloof Mtns).•

oxysepala (Schltr.) L.Bolus (= *Erepsia stokoei* L.Bolus) Sparsely branched shrublet to 30 cm. Leaves 4–6 mm diam. Flowers in cymes, 15–25 mm diam., pink, filamentous staminodes white, reproductive parts hidden. Fruits 5-locular, 5–6 mm diam., base funnel-shaped. Dec.–Jan., after fires. Sandstone slopes at 200–1 400 m, SW (Caledon).•

patula (Haw.) Schwantes (= *Erepsia pageae* L.Bolus) Like **E. hallii** but flowers remaining open, 15–25 mm diam., and petals with pink tips. Jan.–May. Loamy soils, to 500 m, in slightly disturbed places, SW (Cape Peninsula).•

pentagona (L.Bolus) L.Bolus Erect shrublet to 40 cm, with flattened stems. Leaves 4–6 mm diam. Flowers in monochasia, magenta, outer filamentous staminodes deep red, 25–35 mm diam., re-

productive parts hidden. Fruits 5-locular, pentagonal. Oct.–Feb., after fires. S-facing sandstone slopes, 500–1 000 m, LB (Langeberg).•

polita (L.Bolus) L.Bolus Like **E. pentagona** but flowers with outer filamentous staminodes not deep red and fruits indistinctly pentagonal. June. Dry sandstone slopes, ± 350 m, LB (Langeberg).•

polypetala (A.Berger & Schltr.) L.Bolus Densely branched shrublet to 40 cm, with slender branches 2–3 mm diam. Leaves < 5 mm diam. Flowers in many-flowered cymes, pink, filamentous staminodes pale yellow, reproductive parts partly hidden. Fruits ± 5 mm diam. Apr. Coastal fynbos, AP (Bredasdorp).•

promontorii L.Bolus Erect, densely branched shrublet to 20 cm, branches becoming decumbent. Leaves < 5 mm diam. Flowers in many-flowered cymes, magenta, filamentous staminodes whitish, reproductive parts partly hidden. Fruits < 5 mm diam. Jan. Coastal lowlands, SW (Cape Peninsula to Hermanus).•

ramosa L.Bolus (= *Erepsia roseo-alba* L.Bolus) Like **E. patula** but flowers stalked. Mar.–June. Mostly on shale, to 750 m, NW, SW (Piketberg to Cape Flats).•

saturata L.Bolus (= *Erepsia marlothii* N.E.Br.) Erect shrublet to 40 cm, with slender branches from base. Leaves < 5 mm diam. Flowers in monochasia, magenta, remaining open, outer filamentous staminodes red, inner yellow with red tips, reproductive parts hidden. Fruits 5–7 mm diam. Feb.–May. Sandstone slopes at 700–1 000 m, NW (Gifberg to Piketberg).•

villiersii L.Bolus Erect, densely branched shrublet to 70 cm, with slender branches to 1.5 mm diam., branching from base. Leaves < 3 mm diam. Flowers in monochasia, white with magenta tips, remaining open, petals linear, filamentous staminodes white with red tips, reproductive parts hidden. Fruits 4–6 mm diam. Dec. Gravel slopes, ± 400 m, SW (Villiersdorp).•

ESTERHUYSENIA L.Bolus• 5 spp., SW Cape

alpina L.Bolus Compact shrublet to 30 cm. Leaves ascending or spreading, obscurely keeled, apiculate. Flowers solitary on short pedicels, magenta, to 17 mm diam. Fruits 5-locular, keels parallel at base but diverging strongly above, valve wings absent. Dec. Rock ledges at high alt., NW (Hex River Mtns).•

drepanophylla (Schltr. & A.Berger) H.E.K.Hartmann (= *Ruschia drepanophylla* (Schltr. & A.Berger) L.Bolus) Low shrublet to 15 cm, blackish at base, branches reddish when young. Leaves free, trigonous, falcately incurved to lunate, mucronate, 12 × 3–4 mm. Flowers subsessile, magenta, ± 15 mm diam. Fruits 5-locular, without valve wings. Aug.–Oct. Upper slopes, NW (Cedarberg).•

inclaudens (L.Bolus) H.E.K.Hartmann (= *Ruschia inclaudens* L.Bolus) Compact shrublet to 25 cm. Leaves oblong, sharply tapered, apiculate, to 20 × 5–7 mm, fused below into a sheath to 4 mm long with an impressed line. Flowers solitary, white to pinkish magenta, 25–30 mm diam. Fruits 5-locular. Sept. Upper slopes, NW (Worcester).•

mucronata (L.Bolus) Klak (= *Lampranthus mucronatus* L.Bolus) Compact shrublet to 15 cm. Leaves fused below into a sheath to 8 mm long, apiculate, 20–35 × 5 × 4–6 mm. Flowers solitary, white, 25–30 cm diam. Sept. In crevices of sandstone rock sheets, NW (Swartruggens).•

stokoei (L.Bolus) H.E.K.Hartmann (= *Ruschia thomae* L.Bolus) Compact, low shrublet, with slender, trailing branches. Leaves sabre-shaped, glaucous, ± 14 × 8 mm. Flowers solitary, purplish, ± 23 mm diam. Fruits 5-locular. Nov.–Jan. Cliff faces at high alt., NW, SW (Hex River to Du Toitskloof Mtns).•

FAUCARIA Schwantes TIERBEKVYGIE 6 spp., W and E Cape and Karoo

felina (L.) Schwantes (= *Faucaria duncanii* L.Bolus, *F. lupina* (Haw.) Schwantes, *F. uniondalensis* L.Bolus) Tufted perennial, short-stemmed with age. Leaves crowded, 4–8, ovate-rhomboid to linear-lanceolate, keeled, toothed. Flowers 1 or 2, yellow, sometimes white, to 50 mm diam. Fruits without covering membranes or closing body. Mar.–Aug. Dry grasslands and karroid bush or thickets, KM, SE (N slopes of Swartberg and Uniondale to E Cape and Karoo).

GALENIA L. BRAKBOS 27 spp., southern and S tropical Africa

A. Flowers in terminal, symmetrically branched cymes; styles 2

africana L. KRAALBOS, GEELBRAKBOS Yellow-green, softly woody shrublet, sometimes to 1 m. Leaves opposite, linear-oblanceolate. Flowers in terminal panicle, inconspicuous, ± 1.5 mm,

styles 2. Oct.–Dec. Dry flats and lower slopes, often on disturbed ground, NW, SW, AP, KM, LB (Namaqualand to Uniondale, Karoo and E Cape).

ecklonis Walp. ROOILOODJIE Sprawling to prostrate subshrub to 10 cm. Leaves opposite, linear, channelled, united around stem at base. Flowers in terminal, dichotomous cymes, white or red, 3–4 mm, styles 2. Sept.–Oct. Sandy flats, NW, SW (Gouda to Worcester).•

hispidissima Fenzl Bristly haired, sprawling shrublet or perennial to 20 cm. Leaves opposite, linear-oblanceolate, bristly. Flowers crowded at branch tips, 2–3 mm, styles 2. Sept.–Oct. Sandy lower slopes, NW (Cold Bokkeveld to Piketberg).•

procumbens L.f. Stiffly branched, yellowish shrublet to 1 m. Leaves opposite, small, oblanceolate, recurved. Flowers in small, dichotomous cymes, whitish, ± 2 mm, styles 2. Aug.–Oct. Stony flats in karroid scrub, KM (Namaqualand to S Karoo and Free State).

rigida Adamson Like **G. africana** but to 50 cm, leaves, rigid, not drooping when dry, flowers in flat-topped umbels. Oct.–Jan. Rocky slopes, NW (W Karoo to Clanwilliam). **gce**

A.' Flowers in secund cymes; styles 2–5

B. Styles 2

crystallina (Eckl. & Zeyh.) Fenzl Sprawling, grey-mealy shrublet to 15 cm, with branches to 40 cm. Leaves oblanceolate, folded. Flowers in secund cymes, yellow or pink, ± 2 mm, styles 2. July–Dec. Sandy flats, NW, SW, KM, SE (Namaqualand to Worcester, Little Karoo to Uitenhage). **gce**

fruticosa (L.f.) Sond. Twiggy, grey-felted shrublet to 50 cm. Leaves opposite, obovate, folded. Flowers in secund cymes on stiff branchlets often becoming spiny, red or yellow, ± 1 mm, styles 2. Aug.–Dec. Shale flats in karroid scrub, NW, SW, KM (Namibia and Karoo to Tygerberg and Little Karoo).

pruinosa Sond. Like **G. fruticosa** but leaves glabrous, flowers mauve, styles 2, sometimes 3. Aug.–Sept. Rocky flats, NW (Namibia to Piketberg). **gce**

B.' Styles 3–5

affinis Sond. Like **G. filiformis** but always glabrous, plants twiggy and styles usually 3, sometimes 5. Sept.–Oct. Dry rocky slopes, KM, LB (Namaqualand and Karoo to Montagu and Langeberg).

collina (Eckl. & Zeyh.) Walp. Like **G. filiformis** but leaves often sticky, flowers larger, 2.5–3 mm, styles 3, sometimes 5. Mainly Sept.–Nov. Rocky slopes, NW, SW, KM, LB, SE (Namibia to George). **gce**

cymosa Adamson Like **G. filiformis** but flowers in terminal, forked inflorescences, styles mostly 5 or 4. Oct.–Nov. Dry, stony slopes and flats, KM (Karoo, Little Karoo and E Cape).

filiformis (Thunb.) N.E.Br. Prostrate subshrub with branches to 80 cm, glabrescent. Leaves oblanceolate. Flowers crowded in secund cymes on short, lateral branchlets, pink or white, ± 2 mm, styles 5, sometimes 3. Mainly Aug.–Oct. Sandy slopes, especially dry riverbeds, NW, SW, AP, KM, LB (W Karoo and Bokkeveld Mtns to King William's Town).

herniariifolia (C.Presl) Fenzl Like **G. filiformis** but sepals and styles 4 or 3 (not 5). Nov.–Jan. Coastal sand or gravel, SW, AP, SE (Cape Peninsula to George).•

papulosa (Eckl. & Zeyh.) Sond. Like **G. pubescens** but leaves succulent. Aug.–Oct. Dry slopes and watercourses, NW, KM (Namibia to Piketberg, Ceres to Uniondale). **gce**

portulacacea Fenzl Like **G. pubescens** but leaves grey-mealy and sparsely long-hairy. Aug.–Sept. Dry, sandy areas, NW, LB (Namaqualand and Karoo to Mossel Bay).

pubescens (Eckl. & Zeyh.) Druce BLOUBRAKBOSSIE Like **G. filiformis** but erect and twiggy or prostrate, styles 3, sometimes 5. Oct.–Dec. Rocky or disturbed flats, NW, SW, AP, KM, LB, SE (Clanwilliam to Port Elizabeth and Karoo).

sarcophylla Fenzl JOUBERTSBRAKBOSSIE, VANWYKSBRAKBOSSIE Like **G. pubescens** but leaves grey-mealy, softly hairy and succulent. July–Oct. In sand or gravel, NW, KM, SE (Namaqualand and Karoo to Clanwilliam and Uniondale).

secunda (L.f.) Sond. VANWYKSBRAKBOSSIE Like **G. filiformis** but leaves obovate and densely hairy, flowers white or pink, styles 3, sometimes 5. July–Dec. Dry stony slopes, NW, KM, LB, SE (Karoo to Piketberg, Ceres to KwaZulu-Natal).

GIBBAEUM Haw. ex N.E.Br. (= *MUIRIA*) VOLSTRUISTONE ± 18 spp., W Karoo to W Cape

A. Leaves ± as long as broad

album N.E.Br. Whitish, acaulescent succulent. Leaves united, forming an oblique-ovate body, 60–120 × 60–80 mm, covered with fine white hairs. Flowers solitary, white or pink, to 25 mm diam. Fruits 6-locular. Dec. Dry slopes and flats in quartz pebbles on shales, LB (N slopes of Langeberg: Muiskraal).•

dispar N.E.Br. DUIMPIE-SNUIF, PAPPEGAAIBEK Clumped, acaulescent succulent. Leaves in pairs of unequal size forming ovoid bodies 10–15 × 10–14 mm, with a definite keel, thick, deeply fissured, finely velvety-hairy. Flowers pink or mauve to red, 8–10 mm diam. Fruits 6-locular. Apr. Shale slopes at ± 400 m, KM (Little Karoo: Vanwyksdorp).•

heathii (N.E.Br.) L.Bolus (= *Gibbaeum blackburnii* L.Bolus, *G. comptonii* (L.Bolus) L.Bolus, *G. luckhoffii* L.Bolus) HONDEBAL, VOLSTRUISWATER Compact succulent forming subglobose clumps to 30 cm diam., from woody rootstock. Leaves subequal to equal, closely pressed together, forming subglobose bodies, 20–30 × 15–20 mm, with definite fissure, green to whitish green. Flowers solitary on pedicels 10–12 mm long, white or red, 10–30 mm diam. Fruits 8- or 9-locular. June–Oct. ?, KM (Little Karoo).•

hortenseae (N.E.Br.) Thiede & Klak (= *Muiria hortenseae* N.E.Br.) MUISKOPVYGIE Stemless, clump-forming dwarf succulent. Leaves fused, forming an ovate-conical body, velvety, enclosed in membranous sheaths during the resting period. Flowers solitary, white to mauve, to 20 mm diam. Fruits 6- or 7-locular, without covering membranes or closing bodies. Jan. On quartz, KM (Little Karoo: Springfontein).•

nebrownii Tischer (= *Imitaria muirii* N.E.Br.; incl. **G. johnstonii** van Jaarsv. & S.A.Hammer) Like **G. dispar** but imbedded in the ground, usually solitary, sometimes in clumps of 6–8, leaf bodies with a flat or conical top, without a keel. May–July. Shale slopes and flats, KM (Little Karoo: S of Ladismith).•

nuciforme (Haw.) Glen & H.E.K.Hartmann (= *Gibbaeum cryptopodium* (Kensit) L.Bolus) Like **G. pilosulum** but plants white-pubescent to glabrous. July. Shales and quartz, KM (W Little Karoo).•

petrense (N.E.Br.) Tischer MIMICRY PLANT Acaulescent, succulent perennial to 5 cm, forming tufts 5–10 cm diam. Leaves in annual increments of 1 or 2 pairs, with a definite fissure, deltoid-ovate or triangular in outline, with sharp edges and acute or obtuse at apex, sharply keeled, grey-green. Flowers solitary, magenta, to 15 mm diam. Fruits 6- or 7-locular. Sept.–Oct. Quartz pebbles on clays, KM (Little Karoo: Springfontein).•

pilosulum (N.E.Br.) N.E.Br. Succulent perennial forming dense mats to 10 cm diam. embedded in the ground. Leaf pairs united, forming obovate bodies ± 2.5 mm long, white-pubescent, the fissure off-centre, 3–4 mm deep. Flowers bright pink, 6–7 mm diam. Fruits 7-locular. July–Aug. ?, KM (Touwsberg).•

A.' Leaves very unequal and usually 2–5 times as long as broad

angulipes (L.Bolus) N.E.Br. Perennial succulent with prostrate stems to 6 cm long, flowering branches erect, branches with 4 leaves. Leaves spreading, fused for ± 8 mm at base, 23–26 × 9 mm at base, top flat, glaucous, velvety. Flowers solitary on pedicels 20–24 mm long, purplish, 25 mm diam. Fruits 6- or 7-locular. Oct.–Nov. N-facing slopes, LB (Langeberg: Muiskraal).•

esterhuyseniae L.Bolus Like **G. velutinum** but plants glabrous, leaves with distinctive white epidermis and striped reddish petals. Oct.–Nov. Quartz patches, SW (McGregor to Stormsvleikloof).•

geminum N.E.Br. Cushion-like perennial with short, prostrate branches. Leaves in annual increments of 2 or 3 decussate pairs, fused, spreading, unequal, the larger to 15 × 6 mm, slightly compressed, the smaller only a quarter as long. Flowers red or magenta, 12–15 mm diam. Fruits 6- or 7-locular. June–Sept. Sandy, ± alluvial flats, KM (W Little Karoo: N of Warmwaterberg).•

gibbosum (Haw.) N.E.Br. Deep green, acaulescent succulent to 10 cm, forming compact clumps, 6–10 cm diam., with a woody rootstock. Leaves unequal, larger leaf slightly incurved, subcylindrical towards apex, abaxial surface bluntly 2-keeled above, smooth. Flowers 20–30 mm diam., pink to magenta. Fruits 6- or 7-locular. Aug. Pebbly shales or quartz patches, KM (W Karoo to Matjiesfontein and Little Karoo). **gce**

haagei Schwantes (= *Gibbaeum haaglenii* H.E.K.Hartmann) Like **G. velutinum** but with distinctive white epidermis and striped reddish petals. Oct. Rocky sandstone slopes overlying clayey sand, with or without quartz pebbles, LB (Swellendam to Heidelberg).•

pachypodium (Kensit) L.Bolus Rounded, succulent perennial, 25–40 cm diam. Leaves erect, unequal, minutely pubescent, greenish to greenish grey, trigonous to subterete, slightly keeled. Flowers solitary on elongate pedicels 40–75 mm long, pink to reddish, 20 mm diam. Fruits 6-locular. Nov.–Dec. Rocky river banks, KM (Little Karoo: Muiskraal to Ladismith).•

pubescens (Haw.) N.E.Br. VISBEKVYGIE Succulent perennial forming compact cushions, with a woody, shortly branched rootstock raised well above the ground. Leaves unequal, larger one to 3 cm long, cylindrical-ovoid, the smaller semilunate, ± one-third as long as the larger, silvery white-hairy. Flowers solitary, pale to deep magenta, to 15 mm diam. Fruits 6-locular. June–Aug. White quartz flats, KM (Barrydale to Ladismith).•

schwantesii Tischer Like **G. velutinum** but without rootstock, leaves arising at ground level, to 10 cm long and hooked at the tips and flowers larger, white, 3–5 cm diam. Sept.–Oct. Quartz gravel outcrops among succulent shrubs, KM (W Little Karoo: Springfontein).•

shandii N.E.Br. Like **G. pubescens** but plants mostly less branched, leaves shorter and thicker and epidermal hairs branched. June–Aug. On quartz or shale, KM (Little Karoo: N of Warmwaterberg).•

velutinum (L.Bolus) Schwantes Tufted succulent perennial with well-developed rootstock. Leaves arising below ground, spreading, prostrate, unequal, longer leaf to 5 cm, 3 cm wide at base, tapering to a point, velvety papillose, grey-green. Flowers solitary on pedicels to 25 mm long, borne in angle between old and new leaves, usually magenta-pink with darker central line on petals, 20–25 mm diam. Fruits 6-locular. Mainly Oct.–Nov. Shallow clay soils in renosterveld and karroid scrub, especially after fire, KM (Little Karoo: Barrydale to Muiskraal).•

GLOTTIPHYLLUM Haw. ex N.E.Br. SKILPADKOS 16 spp., Karoo, W and E Cape

A. Leaves decussate

cruciatum (Haw.) N.E.Br. (= *Glottiphyllum apiculatum* N.E.Br.) Mat-forming perennial with short, decumbent stems. Leaves decussate, suberect, basally dilated, subequal. Fruits with very high tops and disintegrating stalks. May–July. Under shrubs on sandy loam, KM, SE (central Little Karoo).•

fergusoniae L.Bolus Compact. succulent perennial. Leaves erect, decussate, pointed, tapering from a broad pustulate base, slightly unequal, grey. Fruits persisting, valves with awns. Mar.–Apr. Shale or sandstone rock crevices, KM, LB (Little Karoo).•

regium N.E.Br. (= *Glottiphyllum compressum* L.Bolus) Succulent perennial forming compact mats. Leaves decussate, > 65 mm, slightly unequal, narrowed below, bright green. Fruits on persistent stalks, without valve wings or awns, base spongy, valves with high rims. ? Sandstone slopes or sandy loams, KM, LB (Little Karoo).•

salmii (Haw.) N.E.Br. Compact succulent with 3–5 branches. Leaves decussate, with several pairs per branch, erect to ascending, slightly unequal, falcate, laterally compressed, larger with an impression from the opposite, shorter leaf, grey. Fruits tumbling. Mar.–Apr. Sandstone slopes, KM (E Little Karoo).•

surrectum (Haw.) L.Bolus (= *Glottiphyllum concavum* N.E.Br., *G. parviflorum* L.Bolus) Like **G. regium** but leaves < 60 mm and fruits somewhat woody, rounded, valves with low rims. Apr.–May. Weathered shaly sandstone, KM, LB (Prince Albert and Little Karoo). **gce**

A.' Leaves distichous

carnosum N.E.Br. (= *Glottiphyllum jordaanianum* Schwantes) Compact, succulent perennial, with 3–5 decumbent branches. Leaves distichous, suberect, oval, apically hunched, with a thick, waxy cuticle, margins distinct. Seeds with long papillae in dorsal region. ?. Mostly sandstone slopes, often with **G. regium** and **G. cruciatum**, KM, SE (Little Karoo to Willowmore).•

depressum (Haw.) N.E.Br. (= *Glottiphyllum barrydalense* Schwantes, *G. marlothii* Schwantes) Branched, succulent perennial. Leaves decumbent or ascending, distichous or nearly so, green.

Fruits with high, spongy tops, valves thickened and with low rims. July–Aug. Under shrubs on loamy soils, NW, KM, LB, SE (W Karoo, Ceres and Little Karoo to Humansdorp). **gce**

linguiforme (L.) N.E.Br. (= *Glottiphyllum cilliersiae* Schwantes, *G. latifolium* N.E.Br.) TONGBLAARVYGIE Spreading, few-branched, succulent perennial. Leaves ascending to erect, distichous, broadly tongue-shaped, rather flat, narrowing to pustulate base, grey. Fruits tumbling. Mar.–June. Under shrubs on loamy sands with quartzite, KM (Little Karoo).•

longum (Haw.) N.E.Br. (= *Glottiphyllum latum* N.E.Br.) Succulent perennial with 3–5, later many branches. Leaves decumbent or ascending, distichous, flat, strap-shaped with rounded margins, green, several to many pairs per branch. Fruits on persistent stalks, tops rather flat. Oct.–Dec. Karroid scrub on sandy loams, NW, SW, KM, LB, SE (Ceres to S Little Karoo to E Cape).

oligocarpum L.Bolus. Succulent perennial. Leaves distichous, grey. Flowers yellow. Fruits without stalks, 6-locular, tops raised, rims conspicuously raised. Mar. In locally dry, open, quartz patches, SE (Willowmore to Steytlerville and Jansenville).

suave N.E.Br. (= *Glottiphyllum herrei* L.Bolus) Like **G. linguiforme** but leaves thickened. Apr.–May. On quartz or shaly sandstone, KM, LB (Laingsburg to W Little Karoo). **gce**

HAMMERIA Burgoyne 3 spp., N and W Cape

cedarbergensis Klak Dwarf succulent to 6 cm. Leaves slightly heterophyllous, outer pair spreading, second pair erect with leaves remaining adpressed to one another, trigonous, to 18 mm long, 3–4 mm wide and thick. Flowers solitary, 20–27 mm diam., pale pink, staminodes in a central cone. Fruits 5-locular, top flat. Sept. Arid fynbos, 850 m, NW (Wuppertal).•

HERETOA (Schwantes) Dinter & Schwantes CLOCK PLANT, SLAAPVYGIE ± 30 spp., Namibia to E Cape

acuminata L.Bolus Low, tufted shrublet to 5 cm. Leaves erect, tapering, mostly green, rough, obliquely blunt, margins and keel serrated. Flowers solitary, yellow with reddish reverse, to 30 mm diam. Oct. ?, KM (Ladismith).•

aspera L.Bolus Erect, branching shrublet to 8 cm. Leaves inclined, subcylindrical, rough, glaucous, to 25 mm long, narrow. Flowers solitary on pedicels ± 7 mm long, yellow with reddish tips, to 36 mm diam. Jan.–Feb. Gravelly flats, KM, LB (Little Karoo, Swellendam).•

gracilis L.Bolus Cushion-forming perennial, with flowering branches to 25 mm. Leaves slender, erect to spreading, 4 per branch, roughened with dots, to 35 mm long. Flowers on pedicels ± 13 mm long, yellow, to 25 mm diam. Mar.–Apr. ?, KM (Little Karoo).•

muirii L.Bolus Low, branched perennial to 10 cm. Leaves spreading, subcylindrical, slender, rough, to 50 mm long. Flowers on pedicels ± 20 mm long, small, yellow. Fruits with conspicuous closing body. Feb. Quartzite pebbles with some limestone, KM (Little Karoo: Barrydale).•

odorata (L.Bolus) L.Bolus Small, sprawling shrublet with erect flowering branches. Leaves spreading to inclined, mostly subcylindrical, glaucous. Flowers 3 per branch on pedicels to 10 mm long, yellow with red tips, to 22 mm diam. Sept.–Oct. Shaly flats, KM, LB (S Karoo to Swellendam). **gce**

tenuifolia L.Bolus Erect, laxly branched shrublet to 25 cm. Leaves spreading to erect, semicylindrical, glaucous, rough. Flowers 1–3 per branch on pedicels 25–30 mm, yellow, to 30 mm diam. Feb.–Mar. ?, NW, KM (Robertson, Barrydale).•

willowmorensis L.Bolus Compact shrublet. Leaves with convex sides, thickest part near base and tapering towards apex, 20–25 mm long, ± 6 mm broad and thick. Flowers 1(–3), bracteoles at base, petals golden-yellow, 10–13 mm long. Fruits 5-locular, top almost flat, closing body inconspicuous. Dec. Open shaly or gravelly places, SE (Willowmore).•

HYMENOGYNE Haw. 2 spp., N and W Cape **gce**

conica L.Bolus Erect or prostrate annual to 3 cm. Leaves flat, margins papillate, sometimes with tannin cells. Flowers yellow, styles fused into a cone. Fruits breaking into mericarps, seed bags filling locule seeds 2 per locule. Aug.–Oct. ?, NW (S Namaqualand to Biedouw). **gce**

glabra (Aiton) Haw. Prostrate annual. Leaves flat, margins papillate, some papillae tanniniferous. Flowers yellow or straw-coloured, styles fused into a funnel. Fruits breaking into mericarps, seed bags filling locule seeds 2 per locule. Sept.–Oct. ?, NW, SW (Clanwilliam to Cape Peninsula).•

JORDAANIELLA H.E.K.Hartmann STRANDVYGIE 7 spp., N and W Cape **gce**

anemoniflora (L.Bolus) van Jaarsv. (= *Cephalophyllum anemoniflorum* L.Bolus) Like **J. dubia** but leaves spindle-shaped and flowers larger, white or pink. May–Sept. Coastal dunes, SW (Cape Flats).• EXTINCT IN THE WILD

dubia (Haw.) H.E.K.Hartmann (= *Cephalophyllum procumbens* (Haw.) Schwantes, *C. vanputtenii* L.Bolus) Prostrate, perennial succulent, stems with internodes > 20 mm. Leaves slender, ± club-shaped, without papillae. Flowers usually yellow. Fruits 10–15-locular, subglobose. May–Sept. Coastal sands, NW, SW (Elands Bay to Hermanus).•

maritima (L.Bolus) van Jaarsv. (= *Cephalophyllum maritimum* (L.Bolus) Schwantes) Like **J. dubia** but leaves shorter and flowers yellow, orange or magenta. May–Sept. Coastal limestones, AP (Bredasdorp to Mossel Bay).•

LAMPRANTHUS N.E.Br. VYGIE ± 95 spp., S Namibia to KwaZulu-Natal (introduced in Australia)

A. Flowers yellow, orange or rarely white or red
B. Plants prostrate to decumbent, trailing and frequently rooting at nodes

explanatus (L.Bolus) N.E.Br. (incl. **L. sternens** L.Bolus) Like **L. reptans** but plants not mat-forming, branches slender, creeping and leaves narrower, to 2 mm diam. Differs from **L. fergusoniae**, in the earlier flowering time and different habitat. Aug.–Oct. Sandy flats, SW, AP (Velddrif to Cape Peninsula and Albertinia).•

fergusoniae (L.Bolus) L.Bolus (= *Lampranthus baylissii* L.Bolus) Prostrate to decumbent shrublet with slender branches, often rooting at nodes, flowering branches to 15 cm long. Leaves erect, compressed, bluntly keeled, acute, rough, to 17 mm long, slender. Flowers solitary, yellow to orange, ± 30 mm diam. Nov.–Dec. Limestone dunes, AP, SE (Pearly Beach to Knysna).•

reptans (Aiton) N.E.Br. (= *Lampranthus serpens* (L.Bolus) L.Bolus, *L. woodburniae* (L.Bolus) N.E.Br) Mat-forming perennial with trailing branches. Leaves in tufts, erect, 15–25 × 5–6 mm. Flowers on long pedicels, yellow or white. Aug.–Oct. Sandy flats, NW, SW (Graafwater and Hex River Valley to Cape Peninsula and Caledon).•

vanzijliae (L.Bolus) N.E.Br. Like **L. reptans** but leaves longer (to 55 mm) and flowers larger (to 60 mm diam.), coppery orange. Aug.–Sept. ?, NW (near Worcester).• EXTINCT

B.' Plants erect, rarely rooting at nodes

aurantium (Haw.) Schwantes (incl. **L. hurlingii** (L.Bolus) L.Bolus, **L. marcidulus** N.E.Br., **L. matutinus** (L.Bolus) N.E.Br.) Sparsely branched shrublet to 25 cm., branches may be trailing and rooting at nodes. Leaves bluntly trigonous, 20–30 mm long, dots inconspicuous. Flowers solitary, stalked, orange, 25–40 mm diam., stigmas yellowish green. Sept.–Oct. Sandy flats or rocky, sandy slopes, SW (Darling to Cape Flats and Robertson).•

aureus (L.) N.E.Br. Erect perennial to 40 cm. Leaves fused basally, pruinose, to 5 cm long. Flowers stalked, shiny orange or rarely white, to 60 mm diam., stigmas purple. Aug.–Sept. Granite outcrops, SW (Vredenburg to Saldanha).•

bicolor (L.) N.E.Br. (incl. **L. acrosepalus** (L.Bolus) L.Bolus, **L. antemeridianus** (L.Bolus) L.Bolus, **L. inaequalis** (Haw.) N.E.Br., **L. rubroluteus** (L.Bolus) L.Bolus, **L. variabilis** (Haw.) N.E.Br.) Stiffly branched, erect shrublet to 30 cm. Leaves shortly fused, rough, 12–25 mm long. Flowers 1–3, yellow with scarlet or copper reverse. Oct.–Jan. Sandy flats or slopes, 10–1 100 m, NW, SW, AP (Piketberg, Tulbagh and Cape Peninsula to Riversdale).•

coccineus (Haw.) N.E.Br. (incl. **L. sauerae** (L.Bolus) L.Bolus) Erect shrublet to 30 cm. Leaves crowded on short shoots, spreading, compressed-trigonous, grey-green, 15–25 mm long. Flowers 1–3, red, to 40 mm diam. Sept. Sandy flats, SW (Saldanha to Darling).•

glaucus (L.) N.E.Br. (= *Lampranthus citrinus* (L.Bolus) L.Bolus, *L. longistamineus* (L.Bolus) N.E.Br., *L. palustris* (L.Bolus) L.Bolus) Erect shrublet to 20 cm. Leaves fused basally, compressed-trigonous, rough, grey pruinose, 15–30 mm long. Flowers stalked, solitary, golden-yellow to lemon-yellow, rarely cream-coloured, to 30 mm diam. July–Sept. Seasonally wet sandstone soils or sandy clay loams, NW, SW (Gifberg to Cape Peninsula).•

peersii (L.Bolus) N.E.Br. Similar to **L. coccineus**, but petals golden, then turning red. Sept. ?, NW (Graafwater).•

promontorii (L.Bolus) N.E.Br. Erect shrublet to 20 cm, with ascending branches. Leaves erect or spreading, fused basally, compressed-trigonous, shortly acuminate, 10–23 × 3 mm. Flowers on short pedicels, yellow, rarely white, 14–23 mm diam. Dec.–Jan. In sand, SW (Cape Peninsula).•

stanfordiae L.Bolus Slender, erect shrublet to 25 cm. Leaves acute, slightly scabrid, to 17 × 2.5 mm. Flowers 1–3 in groups on pedicels to 30 mm long, yellow or more rarely orange, to 37 mm diam., without petaloid staminodes. Sept. Sandveld, SW (Yzerfontein to Redelinghuys).•

A.' Flowers pink, magenta or white
C. Plants prostrate, trailing and frequently rooting at nodes

antonii L.Bolus Mat-forming perennial with trailing stems to 12 cm long. Leaves linear, acute, apiculate, 2–5 cm long. Flowers solitary, white to pale pink, 50–65 mm diam. Fruits ± 12 mm diam. Sept. In sand, often close to streams, frequent after fires, 1 000 m, NW (Citrusdal to Ceres).•

debilis (Haw.) N.E.Br. (incl. **L. arbuthnotiae** (L.Bolus) L.Bolus, **L. caespitosus** (L.Bolus) N.E.Br., **L. ernestii** (L.Bolus) L.Bolus, **L. tegens** (F.Muell.) N.E.Br.) RANKVYGIE Mat-forming perennial, branches slender, rooting at nodes, fertile branches erect, 10–15 mm long. Leaves ascending, trigonous, acute, to 8 mm long, rough. Flowers solitary on pedicels 6–12 mm long, purplish with paler centre, to 16 mm diam. Aug.–Oct. Sandy flats, NW, SW, LB (Vredenburg, Tulbagh to Swellendam, sometimes a weed in Australia).•

diutinus (L.Bolus) N.E.Br. Like **L. multiseriatus** but pedicels to 30 mm long and flowers larger, 40–80 mm diam., purplish. July–Nov. Sands, LB (Riversdale).•

filicaulis (Haw.) N.E.Br. Mat-forming succulent to 10 cm. Leaves crowded at branch tips, incurving, apices recurved, to 25 × 3 mm. Flowers solitary, rose to magenta, to 20 mm diam., filamentous staminodes and stamens in a central cone. Fruits ± 6 mm diam. June–July. Moist depressions on laterites, SW (Cape Peninsula and Cape Flats).•

foliosus L.Bolus Sprawling shrublet, with trailing branches rooting at nodes. Leaves crowded, erect to spreading, acute, 15–30 mm long. Flowers stalked, solitary, purplish, to 40 mm diam. Aug.–Sept. ?, SW (Gansbaai).•

multiseriatus (L.Bolus) N.E.Br. (?incl. **L. perreptans** L.Bolus) Prostrate shrublet, branches slender and trailing, rooting at nodes. Leaves subfalcate, acute above, set with fine dots, to 15 mm long, narrow. Flowers solitary on pedicels 6–23 mm long, to 43 mm diam. Aug.–Oct. Sandy flats, LB (Swellendam to Riversdale).•

peacockiae (L.Bolus) L.Bolus Like **L. filicaulis** but leaves much shorter, more slender, and minutely papillate. Aug.–Sept. Clayish hill slopes or flats, SW (Darling to Cape Peninsula).•

sociorum (L.Bolus) N.E.Br. Prostrate perennial, branches rooting at nodes, internodes 2–3 mm long. Leaves ascending, trigonous to half-cylindrical, acute, glaucous, 10–25 × 3 mm. Flowers solitary on erect pedicels ± 4 mm long., pink, 30–35 mm diam., staminodes in a cone. Oct. On shales, NW, SW (Citrusdal to Koeberg).•

spectabilis (Haw.) N.E.Br. (incl. **L. macrocarpus** (A.Berger) N.E.Br., **L. macrosepalus** (L.Bolus) L.Bolus) Robust, spreading shrublet, with short shoots from leaf axils. Leaves sharply trigonous, 10–25 × 2–4 mm. Flowers 1–3 in groups, rose-magenta, to 60 mm diam. Fruits to 18 mm diam. Oct.–Dec. On shallow ground in grassy places, SE (Humansdorp to East London).

tenuifolius (L.) N.E.Br. (incl. **L. magnificus** (L.Bolus) N.E.Br.) Sprawling shrublet to 20 cm, with slender branches often rooting at nodes. Leaves fused basally, subcylindrical, with translucent dots, ± 40 × 2 mm. Flowers solitary on long pedicels, brilliant pink, to 45 mm diam. Oct.–Dec. In sand, SW, AP (Malmesbury to Cape Peninsula and Struis Bay).•

C.' Plants erect, rarely rooting at nodes
D. Dwarf shrubs 10–25 cm high
E. Leaves smooth

aduncus (Haw.) N.E.Br. (incl. **L. curvifolius** (Haw.) N.E.Br., **L. wordsworthiae** (L.Bolus) N.E.Br.) Low shrublet with ascending to spreading branches. Leaves subcylindrical, tapering, spreading and recurved at tip, 15–20 × 2–4 mm. Flowers solitary, terminal, magenta-red, to 18 mm diam., stamens and staminodes in a central cone, stigmas slender. Fruits with large valve wings. May–Aug. Stony slopes, NW, SW, KM (Gifberg to Cape Peninsula, Witteberge).•

falciformis (Haw.) N.E.Br. (= *Oscularia falciformis* (Haw.) H.E.K.Hartmann) Decumbent to erect shrublet to 25 cm. Leaves falcate, glaucous, 1–2 cm long, 3–5 mm diam. Flowers 1–3, to 50 mm diam., pink, without filamentous staminodes. Fruits 5-locular. Nov.–Feb. Rock outcrops and ledges, SW (Cape Peninsula).•

glomeratus (L.) N.E.Br. (incl. **L. aestivus** (L.Bolus) L.Bolus, **L. austricola** (L.Bolus) L.Bolus, **L. furvus** (L.Bolus) N.E.Br.) Erect, stiffly branched shrublet to 20 cm. Leaves erect, glaucous, somewhat falcate, greenish, 10–15 mm long, slender. Flowers 1–3 in cymes, pink or purplish, 28 mm diam. Fruits ± 6 mm diam. Nov.–Feb. Sandy, stony slopes, SW (Cape Peninsula to Kleinmond).•

spiniformis (Haw.) N.E.Br. (incl. **L. inconspicuus** (Haw.) Schwantes, **L. nelii** L.Bolus) Like **L. aduncus** but leaves more slender, stigmas thick and short and valve wings narrow. May–June. Stony slopes, NW, SW (Saron to Genadendal).•

E.' Leaves slightly rough

acutifolius (L.Bolus) N.E.Br. Dwarf shrublet to 20 cm. Leaves erect, subfalcate, set with fairly large dots, 10 × 2 mm. Flowers 1–3 on pedicels to 20 mm long, pink, to 30 mm diam. Fruits ± 4.5 mm diam. Jan. Stony slopes, SW (Malmesbury).•

caudatus L.Bolus Rigid shrublet to 30 cm, with slender, densely leafy branches. Leaves spreading to ascending, recurved at tip, rough, glaucous, 9–14 mm long. Flowers 1–3 on slender pedicels 10–20 mm long, pink to pale pink, to 20 mm diam. Fruits 5–7 mm diam. Apr. ?, AP (Agulhas).•

ceriseus (L.Bolus) L.Bolus (incl. **L. galpiniae** (L.Bolus) L.Bolus, **L. salteri** (L.Bolus) L.Bolus) Erect shrublet to 10 cm, with slender branches. Leaves erect, rarely falcate, subcylindrical, narrow, acute, to 22 mm long. Flowers solitary, magenta or white with pink centre, to 60 mm diam. Fruits 5-locular, 8 mm diam. Oct.–Nov. Limestone hills, AP (Bredasdorp to Still Bay).•

diffusus (L.Bolus) N.E.Br. (incl. **L. microstigma** (L.Bolus) N.E.Br., **L. occultans** L.Bolus, **L. rabiesbergensis** (L.Bolus) L.Bolus, **L. virgatus** L.Bolus) Spreading, loosely branched shrublet to 30 cm. Leaves narrow, rough, 10–25 mm long. Flowers solitary on pedicels 35 mm long, white to purplish, to 30 mm diam. Fruits unknown. Sept.–Nov. Stony slopes, NW (Cedarberg to Worcester).•

elegans (Jacq.) Schwantes (incl. **L. argillosus** L.Bolus, **L. creber** L.Bolus, **L. dilutus** N.E.Br., **L. microsepalus** L.Bolus, **L. neostayneri** L.Bolus, **L. prominulus** (L.Bolus) L.Bolus, **L. recurvus** (L.Bolus) Schwantes, **L. rustii** (A.Berger) N.E.Br.) Spreading to erect shrublet to 15–30 cm. Leaves spreading, with recurved tips, scabrid, 5–12 × ± 2 mm. Flowers 1–3 in groups, pink to magenta, 18–25 mm diam., staminodes collected in centre and recurving. June–Sept. On shale, NW, SW, LB (Tulbagh to George).•

emarginatus (L.) N.E.Br. Like **L. elegans** but without filamentous staminodes. Oct.–Jan. Sandy slopes, SW (Langebaan to Gordon's Bay).•

falcatus (L.) N.E.Br. (incl. **L. candidus** L.Bolus, **L. capillaceus** (L.Bolus) N.E.Br., **L. framesii** (L.Bolus) N.E.Br., **L. middlemostii** (L.Bolus) L.Bolus, **L. tulbaghensis** (A.Berger) N.E.Br., **L. vallisgratiae** (Schltr. & A.Berger) N.E.Br) Small, freely branching shrublet with slender branches. Leaves subfalcate, grey-green, with round papillae, to 6 mm long. Flowers ternate, stalked, pink, to 15 mm diam., without filamentous staminodes. Nov.–Mar. Rocky sandstone slopes, NW, SW (Tulbagh to Worcester and Langebergen).•

laetus (L.Bolus) L.Bolus Erect, tangled shrublet to 20 cm. Leaves ascending to erect, slightly rough, dull green, 7–13 mm long, slender. Flowers purplish, 20–23 mm diam. Oct. Rocky sandstone slopes, KM (Montagu).•

leptaleon (Haw.) N.E.Br. (incl. **L. altistylus** N.E.Br., **L. calcaratus** (Wolley-Dod) N.E.Br., **L. maturus** N.E.Br., **L. parcus** N.E.Br., **L. tenuis** L.Bolus) Slender shrublet to 25 cm. Leaves ascending to spreading, somewhat falcate, minutely papillose, to 4 mm long. Flowers solitary, pink, ± 20 mm diam., staminodes in a central cone. Fruits 5–6 mm diam., base funnel-shaped. Aug.–Sept. In renosterveld, often in seasonally wet flats, SW (Wellington to Hermanus).•

leptosepalus (L.Bolus) L.Bolus (incl. **L. walgateae** L.Bolus) Slender, erect shrublet to 15 cm. Leaves erect, narrowed above, dull green, set with round papillae, 10–15 mm long. Flowers 1–3 in groups, magenta, ± 30 mm diam. Dec.–Mar. Rocky sandstone slopes, NW, LB (Cedarberg to Langeberg: Tradouw Pass).•

lewisiae (L.Bolus) L.Bolus Erect shrublet to 10 cm. Leaves erect, narrowed above, rough, to 14 × 2 mm. Flowers stalked, solitary, pink, 30 mm diam. Sept. ?, NW (Gydouw Pass).•

pocockiae (L.Bolus) N.E.Br. (incl. **L. brevistamineus** (L.Bolus) L.Bolus) Delicate, tangled shrublet, to 14 cm. Leaves erect or spreading, cuneate to falcate, rough, ± 11 × 2 mm. Flowers on short

pedicels, solitary, pink to magenta, to 20 mm diam., without filamentous staminodes. Oct.–Dec. Sandstone, to 1 800 m, NW, SW, KM (Matroosberg, Hottentots Holland Mtns to Swartberg).•

rupestris (L.Bolus) N.E.Br. Slender shrublet, to 15 cm, branches spreading, prostrate to creeping. Leaves fused basally, grey, rough, to 12 mm long. Flowers 1–3 on pedicels ± 20 mm long, white, to 25 mm diam. Oct. Shallow depressions on granite outcrops, SW (Paardeberg).•

scaber (L.) N.E.Br. (incl. **L. paarlensis** L.Bolus) Richly and irregularly branched, shrublet to 30 cm, with slightly thickened rootstock to 15 cm long. Leaves slender, scabrid, 10–20 × 2–4 mm. Flowers mostly solitary, pale shiny lilac, to 30 mm diam., staminodes collected in centre. Aug. Renosterveld, also in seasonally wet areas, 100–400 m, NW, SW (Tulbagh to Cape Flats and Worcester).•

schlechteri (Zahlbr.) L.Bolus Shrublet with suberect to ascending branches, 13–20 cm. Leaves shortly fused, inclined, acute, 10–20 × 1 mm. Flowers 1–3 on short pedicels, salmon, to 50 mm diam. Oct.–Nov. Sandy flats or lower slopes, frequent after fires, SW (near Franschhoek).•

staminodiosus (L.Bolus) Schwantes (incl. **L. macrostigma** L.Bolus) Erect shrublet to 20 cm. Leaves erect, rough, glaucous, 7–14 × 1.5 mm. Flowers mostly solitary, white or dark magenta, to 25 mm diam., filamentous staminodes collected into a cone. Fruits ± 7 mm diam. Nov.–Dec. Sandstone slopes or valleys, NW (Cedarberg).•

stenopetalus (L.Bolus) N.E.Br. (incl. **L. villiersii** (L.Bolus) L.Bolus). Erect shrublet to 25 cm. Leaves subcylindrical, scabrid, tapering, to 15 × 1.5 mm. Flowers in small cymes, on short pedicels, white to pink, to 25 mm diam. Nov. Sandy flats, NW, SW (Graafwater to Worcester).•

stenus (Haw.) N.E.Br. (incl. **L. monticola** (L.Bolus) L.Bolus). Slender, erect shrublet to 30 cm or prostrate and rooting at nodes. Leaves fused basally, subcylindrical, tapering, 12–30 × 2 mm. Flowers 1–5, pale mauve, 20–30 mm diam. Nov.–Feb. Sandy flats, SW (Cape Peninsula and Cape Flats).•

verecundus (L.Bolus) N.E.Br. Slender, laxly branched shrublet to 20 cm. Leaves slightly falcate, rough, 10–20 mm long, slender. Flowers solitary, pale pink, ± 25 mm diam. Fruits ± 7 mm diam. Dec. Sandstone slopes at ± 400 m, LB (Langeberg: Riversdale).•

D.' Robust shrubs, 20–60 cm high; leaves smooth
F. Leaves laterally compressed, falcate

dregeanus (Sond.) N.E.Br. (incl. **L. globosus** (L.Bolus) L.Bolus, **L. gracilipes** (L.Bolus) N.E.Br.) Erect shrublet, 20–60 cm. Leaves spreading, subfalcate, much compressed, 6–9 mm long. Flowers 1–3 in a branched inflorescence, white, pale pink or magenta, ± 32 mm diam. Sept.–Oct. Stony sandstone slopes, frequent after fires, 100–900 m, NW, SW (Kamiesberg and Gifberg to Villiersdorp). **gce**

pauciflorus (L.Bolus) N.E.Br. (incl. **L. amabilis** L.Bolus) Loosely branched shrub to 30 cm. Leaves trigonous, subfalcate, smooth glaucous, to 18–25 mm long. Flowers solitary, to 40 mm diam., pedicels 20–40 mm long, petals magenta to pink, with filamentous staminodes. Fruits 5-locular. July–Oct. Coastal rocks and clayish hills near coast, SW, LB, SE (Cape Infanta to Plettenberg Bay).•

F.' Leaves subcylindrical to trigonous

coralliflorus (Salm-Dyck) N.E.Br. (incl. **L. dependens** (L.Bolus) L.Bolus) Like **L. haworthii**, but habit decumbent or sprawling. Flowers white, pale mauve to magenta. Oct.–Jan. Sandstone cliffs, NW, LB, SE (Montagu to Humansdorp).•

densifolius (L.Bolus) L.Bolus (incl. **L. eximius** L.Bolus, **L. immelmaniae** (L.Bolus) N.E.Br.) Sprawling shrublet, main branches prostrate and erect, long flowering branches, 15–30 cm. Leaves ascending to erect, acute, 15–22 mm long. Flowers 1–3, pink to magenta, 40(–50) mm diam. Oct.–Nov. Sandy flats, SW (Vredenburg to Hopefield).•

dulcis (L.Bolus) L.Bolus (incl. **L. berghiae** (L.Bolus) L.Bolus, **L. leightoniae** (L.Bolus) L.Bolus, **L. martleyi** (L.Bolus) L.Bolus, **L. plenus** (L.Bolus) L.Bolus, **L. subtruncatus** L.Bolus) Erect shrublet to 50 cm. Leaves ascending, trigonous, acute or tapering, glaucous, to 13 × ± 3 mm. Flowers in few-flowered dichasia, pink to pale pink, to 40 mm diam. Fruits 9 mm diam. Aug.–Oct. In sand, often among restios, NW (Cedarberg to Piketberg).•

haworthii (Donn ex Haw.) N.E.Br. (incl. **L. cyathiformis** N.E.Br., **L. egregius** (L.Bolus) L.Bolus) Erect, freely branched shrublet to 60 cm. Leaves shortly fused basally, spreading, 25–40 mm long. Flowers 1–3, magenta, to 70 mm diam. Sept.–Oct. Mostly on shales, NW, SW, KM (Cedarberg to Little Karoo).•

intervallaris L.Bolus Laxly branched shrub. Leaves tapered, obtuse to acute, green, 15–20 mm long, slender. Flowers pale pink, 22–28 mm diam. Aug. ?, NW (Clanwilliam).•

lavisii (L.Bolus) L.Bolus (= *Lampranthus hollandii* (L.Bolus) L.Bolus) Erect shrubs, 20–35 cm. Leaves trigonous, 20–27 mm long, 2 mm broad, 2–3 mm thick, shortly fused at bases. Flowers in cymes, to 40 mm diam., white, pink to magenta. Nov.–Dec. Stony, sandy grass-covered slopes, often coastal areas, 10–250 m, SE (George: Zwartriver to E Cape: Alexandria).

laxifolius (L.Bolus) N.E.Br. (incl. **L. hallii** L.Bolus) Plant with cluster of leaves at the base, with erect flowering branches to 36 cm long. Leaves ascending to erect, keeled, laterally compressed, acuminate, 18–26(–80) × ± 3 mm. Flowers pink to magenta, to 35 mm diam. Sept. Stony, grass-covered slopes, LB (Swellendam, Langeberg: Cloete's Pass, Mossel Bay).•

leipoldtii (L.Bolus) L.Bolus Erect shrublet to 20 cm, with slender branches. Leaves erect, slender, dull green, set with round papillae, 10–15 mm long. Flowers 1–3 in groups, pale pink to pink, ± 35 mm diam. Oct. Alluvium soils associated with the Breede River, NW, SW (Worcester to Villiersdorp, Swellendam).•

multiradiatus (Jacq.) N.E.Br. (incl. **L. blandus** (Haw.) Schwantes, **L. incurvus** (Haw.) Schwantes, **L. roseus** (Willd.) Schwantes) Spreading shrublet to 60 cm. Leaves compressed-trigonous, 15–25 × 2–4 mm. Flowers 1–3 in groups, pale pink, to 50 mm diam. Aug.–Oct. Stony slopes, SW (Cape Peninsula).•

pakhuisensis (L.Bolus) L.Bolus Erect shrublet to 25 cm. Leaves erect, shortly acuminate, rough, to 15 × 2 mm. Flowers solitary on short pedicels, pink. Sept.–Oct. Sandstone slopes, NW (Pakhuis Mtns).•

paucifolius (L.Bolus) N.E.Br. (incl. **L. obconicus** (L.Bolus) L.Bolus) Erect shrublet to 30 cm, branches shiny brown. Leaves ascending, trigonous, indistinctly keeled, slightly rough, acute, to 17 × 1–2 mm long. Flowers in small cymes on short pedicels, purple-pink, ± 27 mm diam., filamentous staminodes apically recurved. Sept. Fynbos and renosterveld on shales, NW (Kamiesberg to Pakhuis Mtns). **gce**

productus (Haw.) N.E.Br. (incl. **L. mutans** (L.Bolus) N.E.Br.) Similar to **L. stayneri**, but with an erect habit, flowers smaller, *i.e.* 20–30 mm diam., petals white, pale pink or pink, sometimes with a yellow centre, calyx lobes long and ± as long as petals. Oct.–Jan. Loamy, stony places, SE (Joubertina to Uitenhage and Kirkwood).

purpureus L.Bolus Loosely branched shrublet to 40 cm. Leaves erect, rough, glaucous, 15–35 mm long, slender. Flowers 1–3 on pedicels 35–45 mm long, purplish, to 30 mm diam. Fruits ± 8 mm diam. Nov. Rocky slopes, NW (Olifants River Mtns: Keerom).•

stayneri (L.Bolus) N.E.Br. (incl. **L. algoensis** L.Bolus) Decumbent to erect shrublet to 35 cm. Leaves acuminate, tip recurved, 15–25 mm long. Flowers 1–3, magenta, to 35 mm diam., pedicels short, *i.e.* to 10 mm long. Fruits ± 8 mm diam. Oct.–Jan. Shale soils, SE (Hankey to Bedford).

stipulaceus (L.) N.E.Br. (= *Lampranthus amoenus* (Salm-Dyck ex DC.) N.E.Br.) Erect shrublet to 40 cm. Leaves spreading, cylindrical to trigonous, shortly mucronate, to 40 mm long. Flowers ternate, magenta, but also white or pink, 35–40 mm diam. July–Oct. Sandy flats, SW (Namaqualand to Cape Peninsula). **gce**

swartbergensis (L.Bolus) N.E.Br. (incl. **L. subaequalis** (L.Bolus) L.Bolus) Erect shrublet to 35 cm. Leaves erect, rough, 8–12 mm long, slender. Flowers 1–3 in groups, stalked, magenta to pale pink, occasionally with a yellow centre, to 30 mm diam. Fruits ± 6 mm diam. Oct.–Jan. In fynbos, to 1 600 m, KM, SE (Ladismith to Uniondale).•

uniflorus (L.Bolus) L.Bolus (= *Drosanthemum uniflorum* (L.Bolus) Friedrich ex H.Jacobsen) Cushion-forming shrublet to 1 × 0.8 m, stems whitish grey. Leaves cylindrical, obtuse, soft-fleshy, green, to 25 mm long. Flowers solitary, pink, stamens and staminodes in a central cone. Fruits bell-shaped below. July–Sept. Stony flats, KM (W and Little Karoo to Great Karoo).

vernalis (L.Bolus) L.Bolus (= *Lampranthus arenosus* (L.Bolus) L.Bolus, *L. salicola* (L.Bolus) L.Bolus) Laxly branched, decumbent to erect shrub, 20–30 cm. Leaves shortly fused, ascending, semi-cylindrical, shortly acuminate, glaucous to yellow-green, 15–20 mm long, 2–3 mm wide and thick. Flowers pink, to 40 mm diam. Oct.–Nov. Coastal limestone outcrops, NW, SW (Rocher Pan to Saldanha).•

watermeyeri (L.Bolus) N.E.Br. (incl. **L. saturatus** (L.Bolus) N.E.Br., **L. vanputtenii** (L.Bolus) N.E.Br.) Erect shrublet to 50 cm. Leaves fused basally, subcylindrical, 20–40 × 6 mm. Flowers mostly solitary on long pedicels, white or magenta, without staminodes, to 70 mm diam. June–Oct. Sandstone outcrops, NW (Namaqualand to Citrusdal and Worcester). **gce**

[**Species excluded** Incompletely known and possibly conspecific with one of the above: **L. brownii** (Hook.f.) N.E.Br., **L. curviflorus** (Haw.) H.E.K.Hartmann, **L. deflexus** (Aiton) N.E.Br., **L. emarginatoides** (Haw.) N.E.Br., **L. glaucoides** (Haw.) N.E.Br., **L. versicolor** (Haw.) L.Bolus]

LEIPOLDTIA L.Bolus 8 spp., S Namibia to E Cape

schultzei (Schltr. & Diels) Friedrich (= *Leipoldtia amplexicaulis* (L.Bolus) L.Bolus, *L. britteniae* (L.Bolus) L.Bolus, *L. constricta* (L.Bolus) L.Bolus, *L. jacobseniana* Schwantes) Sprawling shrublet, branches to 70 cm, red, sometimes ochre. Leaves trigonous. Flowers 6–30 mm diam., petals magenta. Fruits mostly 10-locular, base greyish, bell- to trumpet-shaped. Apr.–Sept. Sandy flats and slopes, NW, KM, LB, SE (Namaqualand to Humansdorp). **gce**

LITHOPS N.E.Br. 36 spp., dry parts of southern Africa

localis (N.E.Br.) Schwantes (= *Lithops terricolor* N.E.Br.) Acaulescent succulent. Leaf bodies compact, obconic, truncate, slightly convex, speckled. Flowers 20–30 mm diam., yellow. Fruits mostly 5-locular. Apr.–May. Black shales and gravels, KM, SE (W Karoo and Witteberg to E Cape).

MACHAIROPHYLLUM Schwantes DOLKVYGIE 4 spp., W to E Cape

albidum (L.) Schwantes (= *Machairophyllum cookii* (L.Bolus) Schwantes) Tufted perennial to 10 cm, mat-forming with age. Leaves crowded, blue-green to whitish, trigonous. Flowers ternate, on long, 2-angled pedicels, yellow with reddish reverse, to 60 mm diam. Nov.–Dec. Rocky slopes, KM, LB (Langeberg: Barrydale to Robinson Pass and Swartberg).•

bijliae (N.E.Br.) L.Bolus (= *Machairophyllum acuminatum* L.Bolus, *M. baxteri* L.Bolus) Tufted perennial to 20 cm. Leaves pale green, trigonous, angles acute. Flowers solitary on pedicels to 75 mm long, golden-yellow with red reverse or red, 50–60 mm diam. Mostly Oct.–Nov. Rocky slopes and rock crevices, KM, SE (Swartberg Pass to Uniondale, George to E Cape).

brevifolium L.Bolus (= *Machairophyllum latifolium* L.Bolus) Tufted perennial to 2 cm. Leaves grey-green. Flowers solitary on pedicels ± 15 mm long, yellow, to 35 m diam. Aug.–Sept. Red cliffs, KM (Little Karoo: Oudtshoorn to De Rust).•

MALEPHORA N.E.Br. VINGERKANNA ± 17 spp., Namibia to E Cape

framesii (L.Bolus) H.Jacobsen & Schwantes Prostrate succulent with white branches to 30 cm long. Leaves ± clavate, obtuse, to 40 × 14 mm. Flowers solitary on pedicels to 10 mm long, yellow, opening in the evening. Fruits 8-locular. Aug.–Oct. Near the sea, NW, SW (Klawer to Saldanha).•

latipetala (L.Bolus) H.Jacobsen & Schwantes Sprawling shrublet, branches decumbent, not rooting, with brown internodes. Leaves terete, apically acute, glaucous, to 25 × 3–5 mm. Flowers sepals 5, petals golden-yellow, 34 mm diam. Fruits 9–10-locular. June–Dec. ?, KM (Matjiesfontein to Prince Albert and Little Karoo). **gce**

uitenhagensis (L.Bolus) H.Jacobsen & Schwantes Mat-forming succulent with trailing stems to 40 cm long. Leaves terete, to 25 × 5 mm, smooth, green. Flowers sepals 4, solitary on pedicels 15–25 mm long, yellowish or copper-red, to 35 mm diam. Fruits 8–12-locular. Aug.–Sept. Loamy flats, sometimes in flats with stone cover, always in open places, SE (Willowmore to Port Elizabeth and E Cape).

[**Species excluded** Insufficiently known and possibly conspecific with one of the above or outside our area: **M. crassa** (L.Bolus) H. Jacobsen & Schwantes, **M. crocea** (Jacq.) Schwantes, **M. lutea** (Haw.) Schwantes; **M. luteola** (Haw.) Schwantes, **M. thunbergii** (Haw.) Schwantes]

MARLOTHISTELLA Schwantes 2 spp., W and E Cape

stenophylla (L.Bolus) S.A.Hammer Tufted perennial, subtuberous. Leaves trigonous, acute, to 50 mm long, 2–3 mm broad and thick, smooth. Flowers solitary, purplish, 20–25 mm diam. Fruits 5-locular, with large closing body. July–Aug. Grasslands, SE (Joubertina).

uniondalensis Schwantes Like **M. stenophylla** but with distally branching thick tap-roots and leaves basally terete, sharply pointed above, to 45 mm long, ± 5 mm broad, ± 3 mm diam. July–Aug. Grasslands or karroid vegetation, KM, LB, SE (Karoo and Little Karoo to Uniondale).

MESEMBRYANTHEMUM L. (= *APTENIA, ARIDARIA, BROWNANTHUS, PHYLLOBOLUS, PRENIA, PSILOCAULON, SCELETIUM, SPHALMANTHUS*) 103 spp., southern Africa

A. Annuals
B. Basal leaves forming a rosette

crystallinum L. Prostrate annual. Leaves at base forming a small rosette, flat, ovate-spathulate, bladder cells large. Flowers white or pinkish, 15–30 mm diam. Fruits with valve wings inflexed over valves. Nov.–Dec. Coastal sands, NW, SW, AP, SE (S Angola to E Cape, probably introduced elsewhere).

guerichianum Pax (= *Mesembryanthemum alatum* (L.Bolus) L.Bolus, *M. intransparens* L.Bolus, *M. macrostigma* L.Bolus, *M. magniflorum* L.Bolus, *M. perlatum* Dinter, *M. purpureoroseum* L.Bolus, *M. quinangulatum* L.Bolus) Like **M. crystallinum** but bladder cells much smaller and flowers larger, 25–55 mm diam. Sept.–Dec. Sandy flats, roadsides, NW, SW, KM, LB, SE (dry parts of southern Africa).

B.' Basal leaves not forming a rosette

aitonis Jacq. (= *Mesembryanthemum louiseae* L.Bolus, *M. paulum* (N.E.Br.) L.Bolus) Prostrate or ascending annual. Leaves flat, ovate- to lanceolate-spathulate, bladder cells distinct. Flowers white or pinkish, 5–20 mm diam. Fruits with valve wings reflexed and fused in pairs. Sept.–Jan. Pioneer, SW, KM, LB, SE (Caledon to E Cape and Karoo).

excavatum L.Bolus Prostrate or decumbent annual. Leaves narrowly obovate, bladder cells distinct. Flowers yellow, ± 15 mm diam. Fruits with valve wings reflexed and fused in pairs. Oct. Disturbed sites, NW, KM (Ceres to Beaufort West).

longistylum DC. (= *Mesembryanthemum cryocalyx* L.Bolus) Decumbent to erect annual to 40 cm. Leaves narrowly oblong, bladder cells inconspicuous. Flowers white, 10–20(–25) mm diam. Fruits with valve wings reflexed and fused in pairs. Sept.–Oct. Disturbed sites, NW, SW, KM, LB (Vanrhynsdorp to Malmesbury, Worcester to Witteberg and Riversdale).•

nodiflorum L. (= *Mesembryanthemum paucandrum* L.Bolus) Like **M. excavatum** but leaves linear and flowers white or pinkish. Oct.–Nov. Disturbed places, roadsides, NW, SW, LB, SE (Namaqualand to E Cape).

stenandrum (L.Bolus) L.Bolus (= *Mesembryanthemum galpinii* (L.Bolus) L.Bolus) Like **M. nodiflorum** but flowers larger, 15–30 mm diam., and petals more numerous. Nov.–Dec. Disturbed sites, NW (Namaqualand to Clanwilliam and Karoo).

subtruncatum L.Bolus Prostrate annual. Leaves subcylindrical, almost truncate, bladder cells inconspicuous. Flowers pink, 20–25 mm diam. Oct. Disturbed places in quartz, KM (Tanqua Karoo, Little Karoo). **gce**

A.' Perennials
C. Leaves flat and broad
D. Dry leaves persistent and 'skeletonized' through lignified veins

archeri (L.Bolus) Klak (= *Sceletium rigidum* L.Bolus) Scrambling to erect, succulent shrub, branches often robust. Leaves not overlapping, flat, up to 25 mm long, tips recurved, bladder cells small but very conspicuously vaulted. Flowers sessile, whitish, ± 20 mm diam. Fruit 4(5)-locular, valve wings absent. Sept.–Oct. Karroid areas, KM (Laingsburg to Prince Albert, occasional in W Little Karoo). **gce**

crassicaule Haw. (= *Sceletium crassicaule* (Haw.) L.Bolus) Prostrate to decumbent, sometimes scrambling perennial. Leaves not imbricate, tips recurved, to 40 mm long, bladder cells flattened. Flowers stalked, white to pale yellow or pale pink, 20–30 mm diam. Fruits 5- or 6-locular, with valve wings. Oct.–Nov. Dry karroid slopes, KM, SE (Willowmore to E Cape: Grahamstown).

expansum L. (= *Sceletium expansum* (L.) L.Bolus, *S. regium* L.Bolus) Prostrate to sprawling perennial. Leaves not imbricate, tips recurved, to 65 mm long, bladder cells small. Flowers stalked, yellow, ± 40 mm diam., filamentous staminodes concealing reproductive parts. Fruits 5-locular, with valve wings. Sept.–Nov. Stony slopes, NW, SW (Clanwilliam to Malmesbury).•

ladismithiense Klak (= *Sceletium strictum* L.Bolus) Prostrate to decumbent, sometimes scrambling perennial. Leaves not imbricate, tips recurved, to 40 mm long, bladder cells flattened. Flow-

ers stalked, white to pale yellow, 20–30 mm diam. Fruits 4- or 5-locular, with valve wings. May–Sept. Rock outcrops, KM (Ladismith).•

tortuosum L. (= *Sceletium compactum* L.Bolus, *S. framesii* L.Bolus, *S. joubertii* L.Bolus, *S. tortuosum* (L.) N.E.Br.) Prostrate to scrambling perennial. Leaves imbricate, tips incurved, to 40 mm long, bladder cells large. Flowers subsessile, white to pale yellow, pale salmon or pale pink, ± 20–30 mm diam. Fruits 4- or 5-locular, with valve wings. July–Sept. Often on quartzite NW, KM, LB, SE (Namaqualand to Montagu and Aberdeen).

varians Haw. (= *Sceletium subvelutinum* L.Bolus, *S. varians* (Haw.) Gerbaulet) Erect or decumbent and scrambling perennial. Leaves not imbricate, tips recurved, to 20 mm long, bladder cells small. Flowers stalked, white to pale yellow, ± 40 mm diam., filamentous staminodes concealing reproductive parts. Fruits (4)5-locular, with valve wings. Aug.–Oct. Stony slopes, NW, SW (Worcester, Robertson).•

D.' Leaves never 'skeletonized'

***cordifolium** L.f. (= *Aptenia cordifolia* (L.f.) Schwantes) Prostrate, mat-forming perennial with 4-angled stems. Leaves flat, heart-shaped. Flowers magenta, 20 mm diam. Fruits without valve wings. Dec.–Apr. Shady places, widely grown in gardens, SE (E Cape weed).

haeckelianum A.Berger (= *Aptenia haeckeliana* (A.Berger) Bittrich ex Gerbaulet, *Platythyra haeckeliana* (A.Berger) N.E.Br.) Prostrate to decumbent perennial with 4-angled stems. Leaves flat, ovate to lanceolate. Flowers pale yellow, 20 mm diam. Fruits with valve wings. Dec. Karroid flats, SE (Port Elizabeth to Alexandria).

vanrensburgii (L.Bolus) Klak (= *Prenia vanrensburgii* L.Bolus) Mat-forming perennial. Leaves flat, ovate. Flowers whitish to slightly yellowish. Fruits 5-locular. Oct. Along seashores, SW, AP (Hermanus to Bredasdorp).•

C.' Leaves slender and rounded
E. Stems with at least partly persistent, green, succulent stems

articulatum Thunb. (= *Psilocaulon articulatum* (Thunb.) N.E.Br., *P. hirtellum* L.Bolus) Decumbent to erect annual or perennial to 30 cm, branches with hair-like bladder cells. Flowers several, pink or white. Fruits 5-locular. Nov.–Dec. Pioneer, mostly disturbed sites, NW, SW, KM, LB, SE (S Namibia to E Cape and Free State).

bicorne Sond. (= *Psilocaulon bicorne* (Sond.) Schwantes) Perennial, prostrate with cluster of short branches in centre and long, trailing, flowering shoots. Flowers few, white. Fruits 5-locular. Oct.–Nov. Pioneer, mostly disturbed sites, NW, KM, LB, SE (Worcester to Port Elizabeth and Prince Albert). **gce**

coriarium Burch. ex N.E.Br. (= *Psilocaulon absimile* N.E.Br., *P. coriarium* (Burch. ex N.E.Br.) N.E.Br., *P. mentiens* (A.Berger) N.E.Br.) Decumbent to erect shrub to 1.5 m. Flowers few to many, white, 10–13 mm diam. Fruits 4- or 5-locular. Oct.–Jan. Pioneer of disturbed sites, KM, LB, SE (central Namibia and Karoo to Little Karoo and E Cape).

dinteri Engl. (= *Psilocaulon dinteri* (Engl.) Schwantes) Spreading to prostrate shrublet to 45 cm, branch internodes becoming barrel-shaped in saline soils, smooth or with domed bladder cells. Flowers few to many, magenta or pink. Fruits 5-locular. Oct.–Nov. Pioneer, often in quartz gravel or saline soils, NW, SW, KM (S Namibia to W Cape and Little Karoo). **gce**

granulicaule Haw. (= *Psilocaulon granulicaule* (Haw.) Schwantes Decumbent to erect annual or biennial to 25 cm, branches with dome-shaped bladder cells. Flowers 1–few, pale yellow or cream-coloured. Fruits 5-locular. Oct.–Nov. Pioneer, KM, LB, SE (Namibia to Little Karoo, E Cape and Free State).

junceum Haw. (= *Psilocaulon acutisepalum* (A.Berger) N.E.Br., *P. junceum* (Haw.) Schwantes, *P. utile* L.Bolus) Like **M. coriarium** but only 15–55 cm and flowers usually larger, to 15 mm diam., white or pink, petals usually broad, to 2 mm. Oct.–Nov. Pioneer, NW, SW, KM, LB, SE (W Cape to E Cape and Karoo).

napierense Klak (= *Brownanthus fraternus* Klak) Erect or decumbent shrublet to 35 cm. Leaves free below, deciduous. Flowers solitary. Fruits 5-locular. Nov.–Dec. Quartzite patches on clays, SW, LB (Bredasdorp to Swellendam).•

parviflorum Jacq. (= *Psilocaulon parviflorum* (Jacq.) Schwantes) Prostrate, mat-forming perennial, with stems smooth, slender, 1–2 mm diam., when young. Flowers 1–few, white. Fruits 4-locular. Oct.–Dec. Pioneer, on clay flats, NW, SW, AP, LB (Clanwilliam to Mossel Bay).•

vaginatum Lam. (= *Brownanthus ciliatus* (Aiton) Schwantes) Erect shrublet to 25 cm. Leaves with a conspicuous ring of white cilia at base. Flowers in few-flowered dichasia. Fruits 5-locular, without seed bags. Oct.–Nov. Dry flats, usually a pioneer, NW, KM (S Namibia to Ceres and Willowmore). **gce**

E.' Plants without persisting, green, succulent stems
F. Geophytes with tuberous roots

canaliculatum Haw. (= *Phyllobolus canaliculatus* (Haw.) Bittrich, *Sphalmanthus canaliculatus* (Haw.) N.E.Br.) Geophyte with long, creeping branches, softly woody and rooting at nodes, roots tuberous. Leaves decussate, alternate in inflorescence, with prominent bladder cells. Flowers 20–30 mm diam., reproductive parts exposed. Fruits 5-locular. Nov. Coastal dunes, SW, AP, SE (Cape Peninsula to Port Elizabeth).•

caudatum L.Bolus (= *Phyllobolus caudatus* (L.Bolus) Gerbaulet, *Sphalmanthus caudatus* (L.Bolus) N.E.Br.) Like **M. grossum**, but flowers large, to 60 mm diam. Sept. Rocky flats, NW (Bokkeveld Mtns, Worcester Karoo).•

grossum Aiton (= *Phyllobolus grossus* (Aiton) Gerbaulet, *Sphalmanthus grossus* (Aiton) N.E.Br., *S. subpetiolatus* (L.Bolus) L.Bolus) Prostrate to scrambling geophyte with stems becoming woody at base, roots tuberous. Leaves decussate, alternate in inflorescence, with prominent bladder cells. Flowers 20–30 mm diam., reproductive parts exposed. Fruits 5-locular. Sept.–Oct. Slopes and flats, often scrambling in bush, NW, LB, SE (Ceres to Grahamstown).

knolfonteinense Klak Similar to **M. oubergense**, but with an overall larger habit. Flowers 35–42 mm diam.. Oct.–Nov. Open patches of shallow ground, between low outcrops of sandstone, 1 200 m, NW (Swartruggens).•

oubergense (L.Bolus) Klak (= *Phyllobolus pumilus* (L.Bolus) Gerbaulet) Tufted geophyte with short, softly woody stems, roots tuberous. Leaves decussate, alternate in inflorescence, with large bladder cells. Flowers ± 30 mm diam., reproductive parts exposed. Fruits 5-locular. Sept. Dolerite rock sheets, 800–1 600 m, KM, LB (Montagu to Sutherland). **gce**

resurgens Kensit (= *Phyllobolus resurgens* (Kensit) Schwantes, *Sphalmanthus micans* L.Bolus, *S. resurgens* (Kensit) L.Bolus) Tufted geophyte with a thick caudex and short stems, corky below. Leaves alternate, tufted, with large bladder cells. Flowers often solitary, ± 40 mm diam., reproductive parts hidden. Fruits 5-locular. June–Sept. Shallow soils, NW, KM (Namaqualand to Ceres and Witteberg). **gce**

viridiflorum Aiton (= *Phyllobolus viridiflorus* (Aiton) Gerbaulet) Sprawling geophyte with weakly lignified stems with a thick cork layer at base. Leaves decussate, alternate in inflorescence, with large bladder cells. Flowers ± 40 mm diam., reproductive parts hidden, blue to greenish white. Fruits 5-locular. July–Sept. Quartzite flats or slopes, NW (Clanwilliam).•

F.' Shrublets with fibrous or thickened roots
G. Plants mat-forming, rooting at nodes

englishiae L.Bolus (= *Prenia englishiae* (L.Bolus) Gerbaulet) Prostrate perennial with whitish stems. Leaves obtusely trigonous, linear. Flowers whitish to yellow. Fruits 4-locular. Oct.–Nov. Disturbed places, NW, LB (Worcester-Robertson Karoo).•

pallens Aiton (= *Prenia pallens* (Aiton) N.E.Br., *P. relaxata* (Willd.) N.E.Br.) Like **M. englishiae** but leaves depressed-trigonous, ovate or narrowly ovate. Fruits 4- or 5-locular. Sept.–Dec. Mainly clay and granite slopes, NW, SW (Namaqualand to Cape Peninsula). **gce**

rhizophorum Klak (= *Prenia radicans* (L.Bolus) Gerbaulet) Prostrate perennial rooting at nodes. Leaves subcylindrical, linear. Flowers whitish to pale yellow. Fruits 4-locular. Oct.–Mar. Karroid flats and disturbed areas, SE (Uniondale to E Cape).

G.' Plants decumbent to erect

baylissii (L.Bolus) Klak (= *Phyllobolus saturatus* (L.Bolus) Gerbaulet) Sprawling to erect shrublet with a thickened base and woody stems, roots fibrous. Leaves decussate, with small bladder cells. Flowers ± 30 mm diam., reproductive parts exposed. Fruits 5-locular. Sept.–Oct. Karroid bush, NW, LB (Namaqualand to Ceres). **gce**

brevicarpum (L.Bolus) Klak (= *Aridaria brevicarpa* L.Bolus) Shrub to 1 m. Leaves to 30 × 4 mm. Flowers white to pale pink, closing at dusk. Fruits hemispherical below and above, remaining open when dry. Aug.–Sept. Sandy soils, NW (S Namibia to Clanwilliam). **gce**

nitidum Haw. (= *Phyllobolus nitidus* (Haw.) Gerbaulet, *Sphalmanthus littlewoodii* L.Bolus) Decumbent to erect shrub to 30 cm (sometimes cushion-like or scrambling), stems weakly woody and with a conspicuous cork layer. Leaves decussate, with conspicuous bladder cells. Flowers 20–30 mm diam., reproductive parts exposed. Fruits 4- or 5-locular. Sept.–Oct. Dry flats, NW, KM, LB (W and S Karoo to Swellendam). **gce**

noctiflorum L. (= *Aridaria leipoldtii* L.Bolus, *A. noctiflora* (L.) Schwantes) Shrub to 1 m. Leaves to 50 × 7 mm. Flowers white, opening at dusk, closing near dawn. Fruits slender below, conical to hemispherical above. Sept.–Nov. Sandy places, sometimes among rocks, NW, KM, LB, SE (S Namibia to E Cape).

serotinum (L.Bolus) Klak (= *Aridaria serotina* L.Bolus) Shrub to 30 cm. Leaves to 25 × 10 mm. Flowers white, opening at dusk, closing during the night. Fruits slender below, hemispherical to cubical above, hygrochastic. Sept.–Nov. Rocky outcrops, sometimes on sand, NW (S Namibia to Clanwilliam). **gce**

splendens L. (= *Aridaria brevifolia* L.Bolus, *Phyllobolus splendens* (L.) Gerbaulet, *Sphalmanthus splendens* (L.) L.Bolus) Like **M. baylissii** but taller, to 1 m, and leaves becoming alternate in inflorescence. Oct.–Dec. Dry flats and lower slopes, LB, SE (Worcester to E Cape and Karoo).

suffruticosum (L.Bolus) Klak (= *Phyllobolus suffruticosus* (L.Bolus) Gerbaulet) Erect to sprawling shrublet with woody stems to 70 cm, roots fibrous. Leaves decussate, alternate in inflorescence, with small bladder cells. Flowers 20–30 mm diam., reproductive parts exposed, flowers opening around 4 pm and closing 6–8 pm. Fruits 5-locular. Nov.–Dec. Rocky slopes, NW, SW (Clanwilliam to Malmesbury).•

tetragonum Thunb. (= *Prenia tetragona* (Thunb.) Gerbaulet) Erect perennial. Leaves subcylindrical, slender. Flowers white to yellowish or pinkish. Fruits 4-locular. Sept.–Mar. Karroid flats or disturbed areas, NW, KM, LB, SE (S Namibia and Free State to S Cape).

trichotomum Thunb. (= *Phyllobolus trichotomus* (Thunb.) Gerbaulet, *Sphalmanthus trichotomus* (Thunb.) L.Bolus) Erect shrublet with woody stems to 20 cm, roots fibrous. Leaves almost cylindrical, narrowly ovate, decussate, with small, xeromorphic bladder cells. Flowers 10–20 mm diam., reproductive parts exposed. Fruits 4-locular. Oct.–Nov. Rocky flats, sometimes on quartz gravels, NW (Namaqualand to Piketberg). **gce**

MESTOKLEMA N.E.Br. ex Glen DONKIEVYGIE ± 6 spp., S Namibia to E Cape

tuberosum (L.) N.E.Br. ex Glen Much-branched shrublet to 70 cm, with subglobose, tuberous roots. Leaves spreading, slender, trigonous, recurved at tips, finely papillate, 10–15 mm long. Flowers in terminal cymes, reddish yellow ± 8 mm diam. Fruits 5-locular, without closing bodies. Feb.–June. Dense scrub in alluvial soils, KM, SE (S Namibia to Little Karoo and E Cape).

MONILARIA (Schwantes) Schwantes ERTJIEVYGIE 5 spp., N and W Cape

moniliformis (Thunb.) Ihlenf. & S.Jörg. Succulent shrublet to 12 cm, internodes barrel-shaped, soft, 5–12 × 6–12 mm. Leaves papillate, 10–15 mm long. Flowers on pedicels to 50 mm long, white, to 40 mm diam. Aug. Quartz patches, NW (Namaqualand to Klawer). **gce**

pisiformis (Haw.) Schwantes Like **M. moniliformis** but internodes hard, 4–9 × 4–8 mm and flowers pink to white. Aug. Quartz patches, NW (S Namaqualand to Olifants River Mouth). **gce**

OCTOPOMA N.E.Br. ± 9 spp., N and W Cape

abruptum (A.Berger) N.E.Br. Stiffly erect shrublet to 20 cm. Leaves spreading, trigonous, acute, edges finely dentate and velvety. Flowers 13 in groups on short pedicels, ± 25 mm diam. Fruits 8-locular, with small closing bodies, with or without narrow wings. Aug. Dry stony slopes at ± 500 m, NW (W Karoo to Clanwilliam). **gce**

nanum (L.Bolus) Klak (= *Ruschia nana* L.Bolus, *Octopoma tanquanum* Klak) Like **O. octojuge**, but fruits 6-locular with small closing bodies and broad valve wings. Oct.–Nov. Loamy soils, KM (Tanqua Karoo to Warmwaterberg). **gce**

octojuge (L.Bolus) N.E.Br. Erect, much-branched shrublet to 10 cm. Leaves spreading, somewhat trigonous above, keels finely denticulate, to 7 mm × 2–4 mm. Flowers solitary on pedicels to 10 mm long, white, 20–30 mm diam. Fruits 8-locular, with large, stalked closing bodies, expanding keels with awn-like extensions. Nov. Quartzite patches, KM (Little Karoo: Laingsburg, Ladismith).•

quadrisepalum (L.Bolus) H.E.K.Hartmann (= *Ruschia quadrisepala* L.Bolus) Like **O. octojuge** but leaves subglobose above, keels smooth and flowers pale pink. ? Slopes among quartzite pebbles, KM (Little Karoo: Laingsburg, Ladismith).•

rupigenum (L.Bolus) L.Bolus Compact shrublet to 15 cm, with tangled, contorted branches. Leaves spreading, ± 12 × 3–4 mm. Flowers solitary, bright pink, ± 25 mm diam. Fruits 8-locular, with small closing bodies. Sept. Among rocks, NW (Clanwilliam).•

ORTHOPTERUM L.Bolus 2 spp., S and E Cape

coeganum L.Bolus Compact to caespitose, succulent perennial. Leaves slightly anisophyllous, trigonous, smooth, 30–35 × 10 mm, with 1–3 low teeth per margin. Flowers solitary, on short pedicels, petals yellow, reddish outside, 17–22 mm long. Fruit 5-locular, without closing body. July–Aug. In shallow soil of rocky outcrops, SE (Port Elizabeth).•

waltoniae L.Bolus Like **O. coeganum**, but leaves slender, *i.e.* 6–8 mm diam., toothless, finely rough. July–Oct. On gravelly ground in open patches at edges of scrub, SE (Port Elizabeth to Grahamstown).

OSCULARIA Schwantes• (= *LAMPRANTHUS* in part) SANDSTEENVYGIE, DASSIEVYGIE ± 10 spp., SW Cape

cedarbergensis (L.Bolus) H.E.K.Hartmann (= *Lampranthus cedarbergensis* (L.Bolus) L.Bolus; incl. **O. alba** (L.Bolus) H.E.K. Hartmann) Erect shrublet to 15 cm. Leaves trigonous. Flowers 3–7 per cyme, pink. Fruits 5-locular. Sept.–Oct. Sandstone outcrops, NW (Nieuwoudtville to Cedarberg).•

compressa (L.Bolus) H.E.K.Hartmann (= *Lampranthus compressus* L.Bolus) Diffusely branched shrublet to 20 cm. Leaves laterally compressed, truncate. Flowers in many-flowered cymes, pale pink, filaments purplish pink at tips. Fruits 5-locular. Sept.–Oct. Sandstone outcrops, NW (Leipoldtville).•

comptonii (L.Bolus) H.E.K.Hartmann (incl. **O. copiosa** (L.Bolus) H.E.K.Hartmann, **O. ebracteata** (L.Bolus) H.E.K.Hartmann, **O. excedens** (L.Bolus) H.E.K.Hartmann, **O. primiverna** (L.Bolus) H.E.K.Hartmann, **O. superans** (L.Bolus) H.E.K.Hartmann, **O. thermarum** (L.Bolus) H.E.K.Hartmann) Erect shrublet to 25 cm. Leaves lunate, keeled. Flowers in cymes, pale pink. Fruits 5-locular. Aug.–Oct. Sandstone outcrops, NW (Olifants River Valley).•

deltoides (L.) Schwantes (= *Lampranthus deltoides* (L.) Glen; incl. **O. caulescens** (Mill.) Schwantes, **O. major** (Weston) Schwantes) Sprawling or rounded shrublet to 20 cm, with reddish, shining branches. Leaves deltoid, trigonous, glaucous, keel and margins toothed. Flowers in crowded cymes, pink. Fruits 5-locular. Oct.–Dec. Sandstone outcrops, SW, LB, SE (Michell's Pass to George).•

ornata (L.Bolus) H.E.K.Hartmann (= *Lampranthus ornatus* L.Bolus) Erect shrublet to 25 cm. Leaves falcate, margins and keel reddish near apex, pale glaucous green. Flowers in terminal cymes, pink. Fruits ± 5 mm diam., top low. Sept. Sandstone outcrops, NW (Graafwater).•

paardebergensis (L.Bolus) H.E.K.Hartmann (= *Lampranthus paardebergensis* (L.Bolus) L.Bolus) Compact shrublet to 20 cm, branches decumbent. Leaves lunate, red at apex. Flowers in many-flowered cymes, pink. Fruits 5-locular. Nov.–Dec. Granite crevices, SW (Malmesbury: Paardeberg).•

piquetbergensis (L.Bolus) H.E.K.Hartmann (= *Lampranthus piquetbergensis* (L.Bolus) L.Bolus) Diffuse shrublet to 10 cm. Leaves subfalcate, apiculate, glaucous. Flowers in small cymes, pink. Sept.–Oct. Sandstone outcrops, NW (Piketberg).•

prasina (L.Bolus) H.E.K.Hartmann (= *Lampranthus prasinus* L.Bolus) Much-branched shrublet to 30 cm. Leaves falcate to almost globose, apiculate, grass-green. Flowers in small cymes, purplish pink. Fruits 5-locular. Aug.–Sept. Sandstone outcrops, NW (Redelinghuys).•

steenbergensis (L.Bolus) H.E.K.Hartmann (= *Lampranthus steenbergensis* (L.Bolus) L.Bolus; incl. **O. lunata** (Willd.) H.E.K.Hartmann, **O. vredenburgensis** (L.Bolus) H.E.K.Hartmann) Decumbent shrublet to 10 cm. Leaves falcate. Flowers in cymes, deep pink, filamentous staminodes covering stamens, stigmas red. Fruits 5-locular. June–July. Granite outcrops, SW (St Helena Bay to Langebaan).•

vernicolor (L.Bolus) H.E.K.Hartmann (= *Lampranthus vernicolor* (L.Bolus) L.Bolus; incl. **O. cremnophila** van Jaarsv.) Diffusely branched shrublet to 10 cm. Leaves falcate, apiculate. Flowers

in cymes, petals bright pink, filamentous staminodes recurved, filaments white with pink tips, stigmas red. Fruits 5-locular. Sept.–Oct. Sandstone outcrops near coast, NW (Elands Bay to Strandfontein).•

[**Species excluded O. guthrieae** (L.Bolus) H.E.K.Hartmann is probably a species of *Esterhuysenia*]

PHIAMBOLIA Klak 10 spp., SW Cape

franciscii (L.Bolus) Klak Succulent shrub to 60 cm. Leaves fused at base into a sheath 4–5 mm long, 25–40 × 3–6 mm, papillate-velvety. Flowers in cymes, pink, 30–45 mm diam. Fruits funnel-shaped. Oct.–Nov. Mainly stony sandstone slopes, NW (Cold Bokkeveld to Karoopoort).•

gydouwensis (L.Bolus) Klak (= *Lampranthus gydouwensis* (L.Bolus) H.E.K.Hartmann) Prostrate forming low cushions to 30 cm diam. and to 6 cm high, rooting at nodes. Leaves recurved, apiculate, fused into a short sheath for 2–3 mm, 10–25 mm long, 3 mm wide and thick, set with small papillae. Flowers solitary, 18 mm diam., pale pink, staminodes in a central cone. Fruits 5-locular, upper part raised, rims low. Aug.–Oct. In sand, among fynbos, NW, KM (Cold Bokkeveld to Witteberg).•

hallii (L.Bolus) Klak Prostrate succulent rooting at nodes, branches to 30 cm. Leaves joined for 3–4 mm, free parts 20–35 mm, 4–6 mm diam. Flowers solitary on pedicels 15–25 mm, flowers to 35 mm diam., pink. Fruits funnel-shaped. July. Sandstone and shale outcrops, NW (Swartruggens: Katbakkies to Karoopoort).•

incumbens (L.Bolus) Klak (= *Ruschia incumbens* L.Bolus) Shrublet to 45 cm, stems to 1 cm diam. Leaves fused, sheath swollen and with an impressed line, apiculate, 25–35 × 3–4 mm. Flowers in a many-flowered inflorescence, magenta, 15–18 mm diam. Fruits funnel-shaped. Sept.–Oct. Sandstone slopes, NW (Cedarberg to Cold Bokkeveld).•

littlewoodii (L.Bolus) Klak (= *Lampranthus dissimilis* (G.D.Rowley) H.E.K.Hartmann, *Phiambolia stayneri* (L.Bolus ex Toelken & Jessop) Klak, *Ruschia dissimilis* G.D.Rowley) Compact shrublet, branches to 12 cm long; roots thickened and turnip-shaped. Leaves subulate, recurved, scabrid, to 12 × 2 mm. Flowers solitary, purplish pink. Fruits with large, rectangular valve wings. Aug. Loamy slopes and flats, on edges of fynbos vegetation, NW (Swartruggens and Warm Bokkeveld,).•

longifolia Klak Shrub to 1 × 1 m. Leaves basally fused, semi-circular to trigonous, free parts 4–8 cm long, apiculate. Flowers in many-flowered cymes, petals white with pink base, filamentous staminodes in a cone, white with magenta tips. Fruits funnel-shaped. Aug.–Sept. Sandstone rocks, 550–1 000 m, NW (Clanwilliam).•

mentiens Klak Shrublet to 35 cm, with smooth internodes 25–40 mm. Leaves basally fused, subterete, with recurved mucronate tips, 13–25 × 4–6 mm. Flowers in few-flowered cymes, petals magenta, filamentous staminodes in a cone, white with magenta tips. Fruits funnel-shaped. Aug.–Sept. Sandstone rocks, NW, KM (Cedarberg to Witteberg).•

persistens (L.Bolus) Klak (= *Lampranthus persistens* (L.Bolus) L.Bolus) Erect shrublet to 25 cm, with slender, stiffly erect branches. Leaves recurved, to 25 mm long. Flowers in many-flowered dichasia on pedicels 25–40 mm long, purplish, to 14 mm diam. Fruits ± 5 mm diam. Oct. Sandy and stony slopes, NW, KM (Bokkeveld Mtns and Witteberg).•

similis Klak Like **P. mentiens** but overall more delicate, leaves 5–14 × 3–5 mm, flowers 1–3. Aug.–Sept. Sandstone rocks, 850–950 m, NW (Cedarberg).•

unca (L.Bolus) Klak (= *Lampranthus franceseae* H.E.K.Hartmann, *L. uncus* (L.Bolus) H.E.K.Hartmann, *Ruschia dubitans* (L.Bolus) L.Bolus, *R. leightoniae* L.Bolus, *R. marginata* L.Bolus, *R. unca* (L.Bolus) L.Bolus) Erect, stiff shrublet to 16 cm. Leaves fused below into a sheath, spreading, tip recurved, mucronate, 2–15 mm long. Flowers solitary, pink, 12 mm diam. Aug. Stony slopes and flats, NW (Steinkopf to Nieuwoudtville). **gce**

PHYLLOBOLUS N.E.Br. = **MESEMBRYANTHEMUM**

PLEIOSPILOS N.E.Br. KWAGGAVY 4 spp., W Cape and Karoo to Free State

compactus (Aiton) Schwantes (= *Pleiospilos brevisepalus* L.Bolus, *P. grandiflorus* L.Bolus, *P. kingiae* L.Bolus) Stemless, much-branched, succulent perennial. Leaves > twice as long as broad, becoming broader towards apex. Flowers solitary, pale yellow. Fruits with large closing bodies. Apr.–June. Stony, NE-facing slopes, KM, LB (Great Karoo and Little Karoo).

PRENIA N.E.Br. = **MESEMBRYANTHEMUM**

PSILOCAULON N.E.Br. = **MESEMBRYANTHEMUM**

RHINEPHYLLUM N.E.Br. ± 10 spp., W Cape and Karoo

muirii N.E.Br. Succulent perennial with a fleshy caudex, forming clumps of many shoots. Leaves inclined, 10–25 × 5–10 mm, with small, whitish tubercles in upper half, margins and keel with a white cartilaginous edge. Flowers solitary on pedicels to 12 mm long, yellowish white, to 14 mm diam. Fruits 5-locular, without tubercle or covering membranes. Oct.–Nov. Quartz fields and shales, KM, LB (Little Karoo).•

pillansii N.E.Br. (incl. **R. comptonii** L.Bolus) Compact to caespitose, succulent shrubs to 8 cm. Leaves trigonous with a pronounced chin, those of a pair differing in size, light grey, 13–20 × 5–10 mm. Flowers solitary, yellow. Fruits 6–9 mm diam., on persistent stalks to 15 mm long, base funnel-shaped, top flat, valve wings broad, 5-locular. Oct.–Nov. in flats with grey shales, KM (Laingsburg to Ladismith). **gce**

RHOMBOPHYLLUM (Schwantes) Schwantes 5 spp., E Cape

dolabriforme (L.) Schwantes Tufted perennial forming small, densely branched, solitary tufts. Leaves sickle-shaped, with a tooth-like projecting tip, dull green. Flowers to 4 cm diam., yellow. June–Aug. On rocky, shale hills, SE (Willowmore to Graaff-Reinet).

rhomboideum (Salm-Dyck) Schwantes Compact, little-branched perennial. Leaves hatchet-shaped above, broadly channelled below, margins often twisted. Flowers in long cymes, yellow with pink reverse. Fruits 5-locular, with 2-lobed closing bodies. Nov. Gravelly patches in bush, SE (Port Elizabeth to Graaff-Reinet).

RUSCHIA Schwantes VYGIE ± 220 spp., dry parts of southern Africa

A. Leaves free to base or very shortly fused
B. Plants spiny

cradockensis (Kuntze) H.E.K.Hartmann & Stüber (= *Eberlanzia horrescens* (L.Bolus) L.Bolus, *E. triticiformis* (L.Bolus) L.Bolus) Erect shrublet to 30 cm, with dominant long shoots. Leaves to 10 mm long. Flowers few per dichasia, 7–14 mm diam. Fruits mostly on short shoots, sometimes in terminal spiny dichasia, valve wings absent. July–Aug. Stony flats in karroid bush, NW (Namaqualand to Ceres to Cradock).

divaricata L.Bolus (= *Eberlanzia divaricata* (L.Bolus) L.Bolus) Shrublet to 35 cm, often with thickened fusiform roots, branches whitish beige. Leaves 10–15 mm long, with small prominent dots. Flowers in dense, spiny, terminal cymes, pink, ± 15 mm diam. Fruits with narrow valve wings. ? Sandy flats, NW (S Namibia and Beaufort West to Ceres).

intricata (N.E.Br.) H.E.K.Hartmann & Stüber (= *Eberlanzia persistens* (L.Bolus) L.Bolus) Shrublet to 50 cm, branches turning grey with age. Leaves obtuse, smooth with convex epidermal cells. Flowers in much-branched, spiny cymes. Fruits without valve wings. Sept.–Oct. ?, NW (Clanwilliam).•

spinosa (L.) Dehn (= *Eberlanzia mucronifera* (Haw.) Schwantes) Shrublet to 70 cm, with whitish grey branches turning dark with age. Leaves 10–20 mm long, epidermal cells convex to papillate. Flowers in spiny, branched cymes, magenta, to 28 mm diam. Fruits mostly with narrow valve wing. Sept.–Oct. Dry karroid flats, NW (S Namibia to Clanwilliam). **gce**

B.' Plants without spines
C. Fruits with > 5 locules, without closing body

aristata L.Bolus (= *Erepsia aristata* (L.Bolus) Liede & H.E.K.Hartmann) Robust, stiff, erect shrublet to 60 cm. Leaves erect, laterally compressed, sharply keeled, glaucous, covered with crowded dots. Flowers solitary, petals pinkish purple, to 30 mm diam. Fruits 6–9-locular. Sept.–Nov. In rocky places among high shrubs, SE (Kouga Mtns to Uitenhage).•

knysnana (L.Bolus) L.Bolus Erect shrublet to 40 cm. Leaves trigonous, apiculate, light shining green, shortly fused below, 33 × 5 mm. Flowers in cymes on pedicels to 25 mm long, pink, 25 mm diam. Fruits 6-locular. Jan.–Mar. Sandstone slopes, SE (Knysna to Grahamstown).

C.' Fruits with 5 locules, with closing body

cymbifolia (Haw.) L.Bolus Shrublet to 30 cm, branches filiform. Leaves spreading, apically recurved, boat-shaped, blunt, grey-green, punctate, to 15 mm long. Flowers solitary or few in cymes, purplish. Fruits 5-locular. May–July. ?, LB (Riversdale to Mossel Bay).•

decurrens L.Bolus Erect, stiffly branched shrublet to 15 cm. Leaves decurrent at base, trigonous, finely velvety. Flowers in ternate cymes, sometimes solitary, to 16 mm diam. Fruits 5-locular. ? ?, NW (Vanrhynsdorp to Clanwilliam).•

esterhuyseniae L.Bolus Erect shrublet to 20 cm, branches virgate, reddish brown. Leaves triquetrous, smooth, with recurved tips, 7–11 mm long. Flowers solitary, terminal, purplish, 36 mm diam. Fruits 5-locular, with funnel-shaped base. Nov. Lower slopes, SE (Uniondale).•

fourcadei L.Bolus Erect, rigidly branched shrublet to 15 cm. Leaves trigonous with recurved mucro. Flowers solitary or in ternate cymes, pink, to 26 mm diam. Fruits grey. Dec.–Jan. In loam in karroid scrub, KM, SE (Swartberg to Uitenhage).•

fredericii (L.Bolus) L.Bolus Spreading shrublet to 50 cm, with ascending to erect branches. Leaves subcylindrical, glaucous, ± 20 × 3 mm. Flowers 1–3 in groups, magenta, ± 16 mm diam. Fruits unknown. Sept.–Oct. ?, NW (Clanwilliam to Worcester).•

lapidicola L.Bolus Erect, many branched, deciduous shrublet to 30 cm. Leaves subfalcate, acute, green, 9–15 × 3–6 mm. Flowers in cymes, magenta, ± 15 mm diam. Fruits 5-locular. July–Sept. Rocky upper slopes, NW (Gifberg to Clanwilliam).•

leptocalyx L.Bolus Rounded shrublet, branches erect or sprawling, to 25 cm. Leaves trigonous, with sharp keels, to 20 × ± 5 mm. Flowers solitary or in cymes, magenta, petals ± 8 mm long. Fruits 5-locular, grey. July–Aug. Weathered shale, sometimes with quartz pebbles, AP (Malgas to Mossel Bay).•

neovirens Schwantes Spreading shrublet to 60 cm, with slender, compressed branches, greenish or brownish, becoming grey and rounded. Leaves compressed-trigonous, covered with dots. Flowers in cymes on pedicels 20–30 mm long, red, to 40 mm diam. Fruits unknown. ?. Sandy flats, SE (Bethelsdorp to Port Elizabeth).•

orientalis L.Bolus Stiffly erect, lax shrublet to 35 cm. Leaves trigonous, to 20 × 4 mm. Flowers solitary, purplish, 20–30 mm diam. Fruits 5-locular, ± 8 mm diam. ? In open bushland, SE (Port Elizabeth to E Cape: Alexandria).

staminodiosa L.Bolus Erect, much-branched shrublet to 15 cm. Leaves trigonous, tip recurved, glaucous, to 15 × 5 mm. Flowers solitary, purplish, ± 25 mm diam. Fruits 5-locular. Oct. ?, KM, LB (Ladismith, Riversdale).•

vanbredai L.Bolus Slender, tangled shrublet to 15 cm. Leaves falcate to subfalcate, 10–17 × 3–4 mm. Flowers in cymes, magenta, petals 3–8 mm long. Fruits 5-locular. June. ?, SE (Uniondale).•

virgata (Haw.) L.Bolus Erect shrublet, with slender, ascending to prostrate branches, at first compressed, later cylindrical, grey. Leaves shorter than internodes, trigonous, 15–20 mm long, glabrous. Flowers solitary, terminal, stalked, red, 20–25 mm diam. Fruits 5-locular. Oct. Gravelly soils, SE (Uniondale).•

A.' Leaves connate below
D. Leaf blades shorter than connate sheath

altigena (L.Bolus) L.Bolus Decumbent shrublet with branches to 15 cm. Leaves subterete. Flowers solitary, magenta, to 23 mm diam. Fruits 5-locular. Sept.–Dec. Rocky sandstone slopes at ± 1 700 m, KM (Witteberg).•

approximata (L.Bolus) Schwantes Laxly branched shrublet to 15 cm. Leaves trigonous, keel 1–3-denticulate. Flowers solitary on pedicels enclosed in bracteoles, pink. Fruits 5-locular. Nov. ?, KM (Montagu).•

archeri L.Bolus Succulent shrublet to 30 cm. Leaves trigonous, basally fused. Flowers solitary, magenta. Fruits 5(6)-locular. July. Among karroid vegetation, KM, SE (Matjiesfontein and Little Karoo to Prince Albert). **gce**

bijliae L.Bolus Matted succulent 6–9 cm, branches spreading, to 27 cm long. Leaves free parts triquetrous, 1–4 teeth along keel, free parts 8–14 mm long., 5 mm broad and thick. Flowers solitary,

sessile, pink, 18 mm diam. Fruits 5-locular, with small closing body. Sept.–Oct. Shale flats, KM (Little Karoo to Prince Albert).•

grisea (L.Bolus) Schwantes Lax shrublet to 30 cm, with stiff, spreading, grey branches. Leaves fused with stem in lower 5 mm, free parts 2–4 mm long, with (1)2 small apical teeth. Flowers solitary, subsessile, pale pink, ± 14 mm diam. Fruits 5-locular, with high rims. Nov.–Dec. Shale flats, KM (Little Karoo to Sutherland and Middelburg).

impressa L.Bolus Compact shrublet to 6 cm, with spreading branches. Leaves fused with stem in lower 10 mm, free parts trigonous, 2–5 mm long, pale glaucous green. Flowers solitary, pink, ± 10 mm diam. Fruits 5-locular, top with high rims. Nov.–Dec. ?, KM (Ladismith).•

polita L.Bolus Cushion-forming, succulent shrublet to 10 cm. Leaves trigonous, keel and margin cartilaginous, shiny, glaucous, to 11 mm long, 5 mm broad and thick, sheaths to 6 mm long. Flowers solitary, pink, to 24 mm diam., bracteoles clasping pedicel. Capsules 5-locular. Oct.–Dec. Shale flats with quartz pebbles, 200–300 m, KM (Little Karoo).•

vanniekerkiae L.Bolus Low shrublet, with branchlets 1–2 mm diam. Leaves trigonous, recurved, glaucous, 4–7 × 2–3 mm. Flowers solitary, subsessile, pink. ± 18 mm diam. Fruits 5-locular. Oct.–Nov. ?, KM (Ladismith).•

D.' Leaf blades longer than connate sheath
E. Plants prostrate, sprawling

albida Klak Like **R. dichroa**, but flowers on long pedicels 50–100 mm long, leaves 50–80 mm long. Sept. Shallow sand on sandstone pavements, ± 800 m, NW (Cedarberg).•

calcicola (L.Bolus) L.Bolus Sprawling shrublet, branches trailing, becoming white with age. Leaves trigonous, apiculate, keel serrulate, slightly scabrid. Flowers solitary, enclosed by bracteoles, magenta, to 18 mm diam. Fruits 5-locular, top and rims low. July. Limestone slopes and flats, AP (Agulhas to Riversdale).•

cincta (L.Bolus) L.Bolus Sprawling shrublet to 25 cm. Leaves trigonous, with recurved mucro, keel and margins minutely toothed. Flowers mostly solitary, on pedicels to 12 mm long, pink with magenta margins, to 22 mm diam. Fruits 5-locular, top raised, base funnel-shaped, closing bodies small hooks. Aug. ?, LB (Riversdale).•

costata L.Bolus Prostrate perennial with trailing branches with internodes 25–35 mm long. Leaves ascending to erect, subterete, 25–35 × 4 mm. Flowers in cymes on pedicels 30–50 mm long, magenta, to 20 mm diam. Fruits 5-locular. Aug. ?, LB (Montagu).•

decumbens L.Bolus Prostrate shrublet with branches 4–6-leaved, old dry leaves persistent. Leaves erect, glaucous to magenta, scabrid, 10–18 × 6 mm. Flowers solitary, purplish, to 35 mm diam. Fruits 5-locular, base bell-shaped. Dec. ?, KM (Ladismith).•

dichroa (Rolfe) L.Bolus Decumbent shrub, with short branches to 10 cm. Leaves trigonous, glaucous, minutely dotted, margins denticulate, 30–60 mm long. Flowers subsessile, red with white centre, 35–40 mm diam. Fruits 6-locular. May–July. ?, NW (Clanwilliam).•

diversifolia L.Bolus Sprawling shrublet to 14 cm, branches trailing, stiff, reddish turning grey, to 25 cm long. Leaves trigonous, edges cartilaginous, slightly serrate, to 70 mm long on long shoots, shorter on short shoots. Flowers in cymes, purplish, to 28 mm diam. Fruits unknown. May–June. ?, NW (Tulbagh).•

duthiae (L.Bolus) Schwantes Prostrate perennial with trailing branches, flowering branches erect, 7–10 cm long. Leaves trigonous, 20–80 × 7 mm. Flowers solitary or in cymes, purplish with darker streaks, ± 24 mm diam. Fruits 5-locular. Sept. ?, SE (Knysna).•

geminiflora (Haw.) Schwantes Prostrate shrublet with slender, trailing, grey branches to 90 cm long. Leaves trigonous, apically recurved, keel and margins slightly dentate. Flowers in cymes or paired, magenta, striate. Fruits 5-locular. Sept.–Oct. In sand, SW (Kalbaskraal to Cape Peninsula).•

gracilis L.Bolus Sprawling shrublet to 15 cm, with trailing branches to 60 cm. Leaves trigonous, hamate at tip, 15–40 × 2–3 mm diam. Flowers in small clusters, pink to pale pink, slightly striate. Fruits 5-locular. Sept.–Oct. Coastal slopes, often on limestone, NW, SW, AP (Clanwilliam to Still Bay).•

lineolata (Haw.) Schwantes Sprawling, much-branched shrublet to 15 cm. Leaves trigonous, acuminate, with short sheath clasping stem, with line on sheath, ± 10 × 4 mm. Flowers solitary, white or magenta, to 20 mm diam. Fruits unknown. Aug.–Sept. ?, SW, LB, SE (Caledon to Humansdorp).•

macowanii (L.Bolus) Schwantes (incl. **R. klipbergensis** L.Bolus) Sprawling shrublet to 25 cm, with ascending or decumbent branches. Leaves subterete, 20–35 × 4 mm, sheath swollen, ±

5 mm long. Flowers in cymes, pink, ± 22 mm diam. Fruits 5-locular. July–Oct. Sandy areas near the coast, often on rocks, SW, AP (Yzerfontein to Agulhas).•

pauciflora L.Bolus Shrublet with creeping branches, to 40 cm, branches compressed, winged, light brown, shining. Leaves spreading, trigonous, mucronate, ± 25 × 4 mm. Flowers solitary, purplish, 12 mm diam. Fruits 5-locular. May. ?, NW, SW (between Malmesbury and Piekenierskloof Pass).•

promontorii L.Bolus Creeping, mat-forming shrublet to 12 cm. Leaves spreading to erect, back surface keeled, 18–35 × 12 mm, with short mucro. Flowers 1–3 in clusters, subsessile, pink striped purplish, 30 mm diam. Fruits 5-locular, without valve wings, closing bodies large. July. Lower scree slopes, SW (Cape Peninsula).•

rariflora L.Bolus Sprawling shrublet with branches spreading to prostrate. Leaves subcylindrical, recurved apically, glaucous, 40–80 × 5 mm diam., sheath 8 mm long, with a line. Flowers in a compound cyme, pink, 24 mm diam. Fruits 5-locular. Aug.–Sept. ?, NW (Clanwilliam).•

rostella (Haw.) Schwantes Shrublet with slender, prostrate branches. Leaves curved upwards when young, each pair forming a beak, later forming a basal persisting sheath around younger leaves, subterete, grey-green. Flowers solitary, terminal, whitish, to 25 mm diam. Fruits 5-locular. July–Aug. ?, KM (Ladismith).•

rubricaulis (Haw.) L.Bolus Small shrublet with angular branches, reddish when young. Leaves trigonous, margins and keel serrulate, 25–40 × 4–6 mm. Flowers, solitary, rose-pink, to 15 mm diam. Fruits 5-locular. May–Aug. Coastal slopes, SW (Cape Peninsula).•

sarmentosa (Haw.) Schwantes Prostrate shrublet, branches to 45 cm, trailing and rooting at nodes. Leaves trigonous, slightly rough, to 50 × ± 6 mm. Flowers 1–3 in terminal clusters, reddish with a dark stripe, petals 8 mm long. Fruits 5-locular. July–Aug. Sandy flats, SW (Malmesbury to Cape Flats).•

schollii (Salm-Dyck) Schwantes Low shrublet, with erect, grey branches. Leaves crowded, trigonous, recurved, 15–20 × 2 mm, dotted. Flowers 1–3 in terminal clusters, magenta, ± 18 mm diam. Fruits base funnel-shaped, top with high rims. Aug.–Sept. ?, SW (Stellenbosch to Caledon).•

tardissima L.Bolus Compact shrub with prostrate, compressed branches to 40 cm. Leaves trigonous, fused below forming a sheath, the lower 50–70 mm long, the upper shorter, ± 5 mm broad. Flowers ternate, pink with purplish stripe, petals 14–17 mm long. Fruits 5-locular. June–July. ?, NW (W Karoo to Clanwilliam and Ceres). **gce**

E.' Plants decumbent to erect

amicorum (L.Bolus) Schwantes Robust shrublet to 40 cm. Leaves subterete. Flowers in ternate cymes, magenta, ± 15 mm diam. Fruits 5-locular, without closing body. June–Aug. ?, NW, KM (Montagu to Worcester).•

bolusiae Schwantes Erect shrublet to 15 cm. Leaves glaucous green, almost smooth. Flowers in cymes, pink, ± 20 mm diam. Fruits 5-locular. May–Sept. ?, NW (Clanwilliam).•

brevicyma L.Bolus Erect shrub to 15 cm. Leaves trigonous to triquetrous, apically recurved, epidermis rough, to 20 × 3 mm. Flowers in cymes, pedicels to 8 mm long, petals pink, 4–6 mm long. Fruits 5-locular, closing body hook-shaped. Sept. ?, NW, SW (Worcester to Villiersdorp).•

burtoniae L.Bolus Erect shrublet to 60 cm, branches shiny dark brown, with spongy pith. Leaves subterete, basal sheath slightly swollen. Flowers in cymes with thin stalks, pink, to 20 mm diam. Fruits 5-locular, with low rims, closing bodies absent. May–June. Among karroid vegetation, rocky flats, NW (Garies to Nieuwoudtville). **gce**

caroli (L.Bolus) Schwantes Spreading shrub with decumbent, grey to reddish branches. Leaves trigonous, to 10 × 4–5 × 5–6 mm. Flowers in cymes, magenta. Fruits unknown. Aug.–Sept. ?, NW, KM (Clanwilliam to Montagu and Robertson).•

cedarbergensis L.Bolus Erect shrublet to 25 cm. Leaves of a pair almost U-shaped, separated at sheath by a line 4–6 mm long, subterete, slightly scabrid. Flowers in many-flowered cymes, magenta. Fruits 5-locular, top low, base funnel-shaped, closing bodies small. Sept. ?, NW (Clanwilliam).•

ceresiana L.Bolus Erect shrub to 1 m. Leaves subterete, sheath a little swollen, leaves completely separated by a deep line along sheath. Flowers in many-flowered terminal cymes on pedicels to 30 mm long, magenta. Fruits 5-locular, top low, base shortly funnel-shaped, closing bodies moderately broad hoods. June–Nov. ?, NW (Clanwilliam to Ceres).•

copiosa L.Bolus Erect shrublet, 30–50 cm, densely branched, stems maroon. Leaves semiterete, sheath basally tumid, smooth. Flowers in many-flowered, terminal cymes with additional lower storeys, magenta. Fruits 5-locular. Sept. ?, NW (Clanwilliam).•

cupulata (L.Bolus) Schwantes Erect shrublet to 20 cm, with rigid, grey, ascending branches. Leaves erect, with short shoots from axils, trigonous, keel finely papillate, 15–30 × 3–4 mm. Flowers in cymes, to 28 mm diam. Fruits 5-locular, base funnel-shaped. Oct.–Dec. Coastal areas, SW (Vredenburg to Bokbaai).•

decurvans L.Bolus Erect shrublet to 45 cm, branches with grey bark. Leaves erect to spreading, glaucous, to 50 × 5 mm. Flowers in many-flowered terminal cymes raised above leaves, purplish, 20–26 mm diam. Fruits unknown. Sept.–Oct. ? NW (S Namaqualand to Clanwilliam). **gce**

densiflora L.Bolus Rounded shrublet to 45 cm. Leaves subterete, scabrid. Flowers in compact cymes raised above leaves, magenta, ± 14 mm diam. Fruits 5-locular, funnel-shaped, with high rims. Nov. Coastal flats, NW (Clanwilliam to Lambert's Bay).•

exigua L.Bolus Compact shrublet. Leaves subglobose, ± 10 × 3 mm. Flowers solitary, pink, 15–20 mm diam. Fruits unknown. July. ?, LB (Montagu).•

festiva (N.E.Br.) Schwantes Erect, deciduous shrublet to 30 cm, branches papillose on young parts. Leaves erect or suberect, ± 30 mm long, subcylindrical, glaucous, with recurved tips. Flowers in cymes, to 25 mm diam. Fruits 5–7-locular. Sept.–Nov. ?, NW, SW (Vanrhynsdorp to Langebaan).•

filipetala L.Bolus Erect shrublet to 30 cm, branches with cylindrical internodes 25–35 mm long. Leaves trigonous, erect, ± 23 × 3.5 mm. Flowers in much-branched inflorescences, mauve, petals filiform, ± 15 mm diam. Fruits 5-locular. Oct. ?, NW (Clanwilliam).•

incurvata L.Bolus Erect shrublet to 50 cm. Leaves subterete, shortly acuminate and mucronate, ± 40 × 5 mm, sheath 6 mm long. Flowers in many-flowered cymes, pale pink with an obscure pink stripe, to 20 mm diam. Fruits 5-locular. Sept.–Oct. Sandstone slopes, NW (Gifberg to Graafwater).•

indecora (L.Bolus) Schwantes Erect shrublet to 40 cm. Leaves recurved at tips, swollen at sheaths, glaucous, ± 21 × 3 mm at base. Flowers in cymes, silvery white with staminodes tipped magenta, 8–10 mm diam. Fruits 5-locular, without closing body. Sept.–Oct. Coastal sands, SW (Langebaan to Melkbosstrand).•

intermedia L.Bolus Erect shrublet to 35 cm. Leaves trigonous to subterete and subfalcate, 20–30 × 3 mm. Flowers in cymes, purplish, petals striate, 10–12 mm long. Fruits 5-locular. Oct. Rocky sandstone flats, NW (Porterville Mtns).•

langebaanensis L.Bolus Robust, decumbent shrub, with stiff branches, internodes 20–30 mm long, ± 6 mm diam. Leaves erect, mucronate, green to light blue, 35 × 4 mm. Flowers 3–5 in cymes, magenta, petals 5–10 mm long. Fruits 5-locular. Aug.–Sept. Rock crevices on granite, SW (Saldanha).•

lavisii L.Bolus Erect shrublet to 40 cm. Leaves trigonous, acuminate, sheaths swollen, pale glaucous, 20–25 × 5 mm. Flowers 3–5 in cymes, magenta, ± 22 mm diam. Fruits ± 5 mm diam., with conspicuous closing bodies. Aug. Rock crevices, SW (Gordon's Bay).•

magnifica Klak Erect shrub to 40 cm. Leaves subterete, free parts 3.5–6 cm long, basally fused into a sheath. Flowers ternate, to 5.5 cm diam., magenta. Fruits 5-locular. Sept. Succulent karoo vegetation, 700–1 000 m, NW (NE Cedarberg).•

marianae (L.Bolus) Schwantes Erect shrub to ± 30 cm. Leaves triquetrous, free parts 3–6 cm long, basally fused into a sheath. Flowers in cymes, to 40 mm diam., bracteoles truncate forming a pocket around pedicels, petals truncate, deep red or rarely brilliant pink. Fruits 5-locular. Aug.–Sept. Rocky or sandy places, 700 m, NW (N Cedarberg to Swartruggens).•

maxima (Haw.) L.Bolus Shrub to 1.5 m. Leaves lunate, trigonous, laterally compressed with acute keel, 70 mm long, flanks 20 mm wide, grey to whitish grey. Flowers in many-flowered cymes, pink, to 20 mm diam. Fruits 5-locular. July. Rocky places, NW (Clanwilliam).•

misera (L.Bolus) L.Bolus Stiffly branched shrublet to 40 cm. Leaves subfalcate, fused below, 17 × 2.5 mm, sheath ± 2 mm long, covered with fine, velvety papillae. Flowers in many-flowered cymes, petals absent, filaments white, ± 7 mm diam. Fruits 5-locular. Oct.–Nov. In coastal flats, NW, SW (Lambert's Bay to Melkbos).•

montaguensis L.Bolus Erect, stiffly branched shrublet to 30 cm. Leaves erect, subterete, glaucous, 13–20 × 4 mm, fused below, sheath with a distinct line. Flowers in cymes, magenta, petals ± 7 mm long, with an indistinct stripe. Fruits 5-locular. Sept.–Oct. ?, LB (Montagu).•

muiriana (L.Bolus) Schwantes Erect shrublet to 20 cm. Leaves ascending, subulate with recurved tips, surface rough from elevated dots, ± 25 × 3 mm, sheath ± 6 mm long. Flowers solitary, purplish, ± 13 mm diam. Fruits 5-locular. Aug.–Oct. ?, KM (Ladismith).•

multiflora (Haw.) Schwantes Shrub to 1 × 2 m, with erect branches. Leaves fused below into a sheath, trigonous, shortly mucronate. Flowers in many-flowered cymes, subsessile, white, to 30 mm diam. Fruits unknown. Oct.–Dec. ?, KM, LB (W Karoo to Swellendam). **gce**

patens L.Bolus Erect shrublet to 25 cm, with reddish branches, later turning grey. Leaves spreading, recurved, later withering and persisting, keel and margins serrate. Flowers 1–3 per cyme, purplish, to 24 mm diam. Fruits 5-locular. May–June. ?, NW (? near Piketberg).•

profunda L.Bolus (= *Lampranthus profundus* (L.Bolus) H.E.K.Hartmann) Erect shrublet to 36 cm, with old branches cylindrical and young ones compressed-winged. Leaves fused, sheath 2–3 mm long, ascending, back surface keeled, keel serrate, 10–17 × 5 mm. Flowers short-stalked, pink to magenta, to 17 mm diam. Sept. Sandstone soils, NW (Piketberg).•

pungens (A.Berger) H.Jacobsen (= *Ruschia cymosa* (L.Bolus) Schwantes) Erect shrublet with grey-brown branches. Leaves fused below and forming a swollen sheath, cylindrical to trigonous, mucronate, 20–30 mm long. Flowers in compound cymes, magenta, to 15 mm diam., pedicels turning into blunt spines after fruits have fallen off. Fruits 5-locular, Sept.–Dec. ?, KM, SE (Montagu to E Cape).

rigida (Haw.) Schwantes Rounded shrublet to 40 cm. Leaves trigonous, acuminate, sheath 5–10 mm long, free parts usually slightly shorter, rough on keel. Flowers white, to 10 mm diam. Fruits unknown. Jan.–Feb. ?, SW, LB (Caledon to Swellendam).•

strubeniae (L.Bolus) Schwantes Erect shrublet to 75 cm, with compressed, red branches. Leaves shortly fused below, ± falcate, margins serrate, 40–60 × 5–6 mm. Flowers in cymes, pink with magenta stripe, 32 mm diam. Fruits unknown. Aug.–Nov. Sandstone soils, NW, SW (Piketberg, Perdeberg).•

suaveolens L.Bolus Erect shrublet to 50 cm. Leaves trigonous, apically recurved, velvety from small papillae, 30–60 × 3–4 mm. Flowers in many branched inflorescences, pink, to 15 mm diam. Fruits 5-locular. Oct.–Jan. ?, NW (Vanrhynsdorp to Clanwilliam).•

subpaniculata L.Bolus Erect shrub to 30 cm. Leaves subterete, to 30 × 3 mm. Flowers in many-flowered cymes, pink, petals 6 mm long. Fruits 5-locular. Aug.–Sept. Coastal sands, NW (Namaqualand to Lambert's Bay). **gce**

subteres L.Bolus Erect shrublet to 25 cm. Leaves inclined, subcylindrical, ± smooth, glaucous, 25–30 × 5 mm. Flowers 5–15 per inflorescence, magenta, petals 6 mm long. Fruits 5-locular. Oct. ?, NW (Worcester).•

tecta L.Bolus Erect shrub to 1 m. Leaves erect, S-shaped, fused below into a sheath, sheath slightly swollen. Flowers in many-flowered cymes, purplish with white centre, petals very narrow, 17 mm long. Fruits 6-locular. Oct.–Nov. Sandy coastal flats, SW (Langebaan to Melkbosstrand).•

tenella (Haw.) Schwantes Much-branched, slender shrublet, to 30 cm. Leaves fused below, free parts 6–12 mm long, sharply trigonous, recurved. Flowers 1 or 2, small, white. Fruits 5-locular. Nov.–Dec. Clayish, gravelly soils among renosterveld, SW, LB, SE (Botrivier to Uniondale).•

triflora L.Bolus Compact shrublet to 10 cm, internodes grey to whitish, enclosed by dry and persistent leaf sheaths. Leaves erect, subcylindrical, ± 30 × 3 mm. Flowers ternate, pink, 16 mm diam. Fruits 5-locular. Mar.–Apr. ?, NW (Clanwilliam).•

tumidula (Haw.) Schwantes (= *Ruschia caudata* L.Bolus) Erect shrublet to 40 cm with reddish branches. Leaves subterete, slightly rough. Flowers in many-flowered cymes, magenta. Fruits 5–8-locular. Nov.–Dec. Sandy flats, SW, LB (Malmesbury to Swellendam).•

uitenhagensis (L.Bolus) Schwantes Erect, densely branched shrublet to 30 cm. Leaves recurved, shortly fused below, glaucous dotted, 5–9 × 3 mm at base. Flowers solitary, pink, 14 mm diam. Fruits 5-locular. ? Karroid scrub, SE (Uitenhage).•

victoris (L.Bolus) L.Bolus Much-branched shrublet with branches to 6 mm diam. Leaves fused at base into a sheath for 5 mm, velvety, 20–65 × 6 mm. Flowers in cymes, pinkish with magenta stripe, 15 mm diam. Fruits 5-locular. June. Flats, NW (Clanwilliam).•

virens L.Bolus Erect shrublet to 30 cm, with robust branches to 12 mm diam. at base. Leaves falcate, truncate above, 20–28 × 6 mm. Flowers 1–3 in clusters, pink, ± 28 mm diam. Fruits 4–6-locular. Sept.–Oct. Sandstone slopes at ± 360 m, LB (Riversdale to Mossel Bay).•

[**Species excluded** Poorly known and probably conspecific with one of the above: **R. pulchella** (Haw.) Schwantes, **R. rigidicaulis** (Haw.) Schwantes, **R. umbellata** (L.) Schwantes, **R. vaginata** (Haw.) Schwantes, **R. vetovalida** H.E.K.Hartmann]

RUSCHIELLA Klak 4 spp., N and W Cape

argentea (L.Bolus) Klak (= *Lampranthus argenteus* (L.Bolus) L.Bolus, *L. montaguensis* (L.Bolus) L.Bolus, *L. nardouwensis* (L.Bolus) L.Bolus) Stiffly erect shrublet to 30 cm. Leaves trigonous, glaucous, to 20 × 5 mm. Flowers solitary or ternate, pinkish, staminodes in a central cone. Fruits

bell-shaped below, valve wings broad and rectangular. June–Aug. Mostly sandstone slopes, NW, SW, KM (Cedarberg and Ceres to Montagu). **gce**

cedrimontana Klak Diffusely branched, succulent shrub, 30–50 cm, with woody stems. Leaves subcircular in cross section, very shortly fused towards bases, bright green tinged with red towards tips, 5–10 mm long, ± 2 mm wide and thick. Flowers 3 together, ± 10 mm diam., pink, staminodes in a central cone. Fruits 5-locular. Aug.–Sept. Sandstone slopes, 750–1 000 m, NW (Cedarberg and Tanqua Karoo). **gce**

henricii (L.Bolus) Klak (= *Lampranthus mariae* (L.Bolus) L.Bolus) Erect, stiffly branched shrublet to 20 cm. Leaves inclined, falcate, blunt to acute, glaucous, ± 7 × 1.5 mm. Flowers solitary, purplish, 14 mm diam. Sept.–Oct. Sandy slopes and flats, NW (Cedarberg and Witteberg).•

lunulata (A.Berger) Klak (= *Lampranthus arenarius* H.E.K.Hartmann, *L. edwardsiae* (L.Bolus) L.Bolus, *L. hiemalis* (L.Bolus) L.Bolus, *L. pleniflorus* L.Bolus, *Ruschia capornii* (L.Bolus) L.Bolus) Erect shrublet to 30 cm. Leaves trigonous, easily shed. Flowers in axillary cymes, magenta, to 10 mm diam. Fruits unknown. July–Sept. In sand among stones, NW, SW, KM, LB (Namaqualand to Paardeberg, Oudtshoorn). **gce**

SAPHESIA N.E.Br.• 1 sp., SW Cape

flaccida (Jacq.) N.E.Br. Deciduous, woody perennial to 1.5 m, with long black caudex and long branches. Leaves alternate, sessile, flat, flaccid, 50 × 8 mm. Flowers terminal on long pedicels, yellow and white, to 40 mm diam. Fruits 5–7-locular, xerochastic. Oct.–Nov. Sandy flats, NW, SW (Clanwilliam to Malmesbury).•

SCOPELOGENA L.Bolus 2 spp., N and W Cape

bruynsii Klak Like **S. verruculata** but flowers yellow, pink or salmon and fruits smaller, opening and closing repeatedly. Sept.–Oct. Low sandstone cliffs, NW (Namaqualand and Tanqua Karoo to Clanwilliam). **gce**

verruculata (L.) L.Bolus (incl. **S. gracilis** L.Bolus) Woody perennial to 25 cm, forming cushions when old. Leaves crowded, fused basally, erect, trigonous to cylindrical, glaucous, very soft. Flowers in cymes, yellow, rarely white, to 15 mm diam. Fruits 5-locular, remaining open, valves without wings. Oct.–Dec. Rocky sandstone slopes, often below low cliffs or rocky ledges, SW, LB (Cape Peninsula to Riversdale).•

SKIATOPHYTUM L.Bolus• PLATBLAARVYGIE 1 sp., SW Cape

tripolium (L.) L.Bolus Annual or biennial to 20 cm, with stout, fleshy, branching roots. Leaves opposite or alternate, flat, shining, margins wavy when young, ± 80 × 20 mm. Flowers (1)2–5 in terminal cymes on pedicels to 60 mm long, white, to 30 mm diam. Fruits 5-locular, xerochastic. Sept. Shady slopes, NW, SW (Clanwilliam to Bredasdorp).•

SMICROSTIGMA N.E.Br.• 1 sp., SW Cape

viride (Haw.) N.E.Br. Low, shrubby perennial to 40 cm, with erect branches, succulent when young, woody with age. Leaves fused below into a laterally compressed sheath 20–25 mm long, blades shorter, slightly trigonous, with recurved tip, smooth. Flowers subsessile, solitary, terminal, pink, to 30 mm diam. Fruits 7–10-locular, without closing bodies. Aug.–Nov. Karroid scrub, NW, LB, SE (Worcester to Uniondale).•

STAYNERIA L.Bolus• 1 sp., SW Cape

neilii (L.Bolus) L.Bolus Stout, erect, loosely branched shrub with long, woody branches to 60 cm. Leaves ascending, clasping stem, 70 × 8 mm. Flowers ternate, white to pink, ± 40 mm diam. Fruits 6–9-locular, woody, without closing bodies. June. Clay slopes, NW (Nuy to Robertson).•

STOEBERIA Dinter & Schwantes BOOMVYGIE 5 spp., S Namibia to W Cape

utilis (L.Bolus) van Jaarsv. (= *Ruschia utilis* (L.Bolus) L.Bolus) Erect, densely branched shrub to 2 m. Leaves blunt, 10–15 × 3–5 mm, velvety. Flowers white, ± 10 mm diam. Fruits without closing bodies, with stiff persistent funicles. Oct. Strandveld, NW (Alexander Bay to Elands Bay). **gce**

STOMATIUM Schwantes 40 spp., Namaqualand to W Cape and Karoo

braunsii L.Bolus Low, tufted succulent. Leaves of a pair unequal, trigonous with convex sides, 22–28 ×11 × 4–7 mm, densely spotted, margins 3- or 4-dentate. Flowers sessile, yellow, ± 24 mm diam., nocturnal. July–Aug. ?, NW (Vanrhynsdorp to Clanwilliam).•

suricatinum L.Bolus Like **S. braunsii** but leaves obscurely dotted, flowers on short pedicels, lemon-yellow, ± 20 mm diam. May–Oct. ?, KM (Laingsburg to Little Karoo). **gce**

TANQUANA H.E.K.Hartmann & Liede TANKWABEESKLOU 3 spp., W Karoo and Little Karoo

hilmarii (L.Bolus) H.E.K.Hartmann & Liede (= *Pleiospilos hilmarii* L.Bolus) Succulent perennial sunken in the ground, unbranched. Leaves in equal pairs, shorter than 20 mm. Flowers deep yellow. Fruits with small closing bodies. Mainly Mar.–July. Shale banks, KM (Little Karoo S of Laingsburg).•

TETRAGONIA L. KINKELBOS, KLAPPERBRAK 60 spp., Africa, S America, Australia

A. Stamens as many as sepals

caesia Adamson Like **T. echinata** but flowers solitary in axils and fruits barrel-shaped with 3 or 4 vertical ridges. July–Oct. Sandy flats, SW (False Bay to Gansbaai).•

echinata Aiton (incl. **T. microptera** Fenzl) Prostrate, succulent annual to 30 cm. Leaves ovate to orbicular. Flowers subsessile, 2–4 in axils, greenish, stamens as many as sepals. Fruits globose, with spiny ridges and horns. June–Sept. Sandy slopes and disturbed ground, NW, SW, KM (Namibia to Stellenbosch, Ladismith to Grahamstown).

A.' Stamens > twice as many as sepals
B. Plants entirely herbaceous, annual or tuberous
C. Flowers sessile or subsessile

chenopodioides Eckl. & Zeyh. Tuberous perennial with sprawling branches to 40 cm. Leaves rhomboid, fleshy, reddish beneath. Flowers in axillary and terminal clusters, subsessile, yellow-green, styles twice as long as perianth. Fruits 8-ridged. July–Sept. Coastal sand, NW, SW (Clanwilliam to Mamre).•

galenioides Fenzl Like **T. chenopodioides** but leaves ovate to oblong, stamens 5–8 (*vs.* numerous), style as long as perianth and fruits 4-winged. ? Sandstone slopes, NW (Cedarberg).•

C.' Flowers pedicellate

halimoides Fenzl Like **T. nigrescens** but fruits larger, 2–2.5 cm long (*vs.* 0.6–1.7 mm long), flowers 4–5 mm. Aug.–Oct. Sand or clay among shrubs, NW, SW (Bokkeveld Mtns to Paarl).

herbacea L. Tuberous perennial with sprawling stems to 50 cm. Leaves obovate to oblanceolate. Flowers long-pedicellate, in terminal umbels and solitary in upper axils, bright yellow, 4–6 mm. Fruits pear-shaped, smooth, ridged when dry. Mainly June–Aug. Mostly clay and granite slopes, NW, SW (Klawer to Bredasdorp).•

nigrescens Eckl. & Zeyh. (incl. **T. portulacoides** Fenzl) Tuberous perennial with sprawling stems to 50 cm. Leaves obovate to suborbicular, often red beneath. Flowers in axillary and terminal umbels mostly on slender pedicels, yellow or cream-coloured, sometimes orange, reverse often magenta, 3–4 mm. Fruits winged. July–Oct. Sandy and clay slopes and flats, NW, SW, AP, LB, SE (Namaqualand and W Karoo to Humansdorp). **gce**

sphaerocarpa Adamson Like **T. nigrescens** but fruits rounded, covered with rigid, spreading scales. Sept.–Oct. Sandy flats, NW (Piketberg).•

B.' Plants softly woody at least below, from a woody base
D. Sepals connate basally

hirsuta L.f. Coarsely hairy subshrub with sturdy, erect stems to 50 cm. Leaves rhomboid-oblanceolate, often crowded below. Flowers subsessile, in axillary and terminal spikes or tufts,

yellow, large, 5–8 mm, sepals connate and constricted below. Fruits 4-winged, with knobs between wings, coarsely hairy, 15–25 mm. Aug.–Oct. Rocky sandstone slopes, NW, SW (Bokkeveld Mtns to W Cape).•

rosea Schltr. Glabrescent subshrub with sprawling branches to 60 cm. Leaves rhomboid-oblanceolate. Flowers subsessile or pedicellate, 1–few in upper axils or terminal, magenta, sepals fused basally. Fruits 4-winged with knobs between wings, 15–20 mm. Mainly Aug.–Sept. Sandstone slopes, NW (Bokkeveld Mtns to Piketberg).•

D.' Sepals free

arbuscula Fenzl Like **T. spicata** but leaves smaller, flowers all axillary, fruits 4-winged. Mainly June–Sept. Dry, stony slopes NW, KM, LB (Karoo and Clanwilliam to Mossel Bay).

decumbens Mill. Sprawling perennial with branches to 1 m. Leaves papillose-hirsute, obovate-oblong, fleshy. Flowers in branched axillary clusters shorter than leaves, yellow. Fruits with rigid wings. Mainly Aug.–Nov. Coastal dunes, NW, SW, AP, SE (S Namibia to E Cape).

fruticosa L. KLIMOPKINKELBOSSIE Like **T. spicata** but branches often long and trailing through bush, leaves with margins recurving. Mainly Sept.–Nov. Granite and sandstone slopes, especially along the coast, NW, SW, AP, KM, SE (Namaqualand to Clanwilliam to Port Elizabeth. **gce**

glauca Fenzl Softly woody shrublet to 50 cm. Leaves elliptic-lanceolate, glaucous, margins narrowly revolute. Flowers solitary in axils, pedicels slender, yellow. Fruits pendent, 4-winged with narrow ridges between. July–Sept. Karroid areas, NW, KM (Namibia and W Karoo to Little Karoo). **gce**

macroptera Pax Erect or sprawling shrublet with ascending branches to 60 cm. Leaves firm, flat or folded, often revolute, oblong, 15–30 × 4–6 mm. Flowers solitary in upper axils, papillate outside, stigmas 2 or 3. Fruit large, 4-winged, 16–25 mm long, flat or emarginate apically, distinctly ridged in upper half between wings. Aug. Among rocks, NW (Namibia to Clanwilliam).

namaquensis Schltr. Subshrub with ascending branches to 30 cm. Leaves elliptic, papillose hirsute, margins slightly revolute. Flowers on axillary clusters on short pedicels, yellow, 3–4 mm. Fruits softly winged, to 10 mm. June–Oct. Shale rocks, NW, SW (Namaqualand to Piketberg). **gce**

saligna Fenzl (incl. **T. erecta** Adamson, **T. lasiantha** Adamson) Sprawling shrublet to 60 cm. Leaves linear-oblanceolate, leathery. Flowers subsessile, in axillary and terminal clusters, yellow, styles 1 or 2(–4). Fruits ovoid, ridged to subglobose. Sept.–Nov. Rocky slopes, NW, SW, KM (Namaqualand and Karoo to Caledon and Oudtshoorn).

sarcophylla Fenzl (incl. **T. distorta** Fenzl, **T. robusta** Fenzl) Compact, twiggy shrub to 40 cm. Leaves small, oblanceolate, margins revolute, midribs prominent beneath. Flowers 1–few in upper axils and in terminal racemes, yellow, 2–3 mm. Fruits 4-winged, 4–15 mm. June–Sept. Dry, stony slopes, NW, KM, SE (Namaqualand to E Cape: Grahamstown).

spicata L.f. (incl. **T. calycina** Fenzl) Erect or sprawling shrub to 1 m. Leaves rhomboid-lanceolate. Flowers mostly in terminal racemes, or 1–few in upper axils, yellow, 3–4 mm. Fruits broadly winged, with knobs between wings. July–Oct. Granite and sandy slopes, NW, SW, KM, LB, SE (Namaqualand and Karoo to Grahamstown).

verrucosa Fenzl Glistening subshrub with sprawling branches to 30 cm. Leaves oblanceolate, margins slightly revolute, often incurved-ascending. Flowers subsessile in upper axils and on terminal racemes, yellow. Fruits winged, 15–20 mm. Aug.–Sept. Stony, karroid slopes, NW, KM (Namibia to W Little Karoo). **gce**

virgata Schltr. Like **T. spicata** but flowers mostly axillary and fruits large. July–Aug. Sandy slopes, NW (Namaqualand to Clanwilliam). **gce**

[**Species excluded** Poorly known and probably conspecific with one of the above: **T. haworthii** Fenzl]

TRICHODIADEMA Schwantes DIADEM VYGIE 34 spp., S Namibia to W Cape and Free State

A. Leaves with apical hairs but no diadem of coloured, sclerotinized bristles

attonsum (L.Bolus) Schwantes Erect shrublet to 15 cm, branches shortly papillate. Leaves with 1–3 apical papillae, 10–13 × 3–4 mm. Flowers solitary on pedicels to 12 mm long, white, with filamentous staminodes. Fruits (4)5-locular. Mar.–June. Quartz outcrops, LB (Riversdale District).•

calvatum L.Bolus Shrublet to 15 cm, with thickened rootstock, branches papillate. Leaves without a diadem, sparsely bristly when young, glaucous, 10–20 × 3 mm. Flowers on pedicels to 15 mm long, pink, without filamentous staminodes. Fruits 5-locular. Sept. ?, NW (Robertson).•

fergusoniae L.Bolus Compact, closely leafy shrublet to 30 mm, with fibrous roots. Leaves soft, densely papillate, to 9 × 2.5 mm, with 1–few apical hairs. Flowers on pedicels to 8.5 mm long, salmon with red midline, with filamentous staminodes. Fruits 5-locular, with 2-lobed closing bodies. Aug. ?, LB (Riversdale).•

occidentale L.Bolus Closely leafy, succulent perennial to 20 mm, with tuberous roots. Leaves imbricate, erect, glaucous, papillate, with apical papillae. Flowers solitary on pedicels to 8 mm long, salmon, with filamentous staminodes. Fruits 5-locular, with 2-lobed closing bodies. June–July. ?, SW (Bredasdorp).•

pygmaeum L.Bolus Compact shrublet to 3 cm, with fibrous roots. Leaves imbricate, with apical papillae, to 6 × 3 mm. Flowers subsessile, pink, to 20 mm diam., without filamentous staminodes. Fruits unknown. July. ?, LB (Swellendam).•

A.' Leaves with an apical diadem of coloured, sclerotinized bristles

aureum L.Bolus Erect to semi-erect shrublet to 13 cm, with tuberous roots, tuber to 9 cm long. Leaves dorsally rounded, with a diadem, 5–6 × ± 3 mm. Flowers solitary, pedicels 2–8 mm long, petals golden-yellow, outside pale pink, filamentous staminodes pale, 31 mm diam. Fruits 5-locular. Sept. ?, SE (Willowmore).•

barbatum (L.) Schwantes (= *Trichodiadema stellatum* (Mill.) Schwantes, *T. stelligerum* (Haw.) Schwantes) KAREEMOER Low succulent with tangled stems and fleshy roots. Leaves grey-green from acute papillae, slightly recurved, with a diadem, 8–12 × 3–4 mm. Flowers solitary in axils, mauve, magenta or red, to 30 mm diam. Fruits 5-locular. Apr.–Sept. ?, KM, LB, SE (Little Karoo and Mossel Bay to Uitenhage).•

bulbosum (Haw.) Schwantes Erect shrublet to 20 cm, with tuberous roots. Leaves grey-green from papillae, subcylindrical, with a diadem, 5–8 × ± 3 mm. Flowers solitary, terminal, subsessile, magenta. Fruits 5-locular. Nov.–Feb. ?, SE (Port Elizabeth).•

burgeri L.Bolus Like **T. densum** but plants less compact and fruits 5-locular. ?. ?, KM (Oudtshoorn).•

densum (Haw.) Schwantes Compact, tufted shrublet with thickened, fleshy roots. Leaves crowded, with acute papillae, with an apical diadem, 15–20 × 4–5 mm. Flowers carmine, 40–50 mm diam. June–Oct. ?, KM, SE (Uniondale to Willowmore and Great Karoo).

emarginatum L.Bolus Like **T. marlothii** but fruits 5-locular. July. ?, KM (Little Karoo).•

fourcadei L.Bolus Erect to spreading shrublet to 12 cm, with tuberous roots, branches with papillate internodes. Leaves brown, pubescent, with apical hairs resembling a diadem only in colour and size, 15–25 × 2–3 mm. Flowers solitary, white, with filamentous staminodes. Fruits 5-locular. Oct. Stony slopes, at ± 100 m, SE (Humansdorp).•

gracile L.Bolus Like **T. fourcadei** but more slender and flowers pink with filamentous staminodes magenta. Apr.–Aug. Dry, stony slopes, SW, LB (Caledon to Mossel Bay).•

hallii L.Bolus Compact, closely leafy shrublet to 6 cm, with tuberous roots. Leaves imbricate, with a diadem, 11–18 × 4 mm. Flowers sessile or on short pedicels, pink with white centre, with filamentous staminodes. Fruits unknown. ?. ?, KM (Ladismith).•

intonsum (Haw.) Schwantes Erect to spreading perennial. Leaves distant, inclined, slightly recurved, with a diadem, ± 13 × 4 mm. Flowers solitary on short pedicels, white or pink, to 20 mm diam. Fruits 5-locular. Oct. ?, SE (Uitenhage).•

marlothii L.Bolus Decumbent shrublet to 4 cm, branches with internodes to 12 cm long, not visible. Leaves ascending, glaucous, papillate, with a diadem, to 17 × 6 mm. Flowers pink, filamentous staminodes white with pink tip, 30–35 mm diam. Fruits 6-locular. May–June. ?, LB (Swellendam).•

mirabile (N.E.Br.) Schwantes Erect shrublet to 8 cm, branches densely white-hairy. Leaves connate basally, fresh green, papillate, subcylindrical, with a diadem, 12–26 × 4–6 mm. Flowers subsessile, white, to 40 mm diam. Fruits 6-locular. Nov.–Jan. Stony slopes, KM, SE (Laingsburg to Uitenhage). **gce**

orientale L.Bolus Erect shrublet to 10 cm, with thickened roots, branches with papillate internodes. Leaves erect, glaucous, densely papillate, with a diadem, 10–14 × 5 mm. Flowers on pedicels to 6 mm long, pale pink becoming darker towards tips, with filamentous staminodes. Fruits 5-locular. Feb.–June. Rock outcrops, SE (Uitenhage to E Cape).

rupicola L.Bolus Decumbent to erect shrublet to 30 cm, with fibrous roots. Leaves imbricate, basally fused, felted-papillose, with a diadem. Flowers subsessile, whitish, with filamentous staminodes. Fruits unknown. Feb.–May. Rocky slopes, SE (Uitenhage).•

stayneri L.Bolus Low shrublet to 6 cm, with tuberous roots, branches with internodes papillate when young. Leaves minutely papillate, with a diadem, 7–11 × 2.5 mm. Flowers on pedicels to 10 mm long, magenta, filamentous staminodes white. Fruits 4- or 5-locular. Nov.–Jan. ?, SE (Uitenhage).•

[**Species excluded** Poorly known and possibly conspecific with one of the above: **T. imitans** L.Bolus, **T. strumosum** (Haw.) L.Bolus]

VANZIJLIA L.Bolus 1 sp., N and W Cape Coast

annulata (A.Berger) L.Bolus (= *Vanzijlia angustipetala* (L.Bolus) N.E.Br.) Low, succulent shrublet to 13 cm, with ascending branchlets. Leaves heterophyllous, smooth. Flowers solitary, white or pale pink, 40–60 mm diam. Fruits 9- or 10-locular, with large white closing bodies. July–Sept. Sand or loam in shrubby vegetation, NW (Hondeklip Bay to Lambert's Bay). **gce**

VLOKIA S.A.Hammer• 2 sp., Little Karoo

ater S.A.Hammer Dwarf, succulent creeper with prostrate stems to 10 cm long. Leaves fused below, boat-shaped, keeled, 10 × 8 × 8 mm. Flowers solitary, pink. Fruit 5–7-locular. Aug.–Sept. Shallow pans in quartzite, 1 340 m, KM (Montagu).•

montana Klak Like **V. ater**, but stems more branched, forming dense mats and leaves narrower, *i.e.* 6–9 mm long and 3.5–5 mm broad. Oct.–Nov. Shallow pans in quartzite, 2 000 m , NW (Worcester: Keeromsberg).•

ZEUKTOPHYLLUM N.E.Br.• SPOOKVYGIE 2 spp., SW Cape

calycinum (L.Bolus) H.E.K.Hartmann (= *Octopoma calycinum* (L.Bolus) L.Bolus, *Ruschia calycina* L.Bolus) Like **Z. suppositum** but leaf keels serrulate towards tips. Dec.–Feb. Gravelly sandstone slopes, KM (Little Karoo).•

suppositum (L.Bolus) N.E.Br. Robust, closely leafy shrublet to 10 cm, with woody, ascending branches, old leaves persisting. Leaves imbricate, 4–6 per branch, ascending, united below for 2–5 mm, trigonous, obtusely keeled. Flowers solitary, yellowish pink, to 30 mm diam. Fruits 10-locular, closing bodies absent, keels ending with a small, rigid wing. Jan.–Mar. Gravelly sandstone slopes, LB (Little Karoo: Phisantefontein).•

AMARANTHACEAE (= *CHENOPODIACEAE*)

1. Sepals dry and ± scarious; leaves entire (subfamily AMARANTHOIDEAE):
   2. Leaves alternate or fasciculate; flowers unisexual or bisexual, never sterile and modified reduced and sterile ..... **Amaranthus**
   2.' Leaves partly or entirely opposite; modified sterile flowers present alongside fertile flowers:
      3. Mature flowers deflexed, falling individually; sterile flowers not reduced to spines ... **Achyranthes**
      3.' Mature flowers ascending or spreading, falling in woolly or silky clusters:
         4. Leaves narrow or broader and sessile; sterile flowers reduced to straight spines; sepals villous and flower clusters densely silky ..... **Sericocoma**
         4.' Leaves broad and petiolate; sterile flowers reduced to straight or hooked spines, the flower clusters burr-like and only shortly silky or woolly:
            5. Stamens alternating with fringed staminodes; inflorescence capitate or cylindrical, 10–20 mm diam. ..... **Cyathula**
            5.' Stamens not alternating with staminodes; inflorescence elongate and interrupted with individual clusters scattered and ± 5 mm diam. ..... **Pupalia**
1.' Sepals herbaceous; leaves entire or variously toothed or pinnatifid (subfamily CHENOPODIOIDEAE):
   6. Branches articulated; leaves much reduced or obsolete:
      7. Annuals with branches all terminating in spikes; flowers protandrous; stigmas tufted **Salicornia**

7.' Perennials with branches not all terminating in spikes; flowers protogynous; stigmas 2- or 3-fid ..... **Sarcocornia**
6.' Branches not articulated:
8. Perianth segments horizontally winged in fruit; shrublets with scale-like leaves ..... **Salsola**
8.' Perianth segments not winged:
9. Plants glabrous:
10. Leaves scale-like, amplexicaul; flowers without bracts and bracteoles, forming thick, cylindrical spikes ..... **Halopeplis**
10.' Leaves linear to oblong, fleshy; flowers in axils of leaf-like bracts ..... **Suaeda**
9.' Plants silky or mealy:
11. Leaves linear to oblong, subsessile; perianth segments silky with a short horn on back ..... **Chenolea**
11.' Leaves broader and petiolate; perianth segments not horned:
12. Bracts and bracteoles absent ..... **Chenopodium**
12.' Bracts and bracteoles present in bisexual or female flowers:
13. Flowers in axillary clusters, bisexual and male together ..... **Exomis**
13.' Flowers in terminal inflorescences:
14. Bracts enveloping fruit flap-like or spongy, ± connate; female flowers without perianth ..... **Atriplex**
14.' Bracts surrounding fruit not connate, becoming subsucculent ..... **Manochlamys**

ACHYRANTHES L. 6 spp., Old World tropics and warm temperate

aspera L. Shortly hairy, sprawling perennial to 50 cm. Leaves elliptic, often attenuate, pale beneath. Flowers in congested terminal and axillary spikes, nodding, white. Mainly Dec.–Mar. Forests and bush, SE (Knysna to tropical Africa and Asia).

AMARANTHUS L. ± 60 spp., tropical and warm temperate

***hybridus** L. HELL'S CURSE Erect or decumbent annual to 3 mm, subsimple or branching from base, often reddish, glabrous or subglabrous. Leaves ovate-lanceolate. Flowers in dense terminal and upper axillary clusters forming spike-like panicle; perianth segments 5, aristate. Jan.–Dec. Waste ground and roadsides, NW, SW, AP, KM, LB, SE (pantropical and subtropical, weedy in CCR).

thunbergii Moq. Erect or decumbent annual to 70 cm, branching from base; young stems sparsely crisped-hairy, often reddish. Leaves obovate-oblanceolate, sometimes with purple blotch. Flowers in dense, axillary clusters forming leafy false-spikes; perianth segments 3, aristate. Mainly Dec.–Apr. Waste ground and sandy river banks, SW, KM, SE (Uitenhage to tropical Africa, probably introduced in SW Cape).

ATRIPLEX L. (= *BLACKIELLA*) SALTBUSH ± 250 spp., warm temperate and subtropical

bolusii C.H.Wright (= *Atriplex cinerea* Poir. in part) Like **A. vestita** but leaves often larger and irregularly toothed, fruiting bracts rhomboid, swollen and corky at base, grey-mealy, to 10 mm long. Sept.–Oct. Coastal saline flats, seasonal stream banks, NW, SW, AP, KM, SE (Namibia to Still Bay, ? to Uitenhage). **gce**

***lindleyi** Moq. (= *Blackiella inflata* (F.Muell.) Aellen) Grey-mealy, rounded annual to 30 cm. Leaves rhomboid, toothed. Flowers in axillary clusters; fruiting bracts triangular, fused into an inflated bladder, to 12 mm long. May–Oct. Dry, stony flats and disturbed sites, NW, SW, KM, SE (Australian weed, widespread in southern Africa).

patula L. (= *Atriplex austroafricana* Aellen) Sprawling, grey-mealy annual to 50 cm. Leaves lanceolate to rhomboid, coarsely toothed to lobed below, glabrescent above. Flowers clustered in elongate spikes, whitish; fruiting bracts rhomboid, often with small horns, to 2 mm long. Nov.–Apr. Coastal sands, NW, SW (Namibia to Caledon, and ?N Africa). **?gce**

***semibaccata** R.Br. CREEPING SALTBUSH Monoecious, grey-mealy, sprawling perennial to 30 cm. Leaves elliptic-obovate, often coarsely toothed, glabrescent above. Flowers minute in axillary clusters; fruiting bracts rhomboid, red and fleshy, 2–5 mm long. Mainly Sept.–Dec. Coastal and saline sands, NW, SW, AP, KM, LB, SE (Australian weed, widespread in southern Africa).

vestita (Thunb.) Aellen (= *Atriplex halimus* C.H.Wright non L.) Monoecious, silvery mealy subshrub to 60 cm. Leaves oblanceolate. Flowers clustered in elongate spikes; fruiting bracts, subro-

tund, softly papery, glabrescent and warty, 10–15 mm long. Mainly Aug.–Dec. Saline flats, stream banks, NW, SW, AP, KM, SE (Namibia to Uitenhage).

BASSIA All. = **CHENOLEA**

CHENOLEA Thunb. 1 sp., southern Africa

diffusa Thunb. (= *Bassia diffusa* (Thunb.) Kuntze) Prostrate mat-forming, succulent perennial. Leaves elliptic to lanceolate, spreading to imbricate, silvery silky. Flowers axillary, inconspicuous, greenish. Feb.–Apr. Coastal salt marshes, NW, SW, AP, SE (Namibia to Mozambique).

[**CHENOPODIUM album** L., **C. ambrosioides** L., and **C. murale** L. have been recorded as weeds of disturbed places but none are considered naturalized]

CYATHULA Blume WOLWE KLITS ± 25 spp., Old and New World tropics, mainly Africa

uncinatula (Schrad.) Schinz. (= *Cyathula globulifera* (Boj.) Moq.) Shortly hairy, erect or sprawling shrublet to 1 m. Leaves ovate, petiolate, pale and densely hairy beneath. Flowers congested in dense, rounded heads 10–20 mm diam., greenish to whitish, fruits spiny and burr-like when ripe. Mainly Oct.–July. Sheltered rock outcrops and bush, KM, SE (Cango Caves and Baviaanskloof to tropical Africa, possibly introduced at Oudtshoorn).

EXOMIS Fenzl ex Moq. BRAKBOSSIE 1 sp., southern Africa

microphylla (Thunb.) Aellen Grey-mealy shrub to 1 m. Leaves ovate, oblong or sagittate. Flowers tightly clustered in upper axils, minute, yellowish. Jan.–Apr. Stony hillsides, often coastal, NW, SW, AP, SE (S Namibia to Uitenhage and Karoo).

HALOPEPLIS Bunge ex Ung.-Sternb. 4 spp., warm-temperate Old World

sp. 1 (*H. caerulescens* Mucina *ms.*) Glaucous, bluish annual to 25 cm. Leaves fleshy, scale-like. Flowers in axillary cones, minute. Feb.–Apr. Coastal salt marshes, NW, SW (Namaqualand to Cape Peninsula). **gce**

MANOCHLAMYS Aellen HONDEBOSSIE 1 sp., southern Africa

albicans (Aiton) Aellen Monoecious, grey-mealy, white-stemmed shrub to 2 m, with horizontally spreading branches. Leaves rhomboid to sagittate. Flowers crowded in terminal spikes, minute, yellowish. Sept.–Jan. Dry, stony slopes and flats, NW, SW, KM (S Namibia and W Karoo to Cape Peninsula and Little Karoo).

PUPALIA Juss. 4 spp., Old World tropics

lappacea (L.) A.Juss. (= *Pupalia atropurpurea* (Lam.) Moq.) Shortly hairy, sprawling perennial to 50 cm. Leaves ovate, petiolate, often attenuate, pale beneath. Flowers in congested, elongate spikes elongating in fruit, whitish; fruits spiny and falling in burr-like clusters when ripe. Mainly Dec.–Apr. Forests and bush, SE (George to tropical Africa and Asia).

SALICORNIA L. GLASSWORT 25–30 spp., cosmopolitan

meyeriana Moss Jointed, red, fleshy annual to 40 cm, with opposed branching. Leaves reduced to a small membranous collar. Flowers minute, 3 in axillary cymes, hidden by the leaves. Mar.–Apr. Sheltered saline marshes, estuaries, NW, SW, AP, SE (S Namaqualand to Cape Peninsula to KwaZulu-Natal, Madagascar).

uniflora Toelken Like **S. meyeriana** but flowers mostly 1 per cymule. Dec.–Jan. Saline marshes, SW (S Namibia and Langebaan Lagoon). **gce**

SALSOLA L. SALTWORT ± 150 spp., cosmopolitan

aphylla L.f. ASBOSSIE Shortly hairy, grey shrublet, to 1.2 m. Leaves scale-like, fleshy, soon becoming glabrous and wrinkled. Flowers solitary in upper axils, minute, fruits broadly winged. Dec.–Feb. Dry, often saline slopes and flats, NW, SW, KM, LB, SE (Namibia and Karoo to Uitenhage).

***kali** L. (= *Salsola australis* R.Br.) ROLBOSSIE, RUSSIAN THISTLE Glabrous, rounded annual to 50 cm. Leaves sessile, linear to deltoid, acuminate, spine-tipped. Flowers 1–few in axils, whitish, fruits with a papery wing. Mainly Sept.–Nov. Widespread in dry stony places, NW, SW, AP, KM, LB, SE (Eurasian weed).

tuberculata (Moq.) Fenzl Like **S. aphylla** but leaves with dry margins, persistently hairy. Dec.–Feb. Coastal sands, NW (Namibia to Lambert's Bay). **gce**

verdoorniae Toelken Prostrate, silvery silky, mat-forming shrublet, sometimes to 15 cm. Leaves triangular, sessile, imbricate, distichous. Flowers minute. Dec. Quartzite gravels, KM (Little Karoo).•

SARCOCORNIA A.J.Scott ± 20 spp., cosmopolitan

A. Erect, woody shrublets with ascending branches

decussata S.Steffen, Mucina & G.Kadereit Erect, closely branched, jointed shrublet to 60 cm. Segments laterally compressed, 3–5 × 4–7 mm, becoming corky. Flowers in threes in clustered, terminal and lateral spikelets. Mar.–Apr. Saline washes in renosterveld, NW (Eendekuil flats).•

littorea (Moss) A.J.Scott Erect, woody shrub to 1 m, with stems 30–80 mm diam. at base. Segments deciduous, 5–12 × 2–5 mm. Flowers in threes in solitary, terminal spikes, becoming corky with age. Sept.–May. Rocky beaches, NW, SW, AP, SE (Namaqualand to Port Elizabeth). **gce**

mossiana (Toelken) A.J.Scott Erect, jointed shrublet to 50 cm, leafless below. Segments deciduous, 2–5 × 2–4 mm. Flowers in threes in mostly solitary, terminal spikes. Mar.–May. Coastal salt marshes and inland salt pans, NW, SW, AP, KM, LB (Berg River to Hopefield, Caledon to Gouritsmond and Langkoof).•

A.' Prostrate or decumbent shrublets or perennials
B. Spikes terminal and mostly solitary

decumbens (Toelken) A.J.Scott Decumbent, jointed perennial to 30 cm, rooting along stems and mat-forming. Segments persistent, 8–18 × 1–4 mm. Flowers mostly 5–7 per cluster in solitary, terminal spikes, becoming corky with age. Nov.–July. Salt marshes, AP, SE (De Hoop to S Mozambique).

tegetaria S.Steffen, Mucina & G.Kadereit (= *S. perennis* auct.) Prostrate or decumbent, jointed woody perennial to 20 cm, rooting along stems and mat-forming. Segments 7–15 × 1–5 mm. Flowers in threes in mostly solitary, terminal spikes, partially concealed by subtending bract. Seeds fringed with hairs. Dec.–July. Estuaries and coastal salt marshes, NW, SW, AP, SE (S Namibia to KwaZulu-Natal).

B.' Spikes terminal and lateral, clustered towards ends of branches
C. Flowers concealed by subtending bract

freitagii S.Steffen, Mucina & G.Kadereit Prostrate, jointed, short-lived perennial to 5 cm, forming solitary, star-shaped rosettes. Segments to 11 × 3–6 mm. Flowers in threes in terminal and lateral spikes, entirely concealed beneath subtending bract, lateral flowers often female. Jan–May. Salt pans, SW (Velddrif).•

natalensis (Bunge ex Ung.-Sternb.) A.J.Scott SEEKORAAL Decumbent or prostrate, short-lived, jointed perennial to 30 cm, mat-forming. Segments 7–22 × 1–6 mm. Flowers in threes in terminal and lateral spikes, almost completely concealed by subtending bract. Jan.–May. Coastal and inland saline habitats, NW, SW, AP, KM, SE (Angola to Mozambique, Madagascar).

C.' Flowers visible above subtending bract

capensis (Moss) A.J.Scott Decumbent or prostrate subshrub, sometimes mat-forming, rooting at nodes. Segments cylindrical-keeled, 8–15 × 1–3 mm. Flowers in threes in terminal and lateral spikes. Mainly Oct.–May. Coastal sands hardly saline, SW, SE (Darling to Gansbaai, Port Elizabeth).•

pillansii (Moss) A.J.Scott Sprawling or decumbent shrublet to 70 cm, not rooting at nodes. Segments 8–20 × 2–4 mm. Flowers in threes in terminal and lateral spikes. Mainly Jan.–June. Salt marshes and pans above the tidal zone, NW, SW, AP, SE (Namaqualand to KwaZulu-Natal).

SERICOCOMA Fenzl 2 spp., S Africa and Namibia

avolans Fenzl Rounded shrublet to 50 cm. Leaves opposite below, linear to lanceolate, pungent-mucronate. Flowers in terminal spikes, silky, pink to purple. Jan.–Apr. Stony slopes and flats, KM, SE (S Namibia to Karoo and Little Karoo to Baviaanskloof Mtns).

SUAEDA Forssk. ex J.F.Gmel. SEA-BLITE ± 110 spp., cosmopolitan

caespitosa Wolley-Dod Pale green, creeping, short-lived perennial to 50 cm. Leaves linear, swollen below. Flowers in axillary clusters. Jan. Coastal lagoons and estuaries, NW, SW, AP, KM, SE (S Namibia and W Karoo to E Cape).

plumosa Aellen (= *Suaeda fruticosa* auct.) Softly woody sprawling to prostrate, grey-blue, glabrous shrublet, often rooting at nodes, to 1 m. Leaves fleshy, ovoid–ellipsoid. Flowers in axillary clusters, minute, with 3 styles. Aug.–Dec. Flood plains and margins of inland pans, NW, SW, AP, KM, SE (S Namibia and W Karoo to Port Elizabeth). **gce**

ANACAMPSEROTACEAE

ANACAMPSEROS L. (= *AVONIA*) ± 30 spp., Africa

albidiflora Poelln. Like **A. retusa** but leaves truncate, clavate, woolly in axils, and seeds winged. Mainly Oct.–Jan. Stony slopes, NW, KM (Worcester to Oudtshoorn and S Karoo).

arachnoides (Haw.) Sims Like **A. retusa** but leaves woolly in axils, ovoid with recurved tip. Nov.–Jan. Stony flats and slopes, NW, KM, SE (Worcester to E Cape).

comptonii Pillans Short-stemmed succulent to 5 cm. Leaves obovoid, shorter than 10 mm. Flowers solitary on short, filiform peduncles, white to pink, 3–5 mm diam., stamens 5. Mar.–Apr. Sandstone rock pavements, NW (Bokkeveld Mtns to Pakhuis Mtns).•

lanceolata (Haw.) Sweet (= *Anacampseros nebrownii* Poelln.) Like **A. telephiastrum** but leaf bristles longer, often longer than leaves, flowers white or pink and seeds winged on angles. Oct.–Dec. Rock outcrops, NW, SW, AP, LB, SE (Richtersveld and W Karoo to Langkloof). **gce**

papyracea E.Mey. ex Fenzl (= *Avonia papyracea* (E.Mey. ex Fenzl) G.D.Rowley) GANSMIS Low perennial to 8 cm, with sprawling, succulent branches. Leaves minute, hidden by white, papery, overlapping scales. Flowers solitary at branch tips, subsessile, whitish, stamens ± 20. Oct.–Nov. Quartz pebble patches, KM (Little Karoo to S Karoo).

retusa Poelln. Short-stemmed succulent to 12 cm. Leaves flattened-obovoid, shorter than 10 mm. Flowers on branched peduncles, pink, stamens 25. Mainly Sept.–Dec. Rocky slopes and flats, NW, SW, LB (S Namibia to Breede River Valley and Riversdale).

telephiastrum DC. GEMSBOKSURING Short-stemmed succulent to 15 cm. Leaves ovate, acute, 10–30 mm long, papillate, with very short basal bristles. Flowers on stout peduncles, pink, stamens 30–45. Nov.–Dec. Rocky flats and slopes, NW, KM (Worcester to E Cape).

AVONIA (E.Mey. ex Fenzl) G.D.Rowley) = **ANACAMPSEROS**

ANACARDIACEAE

by R.O. Moffett

1. Leaves simple:
   2. Leaves entire and discolorous; ovary narrowed into neck below 3 basally united styles; fruit depressed-globose, subfleshy ..... **Heeria**
   2.' Leaves serrate and not discolorous; style 1, lateral; fruit compressed and narrowly winged ..... **Laurophyllus**

1.' Leaves compound:
3. Leaves trifoliolate; fruit a fleshy or dryish drupe ..... **Searsia**
3.' Leaves imparipinnate and 2–6-jugate with winged rachis; fruit somewhat flattened and surrounded by accrescent, coloured calyx ..... **Loxostylis**

HEERIA Meisn.• KLIPHOUT 1 sp., SW Cape

argentea (Thunb.) Meisn. Monoecious, evergreen, small tree to 5 m. Leaves oblong to ovate, discolorous. Flowers in terminal or axillary panicles, cream-coloured. Jan.–July. Rocky sandstone slopes, NW, SW (Pakhuis Mtns to Steenbras River Mouth).•

LAUROPHYLLUS Thunb.• YSTERMARTIENS 1 sp., SW Cape

capensis Thunb. Dioecious, evergreen shrub or small tree to 6 m. Leaves elliptic to oblong, margins toothed. Flowers yellowish, male in terminal panicles, female in dense, bracteate, antler-like structures. Aug.–Jan. Stream banks and coastal scrub or forests, LB, SE (Caledon to Uitenhage).•

LOXOSTYLIS A.Spreng. ex Rchb. TEERHOUT 1 sp., S Africa

alata A.Spreng. ex Rchb. Dioecious, evergreen tree to 6 m. Leaves imparipinnate, rachis winged. Flowers in dense, terminal panicles, white. Fruits imbedded in persistent pink sepals. Sept.–Mar. Forest fringes, SE (Baviaanskloof Mtns to KwaZulu-Natal).

RHUS see **SEARSIA**

SEARSIA F.A.Barkley (= *RHUS* in part) KAREE, KORENTEBOS, TAAIBOS ± 100 spp., tropical and subtropical Africa

A. Drupes hairy

angustifolia (L.) F.A.Barkley (= *Rhus angustifolia* L.) WILGERKORENTEBOS Dioecious, evergreen shrub or small tree to 4 m. Leaves trifoliolate, leaflets stalked, lanceolate to narrowly elliptic, discolorous. Flowers yellowish. Drupes ellipsoid, shortly hairy. Oct.–Nov. Stream banks, NW, SW, AP, KM, LB (Bokkeveld Mtns to Barrydale).•

incisa (L.f.) F.A.Barkley (= *Rhus incisa* L.f.) RUB-RUB BERRY, BAARDBESSIE Dioecious, deciduous shrub to 3 m. Leaves trifoliolate, leaflets sessile, ovate, discolorous, margins deeply lobed or shallowly dentate. Flowers greenish yellow. Drupes ellipsoid, hairy. June. Clay soils, NW, SW, AP, KM, LB, SE (Richtersveld to E Cape: Komga).

rosmarinifolia (Vahl) F.A.Barkley (= *Rhus rosmarinifolia* Vahl) ROOSMARYNTAAIBOS Dioecious, dwarf, evergreen shrub to 1 m. Leaves trifoliolate, leaflets sessile, linear, discolorous, occasionally toothed. Flowers cream-coloured. Drupes ellipsoid, mostly hairy. May–Aug. Gravelly soils, NW, SW, AP, KM, LB, SE (Clanwilliam to Port Elizabeth).•

stenophylla (Eckl. & Zeyh.) Moffett (= *Rhus stenophylla* Eckl. & Zeyh.) SMALBLAARTAAIBOS Dioecious, dwarf, evergreen shrub to 1.2 m. Leaves trifoliolate, leaflets stalked, lanceolate, discolorous. Flowers cream-coloured. Drupes ellipsoid, hairy. July. Sandstone slopes, SW (Cape Peninsula and Paarl to Gordon's Bay).•

tomentosa (L.) F.A.Barkley (= *Rhus tomentosa* L.) KORENTEBOS Dioecious, evergreen shrub or small tree to 6 m. Leaves trifoliolate, leaflets stalked, obovate, discolorous, often toothed. Flowers cream-coloured. Drupes ellipsoid, hairy. July–Aug. Rocky slopes, NW, SW, AP, KM, LB, SE (Clanwilliam to Zimbabwe).

*A.' Drupes glabrous (see also **S. rosmarinifolia**)*
B. Leaflets stalked

chirindensis (Baker f.) Moffett (= *Rhus chirindensis* Baker f., *R. legatii* Schönland) BOSTAAIBOS Dioecious, deciduous shrub or tree to 23 m. Leaves trifoliolate, leaflets stalked, ovate to ovate-lanceolate, weakly undulate. Flowers pale green. Drupes round, shiny. Nov.–Mar. Forests, LB, SE (Grootvadersbos to Zimbabwe).

B.' Leaflets sessile
C. Leaflets linear-lanceolate to oblanceolate

fastigiata (Eckl. & Zeyh.) Moffett (= *Rhus fastigiata* Eckl. & Zeyh.) BESEMKRAAIBESSIE Dioecious, evergreen shrub to 2 m. Leaves trifoliolate, leaflets sessile, oblanceolate. Flowers cream-coloured. Drupes round, shiny. Jan. Forest margins, SE (Humansdorp to Port Shepstone).

lancea (L.f.) F.A.Barkley (= *Rhus lancea* L.f.) KAREE, UMHLAKHOTSHANE Dioecious, evergreen, large shrub or tree to 12 m with dark, fissured bark. Leaves trifoliolate, leaflets sessile, linear to lanceolate. Flowers greenish yellow. Drupes round, shiny. Apr.–July. Watercourses in karroid areas, NW, KM (Ceres Karoo to Zimbabwe).

longispina (Eckl. & Zeyh.) Moffett (= *Rhus longispina* Eckl. & Zeyh.) BESEMKRAAIBESSIE, DORINGTAAIBOS Dioecious, evergreen, armed shrub to 4 m. Leaves trifoliolate, leaflets sessile, oblanceolate, shiny. Flowers pale yellow. Drupes lens-shaped, brown, shiny. May–July. Karroid scrub, NW, SW, KM, LB, SE (Namaqualand to S KwaZulu-Natal).

pallens (Eckl. & Zeyh.) Moffett (= *Rhus pallens* Eckl. & Zeyh.) BLEEKKOENIEBOS Dioecious, evergreen shrub to 3 m. Leaves trifoliolate, leaflets sessile, oblanceolate. Flowers yellow. Drupes lens-shaped, shiny. Mar.–July. Karroid scrub, SW, KM, LB, SE (Robertson to KwaZulu-Natal and to Zeerust).

pendulina (Jacq.) Moffett (= *Rhus pendulina* Jacq.) WITKAREE Dioecious, evergreen shrub or tree to 12 m. Leaves trifoliolate, leaflets sessile, lanceolate. Flowers greenish yellow. Drupes round, smooth. Feb.–Mar. Banks of Berg River and Olifants River, possibly introduced from Orange River, NW (Porterville to Orange River).

rimosa (Eckl. & Zeyh.) Moffett (= *Rhus rimosa* Eckl. & Zeyh.) SEDERBERGTAAIBOS Dioecious, evergreen, erect, rigid shrub to 2.5 m. Leaves trifoliolate, leaflets sessile, oblanceolate, stiff. Flowers yellowish. Drupes tricuspidate, smooth. Sept.–Oct. Rocky sandstone slopes, NW (Bokkeveld Mtns to Saron).•

undulata (Jacq.) T.S.Yi, A.J.Mill. & J.Wen (= *Rhus undulata* Jacq.) KUNI-BUSH, KOENIEBOS Dioecious, evergreen shrub to 3 m. Leaves trifoliolate, leaflets sessile, oblanceolate, sticky, aromatic. Flowers yellowish. Drupes lens-shaped, shiny. Apr.–May. Stony slopes, NW, SW, KM (S Namibia to Ladismith).

C.' Leaflets obovate
D. Leaflets toothed or crenate

crenata (Thunb.) Moffett (= *Rhus crenata* Thunb). DUINEKRAAIBESSIE Dioecious, evergreen shrub or small tree to 4 m. Leaves trifoliolate, leaflets sessile, obovate, apex blunt and crenate. Flowers cream-coloured. Drupes round, dark blue/brown, stone with lateral processes. Apr. Sandy coastal flats, SW, AP, SE (Cape Peninsula to S KwaZulu-Natal).

cuneifolia (L.f.) F.A.Barkley (= *Rhus cuneifolia* L.f.) KOGELBERGTAAIBOS Dioecious, evergreen dwarf shrub to 60 cm. Leaves trifoliolate, leaflets sessile, stiff, obovate, coarsely toothed above. Flowers whitish. Drupes tricuspidate, smooth. Sept.–Oct. Rocky slopes, NW, SW (Clanwilliam to Caledon).•

dentata (Thunb.) F.A.Barkley (= *Rhus dentata* Thunb.) NANABESSIE Dioecious, deciduous shrub to 2 m. Leaves trifoliolate, leaflets sessile, broadly obovate, margins prominently dentate. Flowers yellow. Drupes round, shiny. Oct.–Nov. Forest edges, SE (Humansdorp to Limpopo).

dissecta (Thunb.) Moffett (= *Rhus dissecta* Thunb.) LANGSTEEL KORENTEBOSSIE Dioecious, deciduous, small shrub to 1.5 m. Leaves trifoliolate, leaflets sessile, obovate, discolorous, margins sharply toothed. Flowers greenish yellow. Drupes asymmetric, warty. July. Rocky slopes, NW, SW (Vanrhynsdorp to McGregor).•

D.' Leaflets entire

glauca (Thunb.) Moffett (= *Rhus glauca* Thunb.) BLOUKOENIEBOS Dioecious, evergreen shrub or small tree to 4 m. Leaves trifoliolate, leaflets sessile, obovate, often bluish. Flowers greenish white. Drupes lens-shaped, shiny. June–Sept. Mostly on dunes, NW, SW, AP, KM, LB, SE (Veldrif to Kentani).

laevigata (L.) F.A.Barkley (= *Rhus laevigata* L., *R. mucronata* Thunb., *R. incana* Mill.) DUINETAAIBOS, UMHLAKOTHI Dioecious, deciduous shrub to 2.5 m. Leaves trifoliolate, leaflets sessile, obovate, smooth or hairy. Flowers greenish yellow. Drupes round, shiny. Oct.–Dec. Coastal flats and slopes, NW, SW, AP, KM, SE (Lambert's Bay to East London).

lucida (L.) F.A.Barkley (= *Rhus lucida* L., *R. schlechteri* Diels) BLINKTAAIBOS Dioecious, evergreen shrub to 3 m. Leaves trifoliolate, leaflets sessile, obovate to spathulate, shiny. Flowers yellow. Drupes round, shiny. Aug.–Oct. Sandy flats and slopes, NW, SW, AP, KM, LB, SE (Citrusdal to Zimbabwe).

pterota (C.Presl) Moffett (= *Rhus pterota* C.Presl) PENDORINGTAAIBOS Dioecious, evergreen, armed shrub to 2 m with leaves in clusters. Leaves trifoliolate, leaflets sessile, obovate, margins revolute. Flowers pale yellow. Drupes ellipsoid, shiny, juice pungent. Jan.–May. Chalky and clay soils, SW, AP, LB, SE (Saldanha Bay to East London).

pyroides (Burch.) Moffett (= *Rhus pyroides* Burch.) GEWONETAAIBOS Dioecious, deciduous, armed shrub or small tree to 6 m. Leaves trifoliolate, leaflets sessile, obovate, often hairy. Flowers pale yellow. Drupes round, smooth. Oct.–Jan. Near watercourses in karroid scrub, KM, LB, SE (Ladismith to Botswana and Namibia).

refracta (Eckl. & Zeyh.) Moffett (= *Rhus refracta* Eckl. & Zeyh.) GROWWEBLAARTAAIBOS Dioecious, evergreen shrub or small tree to 4 m. Leaves trifoliolate, leaflets sessile, obovate. Flowers pale yellow. Drupes round, smooth, stone with lateral processes. Jan.–Mar. Scrub, SE (Plettenberg Bay to Transkei).

rehmanniana (Engl.) Moffett (= *Rhus rehmanniana* Engl., *R. macowanii* Schönland) SUURTAAIBOS Dioecious, deciduous spreading shrub to 3 m. Leaves trifoliolate, leaflets sessile, obovate, slightly hairy. Flowers greenish yellow. Drupes round, smooth. Jan.–Apr. Clay soils, NW, SW, KM, LB, SE (Piketberg to Limpopo).

scytophylla (Eckl. & Zeyh.) Moffett (= *Rhus scytophylla* Eckl. & Zeyh.) ROOIBLOMTAAIBOS Dioecious, evergreen shrub to 2 m. Leaves trifoliolate, leaflets sessile, obovate, stiff, margins revolute. Flowers red. Drupes tricuspidate, smooth. June–July. Rocky sandstone slopes, NW, SW (Bokkeveld Mtns to Caledon).•

APIACEAE

by A.R. Magee, J.C. Manning, B.-E. van Wyk & P.M. Tilney
Centella by M.T.R. Schubert & B.-E. van Wyk

1. Fruit strongly compressed laterally; without vittae or large rib oil ducts ..... **Centella**
1.' Fruit isodiametric, dorsally compressed or only slightly laterally compressed; nearly always with vittae, large rib oil ducts or wing cavities:
2. Flowers with narrow filament-like petals and large petaloid sepals; leaves simple, leathery, woolly at least beneath ..... **Hermas**
2.' Flowers with elliptic to obovate petals and nearly always with relatively small sepals; leaves various but not as above:
3. Plants woody or suffrutescent (at least base woody), not dying down to ground level after fruiting; leaves persistent or deciduous; umbels terminal or axillary but not leaf-opposed:
4. Fruit (and ovaries) hairy or bristly ..... **Deverra**
4.' Fruit (and ovaries) glabrous:
5. Fruit heteromericarpic, with marginal wings developed on one mericarp only:
6. Plants leafless at flowering; margins of leaflets toothed; fruit with wing cavities and without vittae ..... **Polemanniopsis**
6.' Plants leafy at flowering; margins of leaves or leaflets entire; fruit without wing cavities and with prominent vittae ..... **Heteromorpha**
5.' Fruit homomericarpic, if rarely heteromericarpic then with marginal wings developed on both mericarps:
7. Body of fruit strongly compressed dorsiventrally; marginal ribs winged and more prominent than dorsal ribs:
8. Shrubs or small trees, with permanent, woody, aerial branches ..... **Notobubon**
8.' Suffrutices or geophytes:
9. Leaves persistent, borne on a branched rhizome; leaflets subterete, glabrous .. **Nanobubon**
9.' Leaves deciduous, borne on a short woody stem above a tuberous root; leaflets flat, minutely scabrous ..... **Glia**
7.' Body of fruit not compressed or slightly compressed laterally; marginal ribs as well developed as most prominent dorsal ribs (or ribs absent):
10. Leaves not dimorphic, simple, grass-like ..... **Bupleurum**
10.' Leaves dimorphic, with flattened segments on lower leaves, upper reduced and often needle-like:

11. Foliage leaves predominantly cauline, congested towards branch ends, glabrous; shrubs or shrublets with upper leaves often needle-like; surface between mericarp ribs often tuberculate or wrinkled ..... **Anginon**
11.' Foliage leaves predominantly radical, cauline leaves smaller or absent, minutely scabrous or pilulose; surface between mericarp ribs smooth; woody suffrutices (pyrophyte or geophyte) with leaves never needle-like ..... **Glia**

3.' Plants herbaceous, either low, creeping herbs or dying down to ground level after fruiting, rarely short-lived perennials but then umbels clearly leaf-opposed; leaves mostly deciduous:
12. Plants acaulescent; dioecious; leaves and involucel bracts often thorny; fruit with one mericarp usually aborted ..... **Arctopus**
12.' Plants caulescent; monoecious or hermaphroditic; leaves and involucel bracts not thorny; fruit with both mericarps developed:
13. Involucral bracts conspicuous and forming a pseudanthium; umbels simple; leaves simple or palmately divided:
14. Involucral bracts united, female flowers sessile; leaves simple ..... **Alepidea**
14.' Involucral bracts free; female flowers pedicellate; leaves digitate ..... **Sanicula**
13.' Involucral bracts not forming a pseudanthium; umbels usually compound; leaves usually pinnately compound:
15. Body of fruit dorsally compressed; commissure broad, from rib tip to rib tip:
16. Perennials; leaves green, fruit with marginal wings not involute ..... **Cynorhiza**
16.' Annuals; leaves glaucous, fruit with marginal wings involute ..... **Capnophyllum**
15.' Body of fruit isodiametric; commissure narrow, not from rib tip to rib tip:
17. Leaves simple; margins entire ..... **Itasina**
17.' Leaves compound, or basal leaves simple and cauline leaves pinnately dissected; if rarely simple then margins toothed:
18. Foliage leaves all radical, those on stem reduced to a sheath with or without a vestigial blade; leaves usually dead or dying during flowering:
19. Rhizomatous plants with thin fibrous roots; fruit without vittae; stylopodium conical and conspicuous in fruit; rib oil ducts large and prominent ..... **Lichtensteinia**
19.' Geophytes with thick fleshy roots; fruit with prominent vittae; stylopodium not conspicuous; rib oil ducts small or inconspicuous:
20. Body of fruit ovoid or flask-shaped, without marginal wings, up to 4 mm long ..... **Chamarea**
20.' Body of fruit oblong, with or without marginal wings, usually 5 mm or more long ..... **Annesorhiza**
18.' Foliage leaves both radical and cauline; leaves not dead or dying during flowering:
21. Leaves and young stems hairy:
22. Leaves finely pinnately divided; umbel rays equal or subequal ..... **Torilis**
22.' Leaves 2- or 3-digitate; umbel rays markedly unequal ..... **Ezosciadium**
21.' Leaves and young stems glabrous:
23. Leaves simply pinnate, robust, elongate, leaflets uniform and decreasing only slightly in size upwards ..... **Berula**
23.' Leaves variably bi- or tripartite:
24. Fruit without vittae ..... **Conium**
24.' Fruit with vittae:
25. Plants aquatic ..... **Helosciadium**
25.' Plants not aquatic:
26. Umbels terminal, never leaf-opposed; fruit with multiple vittae between each rib; leaves dimorphic (lower ones simple, upper pinnate) ..... **Pimpinella**
26.' Umbels laterally displaced, leaf-opposed; fruit with single vittae between each rib; leaves not dimorphic:
27. Fruit subglobose, ribs corky; leaflets broad, 3 mm or more wide ..... **Apium**
27.' Fruit usually without corky ribs and leaflets narrow, up to 1 mm wide (if fruit ribs corky then fruit ovate to very broadly ovate, > 2.5 mm long and leaves succulent to semi-succulent) ..... **Dasispermum**

ALEPIDEA F.Delaroche IKHATHAZO, KALMOES ± 40 spp., tropical and southern Africa

capensis (P.J.Bergius) R.A.Dyer Slender, tufted perennial to 40 cm. Leaves crowded at base, long-petiolate, oblong, with long incurving bristles. Flowers sessile in simple umbels, bracts white or

pink, sepals large. Fruit elliptic, with cone-shaped protuberances, mericarps isodiametric, vittae absent, rib oil ducts prominent. Mainly Nov.–Feb. Damp flats or lower slopes, KM, LB, SE (Swartberg and Langeberg: Swellendam to KwaZulu-Natal).

delicatula Weim. Like **A. capensis** but slender, to 20 cm, leaves toothed, tooth bristles spreading, intertooth bristles incurved. Jan.–Feb. High, rocky sandstone slopes, KM, SE (Swartberg and Outeniqua Mtns).•

ANGINON Raf. WILDESELDERY, WILDEVINKEL 13 spp., S Namibia to E Cape

A. Plants green

difforme (L.) B.L.Burtt Rigid, stiff-leaved, few-branched shrub to 3 m. Leaves in axillary tufts, undivided, terete, pungent. Flowers in compound umbels on stout peduncles, yellowish. Fruit obovoid, warty, mericarps isodiametric, vittae present, rib oil ducts inconspicuous. Dec.–Apr. Rocky sandstone slopes, NW, SW, AP, KM, LB, SE (Richtersveld to Tulbagh to E Cape).

fruticosum I.Allison & B.-E.van Wyk Like **A. difforme** but plants multi-stemmed, leaves grooved above and some shortly and unevenly 2- or 3-sect. Jan.–Apr. Clay soils along streams, NW, SW, KM, SE (W Karoo to Genadendal and to Uniondale). **gce**

ternatum I.Allison & B.-E.van Wyk Like **A. difforme** but leaves grooved above and equally 3-sect. Dec.–Apr. Sandstone slopes, NW (Gifberg and Heerenlogementberg).•

sp. 1 Like **A. rugosum** but the leaf segments linear and not grey-glaucous. Dec.–Feb. Sandy slopes, SE (Knysna to Joubertina).•

A.' Plants grey-glaucous

paniculatum (Thunb.) B.L.Burtt Like **A. swellendamense** but plants up to 4 m, leaves 4- to 5-pinnatisect, ultimate segments grooved above and fruit oblong, ridged. Nov.–Jan. Rocky sandstone slopes, NW (Bokkeveld Mtns to Citrusdal).•

pumilum I.Allison & B.-E.van Wyk Slender, unbranched, usually glaucous, rhizomatous shrublet to 70 cm. Leaves bipinnatisect, lobes reduced, cuneate to linear, toothed. Flowers in small, compound umbels, yellow. Fruit subrotund, ridged and warty, mericarps isodiametric, vittae present, rib oil ducts inconspicuous. July–Aug. Limestone slopes, AP (Agulhas and De Hoop).•

rugosum (Thunb.) Raf. Like **A. swellendamense** but leaves grooved above. Dec.–Apr. Sandstone slopes, SE (Kouga Mtns to Grahamstown).

swellendamense (Eckl. & Zeyh.) B.L.Burtt Glaucous, stiff-leaved, few-branched shrub to 2 m. Leaves in axillary tufts, 2- to 3-pinnatisect or sometimes undivided, lobes terete, pungent. Flowers in small compound umbels on slender peduncles, yellowish. Fruit obovoid, ridged and wrinkled, mericarps isodiametric, vittae present, rib oil ducts inconspicuous. Oct.–Jan. Stony clay slopes, NW, AP, KM, SE (Worcester to Uniondale).•

tenuior I.Allison & B.-E.van Wyk Slender, few-branched shrub to 1.5 m. Leaves 2-pinnatisect, lobes reduced, narrowly cuneate to linear, toothed, petioles persistent. Flowers in few-flowered, lax, compound umbels on slender peduncles, yellow. Fruit subrotund, ridged and wrinkled, mericarps isodiametric, vittae present, rib oil ducts inconspicuous. Nov.–Dec. Stony slopes, KM (Montagu and Waboomsberg).•

ANNESORHIZA Cham. & Schltdl. (= *PEUCEDANUM* in part) ANYSWORTEL ± 21 spp., southern Africa

A. Mericarps with marginal wings and dorsal ribs

bracteosa Magee Like **A. triternata** but inflorescence with prominent foliose bracts at nodes, involucel bracts ovate, 2 *mm* wide and sepals truncate. Feb.–Mar. Sandy flats, SW, AP (Elim to Ratelrivier).•

filicaulis Eckl. & Zeyh. Like **A. triternata** but petals with a single unbranched resin duct along midrib, fruit narrowly oblong, 6–6.5 mm long and mericarps three times as long as wide filiform dorsal ribs and narrow marginal wings. Feb. Alluvial sands, NW (Clanwilliam).•

laticostata Magee Like **A. filicaulis** but fruit two times as long as wide with very prominent to narrowly winged dorsal ribs. Jan.–Feb. Alluvial sands, NW (Rawsonville).•

radiata Magee Like **A. triternata** but plants smaller, up to 0.4 m, terminal umbel with 6–18 spreading, ± equal rays, petals with a single unbranched resin duct along midrib, shortly conical stylopodium and fruit 3–4 mm long with filiform dorsal ribs. Mar.–Apr. Clay flats, NW (Worcester).•

refracta Magee Like **A. triternata** but leaves procumbent, rachis and pinnae prominently refracted, ultimate leaflets 2- or 3-lobed with ovate to lanceolate segments and homomericarpic fruit with filiform dorsal ribs. Feb.–Mar. Ferricrete soils, NW, SW (Eendekuil to Paarl).•

triternata (Eckl. & Zeyh.) Vessio, Tilney & B.-E.van Wyk (= *Peucedanum triternata* Eckl. & Zeyh.) Perennial to 1 m, roots 1 or 2, fleshy. Leaves dead or dying at flowering, triternate, leaflets lanceolate to narrowly linear. Inflorescence with reduced sheath-like bracts at nodes, peduncle few branched with up to 3 lateral umbels, involucel bracts 1.5–2 mm long, terminal umbel 4–7-rayed, rays suberect to spreading. Flowers yellow, sepals acute to tridentate, petals with resin duct notably branched near base. Fruit narrowly obovate, 7–9 mm long, mericarps slightly dorsally compressed, marginally winged, dorsally prominently ribbed, homomorphic or slightly heteromorphic, vittae present, rib oil ducts inconspicuous. Feb.–Mar. Sandstone slopes, SW (Hottentots Holland Mtns).•

A.' Mericarps with marginal ribs as well developed as dorsal ribs
B. Ultimate leaflet segments broad, elliptic-ovate

altiscapa (Schltr ex) H.Wolff BOKLAMVINKEL Perennial to 1.5 m; roots numerous, slightly and evenly fleshy. Leaves usually present at flowering, pinnately divided, glabrous, segments triangular, acute. Inflorescence glabrous, yellowish brown. Flowers cream-coloured to yellow. Fruit 6–7 mm long, oblong, mericarps isodiametric, ribbed, homomorphic, vittae present, rib oil ducts inconspicuous. Aug.–Oct. Sandy and clayey slopes, NW (Namaqualand to Gifberg). **gce**

calcicola Magee & J.C.Manning Perennial to 25 cm, root single (or 2, with dry remnant of previous root), slightly fleshy. Leaves completely absent at flowering, pinnately divided, < 10 cm long, sparsely hairy, segments triangular, acute. Inflorescence sparsely hairy, greyish black. Flowers white. Fruit 3–4 mm long, oblong, mericarps isodiametric, ribbed, homomorphic, vittae present, rib oil ducts inconspicuous. Apr.–May. Limestone outcrops, SW (Jacobsbaai).•

grandiflora (Thunb.) M.Hiroe HARIGE-ANYSWORTEL Like **A. altiscapa** but plants up to 2 m, leaves dying at flowering, coarsely dissected, sparsely to densely hairy, segments rounded and flowers yellow. Sept.–Feb. Flats and sandstone slopes, often damp areas, NW, SW (Bokkeveld Mtns to Caledon).•

nuda (Aiton) B.L.Burtt SOETANYSWORTEL Like **A. altiscapa** but plants up to 1 m; roots 1 or 2, leaves dry or present at flowering, segments oblong, fruit 5–7 mm long and mericarps heteromorphic, both with prominent marginal ribs but the one with a more prominent median rib and the other with more prominent lateral ribs. Dec.–Apr. Rocky, often granite slopes, NW, SW (Clanwilliam to Caledon).•

B.' Ultimate leaflet segments narrow, linear-oblong

asparagoides B.-E.van Wyk Like **A. fibrosa** but plants up to 30 cm, sparsely hairy, and pinnae bottlebrush-like with acicular, terete, subsessile and densely crowded ultimate leaflet segments. Fruit relatively large, 8 mm long, oblong, mericarps homomorphic, ± isodiametric. Jan. Loamy sand, NW (Wuppertal).•

burttii B.-E.van Wyk BERG-ANYSWORTEL Like **A. macrocarpa** but root single (sometimes with remains of previous seasons roots), fruit smaller, 5 mm long and mericarps ribbed, homomorphic. Oct.–Feb. Sandstone crevices at high alt., NW, SW (Ceres to Riviersonderend Mtns).•

elsiae Vessio, Tilney & B.-E.van Wyk Like **A. triternata** but inflorescence very well branched with more than 6 lateral umbels, terminal umbel 2- or 3-rayed and fruit without prominent ribs or wings. Feb. Shale slopes, NW (Worcester: Audensberg).•

fibrosa B.-E.van Wyk Perennial to 70 cm, with persistent, fibrous, leaf remains, roots 15 or more, slightly fleshy, often swollen near tips. Leaves dying at flowering, pinnately divided, densely to sparsely hairy, segments minute, linear-oblong, petiole bases persisting to form a dense fibrous mass. Inflorescence glabrous, yellowish brown. Flowers yellow. Mature fruit unknown, mericarps isodiametric, ribbed, homomorphic, vittae present, rib oil ducts inconspicuous. Nov.–Dec. Sandstone plateau, NW (Bokkeveld Mtns).•

macrocarpa Eckl. & Zeyh. WILDE-ANYSWORTEL Perennial to 1.6 m; roots numerous, slightly or distinctly fleshy, often fluted. Leaves drying at flowering, pinnately divided, glabrous, rachis

curved, segments minute, linear-oblong. Inflorescence glabrous, yellowish brown. Flowers yellow. Fruit large, 8–12 mm long, oblong, mericarps isodiametric, heteromorphic, both with marginal wings but one with a median wing, other with a lateral wing, vittae present, rib oil ducts inconspicuous. Aug.–Jan. Coastal dunes and sandy slopes, SW, AP, LB, SE (Saldanha to East London).

thunbergii B.L.Burtt Like **A. macrocarpa** but fruit smaller, 7 mm long and mericarps not prominently winged. Nov.–Feb. Sandstone slopes, SE (Humansdorp).•

APIUM L. CELERY 19 spp., N and S temperate

decumbens Eckl. & Zeyh. Sprawling or erect annual or short-lived perennial to 30 cm. Leaves pinnate below, leaflets broadly toothed, upper digitate with leaflets oblanceolate. Flowers in leaf-opposed often sessile, compound umbels, white. Fruit subglobose, mericarps isodiametric, ribbed, ribs corky, vittae present, rib oil ducts inconspicuous. Mainly Jan.–Mar. Vlei edges and wet places along the coast, SW, AP, SE (Namaqualand, Cape Peninsula to KwaZulu-Natal).

ARCTOPUS L. PLATDORING, SIEKETROOS 3 spp., S Namaqualand to E Cape

dregei Sond. Like **A. echinatus** but leaves with marginal teeth inconspicuous, inflexed spines absent or rudimentary, involucel bracts obovate, lateral margins rolled inwards, with 1 or 2 lateral bristles, somewhat enlarging and leathery in fruit. Mericarps slightly rugose, not separating. June–July. Deep sands and gravel flats, NW, SW (S Namaqualand to Paarl). **gce**

echinatus L. Dioecious, acaulescent perennial. Root large, tuberous, resinous. Leaves large, prostrate, ovate to orbicular and lobed to lacerate, margins toothed, prominent, inflexed spines in leaf recesses, bases narrow. Male flowers pedunculate, cream-coloured. Female flowers sessile, greenish. Involucel bracts prominent, ovate, apex acute, keeled, with 1 or 2 inflexed lateral spines, not much enlarging and leathery in fruit. Fruit slightly dorsally compressed, usually with one mericarp aborted, mericarps spiny, separating, vittae absent, rib oil ducts small. May–July. Sand and granite flats and slopes, NW, SW, AP, KM, LB, SE (Bokkeveld Mtns and W Karoo to Alexandria).

monacanthus Carmich. ex Sond. Like **A. echinatus** but bases of inflexed spines on leaves broad, involucel bracts widely obovate, foliose, apex obtuse, sometimes with small lateral spines, much enlarging and papery in fruit. Mericarps rugose or spiny. June–July. Sandstone and clay slopes and flats, NW, SW (Bokkeveld Mtns to False Bay and Riviersonderend Mtns).•

BERULA W.D.J.Koch WATER PARSNIP, TANDPYNWORTEL 6 spp., cosmopolitan

thunbergii (DC.) H.Wolff (= *Berula erecta* (Huds.) Coville subsp. *thunbergii* (DC.) B.L.Burtt) Stoloniferous perennial to 1 m. Leaves simple pinnate, leaflets sessile, paired, elliptic to ovate, finely toothed. Flowers in compound umbels, white. Fruit subglobose, mericarps isodiametric, slightly ribbed, vittae present, rib oil ducts inconspicuous. Jan.–Mar. Streamsides, SW, AP, KM, LB, SE (Cape Peninsula to Humansdorp, extending widely to N Africa).

BUPLEURUM L. ± 150 spp., cosmopolitan, 1 in sub-Saharan Africa

mundii Cham. & Schltdl. Tufted perennial to 60 cm, from woody base. Leaves mostly basal, linear to oblanceolate, grass-like. Flowers in compound umbels on branched peduncles, yellow. Fruit narrowly oblong in dorsal view, mericarps isodiametric, ribbed, vittae present, 3 to 4 between each rib, rib oil ducts inconspicuous. Aug.–Feb. Moist slopes, SW, LB, SE (Kamiesberg and W Karoo, Cape Peninsula and Humansdorp to Mpumalanga).

CAPNOPHYLLUM Gaertn. 4 spp., N Cape and W Cape **gce**

africanum (L.) Gaertn. Sprawling annual to 30 cm. Leaves finely dissected, glaucous. Flowers in leaf-opposed umbels, rays 4–14, white, stylopodium shortly conical, raised above fruit apex, styles becoming reflexed up to or beyond base of stylopodium. Mericarps dorsally compressed, tubercled, < 8 mm long, marginal ribs slightly involute, winged, vittae present. Sept.–Nov. Deep coastal sands, SW (Saldanha to Strand).•

leiocarpon (Sond.) J.C.Manning & Goldblatt Sprawling annual to 50 cm. Leaves finely dissected, glaucous. Flowers in leaf-opposed umbels, rays (2–)4–8, white, stylopodium shortly conical, raised above fruit apex, styles later reflexed far beyond base of stylopodium. Mericarps dorsally compressed, smooth, < 8 mm long, marginal ribs slightly involute, winged, vittae present. Sept.–Nov. Deep coastal sands, NW, SW (Port Nolloth to Langebaan). **gce**

lutzeyeri Magee & B.-E.van Wyk Like **C. leiocarpon** but styles remaining short, not becoming reflexed beyond base of stylopodium and mericarps with marginal wings prominently involute. Sept.–Nov. Recently burnt, limestone flats, SW (Stanford).•

macrocarpum Magee & B.-E.van Wyk Like **C. africanum** but fruit > 8.5 mm long, stylopodium very shortly conical to flat, sunken below fruit apex and umbel composed of 2 or 3 rays. Sept.–Nov. Deep coastal sands, AP (De Hoop). •

CENTELLA L. PENNYWORT, VARKOORTJIES 45 spp., largely southern African, 1 sp. pantropical

A. Plants hermaphroditic; umbels hermaphroditic, with 3 bisexual flowers

asiatica (L.) Urb. (incl. **C. coriacea** Nannf.) WATERNAEL Prostrate perennial, spreading with stolons and rooting at nodes. Leaves petiolate, kidney-shaped to rounded, sparsely hairy to glabrous, crenate. Flowers bisexual, 3 per umbel, reddish. Fruit obovate, longer than bracts, wrinkled. Nov.–Mar. Marshy or damp places, SW, LB, SE (Cape Peninsula to tropical Africa, widely distributed in the tropics and S hemisphere).

ternata M.T.R.Schubert & B.-E.van Wyk Tufted perennial, flowering branches spreading from a woody base. Leaves petiolate, semicircular to orbicular, serrate, petiole sparsely hairy. Flowers bisexual, 1–3 per umbel, rays single, sessile. Fruit obovate, shorter than the minutely pubescent bracts, slightly ribbed. Sept.–Dec. Sandstone slopes at high alt., NW (Cedarberg: Wolfberg).•

umbellata M.T.R.Schubert & B.-E.van Wyk Tufted perennial, flowering branches spreading from a woody base. Leaves petiolate, semicircular to orbicular, dentate with distinctly mucronate teeth. Flowers bisexual, 1–3 per umbel, rays 2–5 on a distinct peduncle. Fruit obovate, shorter than the glabrous bracts, slightly ribbed. Mar.–Apr. Sandstone slopes at high alt., NW (Porterville Mtns).•

A.' Plants andromonoecious; umbels hermaphrodandrous, with a single, sessile, central, bisexual flower and 4 lateral male pedicellate flowers

annua M.T.R.Schubert & B.-E.van Wyk Tufted annual or short-lived perennial to 10 cm. Leaves petiolate, cuneate or spathulate, densely white-hairy or rusty hairy, obtusely lobed above. Flowers in umbels with 4 lateral shortly pedicellate male flowers and a large, central, sessile, bisexual flower, male flowers shorter than bracts, whitish. Fruit relatively small, obovate, shorter than bracts, ribbed, wrinkled, thinly hairy. June–Oct. Lower and upper inland slopes, NW, SW (Bokkeveld Mtns to Bredasdorp).•

calcaria M.T.R.Schubert & B.-E.van Wyk Tufted annual or short-lived perennial to 10 cm. Leaves petiolate, widely ovate, densely white- or brown-woolly, finely toothed above. Flowers in umbels with 4 lateral shortly pedicellate male flowers and a central sessile bisexual flower. Fruit obovate, shorter than bracts, ribbed, wrinkled, thinly hairy. June–Oct. Coastal limestones, AP (Agulhas to Gourits River Mouth).•

capensis (L.) Domin Loosely tufted perennial to 10 cm, spreading from underground stems. Leaves petiolate, cuneate or spathulate, densely white-hairy or rusty hairy, obtusely lobed above. Flowers in umbels with an abortive central flower and 4 lateral pedicellate male flowers in functionally male plants or with a large, central, bisexual flower with 4 lateral abortive and sessile flowers in functionally female plants, male flowers longer than bracts, whitish, with purple stylopodia. Fruit large, obovate, shorter than bracts, ribbed, wrinkled, thinly hairy. June–Oct. Flats and lower slopes, often coastal, NW, SW, KM, SE (Olifants River Mtns to Knysna).•

tridentata (L.f.) Drude ex Domin Laxly branched, decumbent annual or short-lived perennial, 8–20 cm. Leaves petiolate, cuneate, densely to sparsely hairy, margin mostly 3–5-toothed above. Flowers in sessile umbels with 4 lateral, shortly pedicellate, male flowers and a central, sessile, bisexual flower, whitish. Fruit obovate, shorter than bracts, ribbed, wrinkled, thinly hairy. Aug.–Dec. Mainly coastal flats and lower slopes, NW, SW, AP, LB, SE (Namaqualand to Port Elizabeth). **gce**

A." Plants andromonoecious or androdioecious; inflorescence with hetero- or homosexual umbels; male umbellules with 1–5 subsessile flowers, hermaphrodite umbellules with single, subsessile flower

Group 1:
Leaves widely cuneate, fleshy, distinctly petiolate; inflorescences mostly many-flowered; fruit longer than wide, relatively small, commissure not bulging or constricted

triloba (Thunb.) Drude Sprawling, stout perennial with woody base, 10–50 cm. Leaves cuneate, spathulate or broadly wedge-shaped, succulent, dentate with 3–9 teeth. Flowers greenish. Fruit obovate, mostly longer than bracts, ribbed. Aug.–Apr. Rocky coastal flats and slopes, SW, AP (Cape Peninsula to Agulhas).•

Group 2:
Leaves ovate to widely cuneate, distinctly petiolate; fruit round to ovate, slightly ribbed and wrinkled, commissure of fruit not bulging or constricted

calliodus (Cham. & Schltdl.) Drude Sprawling, slender perennial to 50 cm. Leaves reniform to semicircular, distinctly dentate with prominent long teeth which sometimes curve at tips. Flowers cream-coloured. Fruit round, mostly longer than bracts. Aug.–Jan. Damp lower to middle slopes, NW, SW, LB, SE (Ceres to George).•

eriantha (A.Rich.) Drude Sprawling perennial to 50 cm. Leaves reniform to widely cordate, glabrous to sparsely hairy, crenate or dentate with mucronate teeth. Flowers greenish. Fruit oblong to rounded, mostly longer than bracts. Oct.–Dec. Damp middle to upper slopes, NW, SW, LB, SE (Worcester and Cape Peninsula to E Cape).

flexuosa (Eckl. & Zeyh.) Drude Sprawling perennial to 30 cm. Leaves widely cordate, sparsely or densely white- or brown-woolly, dentate with large, triangular teeth. Flowers greenish. Fruit oblong, shorter and wider than bracts. Oct.–Apr. Sandstone rock crevices at high alt., SW (Cape Peninsula to Caledon).•

fourcadei Adamson (incl. **C. dentata** Adamson) Sprawling perennial to 60 cm, sparsely or densely hairy on young parts. Leaves rhombic, dentate with 3–7 large teeth above. Flowers greenish. Fruit oblong to round, bract length variable. Nov.–Jan. Middle to upper slopes, LB, SE (Langeberg to Humansdorp).•

lanata Compton Sprawling perennial to 50 cm. Leaves reniform to widely cuneate, sparsely or densely white- or brown-woolly, crenate or dentate with shallow teeth. Flowers greenish. Fruit oblong, longer than bracts. Jan.–May. Rocky slopes at high alt., LB, SE (Swellendam to Uniondale).•

macrodus (Spreng.) Burtt Like **C. flexuosa** but leaves somewhat smaller, less hairy, with fewer teeth (5–7) and fruit as wide as or narrower than bracts. Nov.–Apr. Sandstone crevices at medium to high alt., SW (Cape Peninsula and Paarl to Caledon).•

sp. 1 Sprawling perennial to 40 cm. Leaves distinctly rotund, sparsely hairy to glabrous, leathery, reticulately veined, brownish green, dentate. Fruit oblong to rounded, mostly slightly shorter than bracts. Sept.–May. Rocky slopes, AP (Potberg).•

sp. 2 Sprawling perennial to 30 cm. Leaves widely cordate to cordate, sparsely hairy to glabrous. Flowers greenish. Fruit oblong to rounded, longer than bracts. Oct.–Mar. Rock crevices, SW (Ceres to Franschhoek and Cape Peninsula).•

sp. 3 Loosely tufted perennial to 20 cm. Leaves fan-shaped with long petioles, sparsely hairy to glabrous, crenate above. Flowers greenish. Fruit oblong to rounded, longer than bracts. Sept.–Mar. Damp sandy flats, AP (Bredasdorp to Agulhas).•

Group 3:
Leaves cuneate to linear or lanceolate, not always distinctly petiolate; fruit mostly longer than wide, longer than bracts, commissure usually bulging (visible in lateral view as 2 raised areas on either side of commissure)

affinis (Eckl. & Zeyh.) Adamson Slender, tufted, prostrate to suberect perennial to 30 cm. Leaves variable, usually narrowly linear. Flowers yellowish. Fruit round, thin and flat, smooth, commissure sometimes slightly bulging. Aug.–Jan. Sand dunes, flats and limestone outcrops, SW, AP, LB (Malmesbury to Riversdale).•

brachycarpa M.T.R.Schubert & B.-E.van Wyk Tufted, suberect perennial to 50 cm. Leaves as in **C. difformis**. Flowers whitish, only 1 (not 3–5) flower per male umbellule. Fruit small, widely elliptic, wrinkled. Aug.–Apr. Limestone flats and hills, AP (Agulhas to Gourits River Mouth).•

difformis (Eckl. & Zeyh.) Adamson Erect perennial, 10–40 cm. Leaves dimorphic, lanceolate, sparsely hairy to glabrous; basal leaves petiolate, entire or with 2–5 acuminate teeth in upper third, upper leaves smaller, often indistinctly petiolate, mostly entire. Flowers whitish, often in many-flowered umbels. Fruit relatively large, widely elliptic, distinctly ribbed, smooth, commissure ± slightly bulging. Aug.–Apr. Coastal flats and lower slopes, SW, AP (Franschhoek Mtns to Potberg).•

dolichocarpa M.T.R.Schubert & B.-E.van Wyk Prostrate, sprawling perennial to 2 m wide. Leaves as in **C. difformis**. Fruit narrowly oblong, always much longer than bracts, slightly ribbed, smooth, borne on long, slender, often spirally curved stalks. Aug.–Apr. Rocky slopes at medium alt., SW (Riviersonderend Mtns).•

fusca (Eckl. & Zeyh.) Adamson Suberect, sprawling perennial, 10–40 cm. Leaves indistinctly petiolate, acicular to narrowly lanceolate, shortly and variably hairy, entire. Flowers greenish, bisexual umbellules with 4 (not 2) bracts. Fruit oblong, slightly ribbed, smooth, commissure very prominently bulging. Aug.–Jan. Middle to upper slopes, NW, SW (Kamiesberg to Worcester). **gce**

glabrata L. (incl. **C. comptonii** Adamson) PERSIEGRAS, SWEETKRUIE Tufted, trailing perennial. Leaves petiolate, lanceolate, sparsely hairy to glabrous. Flowers yellowish. Fruit oblong, slightly ribbed, smooth. Sept.–Jan. Slopes and mountains, NW, SW, AP, KM, LB, SE (Clanwilliam to Port Elizabeth).•

lasiophylla Adamson Like **C. villosa** but leaves larger and densely woolly. Sept.–Dec. Dry sandstone slopes, NW (Cedarberg).•

pilosa M.T.R.Schubert & B.-E.van Wyk Tufted, sprawling annual to 25 cm. Leaves petiolate, elliptic to narrowly elliptic, pilose, reddish brown. Flowers greenish, with bisexual, female and male umbels on same plant, only 1 (not 3–5) flower per male umbellule. Fruit oblong, not ribbed, smooth. Sept.–Jan., after fires. Sandstone slopes at high alt., SW (Kogelberg).•

scabra Adamson Like **C. villosa** but leaves much larger and sparsely hairy. Aug.–Mar. Sandy slopes and rocky places, NW, SW (Gifberg to Caledon).•

villosa L. Tufted perennial to 40 cm. Leaves petiolate, widely to narrowly cordate, densely to sparsely white- or brown-hairy. Flowers greenish. Fruit distinctly angular, slightly ribbed, smooth. Sept.–Dec. Sandstone slopes in rock crevices, NW, SW (Gifberg to Caledon).•

Group 4:
Leaves cuneate to acicular, mostly not distinctly petiolate; fruit usually wider than long, smooth and slightly ribbed and often with a constricted commissure (visible in lateral view as a groove or depression between the 2 mericarps along middle of fruit)

caespitosa Adamson Tufted, cushion-forming perennial to 8 cm. Leaves indistinctly petiolate, densely crowded, linear to acicular, subglabrous or glabrous. Flowers greenish. Fruit widely depressed-ovate, longer than bracts, mericarps separating easily. Aug.–May. Sandstone slopes at high alt., SW (Cape Peninsula to Caledon).•

cryptocarpa M.T.R.Schubert & B.-E.van Wyk Tufted, prostrate perennial to 10 cm. Leaves petiolate, crowded, widely ovate to very widely ovate, densely hairy, entire or rarely dentate above. Flowers whitish or yellowish, male umbellules with 1–5 flowers. Fruit widely elliptic, shorter and narrower than the exceptionally large bracts. Aug.–Mar. Sandy slopes at medium alt., SW (Riviersonderend Mtns: Skilpadkop).•

didymocarpa Adamson Tufted perennial to 15 cm. Leaves petiolate, crowded, lanceolate, sparsely hairy to glabrous, brownish green, entire. Flowers greenish. Fruit distinctly broader than long, longer than bracts, commissure strongly constricted. Jan. Sandstone slopes, SE (Uniondale).•

gymnocarpa M.T.R.Schubert & B.-E.van Wyk Tufted, prostrate perennial to 15 cm. Leaves petiolate, crowded, widely ovate to very widely ovate, densely woolly, greyish green, entire or more often shallowly toothed above. Flowers yellowish, male umbellules with 1 flower. Fruit widely depressed-ovate, distinctly ribbed, longer and wider than bracts. Aug.–Mar. Limestone outcrops, AP (Agulhas Peninsula).•

longifolia (Adamson) M.T.R.Schubert & B.-E.van Wyk Small, tufted perennial to 10 cm. Leaves petiolate, crowded, linear-oblong, sparsely hairy to glabrous, reddish brown, entire. Flowers yellowish. Fruit widely depressed-ovate, longer and wider than bracts. Aug.–Jan. Sandy and gravelly lower slopes, SE (Knysna to Humansdorp).•

montana (Cham. & Schltdl.) Domin Tufted, sprawling perennial to 10 cm. Leaves petiolate, slightly dimorphic, elliptic to lanceolate, hairy to densely hairy, reddish brown, mostly entire. Flowers yellowish. Fruit widely depressed-ovate, shorter and wider than bracts. Aug.–Jan. Upper slopes, LB, SE (Montagu to Willowmore).•

pottebergensis Adamson Tufted, suberect perennial to 40 cm. Leaves petiolate, crowded, with long internodes between the clusters, linear-lanceolate, slightly succulent. Flowers greenish. Fruit obovate, longer than bracts. Nov.–Jan. Sandstone slopes, SW (Potberg).•

restioides Adamson Suberect perennial to 50 cm. Leaves indistinctly petiolate, acicular to narrowly oblong, sparsely hairy to glabrous. Flowers yellowish, borne among vegetative leaves. Fruit broadly ovate, shorter than bracts, commissure not constricted. Oct.–Dec. Rocky slopes at high alt., SW (Bain's Kloof to Franschhoek Mtns).•

rupestris (Eckl. & Zeyh.) Adamson Suberect, woody perennial to 25 cm, stems with persistent, scale-like leaf bases. Leaves ± sessile, linear to narrowly oblong, slightly succulent, yellowish green. Flowers yellowish. Fruit widely depressed-ovate, shorter than bracts. Aug.–Feb. Sandstone slopes, SW (Babilonstoring and Kleinrivier Mtns).•

sessilis Adamson Tufted, mat-forming perennial. Leaves indistinctly petiolate, crowded, oblanceolate to narrowly lanceolate, slightly succulent, mostly entire, sometimes 2- or 3-toothed. Flowers whitish. Fruit round to widely depressed-ovate, longer than bracts. Sept.–Jan. Moist sandstone slopes at high alt., NW, SW, AP, KM, SE (Ceres to Humansdorp).•

thesioides M.T.R.Schubert & B.-E.van Wyk Erect perennial to 50 cm, stems with persistent, scale-like leaf bases. Leaves ± sessile, narrowly linear to acicular. Flowers yellowish, borne well above the vegetative leaves, male umbellule with 3 (not 5–7) flowers and 2 (not 4) bracts. Fruit widely elliptic, shorter or as long as bracts, commissure not constricted. Aug.–Oct. Sandstone slopes at high alt., SW (Riviersonderend Mtns).•

Group 5:
Leaves terete to linear, entire, mostly not distinctly petiolate; fruit longer than wide, often prominently ribbed but commissure not distinctly bulging or constricted

cochlearia (Domin) Adamson (incl. **C. recticarpa** Adamson) Erect, tufted perennial from a slightly woody base, to 20 cm, with persistent leaf bases. Leaves rarely somewhat petiolate, linear. Flowers purplish, with prominent purple, cone-shaped stylopodia. Fruit relatively small, oblong, longer than bracts, distinctly ribbed, not wrinkled. Sept.–Apr. Rock crevices at high alt., NW (Klawer to Cedarberg).•

debilis (Eckl. & Zeyh.) Drude Slender, prostrate, trailing perennial to 15 cm. Leaves (at least the lower) petiolate, linear to narrowly lanceolate, tips acute and often curved. Flowers small, reddish, male umbellules with 1 (not 3–5) flower. Fruit round, longer than bracts, slightly ribbed, not wrinkled. Aug.–Mar. Rocky slopes, LB, SE (Mossel Bay to Uitenhage).•

glauca M.T.R.Schubert & B.-E.van Wyk Robust, densely virgate perennial to 70 cm. Leaves acicular, glaucous, juvenile leaves petiolate, narrowly elliptic, with 1–3 acute teeth. Flowers yellowish. Fruit large, obovate, shorter than bracts, strongly ribbed, not wrinkled. Aug.–Apr. Dry sandstone slopes and flats at medium to high alt., NW (Cedarberg to Grootwinterhoek Mtns).•

linifolia (L.f.) Drude Erect or suberect, woody shrublet to 50 cm. Leaves linear, sparsely hairy or glabrous, glaucous. Flowers yellowish. Fruit obovate, shorter than bracts, indistinctly ribbed, wrinkled. Sept.–Dec. Rocky sandstone slopes, NW, KM, LB (Worcester to Swartberg, Karookop and Mossel Bay).•

macrocarpa (A.Rich.) Adamson Small, erect or suberect perennial with ascending branches from a woody base, 10–35 cm. Leaves acicular, mostly glabrous, green. Flowers yellowish. Fruit relatively large, obovate, shorter than bracts, strongly ribbed, not wrinkled. Apr.–Jan. Flats and lower slopes, NW, SW, KM (Worcester to Cape Peninsula and Swartberg).•

stenophylla Adamson Sprawling, patch-forming perennial to 40 cm. Leaves acicular, thread-like, glabrous or very sparsely hairy. Fruit relatively small, round to obovate, longer than bracts, smooth or slightly wrinkled. Aug–Jan. Rocky slopes at medium to high alt., SW, LB (Bredasdorp and Langeberg).•

stipitata Adamson Sprawling perennial to 30 cm. Leaves linear to linear-lanceolate, sparsely hairy or glabrous. Flowers yellowish. Fruit obovate, slightly ribbed, variable in shape, size and surface sculpturing. Sept.–Dec. Lower to medium slopes, SE (Uniondale).•

virgata (L.f.) Drude Erect or somewhat sprawling, sparse, virgate perennial to 60 cm. Leaves narrowly linear to acicular, densely woolly or glabrous. Flowers yellowish. Fruit borne above vegetative parts, variable in size, mostly relatively small, ovate, longer than bracts, slightly ribbed. Mostly Sept.–Dec. Rocky slopes at medium to high alt., SW, AP, KM, LB, SE (Caledon to E Cape).

sp. 4 Robust, erect to procumbent shrub to 1 m. Leaves terete below, flat in upper half, densely white-woolly when young. Flowers greenish. Fruit sessile, large, obovate, strongly ribbed. Sept.–Nov. Rocky sandstone slopes, NW (Bokkeveld Mtns to Gifberg).•

CHAMAREA Eckl. & Zeyh. CAPE CARAWAY, VINKELWORTEL ± 6 spp., southern Africa

capensis (Thunb.) Eckl. & Zeyh. Perennial to 50 cm; roots 1 or 2, fleshy. Leaves absent at flowering, first-formed and later ones much dissected, ultimate segments acute. Flowers yellow, in compound, flat-topped umbels, peduncle long, flimsy. Fruit 2.5–3 mm long, ovoid, mericarps isodiametric, ribbed, homomorphic, vittae present, rib oil ducts inconspicuous. Jan.–Apr. Sandstone slopes, NW, SW, KM, LB, SE (Kamiesberg, Gifberg to Cape Peninsula and E Cape).

esterhuyseniae B.L.Burtt Like **C. capensis** but the first-formed leaves less finely dissected than the later ones and the fruit larger, 4 mm long, elliptic, mericarps slightly heteromorphic. Feb.–Apr. Ledges and rocky slopes at high alt., NW (Worcester: Waaihoek Peak).•

gracillima (H.Wolff) B.L.Burtt Like **C. capensis** but leaves less finely dissected and especially the first-formed with ultimate segments broad and rounded. Feb.–Apr. Stony slopes, NW, SW, AP (Clanwilliam to Cape Peninsula and Pearly Beach).•

sp. 1 Like **C. gracillima** but first-formed leaves larger and tripartite. Jan.–May. Grassy slopes, SE (Joubertina to E Cape: Grahamstown).

CONIUM L. HEMLOCK 6–7 spp., southern and tropical Africa, Eurasia

chaerophylloides (Thunb.) Sond. Like **C. sphaerocarpum** but flowers yellowish green and mericarps ribbed, square in section. Sept.–Nov. Rocky slopes and disturbed forest margins, AP, KM, SE (Gansbaai through Little Karoo to E Cape and Mpumalanga).

***maculatum** L. Like **C. sphaerocarpum** but stem speckled below and mericarps ribbed. Nov.–Jan. Cultivated lands, SW (European weed, Stellenbosch).

sphaerocarpum Hilliard & B.L.Burtt Robust biennial to 2 m. Leaves finely divided, leaflets soft. Flowers in flat-topped compound umbels, white. Fruit broadly ovoid, mericarps isodiametric, homomorphic, ribs inconspicuous, elliptic to rounded in section, vittae absent, rib oil ducts inconspicuous. Aug.–Dec. Rocky slopes, NW, SW, LB (Namaqualand and S Karoo to Caledon and Riversdale). **gce**

CYNORHIZA Eckl. & Zeyh. (= PEUCEDANUM in part) BIERWORTEL, GATAGAAI, HONDEWORTEL 3 spp., Namaqualand to SW Cape and E Cape

bolusii Magee & B.-E.van Wyk Tufted perennial to 60 cm. Leaves deciduous, finely divided, lobes linear-subterete, petioles terete. Flowers in compound umbels on elongate peduncles, ?yellowish. Fruit large, obovate, mericarps dorsally compressed, marginally winged, dorsally ribbed, apex deeply notched-auriculate, vittae present, rib oil ducts inconspicuous. Oct.–Jan. Sandy plateaus, NW (Warm Bokkeveld).•

meifolia (Eckl. & Zeyh.) Magee (= *Peucedanum millefolium* Sond.) Tufted perennial to 60 cm. Leaves deciduous, finely divided, with primary divisions short, pilose-scabridulous, segments short, brush-like, lobes linear-congested, petioles flattened. Flowers in compound umbels on elongate, few-branched peduncles, ?yellow. Fruit large, obovate, mericarps dorsally compressed, marginally winged, dorsally ribbed, apex deeply notched-auriculate, vittae present, rib oil ducts inconspicuous. Nov.–Jan. Rocky sandstone slopes, NW (Twenty-Four Rivers Mtns).•

typica Eckl. & Zeyh. (= *Peucedanum sulcatum* Eckl. & Zeyh., *P. typicum* (Eckl. & Zeyh.) B.L.Burtt) BIERWORTEL, HONDEWORTEL Tufted perennial to 1 m. Leaves deciduous, scrambling, finely divided, soft, lobes linear-oblong, petioles flattened. Flowers in compound umbels on elongate peduncles, yellowish. Fruit large, obovate, mericarps dorsally compressed, marginally winged, dorsally ribbed, apex truncate or retuse, vittae present, rib oil ducts inconspicuous. Oct.–Jan. Coastal and karroid scrub and thickets, NW, SW, SE (Richtersveld to Koeberg, Port Elizabeth and Great Karoo to Port Alfred).

DASISPERMUM Raf. (= *SONDERINA, STOIBRAX* in part) 7 spp., N Cape to KwaZulu-Natal

A. Short-lived perennials

perennans Magee & B.-E.van Wyk Like **D. suffruticosum** but leaflets narrower, subterete, coriaceous, remaining erect and mericarps slightly ribbed, cartilaginous, homomorphic. Mainly Aug.–Jan. Coastal sands, SW (Cape Peninsula).•

suffruticosum (P.J.Bergius) B.L.Burtt DUINESELDERY Sprawling to prostrate, short-lived perennial to 40 cm with woody base. Leaves bipinnatisect, leathery-fleshy, leaflets turgid, often curling inward. Umbels compound, leaf-opposed, involucral and involucel bracts present, turgid. Flowers white. Fruit ovate to broadly ovate, mericarps isodiametric, ribbed or winged, corky, homo- or heteromorphic, vittae present, rib oil ducts inconspicuous. Mainly Aug.–Nov. Coastal sands, NW, SW, AP, LB, SE (Namaqualand to Cape Peninsula to KwaZulu-Natal).

A.' Annuals

capense (Lam.) Magee & B.-E.van Wyk (= *Stoibrax capense* (Lam.) B.L.Burtt) Like **D. hispidum** but plants usually sprawling and prostrate, fruit transversely oblong (broader than long) and mericarps with marginal ribs strongly concave in lateral view, scabrous to warty. Sept.–Nov. Sandstone and limestone flats, NW, SW, AP (Port Nolloth to De Hoop). **gce**

grandicarpum Magee & B.-E.van Wyk Like **D. hispidum** but plants to 80 cm, stem with purple blotches, involucral and involucel bracts never foliose and fruit > 4 mm long. Oct. Recently burnt limestone flats, SW (Gansbaai).•

hispidum (Thunb.) Magee & B.-E.van Wyk (= *Sonderina caruifolia* (Sond.) H.Wolff, *S. hispida* (Thunb) H.Wolff) Erect or occasionally sprawling annual to 60 cm. Leaves finely dissected, soft to leathery, leaflets linear-oblong. Flowers in compound umbels on leaf-opposed peduncles, white. Fruit elliptic to broadly ovate, < 2.5 mm long, mericarps isodiametric, ribbed, marginal ribs parallel to slightly concave in side view, scabrous to densely pilose, vittae present, rib oil ducts inconspicuous. Sept.–Nov. Sandy or limestone flats, usually coastal, NW, SW, AP, SE (Richtersveld to Port Elizabeth). **gce**

tenue (Sond.) Magee & B.-E. van Wyk (= *Sonderina tenuis* (Sond.) H.Wolff) Like **D. hispidum** but leaves less finely dissected, all umbels ± sessile and involucral and involucel bracts absent. July–Oct. Low shale hills, SW, KM, LB (Worcester to Riversdale).•

DEVERRA DC. 7 spp., southern and tropical Africa, Asia

denudata (Viv.) Pfisterer & Podlech Twiggy shrub to 2 m, leafless at flowering. Leaves bi- or tripinnatisect. Flowers in small compound umbels in diffuse panicles, yellow. Fruit ovoid, mericarps isodiametric, ribbed, densely pilose, vittae present, rib oil ducts inconspicuous. Nov.–Feb. Dry karroid scrub, KM (Namibia and Karoo to Little Karoo, E Cape, and N Africa).

EZOSCIADIUM B.L.Burtt• 1 sp., Little Karoo to Coega River

capense (Eckl. & Zeyh.) B.L.Burtt Shortly hairy annual to 25 cm. Leaves 2- or 3-digitate, leaflets oblong. Umbels compound, axillary, sessile, 2–4 rayed, rays distinctly unequal in length. Flowers yellow, petals with tips not inflexed. Fruit oblong, mericarps isodiametric, ribbed, hairy, carpophore bifid, one half of which persists on the plant, vittae present, rib oil ducts inconspicuous. Sept.–Oct. Shady sites on sandstone, KM, SE (Little Karoo to Coega River).•

GLIA Sond.• DRONKWORTEL, GLI, MOERWORTEL 3 sp., SW Cape

decidua B.-E.van Wyk Perennial suffrutex 1–2 m, branching at base only, summer-deciduous; root tuberous. Leaves mostly radical, 1- or 2-pinnate, sometimes glaucous, minutely scabrous, upper leaves narrower or absent. Flowers in compound umbels on slender peduncles, yellow. Fruit broadly oblong, dorsiventrally compressed, ridged, vittae present, rib oil ducts inconspicuous. Dec.–Jan. Clay slopes in renosterveld or limestone, NW, SW (Piketberg to Malmesbury).•

pilulosa B.-E.van Wyk Perennial suffrutex 1–2 m, branching only at base, summer-deciduous; root tuberous. Leaves mostly radical, 2- or 3-pinnate, minutely pilose, lower with broad lobes,

upper narrower. Flowers in compound umbels on slender peduncles, yellow. Fruit obovoid, somewhat compressed laterally, smooth, vittae present, rib oil ducts inconspicuous. Jan.–Feb. Clay slopes in renosterveld, LB (Swellendam).•

prolifera (Burm.f.) B.L.Burtt Basally woody shrub 1–2 m, branching at base only, evergreen; root tuberous. Leaves mostly radical, ascending, dimorphic, 1–4-pinnate, lower with broad lobes, upper with narrow to subterete lobes. Flowers in compound umbels on stout peduncles, yellow. Fruit narrowly obovoid, not compressed, ridged, vittae present, rib oil ducts inconspicuous. Dec.–Mar. Sandstone or limestone outcrops, NW, SW, AP (Pakhuis Pass to Agulhas).•

HELOSCIADIUM W.D.J.Koch 5 spp., N and S temperate

inundatum (L.) W.D.J.Koch (= *Apium inundatum* (L.) Rchb.f) LESSER MARSHWORT Flaccid, aquatic perennial to 50 cm, submerged or floating with tips extending above. Leaves pinnate, submerged leaflets linear to filiform, aerial leaflets cuneate. Flowers white, in leaf-opposed, few-rayed, compound umbels, with only involucel bracts present. Fruit oblong-elliptic, mericarps isodiametric, ribbed, ribs corky, vittae present, rib oil ducts inconspicuous. Oct.–Nov. In fresh water streams, ponds and ditches, SW (Cape Peninsula, Europe).

HERMAS L.• TONTELBLAAR 9 spp., SW Cape

A. Upper leaf surface ± densely hairy

gigantea L.f. Tufted, evergreen perennial to 1 m. Leaves in basal clusters, long-petiolate, lamina elliptic, 120–250 mm long, both surfaces grey-felted, margins sometimes crenulate, base attenuate to rarely truncate. Flowers crowded in compound umbels on branched peduncles, maroon. Fruit ovate, laterally compressed. Dec.–Mar. Rocky sandstone slopes, NW, SW, LB (Cedarberg to Albertinia).•

intermedia C.Norman Tufted, evergreen perennial to 60 cm. Leaves in basal clusters, long-petiolate, lamina ovate, 65–120 mm long, both surfaces grey-felted, margins crenulate, base truncate to cordate. Flowers crowded in compound umbels on woolly peduncles, maroon. Fruit laterally compressed. Feb.–Apr. High, rocky sandstone slopes, NW, SW (Cedarberg and Piketberg to Drakenstein Mtns).•

pillansii C.Norman Like **H. intermedia** but leaves shaggy-woolly and often rust-coloured and flowers whitish. Jan.–Feb. High sandstone slopes, SW (Cape Peninsula and Jonkershoek).•

quercifolia Eckl. & Zeyh. Tufted, evergreen perennial to 45 cm. Leaves in basal clusters, shortly petiolate, white-felted, more thinly above, lamina obovate-oblanceolate, 30–60 mm long, margins crenate, base cuneate. Flowers crowded in small, compound umbels on branched peduncles, white. Fruit broadly obovate, laterally compressed. Dec.–Feb. Damp, rocky sandstone slopes, SW, LB (Tulbagh: Elandskloof Mtns to Houwhoek).•

A.' Upper leaf surface glabrous to glabrescent; flowers whitish

capitata L.f. Tufted, evergreen perennial to 25 cm. Leaves in basal clusters, long-petiolate, lamina ovate to elliptic, 20–40 mm long, white- or brown-felted beneath, glabrous to glabrescent above, margins sometimes revolute, crenate, base cuneate to cordate. Flowers in small, congested compound umbels on slender peduncles, white. Fruit broadly ovate, laterally compressed. Dec.–Mar. Damp sites on rocky sandstone slopes, SW, KM, LB, SE (Cape Peninsula to Van Staden's Mtns).•

ciliata L.f. Tufted, evergreen perennial to 60 cm. Leaves in basal clusters, lamina elliptic, 30–80 mm long, white-felted beneath, glabrous above, margins finely serrulate-ciliate, base cuneate. Flowers crowded in rounded, compound umbels on branched peduncles, white. Fruit broadly ovate, laterally compressed. Dec.–Mar. Sandstone slopes, NW, SW, AP, LB, SE (Waaihoek and Du Toitskloof to Van Staden's Mtns).•

proterantha B.J.de Villiers Tufted, deciduous perennial to 40 cm. Leaves in basal clusters, long-petiolate, lamina ovate-elliptic, 20–40 mm long, grey-tomentose beneath, glabrous above, margins deeply lobed, base cuneate to cordate. Flowers and fruit as in **H. capitata** but without lateral wings. Dec.–Feb. Rocky sandstone slopes, NW (Piketberg).•

quinquedentata L.f. Tufted, evergreen perennial to 45 cm. Leaves usually in basal clusters, shortly petiolate, lamina elliptic, 10–40 mm long, white-felted beneath, glabrous above, margins revo-

lute, stiffly toothed, base attenuate to truncate. Flowers crowded in small, compound umbels on mostly unbranched peduncles, white. Fruit broadly obovate, laterally compressed. Dec.–Apr. Damp sites on rocky sandstone slopes, SW (Hottentots Holland Mtns to Hermanus).•

villosa (L.) Thunb. White-velvety, single- or few-stemmed, evergreen shrub to 1 m. Leaves crowded along stem, sessile to shortly petiolate, lamina oblong-elliptic, 40–150 mm long, leathery, white-felted beneath, glabrous above, margins revolute, toothed, base cuneate to cordate. Flowers in congested compound umbels, cream-coloured. Fruit suborbicular, laterally compressed. Dec.–May. Rocky sandstone slopes, SW (Cape Peninsula to Hermanus).•

HETEROMORPHA Cham. & Schltdl. PARSLEY TREE, WILDEPIETERSELIEBOS 7 spp., sub-Saharan Africa and S Arabia

arborescens (Spreng) Cham. & Schltdl. Shrub or small tree, 2–9 m, bark smooth, reddish, peeling in waxy flakes. Leaves palmately or pinnately 1–3(–9)-foliolate, leaflets elliptic-lanceolate, crenulate. Flowers in compound umbels, greenish white. Fruit elliptic, mericarps isodiametric, heteromorphic, one with 2 marginal and 1 median wing, other with only 2 lateral wings, sometimes pilose, vittae present, rib oil ducts inconspicuous. Dec.–Jan. Forest margins and rocky woodlands, NW, SW, KM, LB, SE (Tulbagh and Bredasdorp to S Arabia).

ITASINA Raf.• GRASS-PARSLEY 1 sp., SW Cape

filifolia (Thunb.) Raf. Tufted perennial to 45 cm. Leaves usually dead at flowering, radical, linear to filiform, sometimes subspathulate. Flowers in compound umbels on branched peduncles, white. Fruit narrowly elliptic, ribbed, sepals sometimes slender and spinescent, vittae present, rib oil ducts inconspicuous. Mainly Nov.–Apr. Sandstone and limestone flats, NW, SW, AP, SE (Bokkeveld Mtns to Plettenberg Bay).•

LICHTENSTEINIA Cham. & Schltdl. KALMOES 7 spp., southern Africa.

A. Fruit subglobose to broadly ovoid; plants less robust, usually to 60 cm high

globosa B.-E.van Wyk & P.M.Tilney Tufted perennial to 70 cm. Leaves radical, palmatisect, leaflets pinnatisect and lacerate, ultimate lobes irregularly toothed. Flowers in compound umbels on long, branched peduncles, white. Fruit subglobose, 2-lobed, pustulate, with prominent stylopodium, vittae absent, rib oil ducts prominent. Nov.–Mar. Rocky sandstone slopes, NW (Cedarberg).•

interrupta (Thunb.) E.Mey. ex Sond. Tufted perennial to 60 cm, sometimes to 1.2 m. Leaves radical, lacerate-pinnatisect or bipinnatisect, leaflets unevenly serrate, usually dry at flowering. Flowers in compound umbels on slender, branched peduncles, white. Fruit broadly ovoid, with prominent stylopodium, vittae absent, rib oil ducts prominent. Nov.–Feb. Grasslands and bush, KM, SE (Swartberg and George to KwaZulu-Natal).

obscura (Spreng.) Koso-Pol. Like **L. interrupta** but with 3–5 umbellules per umbel and flowers mostly yellow. Nov.–Jan. Flats and lower slopes, NW, SW, AP, LB (Cedarberg and Saldanha to Swellendam).•

A.' Fruit narrowly oblong; plants robust to 1.4 m high

crassijuga E.Mey. ex Sond. Like **L. lacera** but leaves extensively multisect and margins serrate but not aristate. Dec.–Jan. Sandstone slopes, NW (Cedarberg to Piekenierskloof).•

lacera Cham. & Schltdl. Tufted perennial to 1.4 m. Leaves radical, large, sometimes withered at flowering, ovate or obovate, sometimes lacerate to 3-sect, margins roughly serrate and aristate. Flowers in compound umbels on long, branched, hollow peduncles, yellow. Fruit narrowly oblong, with prominent stylopodium, vittae absent, rib oil ducts prominent. Dec.–Mar. Flats and lower slopes, SW (Cape Peninsula to Kleinmond).•

latifolia Eckl. & Zeyh. Like **L. lacera** but leaves prostrate, rotund to ovate, rarely shallowly lobed to trifid with obovate lobes, margins dentate but not aristate and flowers yellow. Mainly Nov.–Feb. Lower stony slopes, NW, SW, LB, SE (Robertson and Caledon to Uitenhage).•

trifida Cham. & Schltdl. Like **L. lacera** but leaves simple or usually 3–5-sect, leaflets narrowly oblanceolate, sometimes pinnatisect, margins evenly dentate and fruit ovoid. Dec.–Jan. Sandstone slopes, NW, SW, KM, SE (Piketberg to Langkloof).•

NANOBUBON Magee• (= *PEUCEDANUM* in part) 3 spp., W Cape and E Cape

capillaceum (Thunb.) Magee (= *Peucedanum capillaceum* Thunb.) Like **N. strictum** but leaves usually reclining, petiole twice as long as blade, rachis refracted, pinnae ascending at obtuse angles to one another, leaflets refracted, flowers cream and fruit with dorsal ribs very prominent. Nov.–Jan. Lower sandstone and limestone slopes, SW, AP, LB, SE (Hottentots Holland Mnts to Uitenhage).•

strictum (Spreng.) Magee (= *Peucedanum strictum* (Spreng.) B.L.Burtt) Tufted perennial to 60 cm, from thick woody subterranean stems. Leaves in a basal tuft, permanent, leathery, usually erect, 3- to 5-pinnate, petiole equal to or shorter than the length of the blade, rachis straight, pinnae ascending at acute angles to one another, leaflets linear, subterete, straight. Flowers yellow, in compound umbels on elongate peduncles. Fruit broadly elliptic to broadly obovate, mericarps dorsally compressed, dorsal ribs not prominent, marginal wings broad, vittae present, rib oil ducts inconspicuous. Nov.–Jan. Rocky sandstone slopes, NW, SW (Cedarberg to Hottentots Holland Mnts).•

sp. 1 Like **N. strictum** but stem and root slender and pencil-like, leaves with petiole twice as long as the blade and flowers cream. Dec.–Mar. Coastal sandstone slopes, LB, SE (Mossel Bay to Knysna).•

NOTOBUBON Magee (= *PEUCEDANUM* in part) 12 spp., southern Africa

A. Fruit without additional vittae under ribs; well-branched shrublets up to 0.4 m high (excluding inflorescence) or if > 0.5 m high then with entire leaflets

laevigatum (Aiton) Magee (= *Peucedanum camdebooense* B.L.Burtt, *P. capense* (Thunb.) Sond.) LIDBOSSIE Slender shrub with stiffly erect branches, to 1.5 m. Leaves pinnate or bipinnate, > 20 mm long, leaflets elliptic-lanceolate to ovate, entire or some 2- or 3-lobed. Flowers yellow, in compound, flat-topped umbels, peduncle usually long, sepals minute. Fruit elliptic, mericarps dorsally compressed, dorsally ribbed, marginally broadly winged, homomorphic, vittae present, without additional rib vittae, rib oil ducts inconspicuous. Mostly Sept.–Feb. Rocky or sandy slopes, KM, SE (Great Karoo, Swartberg and Outeniqua Mtns to Mpumalanga).

montanum (Eckl. & Zeyh.) Magee (= *Peucedanum dregeanum* D.Dietr.) Like **N. striatum** but leaflets with prominently revolute margins and without scabrous hairs on pedicel and rays. Dec.–Mar. Rocky slopes, SE (Great Winterhoek Mtns).•

striatum (Thunb.) Magee (= *Peucedanum striatum* (Thunb.) Sond.) Well-branched shrublet, to 40 cm. Leaves bipinnate, < 20 mm long, leaflets 2- or 3-lobed, with recurved apices. Flowers yellow, in small, compound, flat-topped umbels, peduncle long, sepals relatively large. Fruit elliptic, mericarps dorsally compressed, dorsally ribbed, marginally winged, homomorphic, vittae present, without additional rib vittae, rib oil ducts inconspicuous. Oct.–Feb. Clay slopes in renosterveld, SW, LB (Bredasdorp to Albertinia).•

A.' Fruit with additional vittae under ribs; relatively large shrubs > 0.5 m high with leaflets variously divided or reduced to spines
B. Peduncle long (> twice diam. of primary umbel)

ferulaceum (Thunb.) Magee (= *Peucedanum ferulaceum* (Thunb.) Eckl. & Zeyh.) Lax, erect shrub to 1 m, branches remaining simple-stemmed. Leaves finely dissected, concolorous, leaflets weakly pinnatisect or 2- or 3-sect, terminal lobe subequal to adjacent lateral lobes, flat or subterete, venation visible. Flowers yellow, in flat-topped, compound umbels, < 30 rays. Fruit broadly elliptic to rotund, mericarps dorsally compressed, dorsally ribbed, marginally broadly winged, homomorphic, vittae present, with additional rib vittae, rib oil ducts inconspicuous. Oct.–Feb. Rocky slopes, NW, SW, AP, LB, SE (Cold Bokkeveld to Van Staden's Mtns).•

galbaniopse (H.Wolff) Magee (= *Peucedanum galbaniopse* H.Wolff) Like **N. galbanum** but leaflets irregularly-toothed, margins often prominently revolute, peduncle long and well branched, umbels usually with < 30 rays and fruit mericarps heteromorphic. Oct.–Feb. Bushy slopes, SW (Cape Peninsula to Du Toitskloof Mtns).•

pungens (E.Mey ex Sond.) Magee (= *Peucedanum pungens* E.Mey ex Sond.) Robust, stiffly leafy shrub to 2 m. Leaves bipinnate, leaflets reduced to spine-tipped pinnules, terete. Flowers yellow, in slightly orbicular, compound umbels, < 26 rays. Fruit broadly elliptic, mericarps dorsally compressed, dorsally slightly ribbed, marginally narrowly winged, homomorphic, vittae present, with additional rib vittae, rib oil ducts inconspicuous. Oct.–Feb. Lower southern slopes, SW (Botrivier to Caledon).•

sonderi (M.Hiroe) Magee (= *Peucedanum sonderi* (M.Hiroe) B.L.Burtt) Like **N. tenuifolium** but shrubs only up to 1 m high, branches becoming decumbent, leaves discolorous, silvery and glaucous below, leaflets often more finely dissected, peduncle long and usually branched, umbels with < 20 rays. Fruit elliptic, > 5 mm long. Jan.–Mar. Scree slopes at high elevations, NW, SW, KM, LB, SE (Cedarberg to Great Winterhoek Mtns).•

B.' Peduncle short (< twice diam. of primary umbel)

capense (Eckl. & Zeyh.) Magee (= *Peucedanum kamiesbergense* B.L.Burtt, *P. polyactinum* B.L.Burtt) Robust, few-branched, glaucous shrub to 3 m. Leaves 3-pinnate, concolorous, leaflets weakly pinnatisect or usually 3-sect, terminal lobes longer, subequal or shorter than adjacent lateral lobes, subterete, venation not visible. Flowers yellow, in large, orbicular, compound umbels, > 40. Fruit mostly rotund, mericarps dorsally compressed and slightly ribbed, marginally narrowly winged, homomorphic, vittae present, with additional rib vittae, rib oil ducts inconspicuous. Oct.–Feb. Rocky sandstone or granite slopes, NW, SW (Kamiesberg to Betty's Bay). **gce**

galbanum (L.) Magee (= *Peucedanum galbanum* (L.) Drude) BLISTER BUSH Slender to robust, few-branched shrub to 2.5 m. Leaves bipinnate, discolorous, glaucous below, leaflets rhomboid to obovate, toothed, sometimes 3-lobed. Flowers yellow, in large, orbicular, compound umbels, > 30 rays. Fruit elliptic to rotund, mericarps dorsally compressed, dorsally slightly ribbed, marginally narrowly winged, homomorphic, vittae present, with additional rib vittae, rib oil ducts inconspicuous. Oct.–Feb. Rocky sandstone slopes in forests and bush, NW, SW, LB (Elands Bay to Langeberg: Riversdale).•

gummiferum (L.) Magee (= *Peucedanum gummiferum* (L.) Wijnands, *P. hypoleucum* (Meisn.) Drude) Like **N. tenuifolium** but larger shrub or small tree up to 5 m, leaves discolorous, silvery and glaucous below, leaflet lobes broader and more congested. Fruit elliptic, > 5.5 mm long, Oct.–Feb. Stream beds along forest margins, SW, LB, SE (Swellendam to Humansdorp).•

tenuifolium (Thunb.) Magee (= *Peucedanum tenuifolium* Thunb.) SELDERYBOS Slender shrub to 3 m. Leaves 3-pinnate, concolorous, usually bright green, occasionally glaucous, leaflets decreasingly pinnatisect, terminal lobe 2 or 3 times longer than adjacent lateral lobes, venation visible. Flowers yellow, in large, orbicular, compound umbels, > 30 rays. Fruit mostly rotund, < 4.5 mm long, mericarps dorsally compressed and slightly ribbed, marginally narrowly winged, homomorphic, vittae present, with additional rib vittae, rib oil ducts inconspicuous. Oct.–Feb. Sandstone slopes, NW, SW, KM, LB, SE (Pakhuis Pass to Van Staden's Mtns).•

PEUCEDANUM see **CYNORHIZA, NANOBUBON** and **NOTOBUBON**

PIMPINELLA L. ± 200 spp., cosmopolitan

caffra (Eckl. & Zeyh.) D.Dietr. (incl. **P. stadensis** (Eckl. & Zeyh.) D.Dietr.) Slender, erect perennial to 45 cm, finely hairy above. Lower leaves palmately divided, upper leaves pinnatisect or bipinnatisect, leaflets linear to lanceolate. Flowers in compound umbels on branched peduncles, white. Fruit broadly ovate, usually hairy, mericarps isodiametric, homomorphic, ribbed, vittae present, 3 or 4 between each rib, rib oil ducts inconspicuous. Jan.–Mar. Grassy, fynbos slopes, SE (Humansdorp to tropical Africa).

POLEMANNIOPSIS B.L.Burtt 2 spp., W Cape to S Namibia

marlothii (H.Wolff) B.L.Burtt Much-branched, woody shrub to 4 m, leafless at flowering, with flexuose branches. Leaves mostly 5-digitate, leaflets obovate, toothed. Flowers in compound umbels, yellow. Fruit oblong to obovate, body of mericarps isodiametric, heteromorphic, one with 2 marginal and 1 median wing other with only 2 lateral wings, vittae absent, oil ducts hollow cavity in wings. Dec.–Jan. Sandstone slopes, NW (Richtersveld, Pakhuis Mtns). **gce**

SANICULA L. SANICLE ± 50 spp., cosmopolitan, 1 sp. in southern Africa

elata Buch.-Ham. ex D.Don Tufted perennial to 80 cm. Leaves 3–5-digitate, leaflets lobed and toothed. Flowers few, sessile in simple umbels, pinkish. Fruit burr-like with hooked bristles, mericarps isodiametric, homomorphic, vittae absent, rib oil ducts present. Oct.–Jan. Shady streamsides, SW, LB, SE (Cape Peninsula to tropical Africa and Eurasia).

SONDERINA H.Wolff = **DASISPERMUM**

STOIBRAX see **DASISPERMUM**

TORILIS Adans. HEDGE PARSLEY ± 15 spp., Mediterranean to Asia, also Africa

arvensis (Huds.) Link Sprawling, soft annual to 40 cm. Leaves finely divided, leaflets pilose, toothed. Flowers few in simple, leaf-opposed umbels, white to pinkish, petals unequal. Fruit burr-like with barbed prickles, mericarps isodiametric, homomorphic, vittae absent, rib oil ducts prominent. Aug.–Nov. Flats and rocky slopes, NW, SW, AP, KM, SE (W Karoo and Bokkeveld Mtns to E Cape, tropical Africa to Europe).

APOCYNACEAE (= *ASCLEPIADACEAE*)

by P.V. Bruyns

1. Pollen grains not agglomerated in waxy masses, remaining loose in anthers or falling from ripe anthers onto translator alongside them:
2. Well-developed translators present in grooves on style head between anthers, consisting of sticky end on outside (adhering to pollinator) and spoon- to cornet-shaped receptacle into which pollen grains fall from anthers, with short neck joining the two parts; geophytes with fleshy tubers and milky sap (subfamily PERIPLOCOIDEAE) **Raphionacme**
2.' Style head without well-developed translators between anthers, pollen removed directly from sides of anthers:
3. Anthers free from style head and without hardened margins; floral parts overlapping towards left in bud; seeds without hairs (subfamily PLUMERIOIDEAE):
4. Fruit a pair of dry follicles; seeds flattened and broadly winged at each end; shrub to tree with thinly leathery leaves ..... **Gonioma**
4.' Fruit an indehiscent berry; seeds rounded and not winged; shrubs or small trees with firm, thickly leathery leaves:
5. Unarmed shrubs or small trees; inflorescence axillary ..... **Acokanthera**
5.' Shrubs with stout, paired, branched spines, sometimes scandent; inflorescence terminal or pseudoaxillary ..... **Carissa**
3.' Anthers fixed to style head and with hardened margins at least towards base; floral parts overlapping towards right in bud; seeds with hairs at one end (subfamily APOCYNOIDEAE):
6. Plant not spiny and stems not fleshy, flowers with a corolline corona at mouth of tube and just below bases of lobes ..... **Nerium**
6.' Plant spiny, with fleshy stems and swollen underground tuber, flowers without a corolline corona at mouth of tube ..... **Pachypodium**
1.' Pollen-grains gathered into and enclosed in waxy masses (pollinia) and transported in groups as pollinaria:
7. Pollinarium with 4 minute pollinia attached to corpuscle (subfamily SECAMONIOIDEAE) ..... **Secamone**
7.' Pollinarium with 2 pollinia attached to each corpuscle (subfamily APOCYNOIDEAE):
8. Pollinia pendulous in anthers:
9. Sap clear:
10. Corona absent:
11. Petals concave or involute, often inflexed and closing perianth tube; anther appendages covering long conical style apex ..... **Microloma**
11.' Petals convex or revolute, spreading; anther appendages much shorter than long conical style apex ..... **Astephanus**
10.' Corona present:
12. Plant a slender climber; corona consisting of 10 lobules; corpuscle as large as pollinium ..... **Oncinema**
12.' Plant small, prostrate to shrub-like; corona consisting of 25 lobules; corpuscle much smaller than pollinium ..... **Eustegia**
9.' Sap milky:
13. Lobes of inner and outer coronas subequal in length, fused or separate but together forming ± continuous cup around anthers ..... **Cynanchum**
13.' Lobes of outer corona much smaller than inner or absent and not forming ± continuous cup around anthers, inner dominating gynostegium:

14. Leafless succulent with cylindrical, grey-green stems; outer corona enclosing gaps between bases of much larger tapering inner lobes; apex of style head conical ..... **Sarcostemma**

14.' Leafy herbs or shrubs, stems not succulent; outer corona minute and present as a small tooth between larger inner lobes and beneath guide rails or absent; apex of style head concave:

15. Corona lobes entire, without a fissure, cavity or keel on upper surface ..... **Xysmalobium**

15.' Corona lobes with a fissure, cavity or keel on upper surface:

16. Corona lobes folded around a deep vertical cavity, sometimes with a horn inside cavity:

17. Robust shrubs (0.5–2 m high) arising from small, above-ground trunk ... **Gomphocarpus**

17.' Subshrubs with 1–several stems arising from an underground rootstock and dying back in the dry season ..... **Asclepias**

16.' Corona lobes not concave above:

18. Corona lobes deeply 3-lobed with margins ascending staminal column as narrow wings ..... **Woodia**

18.' Corona lobes not as above:

19. Corona lobes mostly keeled on upper surface towards base; pollinaria > 3 mm long ..... **Pachycarpus**

19.' Corona lobes not keeled on upper surface towards base; pollinaria < 1 mm long:

20. Inflorescences pedunculate; pollinia medially attached to caudicle with insertion crest on outer side ..... **Schizoglossum**

20.' Inflorescences sessile; pollinia subapically attached, usually without insertion crest (if present then located at point of attachment of pollinium to caudicle) ..... **Aspidoglossum**

8.' Pollinia horizontal to ascending in anthers:

21. Sap milky; pollinia joined directly to corpuscle ..... **Fockea**

21.' Sap clear; pollinium joined to a slender caudicle linking it to corpuscle:

22. Sterile anther appendages with fine horizontal slits at base; inflorescence with several leaf-like bracts; pollinium minute, joined by slender caudicle to corpuscle, without insertion crest ..... **Tylophora**

22.' Sterile anther appendages (if present) without fine horizontal slits at base; inflorescence without leaf-like bracts; pollinium joined by caudicle to underside of wing of corpuscle, with insertion crest along inner margin:

23. Stems herbaceous or succulent but then not tuberculate, or if so then flowers funnel-shaped and inflated below; flowers not fleshy:

24. Corona of 1 series of 5 lobes opposite anthers, with various processes; fruit consisting of single horn ..... **Anisotoma**

24.' Corona of 2 series of 5 lobes each; fruit consisting of 2 horns:

25. Leafy climber or scrambler with large cordate leaves, arising from a cluster of brown slightly thickened roots; flowers in dense to lax many-flowered umbels ..... **Riocreuxia**

25.' Plants not as above:

26. Corolla tube > three times as long as broad in middle ..... **Ceropegia**

26.' Corolla tube < twice as long as broad in middle ..... **Brachystelma**

23.' Stems very succulent, with fleshy tubercles arranged into angles along stems; leaves absent or reduced to minute rudiments at tips of tubercles; flowers fleshy:

27. Stems with 6 or more angles:

28. Stems with 6–8 angles, tubercles tipped by a small tooth ..... **Pectinaria**

28.' Stems with 10 or more angles, tubercles tipped by a sharp spine ..... **Hoodia**

27.' Stems with 4 or 5 angles:

29. Stems, pedicels and sepals pubescent ..... **Stapelia**

29.' Stems, pedicels and sepals glabrous:

30. Young tubercles rounded, not tipped by an acute tooth or small leaf-rudiment:

31. Inner surface of corolla rough with columnar papillae (each tipped with a seta) or covered with fine crinkled hairs ..... **Quaqua**

31.' Inner surface of corolla with tiny unicellular papillae, otherwise smooth and without hairs ..... **Tromotriche**

30.' Young tubercles tapering into a tooth or small, acute, leaf-rudiment:

32. Inflorescence(s) in upper half of stem towards apex, usually many per stem:

33. Outer corona forming distinct lobe beneath or enclosing guide-rail; tubercles each tipped with sharp, hardened tooth; flowers arising in many, vertically arranged, small clusters along grooves between stem angles ... **Quaqua**

33.' Outer corona not forming lobe beneath guide-rail and not enclosing it; tubercles without sharp and hardened tooth; flowers arising in few inflorescences at apices of stems and not vertically arranged ..... **Piaranthus**

32.' Inflorescence arising in lower half of stem towards base, solitary on flower-bearing stems:
34. Corolla urceolate to cylindrical; inner corona lobes laterally flattened, touching backs of anthers only at base, rising above anthers to form a cage over them ..... **Stapeliopsis**
34.' Corolla not urceolate or cylindrical; inner corona lobes dorsiventrally flattened, touching backs of anthers for most of their length and not forming a cage over them:
35. Inner and outer coronal series clearly separated from one another on gynostegium; pollinium elliptic-rectangular:
36. Corolla with fine longitudinal ridges on exterior, lobes flat or concave above; wings on corpuscle much shorter than breadth of pollinium .. **Huernia**
36.' Corolla without fine longitudinal ridges on exterior, lobes convex above, usually tightly folded downwards into rather narrow, long plates; wings on corpuscle much longer than breadth of pollinium ..... **Duvalia**
35.' Inner and outer coronal series not clearly separated from one another on gynostegium and laterally at least partly fused to one another; pollinium D-shaped:
37. Young tubercles each bearing small, acute, differentiated leaf-rudiment, without stipular denticles ..... **Tridentea**
37.' Young tubercles without a differentiated leaf-rudiment, usually with stipular denticles ..... **Orbea**

ACOKANTHERA G.Don. GIFBOOM, INTLUNGUNYEMBE 15 spp., Africa

oppositifolia (Lam.) Codd Shrub or tree to 4 m; sap milky. Leaves leathery, ovate, glossy, margins revolute. Flowers in axillary clusters, white tinged pink, fragrant. Apr.–Dec. Bush and scrub, SE (Mossel Bay to tropical Africa).

ANISOTOMA Fenzl. 2 spp., E Cape to KwaZulu-Natal

cordifolia Fenzl Trailing perennial with rigid, swollen, brown roots; sap clear. Leaves opposite, cordate, hairy. Flowers in umbellate cymes, brown becoming yellow to white in tube. Nov.–Feb. Rocky grasslands, SE (Uitenhage to E Cape).

ASCLEPIAS L. MILKWEED ?150 spp., Africa, America

crispa P.J.Bergius BITTERWORTEL Sprawling perennial to 30 cm; sap milky. Leaves opposite, narrow, hispid, with wavy margin. Flowers greenish or purple, corona lobes hollowed, greenish. Nov.–May. Flats and slopes, NW, SW, LB, SE (Bokkeveld Mtns to E Cape).

expansa (E.Mey.) Schltr. Erect, single-stemmed perennial to 70 cm; sap milky. Leaves opposite, linear, glabrous or sparsely hairy on margins. Flowers green with purple reverse, corona lobes hollowed, white. Oct.–Jan. Grasslands, SE (Knysna to E Cape).

viridiflora Raf. (= *Asclepias dregeana* Schltr.) Erect perennial to 30 cm; sap milky. Leaves opposite, lanceolate to broadly oblong, glabrous or hairy on margins. Flowers greenish. Nov.–Jan. Grasslands, LB, SE (Riversdale to Mpumalanga).

ASPIDOGLOSSUM E.Mey. 34 spp., southern and tropical Africa

gracile (E.Mey.) Kupicha (= *Schizoglossum bolusii* Schltr., *S. burchellii* N.E.Br., *S. dregei* N.E.Br., *S. monticola* Schltr.) Slender, single-stemmed perennial to 1 m; sap milky. Leaves opposite, linear. Flowers 4–6 mm diam., brownish green with corona usually shorter than style apex. Nov.–Dec. Grasslands or fynbos on stony slopes, SW, LB, SE (Cape Peninsula to KwaZulu-Natal).

heterophyllum E.Mey. Single-stemmed or branched perennial to 20 cm; sap milky. Leaves linear to elliptic, whorled, at least above. Flowers > 10 mm diam., green with white corona usually much longer than style apex. Sept.–Mar. Stony slopes, SW, LB, SE (Cape Peninsula to E Cape).

ASTEPHANUS R.Br. 2 spp., Namaqualand to E Cape

triflorus (L.f.) Schult. (= *Astephanus marginatus* Decne.) Like **A. zeyheri** but often more densely pubescent and corolla tube up to as long as broad. Apr.–Aug. Coastal or inland bush, NW, SW, AP, LB (Namaqualand to Plettenberg Bay). **gce**

zeyheri Turcz. Slender, thinly hairy climber to 1 m; sap clear. Leaves opposite, narrowly to broadly elliptic. Flowers white, tube twice as long as broad, hairy at base within, without corona. Apr.–Dec. Coastal bush, SE (Knysna to East London).

BRACHYSTELMA R.Br. ± 100 spp., tropical to southern Africa, India to Australia

A. Rootstock a cluster of swollen, fusiform roots

schizoglossoides (Schltr.) N.E.Br. Dwarf geophyte to 10 cm with cluster of swollen, fusiform roots; sap clear. Leaves opposite, narrowly lanceolate, glabrous. Flowers 3–4 mm diam., campanulate with very short tube, green, corona pubescent. Nov.–Feb. Grassy flats and gentle slopes, SE (Jeffreys Bay to Grahamstown).

A.' Rootstock a depressed-globose tuber

burchellii (Decne.) Peckover (= *Macropetalum burchellii* Decne.) Very slender, single-stemmed geophyte to 50 cm; sap clear. Leaves opposite, filiform, glabrous. Flowers greenish, without tube, with reflexed, filiform petals 18–25 mm long. Oct.–Feb. Stony slopes, SE (Cockscomb to Zimbabwe).

caudatum (Thunb.) N.E.Br. Like **B. decipiens** but flowers 35–45 mm diam., cream-coloured to green with purple spots and bars. Sept.–Oct. Seasonally moist, sandy flats, SW (Ceres to Paardeberg, Caledon).•

circinatum E.Mey. Dwarf geophyte to 10 cm; sap clear. Leaves opposite, lanceolate, pubescent. Flowers 5–10 mm long, campanulate without tube, with slender lobes remaining joined at tips, white to pink, corona white to maroon. Oct.–Feb. Stony slopes in grasslands or among bushes, SE (Namibia to Baviaanskloof Mtns and Mozambique).

cummingii Dold Like **B. circinatum** but flowers 4–10 mm long, with lobes slightly reflexed around bases and swollen adpressed hairs on inner surface. Oct.–Jan. Stony hills to grassy flats, SE (Joubertina to Kirkwood).

decipiens N.E.Br. Dwarf geophyte to 10 cm; sap clear. Leaves opposite, lanceolate, pubescent. Flowers 12–20 mm diam., campanulate with cupular tube, yellow with purple spots and bars within, corona dark purple-brown. Oct.–Dec. Flats to gentle slopes in grasslands, LB, SE (Mossel Bay to Grahamstown).

elongatum (Schltr.) N.E.Br. Like **B. circinatum** but flowers 15–25 mm long and with tube 3–5 mm long. Oct.–Jan. Grassy flats, SE (Jeffrey's Bay to Queenstown).

occidentale Schltr. Dwarf geophyte to 10 cm; sap clear. Leaves opposite, linear, often with crisped margins, glabrescent. Flowers ± 5 mm diam., rotate without tube, white with tips of lobes green or spotted with maroon, corona green and white. Sept.–Oct. Gravelly flats, SW (Cape Peninsula to Bredasdorp).•

rubellum (E.Mey.) Peckover (= *Tenaris rubella* E.Mey.) Very slender geophyte to 50 cm; sap clear. Leaves opposite, filiform, glabrous. Flowers usually in slender fascicles, 10–15 mm diam., campanulate with very short tube, white to pink, lobes linear-spathulate. Nov.–Feb. Gravelly flats and rocky slopes, SE (Uitenhage to Mpumalanga).

thunbergii N.E.Br. Dwarf geophyte to 10 cm; sap clear. Leaves opposite, lanceolate, pubescent. Flowers 6–15 mm diam., campanulate with cupular tube, white with green lobes, corona brilliant yellow. Sept.–Oct. Flats and lower slopes, LB (Swellendam to Riversdale and KwaZulu-Natal).

[**Species excluded** No authentic material found and probably conspecific with one of the above: **B. tabularium** R.A.Dyer]

CARALLUMA see **QUAQUA**

CARISSA L. NUM-NUM ± 7 spp., palaeotropics and subtropics

bispinosa (L.) Desf. ex Brenan (= *Carissa haematocarpa* (Eckl.) A.DC.) NUM-NUM, ISIBETHANKUNZI Twiggy, shrub to 5 m armed with simple or forked thorns; sap milky. Leaves leathery, elliptic, glossy. Flowers in terminal, subumbellate cymes, white, fragrant, corolla lobes 3.5–5 mm.

Fruits red, 8–16 mm long. Sept.–Dec. Coastal and karroid scrub, NW, AP, KM, LB, SE (S Namibia to Worcester and Port Elizabeth to tropical Africa).

macrocarpa (Eckl.) A.DC. NMTHUNGULU Like **C. bispinosa** but flowers larger, corolla lobes 15–35 mm and fruits 30–50 mm long. Nov.–Feb. Coastal bush, SE (Humansdorp to Mozambique).

CEROPEGIA L. ± 160 spp., Canary Is., Africa, Madagascar, Asia, Australasia

A. Leaves lacking or vestigial and caducous
B. Roots fibrous

stapeliiformis Haw. SLANGKAMBROE Trailing to climbing succulent with fleshy stems 5–15 mm thick; sap clear. Leaves minute, caducous. Flowers 50–70 mm long, tube funnel-shaped above, whitish streaked and spotted with maroon, petals spreading, narrowing towards apex. Oct.–Mar. Karroid scrub, SE (Willowmore to Limpopo).

B.' Roots swollen and fusiform

ampliata E.Mey. BUSHMAN'S PIPE, BOESMANSPYP Succulent climber to 1 m with finely striate, grey-green stems 2–4 mm diam.; sap clear. Leaves 3–7 mm, caducous. Flowers 50–70 mm long, tube cylindrical above and at least 10 mm diam. throughout, cream-coloured to greenish with fine green veins outside, petals narrowing to tips, without cilia. Nov.–Apr. Karroid scrub, SE (Willowmore to Kenya, Madagascar).

fimbriata E.Mey. (= *Ceropegia connivens* R.A.Dyer, *C. geniculata* R.A.Dyer) Succulent climber to 1 m with smooth stems; sap clear. Leaves to 5 mm, caducous. Flowers 30–60 mm long, tube flaring above, whitish heavily veined with green and purple, petals with broad expanded apices fused together into an umbrella-like canopy, ciliate. Oct.–Mar. Karroid scrub on flats and slopes, NW, KM, SE (Worcester to E Cape).

zeyheri Schltr. Like **C. fimbriata** but petals fused towards tips into slender cage, with small cilia along margins. Oct.–Mar. Karroid scrub, KM, SE (Barrydale to E Cape).

A.' Leaves well developed
C. Roots 1–several, depressed-globose tubers

africana R.Br. Small, succulent climber to 40 cm; sap clear. Leaves opposite, ovate-oblong to linear. Flowers 15–30 mm long, grey to green with purplish veins, petals fused at tips into cage narrowing towards apex, outer corona lobes erect and fused into a deep cupular structure around anthers, inner lobes laterally flattened above. Oct.–Mar. Karroid scrub, NW, SW, AP, KM, LB, SE (Cape Peninsula and Worcester to KwaZulu-Natal).

linearis E.Mey. (= *Ceropegia woodii* Schltr.) Like **C. africana** but cage formed by petals nearly uniformly broad from mouth of tube to truncate apex and with blackish margins. Oct.–Mar. Rocky outcrops, often in dry forests, LB, SE (Heidelberg to KwaZulu-Natal).

occulta R.A.Dyer Like **C. linearis** but corolla lobes broadly spathulate and forming small canopy, flowers densely greyish flecked with white and purple on petals. Oct.–Mar. Dry rocky slopes, SW, KM, LB (Caledon to Little Karoo).•

C.' Roots swollen and fusiform, not tuberous

barbata R.A.Dyer Slender geophyte or climber to 50 cm; sap clear. Leaves opposite, linear. Flowers 25–45 mm, tube funnel-shaped above, petals slender with clavate, ciliate apices. Dec.–Jan. Stony slopes, KM, SE (Calitzdorp to Great Winterhoek Mtns).•

bowkeri Harv. Erect geophyte, 8–30 cm; sap clear. Leaves opposite, linear, channelled above. Flowers 18–30 mm, tube slightly flared above, petals 15–22 mm long, pendulous. Dec.–Jan. Stony slopes, SE (Montagu Pass to E Cape).

carnosa E.Mey. (incl. **C. racemosa** N.E.Br.) Slender climber to 1.5 m; sap clear. Leaves opposite, slightly fleshy, elliptic. Flowers 15–25 mm, tube abruptly swollen in middle and flaring above, speckled with red-brown on cream-coloured outside, petals narrowing to apex, ciliate. Dec.–May. Dry riverine scrub, SE (Langkloof to Ethiopia).

crassifolia Schltr. Succulent climber to 1.5 m; sap clear. Leaves opposite, slightly fleshy, ovate-elliptic. Flowers 25–50 mm long, tube flaring above, pale green with purple bars and spots, petals keeled and ciliate. Oct.–Mar. Stony slopes, SE (Humansdorp to Kenya).

CYNANCHUM L. BOKHORING ± 100 spp., cosmopolitan

A. Gynostegium stalked

africanum (L.) Hoffmanns. Climber to 60 cm, with horizontal runners, sometimes hairy; sap milky. Leaves opposite, ovate, slightly fleshy. Flowers in extra-axillary clusters, brown sometimes green with twisted petals, corona white, twice as deep as wide, gynostegium clearly stalked, as long as corona. June–Dec. Sandy soils, mainly coastal, NW, SW, AP, LB, SE (Namaqualand to Cape Peninsula to E Cape).

natalitium Schltr. Climber to 2 m, with woody base; sap milky. Leaves opposite, elliptic-oblong, fleshy. Flowers in extra-axillary clusters, brown to green, corona white, cup-shaped, 5-crenate, gynostegium shortly stalked. Jan.–Dec. Coastal bush, SE (Knysna to KwaZulu-Natal).

A.' Gynostegium sessile

ellipticum (Harv.) R.A.Dyer (= *Cynanchum capense* Thunb., non L.f.) Climber to 3 m; sap milky. Leaves opposite, elliptic to ovate. Flowers in extra-axillary clusters, brown or green, corona white, cup-shaped, irregularly crenate, gynostegium sessile. Jan.–Dec. Coastal bush, SE (George to Mozambique).

gerrardii (Harv.) Liede (= *Cynanchum sarcostemmatoides* K.Schum.) Succulent climber to 1 m with finely striate stems; sap milky. Leaves opposite, rudimentary, rapidly caducous. Flowers on extra-axillary branches, green, petals reflexed, corona white, shallow, gynostegium sessile. May–Dec. Dry scrub, SE (Uitenhage to Arabia, Madagascar).

obtusifolium L.f. Climber with woody base to 3 m, sometimes hairy; sap milky. Leaves opposite, ovate-elliptic. Flowers in extra-axillary clusters, dull green, corona white, shallow and deeply lobed, gynostegium sessile. Jan.–Dec. Coastal bush, SW, AP, SE (Cape Peninsula to Mozambique).

zeyheri Schltr. Much-branched, mat-forming perennial to 30 cm; sap milky. Leaves opposite, ovate to suborbicular, fleshy. Flowers in extra-axillary clusters, brown, corona white, cup-shaped, gynostegium clearly stalked, as long as corona. May–Nov. Clay and limestone flats, SW, AP (Saldanha and Cape Peninsula to Riversdale and Whitehill).•

DUVALIA Haw. GORTJIE 16 spp., Africa, Arabia

caespitosa (Masson) Haw. (= *Duvalia vestita* Meve) Dwarf, mat-forming, leafless succulent with 4- or 5-angled, tuberculate stems 1–1.5 cm long; sap clear. Flowers 18–25 mm diam., dark brown, with raised annulus, petals narrow with deflexed margins, finely pubescent, corona pale brown, disc-like but not completely covering annulus. Mar.–Oct. Gravelly slopes and flats, NW, KM, LB, SE (S Namibia and Karoo to E Cape).

elegans (Masson) Haw. Like **D. caespitosa** but flower < 18 mm diam., shiny blackish with coarse hairs on annulus and bases of lobes, and corona completely covering annulus. Jan.–Oct. Karroid flats, NW, SW, KM, LB (Worcester to Riversdale).•

immaculata (C.A.Lückh.) Bayer ex L.C.Leach Like **D. caespitosa** but stems generally somewhat rhizomatous and flowers dark red-brown, glabrescent, with bright yellow corona sunken within annulus. Apr.–Dec. Dry coastal fynbos, LB (Swellendam to Mossel Bay).•

modesta N.E.Br. Like **D. caespitosa** but flowers pale greenish brown with paler centre, < 18 mm diam. and petal margins deflexed only in outer part. Mar.–Apr. Karroid scrub, SE (W Karoo, Uniondale to E Cape).

parviflora N.E.Br. Dwarf, mat-forming, leafless succulent with almost globose stems 1–3 cm long; sap clear. Flowers like **D. caespitosa** but < 15 mm diam., cream-coloured, glabrous, corona cream-coloured. Feb.–Aug. Karroid scrub, KM (Ladismith to Oudtshoorn).•

pillansii N.E.Br. Like **D. caespitosa** but flowers pale purple-brown becoming paler towards centre and corona bright yellow. Apr.–June. Karroid scrub, SE (Uitenhage to E Cape).

EUSTEGIA R.Br. 1 sp., Namaqualand to W Cape **gce**

minuta (L.f.) Schult. Slender, erect to prostrate, dwarf perennial to 15 cm; sap clear. Leaves opposite, filiform to filiform-hastate. Flowers in small umbels, green, with complex white corona of 25 narrow lobules. July–Feb. Gravelly flats to lower slopes, NW, SW, LB (Namaqualand to Riversdale). **gce**

FOCKEA Endl. KAMBROE 6 spp., southern Africa to Tanzania

capensis Endl. (= *Fockea crispa* (Jacq.) K.Schum.) Erect or climbing succulent to 50 cm, stems grey, 2–4 mm diam.; sap milky. Leaves opposite, ovate, grey-green, densely pubescent and crisped. Flowers yellow-green with tubular white corona, anther appendages swollen. Feb.–May. Rocky slopes and summits, KM (Little Karoo).•

comaru (E.Mey.) N.E.Br. Slender geophyte or climber to 30 cm, stems ± 1 mm diam.; sap milky. Leaves opposite, linear, purplish to dark grey-green, margins recurved. Flowers as in **F. capensis**. Mar.–May. Karroid scrub on rocky slopes, NW, SW, KM, LB, SE (S Namibia and Karoo to Willowmore).

edulis (Thunb.) K.Schum. (= *Fockea glabra* Decne.) Like **F. capensis** but climbing to 2 m from a tuber up to 1 m diam. Leaves ovate, green, sparsely pubescent to glabrous and slightly undulate. Nov.–Mar. Rocky slopes in dry riverine bush, NW, LB, SE (Robertson, Riversdale to E Cape and S KwaZulu-Natal).

sinuata (E.Mey.) Druce Like **F. comaru** but leaves crisped and margins not recurved, flowers brownish, usually with short petals, fruits warty and seeds with hairs all around margin. Jan.–May. Karroid scrub on calcareous flats, KM (Namibia and Karoo to Calitzdorp).

GOMPHOCARPUS R.Br. KATOENBOS ± 30 spp., Africa, Arabia

cancellatus (Burm.f.) Bruyns Rigid, hairy shrub to 1.5 m; sap milky. Leaves opposite, oblong-lanceolate to elliptic, usually rounded at base, leathery. Flowers cream-coloured. Fruits inflated, ovoid-acute. Mar.–Dec. Stony slopes, NW, SW, KM, LB, SE (S Namibia to E Cape).

fruticosus (L.) Aiton f. Soft shrub branching mainly from base, 1–3 m; sap milky. Leaves opposite, linear to oblanceolate, tapering gradually below. Flowers cream-coloured. Fruits inflated, ovoid-acute. Nov.–Apr. Disturbed areas, NW, SW, KM, LB, SE (Cape Peninsula and Karoo to George, widespread and almost cosmopolitan).

***physocarpus** E.Mey. BALBOS Like **G. fruticosus** but stem simple below, branching above and fruits spherical. Nov.–Apr. Stony flats, often roadsides, NW, SW, LB, SE (tropical African weed).

GONIOMA E.Mey. KAMASSIEHOUT, IGALAGALA 1 sp., W and E Cape

kamassi E.Mey. Shrub or tree to 6 m; sap clear. Leaves oblanceolate, glossy. Flowers in compact, terminal cymes, small, white or cream-coloured, fragrant. Nov.–Apr. Coastal forests and riverine bush, SE (Wilderness and Winterhoek Mtns to E Cape).

HOODIA Sweet ex Decne. GHAAP 13 spp., southern and tropical Africa

gordonii (Masson) Sweet ex Decne. MUISHONDGHAAP, WOLWEGHAAP Spiny, cactus-like, leafless succulent to 1 m, with 11–17-angled stems; sap clear. Flowers 40–100 mm diam., flesh-coloured, somewhat foul-smelling. Sept.–Apr. Dry stony slopes and flats, NW (Namibia and Karoo to Clanwilliam).

grande N.E.Br. Like **H. pilifera** but flowers yellow to pink and without annulus around mouth of tube. May–Sept. Rocky slopes in karroid scrub, KM (N of Laingsburg to Calitzdorp).

pilifera (L.f.) Plowes (= *Trichocaulon piliferum* (L.f.) N.E.Br.) Spiny, cactus-like leafless succulent to 80 cm, with 21–34-angled stems; sap clear. Flowers 16–20 mm diam., dark purplish to pinkish brown, foul-smelling. May–Sept. Rocky slopes in karroid scrub, KM (Little Karoo to E Cape).

HUERNIA R.Br. ± 50 spp., southern and tropical Africa, Arabia

A. Stems ± round in section with tubercles arranged in 6–16 rows

longii Pillans (= *Huernia echidnopsiodes* (L.C.Leach) L.C.Leach) Leafless succulent with stems cylindrical and tesselated, teeth in 6–8, often spiralling rows; sap clear. Flowers campanulate, cream-coloured with brown-red spots. Jan.–May. Stony sandstone or conglomerate slopes, SE (Langkloof to Uitenhage).•

pillansii N.E.Br. Leafless succulent to 10 cm, with stems cylindrical and tesselated, covered in soft bristles arranged roughly into 10–16, often spiralling rows; sap clear. Flowers like **H. longii**. Dec.–May. Stony slopes and flats in karroid scrub, KM (Montagu to Willowmore and S Karoo).

A.' Stems ± square or pentagonal in section with tubercles arranged in 4 or 5 rows

barbata (Masson) Haw. (= *Huernia campanulata* (Masson) Haw., *H. clavigera* (Jacq.) Haw.) Leafless succulent forming dense clumps to 60 cm; sap clear. Flowers tubular-campanulate, tube entirely or irregularly and concentrically marked with maroon, with long, often clavate hairs in mouth of tube and onto petals. Jan.–Aug. Karroid scrub, flats or lower slopes, NW, KM, LB, SE (Namaqualand and Karoo to Port Elizabeth).

guttata (Masson) Haw. (= *Huernia reticulata* (Masson) Haw.) Like **H. barbata** but flowers campanulate with shiny, raised annulus, cream-coloured finely spotted with maroon with spots larger and coalescing on annulus, with a few long straight hairs in throat. Dec.–Apr. Karroid scrub and stony grasslands, NW, KM, SE (Namaqualand to Citrusdal, Calitzdorp to E Cape).

praestans N.E.Br. Like **H. guttata** but annulus neither shiny nor differently coloured from rest of flower, hairs present from mouth of tube to lobes. Jan.–Mar. Stony slopes and flats in karroid scrub, KM (Montagu to Vanwyksdorp).•

thuretii F.Cels (= *Huernia bayeri* L.C.Leach, *H. brevirostris* N.E.Br.) Like **H. barbata** but flowers campanulate, cream-coloured, sometimes finely spotted with red to brown, smooth or covered with conical papillae each with short apical hair. Dec.–Mar. Karroid scrub, SE (Willowmore to E Cape and Karoo).

[**Species excluded** No authentic material found and probably conspecific with one of the above: **H. witzenbergensis** C.A.Lückh.]

MICROLOMA R.Br. MELKTOU, WAX CREEPER 10 spp., S Africa and Namibia

armatum (Thunb.) Schltr. ex Gilg (= *Microloma massonii* (Schult.) Schltr.) Somewhat rigid, spiky shrublet to 30 cm; sap clear. Leaves opposite, 2–8 mm, caducous. Flowers 2–4 mm long, greenish yellow. Mainly Sept.–Dec. Stony flats and slopes in karroid scrub, KM (Namibia and Karoo to Little Karoo).

sagittatum (L.) R.Br. (= *Microloma gibbosum* N.E.Br., *M. glabratum* E.Mey.) Slender climber to 1 m or more, with fibrous roots ; sap clear. Leaves opposite, 7–35 mm long, narrow. Flowers cylindrical, 5–11 mm long, at least slightly pubescent outside, pink to red, petals lanceolate. June–Oct. Stony slopes to sandy flats, NW, SW, AP, KM, LB, SE (Namaqualand to Willowmore).

tenuifolium (L.) K.Schum. KANNETJIES Slender, deciduous climber to 1 m, with swollen roots; sap clear. Leaves opposite, 20–70 mm long, narrow. Flowers urceolate, 6–8 mm long, shiny and glabrous outside, orange to red, petals suborbicular. June–Nov. Stony slopes and flats, NW, SW, LB, SE (Gifberg to E Cape).

*__NERIUM__ L. 3 spp., Mediterranean to E Asia

*__oleander__ L. Erect, woody, poisonous shrub up to 2 m, branching mainly from base, spineless. Leaves lanceolate, 50–150 × 15–25 mm, opposite to whorled, leathery. Flowers in lax, terminal cymes. Corolla salver-shaped, 30–50 mm diam., tube cylindrical, abruptly widened around middle, lobes spreading, 15–20 mm long, pink, red or white, with laciniate corolline corona attached to base of lobes. Aug.–Feb. Declared weed, in watercourses among rocks, KM (Eurasian weed, eastern Cedarberg to Kamanassie Mtns and Mpumalanga).

ONCINEMA Arn.• 1 sp., SW Cape

lineare (L.f.) Bullock Slender climber to 3 m, with fibrous roots; sap clear. Leaves opposite, linear to linear-lanceolate. Flowers cream-coloured, with long, slender style head and small corona lobes. Nov.–Mar. Riverine bush or damp sandy slopes, SW, KM, LB, SE (Bain's Kloof to Langkloof).•

ORBEA Haw. ± 20 spp., southern and tropical Africa

ciliata (Thunb.) L.C.Leach Leafless succulent forming mats to 50 cm diam., stems 15–25 mm diam. (excluding teeth), mottled with purple-brown on green, with conical tubercles arranged loosely into 4 rows; sap clear. Flowers campanulate, 70–110 mm diam., cream-coloured, with

funnel-shaped annulus 8–11 mm long. Oct.–Apr. Karroid scrub on flats, NW (Loeriesfontein to Karoo Poort and Prince Albert). **gce**

pulchella (Masson) L.C.Leach Like **O. ciliata** but stems 5–10 mm diam. Flowers ± rotate, 50–80 mm diam., cream-coloured to yellow spotted with purple-brown, with slightly raised, ± pentagonal annulus, inner corona lobes much longer than anthers, rising up in centre, with small dorsal horn. Sept.–May. Coastal scrub, SE (Uitenhage to E Cape).

variegata (L.) Haw. CARRION FLOWER, AASBLOM Like **O. pulchella** but annulus forming a shallowly bowl-shaped tube with spreading thinner rim, inner corona lobes much longer, tuberculate-clavate-tipped with prominent dorsal horn. Dec.–Sept. Mainly coastal, sand or granite or shale outcrops, NW, SW, LB, SE (Lambert's Bay to Humansdorp).•

verrucosa (Masson) L.C.Leach Like **O. pulchella** but inner corona lobes just exceeding anthers and not meeting in centre, without dorsal horn. Dec.–May. Stony slopes in karroid scrub, KM, SE (Oudtshoorn to E Cape).

PACHYCARPUS E.Mey. ± 30 spp., southern and tropical Africa

dealbatus E.Mey. Stout perennial to 50 cm; sap milky. Flowers globose to globose-campanulate, lobed almost to base, green with purple-brown markings, corona lobes without keels on upper surface. Dec.–Feb. Grassy slopes, KM, LB, SE (Barrydale and Riversdale to KwaZulu-Natal).

grandiflorus (L.f.) E.Mey. Like **P. dealbatus** but flowers globose, lobed to at most two thirds of length, yellow with purple-brown spots, corona lobes with a pair of prominent keels on upper surface. Jan.–Apr. Mountain grasslands, SE (Humansdorp to Mpumalanga).

PACHYPODIUM Lindl. DIKVOET ± 13 spp., southern Africa and Madagascar

bispinosum (L.f.) A.DC. Spiny, succulent shrublet with swollen underground stem to 50 cm; sap clear. Leaves lanceolate, glabrescent above, hairy beneath. Flowers 1–few, pink to purple, sometimes white, with broadly funnel-shaped tube 7–8 mm diam., lobes 5–7 mm long. Aug.–Dec. Dry rocky slopes, KM, SE (Ladismith to E Cape).

succulentum (Jacq.) Sweet Like **P. bispinosum** but flowers finely hairy, tube narrowly funnel-shaped 3–4 mm diam. and lobes 8–18 mm long, pink to crimson, sometimes white. Sept.–Dec. Dry rocky slopes, KM, SE (Oudtshoorn and Karoo to E Cape and N Cape).

PECTINARIA Haw. 3 spp., Namaqualand and W Karoo

articulata (Aiton) Haw. (= *Pectinaria asperiflora* N.E.Br.) GHAAP Dwarf, leafless, mat-forming succulent with tubercles arranged in 6 rows along stems, 2–7 cm; sap clear. Flowers bud-shaped with lobes remaining joined at tips, papillate, maroon to pale yellow. Sept.–Apr. Gravelly flats in karroid scrub, KM (Namaqualand and W Karoo, Barrydale). **gce**

maughanii (R.A.Dyer) Bruyns Plant like **P. articulata**. Flowers campanulate, smooth, deep yellow with pink to reddish purple centre. July–Nov. Gravelly flats in karroid scrub, NW (Bokkeveld Plateau to Calvinia). **gce**

PIARANTHUS R.Br. 6 spp., Namibia and S Africa

comptus N.E.Br. Like **P. geminatus** but petals 3.5–5 mm wide and usually cream-coloured with small red spots. Feb.–May. Flats and low hills in karroid scrub, KM (Karoo and S Karoo to Prince Albert).

geminatus (Masson) N.E.Br. (= *Piaranthus barrydalensis* Meve, *P. foetidus* N.E.Br., *P. pillansii* N.E.Br.) Dwarf, leafless, mat-forming succulent, 2–5 cm, stems 4- or 5-angled and tuberculate; sap clear. Flowers shallowly campanulate, 20–26 mm diam. with petals 5–6 mm wide, white to yellow with brownish to purple banding, inner corona lobes adpressed to backs of anthers. Jan.–Apr. Gravelly lower slopes and flats in karroid scrub, KM, LB, SE (Montagu to Barrydale to E Cape).

parvulus N.E.Br. Like **P. geminatus** but flowers 5–13.5 mm diam., with petals to 2 mm wide, uniformly pale yellow or faintly lined with red-brown, inner corona lobes adpressed to backs of anthers at base only then erect. Feb.–May. Karroid scrub, KM (W Karoo to Ladismith). **gce**

punctatus (Masson) R.Br. Like **P. geminatus** but flowers campanulate with tube completely enclosing corona. Feb.–June. Gravelly flats in karroid scrub, NW (Namaqualand to Klawer). **gce**

QUAQUA N.E.Br. (= *CARALLUMA* in part) AROENA, OURAM 15 spp., Namibia and S Africa

A. Tubercles on stems obtuse and rounded, apical tooth absent or < 2 mm long

linearis (N.E.Br.) Bruyns (= *Caralluma linearis* N.E.Br.) Leafless, much-branched succulent, 5–15 cm, with 4-angled blackish stems; sap clear. Flowers few, campanulate, white in centre with red-purple tips, petals slender, without papillae, inner corona lobes much longer than anthers, erect then recurved. Jan.–Nov. Sandstone slopes and summits, KM (Touws River to Witteberg).•

ramosa (Masson) Bruyns (= *Caralluma ramosa* (Masson) N.E.Br.) Like **Q. linearis** but larger, to 30 cm, and stems purplish to greyish green. Flowers usually in dense clusters opening simultaneously, reddish in centre with shiny blackish purple tips, papillate around mouth, inner corona lobes scarcely exceeding anthers and adpressed to them. Mar.–May. Lower shale slopes, KM, LB (Little Karoo, Laingsburg). **gce**

A.' Tubercles on stems not obtuse and rounded, apical tooth > 3 mm long

arenicola (N.E.Br.) Plowes (= *Caralluma arenicola* N.E.Br.) Leafless, clump-forming succulent with stout, erect stems, tubercles with acute teeth arranged in 4 rows; sap clear. Flowers campanulate, usually in dense clusters opening simultaneously, cream-coloured in centre with dark rings and blackish purple to reddish petals, roughly papillate in mouth of tube, foul-smelling. Aug.–May. Karroid scrub, KM (Touws River to Klipplaat, Great Karoo).

arida (Masson) Plowes (= *Quaqua marlothii* (N.E.Br.) Bruyns) Like **Q. aurea** but flowers on slender pedicels 3–15 mm long, pale greenish yellow banded purple-brown with petals recurved and touching pedicel, stiffly hairy but without marginal cilia. Sept.–Mar. Stony slopes and flats in karroid scrub, KM (Montagu to Barrydale and Great Karoo).

aurea (C.A.Lückh.) Plowes (= *Caralluma aurea* C.A.Lückh.) Small, leafless succulent forming clumps to 15 cm, tubercles on stems hardened into spreading teeth, arranged in 4(5) angles; sap clear. Flowers campanulate, cream-coloured, petals shortly adpressed-hairy. Aug.–Oct. Karroid scrub, NW (W Karoo to Clanwilliam). **gce**

incarnata (L.f.) Bruyns (= *Caralluma hottentotorum* (N.E.Br.) N.E.Br., *C. incarnata* (L.f.) N.E.Br.) Like **Q. aurea** but flower tube at least as long as corona and papillae restricted to mouth of tube. May–Oct. Karroid scrub, NW, SW (S Namibia to Bokbaai). **gce**

mammillaris (L.) Bruyns (= *Caralluma mammillaris* (L.) N.E.Br.) Leafless, succulent shrublet, 10–45 cm, rooting from central stem, tubercles hardened into sharp, spreading teeth, obscurely arranged in 4 or 5 angles; sap clear. Flowers like **Q. arenicola**, but lower half of petals and mouth of tube roughly papillate, very foul-smelling. Mar.–June. Stony slopes and flats, NW, KM, LB (S Namibia to Little Karoo). **gce**

parviflora (Masson) Bruyns (= *Caralluma dependens* N.E.Br.) Like **Q. marlothii** but flowers not stiffly hairy, petals spreading and with fine, crisped marginal cilia. Mar.–July. Lower slopes and flats, NW (Namaqualand to Clanwilliam). **gce**

pillansii (N.E.Br.) Bruyns (= *Caralluma pillansii* N.E.Br.) Leafless, much-branched succulent, 15–50 cm, with robust stems mottled with purple on grey, tubercles laterally flattened and joined into 4 angles, acute but not spine-like; sap clear. Flowers spotted with purple-brown on cream, papillate, petals oblong-ovate. Feb.–Apr. Dry sandstone slopes, NW, SW, KM, LB, SE (Cold Bokkeveld to E Cape).

RAPHIONACME Harv. KAMBROE ± 35 spp., southern to tropical Africa and Arabia

zeyheri Harv. Geophyte with subterranean tuber, short erect stems to 10 cm; sap milky. Leaves opposite, pubescent, elliptic. Flowers rotate with short tube, green with purplish corona. Dec.–Mar. Gravelly flats, SE (Uitenhage to E Cape).

RIOCREUXIA Decne. KANDELAARTOU ± 8 spp., southern to tropical Africa

torulosa Decne. Slender, shortly hairy climber to 2 m; sap clear. Leaves opposite, soft, cordate-ovate. Flowers tubular with petals remaining fused at tips, pale yellow tinged purplish. Dec.–Mar. Forest margins and scrub, SE (George to Mpumalanga).

SARCOSTEMMA R.Br. SPANTOU ± 10 spp., Old World tropics

viminale (L.) R.Br. (= *Cynanchum tetrapterum* (Turcz.) R.A.Dyer) Leafless, succulent scrambler or climber to 3 m, with smooth, grey-green stems; sap milky. Flowers in dense umbels, yellow, corona white, inner lobes swollen and incumbent on anthers and outer ring-like, fragrant. Jan.–Dec. Arid bush on stony shale slopes, NW, SW, KM, LB, SE (Clanwilliam through Little Karoo to Arabia, India to Australia).

SCHIZOGLOSSUM E.Mey. ± 20 spp., southern and tropical Africa

aschersonianum Schltr. Dwarf, branching geophyte to 15 cm; sap milky. Leaves opposite, linear. Flowers 3–4 mm diam., with recurved petals, grey-green, corona white, lobes linear arching over style apex from broad base. Dec.–Apr. Flats and slopes, SW, LB, SE (Cape Peninsula to E Cape).

cordifolium E.Mey. Slender, single-stemmed geophyte to 60 cm; sap milky. Leaves opposite, usually ovate-deltoid. Flowers ± 10 mm diam., green lined with brown or yellow, corona white to green, lobes with broad, erect base overtopping anthers and 2 slender lobules projecting from ventral face over top of anther. Nov.–May. Open grasslands, NW, SW, LB, SE (Tulbagh and Paarl to Mpumalanga).

SECAMONE R.Br. 80 spp., Africa, Madagascar, India to Australia

alpini Schult. Scrambler or scandent shrub to 10 m; sap milky. Leaves opposite, lanceolate to ovate-lanceolate, 6–25 mm wide, shiny dark green. Flowers finely hairy above, corona lobes erect and incurved over anthers. Oct.–Jan. Bush and forests, to 1 000 m, NW, SW, AP, LB, SE (Clanwilliam to Uganda).

filiformis (L.f.) J.H.Ross (= *Secamone frutescens* (E.Mey.) Decne.) Slender, somewhat woody climber to 3 m; sap milky. Leaves opposite, linear-lanceolate, to 4 mm wide, pale green. Flowers glabrous above, corona lobes shorter than anthers. Nov.–Jan. Dry riverine scrub to forest margins, SE (Humansdorp to Zimbabwe).

STAPELIA L. AASBLOM ± 30 spp., mainly southern Africa

A. Stems mostly prostrate, often rhizomatous

engleriana Schltr. Leafless, finely hairy succulent with 4-angled stems 10–22 mm diam., forming mat-like clumps to 30 cm diam. Flowers 18–22 mm diam., dark purple-brown becoming pale yellow in tube, petals tightly reflexed, shortly hairy along margins. Feb.–May. Stony slopes in karroid scrub, SW, KM (Breede River Valley to Great Karoo).

A.' Stems all erect, not rhizomatous

arenosa C.A.Lückh. Leafless, finely hairy succulent with 4-angled stems 8–15 mm diam., forming diffuse clumps, 6–25 cm; sap clear. Flowers 25–35 mm diam., dark purple-brown becoming whitish in centre, transversely rugulose, petals ciliate, corona finely hairy. Jan.–June. Dry stony slopes among bushes, NW (W Karoo to Clanwilliam). **gce**

cedrimontana Frandsen (= *Stapelia montana* L.C.Leach) Leafless, finely hairy or glabrous succulent with erect, 4-angled stems 5–10 mm diam., forming clumps, 5–25 cm; sap clear. Flowers 30–50 mm diam., purple-brown usually boldly banded with cream-coloured to yellow towards centre, petals somewhat reflexed and with recurved margins, glabrous or finely hairy towards apices and ciliate. Jan.–Apr. Sandstone slopes and outcrops, NW (Cedarberg and Piketberg).•

divaricata Masson Leafless succulent with erect, 4-angled stems 4–8 mm diam., forming dense clumps, 4–13 cm; sap clear. Flowers 40–50 mm diam., pale purple to yellow, shiny and smooth with petals somewhat reflexed. Sept.–May. Stony, shale slopes, LB (Swellendam to Heidelberg).•

erectiflora N.E.Br. Like **S. cedrimontana** but stems 8–12 mm diam. Flowers 9–15 mm diam., on erect pedicels 20–120 mm long, usually button-like with strongly recurved lobes, with adpressed, often dense, transparent-white, clavate hairs especially towards centre and margins. Mar.–May. Stony slopes among bushes, NW (Botterkloof to Cedarberg).•

glanduliflora Masson Like **S. erectiflora** but pedicels pressed to ground with flowers facing upwards, flowers 25–35 mm diam., densely covered with transparent-white, clavate hairs especially towards centre and margins. Mar.–June. Stony slopes among bushes, NW (Klawer to Citrusdal).•

grandiflora Masson (= *Stapelia desmetiana* N.E.Br., *S. flavirostris* N.E.Br.) MAKGHAAP Leafless, finely hairy succulent with robust, erect, 4-angled stems 20–30 mm diam., forming large clumps, 10–30 cm; sap clear. Flowers 80–150(–220) mm diam., purple-brown very faintly marked with cream-colour, usually silky hairy. Mar.–May. Among bushes on lower slopes, KM (Calitzdorp to E Cape and Free State).

hirsuta L. (= *Stapelia asterias* Masson, *S. vetula* Masson) Leafless, glabrous or finely hairy succulent with erect, 4-angled stems 10–20 mm diam., forming dense clumps, 10–25 cm; sap clear. Flowers 70–110 mm diam., red-purple, glabrous or softly hairy around corona and along petal margins. Mar.–Oct. Stony, often sandstone slopes, SW, KM, LB, SE (Namaqualand and Karoo, Malmesbury to Humansdorp).

obducta L.C.Leach Leafless succulent with erect, 4-angled stems 10–20 mm diam., forming dense clumps, 10–25 cm; sap clear. Flowers 50 mm diam., button-like with strongly recurved lobes, purple-brown, softly hairy on inner surface throughout. Mar.–Oct. stony sandstone slopes, SE (Great Winterhoek Mtns).•

paniculata Willd. (= *Stapelia immelmaniae* Pillans, *S. kougabergensis* L.C.Leach, *S. nouhuysii* E.Phillips, *S. scitula* L.C.Leach) Like **S. cedrimontana** but smaller, 3–8 cm, stems often only 3–5 mm diam. Flowers 15–45 mm diam., glabrous or finely whitish hairy, petals spreading without recurved margins. Mar.–May. Lower sandstone slopes, NW, KM, SE (Lambert's Bay to E Cape).

pillansii N.E.Br. Like **S. hirsuta** but flowers 120–200 mm diam., uniformly dark purple or yellow, lobes ciliate, attenuated into long, slender, often twisted tails. Dec.–Apr. Stony, lower slopes in karroid scrub, KM (S Karoo to Ladismith). **gce**

rufa Masson Like **S. hirsuta** but flowers 25–40 mm diam., broadly campanulate, petals hairy towards tips and corona finely hairy. Nov.–May. Stony shale slopes in karroid scrub, KM (Montagu to Oudtshoorn and Great Karoo).

STAPELIOPSIS Pillans 6 spp., W Cape to Namibia

breviloba (R.A.Dyer) Bruyns Leafless, dwarf, usually rhizomatous succulent to 6 cm, stems erect, 4-angled, 4–7 mm diam.; sap clear. Flowers ellipsoid, brownish outside, often partially subterranean, petals 2–3 mm long, remaining joined at tips. Apr.–May. Sand or gravel in karroid scrub, NW, SW, LB (Worcester to Swellendam).•

exasperata (Bruyns) Bruyns Like **S. breviloba** but stems 8–15 mm diam. Flowers with cylindrical tube, pink-red to cream-coloured outside, petals 6–16 mm long, usually widely spreading. Jan.–May. Stony, lower slopes in karroid scrub, KM (W Karoo to Montagu and Barrydale). **gce**

saxatilis (N.E.Br.) Bruyns (= *Pectinaria saxatilis* N.E.Br., *P. stayneri* M.B.Bayer, *Stapeliopsis stayneri* (M.B.Bayer) Bruyns) Leafless, dwarf succulent with prostrate stems to 30 cm long, 4-angled, 8–25 mm diam.; sap clear. Flowers ellipsoid to obovoid or subcampanulate, pale pink to dark maroon outside, petals 4–9 mm long, usually remaining joined at tips. Jan.–May. Karroid scrub on stony, N-facing slopes, NW, SW, KM, LB, SE (S Namaqualand and W Karoo, Worcester to Cockscomb). **gce**

TRIDENTEA Haw. GORTJIE 8 spp., southern Africa

gemmiflora (Masson) Haw. Small succulent forming clumps to 1 m diam., with erect stems 10–15 mm diam., 4-angled; sap clear. Leaves minute, linear, caducous. Flowers 45–100 mm diam., purple-black often finely speckled with yellow. Mar.–May. Flats in karroid scrub, NW, SW, KM, LB, SE (Karoo, Worcester to Willowmore).

parvipuncta (N.E.Br.) L.C.Leach Like **T. gemmiflora** but plants smaller and flowers 15–25 mm diam., cream-coloured to pale green spotted with purple-brown. Oct.–May. Karroid flats, NW (Clanwilliam and W Karoo). **gce**

TROMOTRICHE Haw. 11 spp., Namibia and S Africa

baylissii (L.C.Leach) Bruyns Leafless succulent with pendulous to creeping stems to 3 m long, 6–12 mm diam., bluntly 4-angled (square in section); sap clear. Flowers tubular-campanulate,

12–15 mm long, transversely rugulose especially in tube. Dec.–June. Sandstone cliffs and slopes, SE (Langkloof to Great Winterhoek Mtns).•

choanantha (Lavranos & H.Hall) Bruyns Like **T. baylissii** but stems rounded in section and flowers not rugulose within. Dec.–May. Sandstone cliffs and slopes, KM (Rooiberg to Swartberg).•

revoluta (Masson) Haw. Leafless, rhizomatous succulent with erect stems 15–30 mm diam., ± square in section; sap clear. Flowers shallowly campanulate, lobed about halfway with petals strongly recurved, 35–70 mm diam., smooth. Nov.–June. Stony or sandy slopes, NW (S Namaqualand to Clanwilliam). **gce**

TYLOPHORA R.Br. ± 50 spp., Old World tropics

cordata (Thunb.) Druce Herbaceous climber; sap clear. Leaves opposite, ovate. Flowers green to yellowish green, inflorescence bracts 1–4 mm long, not forming an involucre. Oct.–Dec. Forests, SE (George to E Cape).

lycioides (E.Mey.) Decne. Herbaceous climber to 10 m, with woody base; sap clear. Leaves opposite, ovate-lanceolate. Flowers greenish, inflorescence bracts 2–8 mm long, forming an involucre around pedicel bases. Nov.–Mar. Coastal and riverine bush, SE (Humansdorp to Mpumalanga).

WOODIA Schltr. 3 spp., southern Africa

mucronata (Thunb.) N.E.Br. Erect perennial, 15–40 cm; sap milky. Leaves opposite, leathery, linear-lanceolate to elliptic-oblong. Flowers ± globose, cream-coloured. Jan. Grasslands, SE (Humansdorp to KwaZulu-Natal).

XYSMALOBIUM R.Br. ± 20 spp., southern and tropical Africa

gomphocarpoides (E.Mey.) D.Dietr. Erect, leafy perennial to 50 cm; sap milky. Leaves opposite, linear, acute, crisped along margins. Flowers greenish, petals glabrous. Oct.–Apr. Grasslands and dry watercourses in karroid areas, NW, SW, KM, LB, SE (Karoo and Cold Bokkeveld to KwaZulu-Natal).

undulatum (L.) Aiton f. Sturdy, erect, leafy perennial, 0.5–1.8 m; sap milky. Leaves opposite, ovate-lanceolate, obtuse, somewhat leathery, slightly undulate on margins. Flowers greenish, petals with tips recurved and densely white-pubescent inside. Oct.–Apr. Grasslands, also a roadside weed, SW (Namibia, Cape Peninsula, KwaZulu-Natal to Mpumalanga).

AQUIFOLIACEAE

ILEX L. HOLLY ± 400 spp., cosmopolitan

mitis (L.) Radlk. AFRICAN HOLLY, WATERBOOM, UMDUMA Dioecious tree to 30 m. Leaves elliptic, glossy. Flowers in axillary clusters, white, fragrant. Sept.–Dec. Forest along streams, SW, LB, SE (Cape Peninsula to tropical Africa).

ARALIACEAE (= *APIACEAE* in part)

1. Herbs or low perennials; fruit separating into 2 cocci; (subfamily HYDROCOTYLOIDEAE) ..... **Hydrocotyle**
1.' Trees or shrubs; fruit a drupe or capsule (subfamily ARALIOIDEAE):
2. Flowers in panicles or racemes of small umbels ..... **Schefflera**
2.' Flowers in dense spikes or racemes, these sometimes umbellate ..... **Cussonia**

CUSSONIA Thunb. CABBAGE TREE, KIEPERSOL, UMSENGE ± 25 spp., Africa and Madagascar

gamtoosensis Strey GAMTOOS CABBAGE TREE Slender, several-stemmed trees to 4 m. Leaves 2-digitate, leaflets mostly simply digitate. Flower spikes umbellate, greenish yellow. May. Dry rocky slopes, SE (Gamtoos Ferry).•

paniculata Eckl. & Zeyh. BERGKIEPERSOL Thick-stemmed tree to 5 m. Leaves glaucous, digitate, leaflets sometimes toothed or lobed above. Flower spikes paniculate, green. Jan.–Apr. Dry rocky slopes, KM, SE (Swartberg to Mpumalanga).

spicata Thunb. Thick-stemmed tree to 10 m. Leaves 2-digitate, leaflets vertebrate-digitate. Flower spikes umbellate, greenish yellow. Nov.–May. Rocky slopes, KM, SE (Swartberg to tropical Africa).

thyrsiflora Thunb. KUSKIEPERSOL Sprawling shrub or tree to 5 m. Leaves 6–8-digitate, leaflets obovate, sometimes slightly toothed above. Flower spikes umbellate, greenish yellow. Nov.–Jan. Coastal scrub, SW, AP, LB, SE (Cape Peninsula to E Cape).

HYDROCOTYLE L. PENNYWORT ± 200 spp., nearly cosmopolitan

verticillata Thunb. Creeping perennial rooting at nodes, stems to 30 cm. Leaves peltate, margins crenate. Flowers whorled in interrupted spikes, white. Fruits depressed-globose. Aug.–Apr. Marshes seeps, streamsides, SW, AP, KM, LB, SE (Cape Peninsula to Port Elizabeth, widespread in tropics and subtropics).

SCHEFFLERA J.R.Forst. & G.Forst. BASTERKIEPERSOL, UMSENGANE ± 180 spp., pantropical and subtropical

umbellifera (Sond.) Baill. Tree to 10 m. Leaves digitate, leaflets elliptic, margins sometimes toothed or wavy. Flowers in umbellate panicles, greenish yellow. Jan. Forest margins, SE (Humansdorp to tropical Africa).

ASCLEPIADACEAE = **APOCYNACEAE**

ASTERACEAE

Amphiglossa, **Elytropappus** and **Stoebe** with M. Koekemoer, **Arctotis** by R. McKenzie, **Arctotheca, Eriocephalus** and **Haplocarpha** with J.B.P. Beyers, **Gymnostephium** with P.P.J. Herman

1. Disc florets deeply lobed, lobes usually longer than wide; anthers basally spurred (pollen-bearing portion extending well below filament insertion) and tailed; stigmatic surface extending over ± entire inner surface of style branches, not restricted to two marginal bands:
   2. Capitula 1-flowered, discoid, corymbose, with pink or white corolla; involucral bracts in 2 series; ovary elongated and densely hairy; tufted perennials with parallel-veined leaves (subfamily CORYMBIOIDEAE) ..... **Corymbium**
   2.' Capitula several-flowered:
      3. Ray florets bilabiate with inner lip of 2 delicate linear lobes and disc florets ± bilabiate or irregularly cleft, or plants dioecious:
         4. Rosulate perennials; capitula scapose, solitary, heterogamous and radiate (subfamily MUTISIOIDEAE):
            5. Rays very short; pappus hairs very long and stout, tawny ..... **Perdicium**
            5.' Rays conspicuous; pappus hairs long and slender, whitish to purple ..... **Gerbera**
         4.' Branched perennials, shrubs or trees; heads not scapose, mostly homogamous, discoid, disciform or radiate (subfamily CARDUOIDEAE):
            6. Flowers unisexual, dioecious; pappus uniseriate or 0; shrubs or trees:
               7. Pappus 0; achenes woolly ..... **Tarchonanthus**
               7.' Pappus of bristles; achenes sometimes hairy ..... **Brachylaena**
            6.' Flowers bisexual:
               8. Stout, thick-stemmed shrubs; leaves thick and leathery, densely woolly below but glabrescent and glossy above; heads large, homogamous, radiate ..... **Oldenburgia**
               8.' Annual or perennial herbs or shrubs; leaves not as above; heads rarely radiate, involucral bracts often pungent and recurved:
                  9. Involucral bracts with prominent median vein and dark longitudinal stripes, usually hairy; disc corolla lobes recurved at apex; style branches long, with sweeping hairs forming a subapical tuft; cypselas conspicuously ribbed **Dicoma**

9.' Involucral bracts without conspicuous median vein or dark longitudinal stripes, glabrous; disc corolla lobes erect or suberect; style branches short, ± evenly hairy; cypselas ± smooth ..... **Macledium**

3.' Ray florets (when present) unilabiate, rarely with single filiform lobe in sinus and then staminodes present; disc florets equally lobed and plants never dioecious (subfamily CHICORIOIDEAE):

10. Style filiform; branches long and slender with sweeping hairs on outer surface extending shortly onto style shaft:

11. Spiny shrubs or shrublets; flowers bright yellow; pappus of many, long, scabrid bristles ..... **Hoplophyllum**

11.' Unarmed herbs or shrubs; florets pale yellowish or white to purple; pappus biseriate, outer series of short bristles or scales and inner of many, long, scabrid bristles:

12. Flowers yellowish; leaves 3-nerved from base ..... **Distephanus**

12.' Flowers purple or mauve to white:

13. Herbaceous perennials, resprouting from woody rootstock; corolla with T-shaped hairs ..... **Hilliardiella**

13.' Woody, much-branched shrubs or subshrubs ..... **Gymnanthemum**

10.' Style thickened or broadened near apex and often hispid at thickening; style branches sometimes partially cohering:

14. Involucral bracts free, outer herbaceous and inner with papery margins and obtuse, papery apices; rays 3-toothed:

15. Ray florets with filiform lobe in sinus of tube; pappus of stout, scabrid, bristle-like scales in 2 rows ..... **Heterolepis**

15.' Ray florets without such a lobe:

16. Ray florets sterile and achenes without cavities, usually woolly; pappus short, crown-like or lacking ..... **Arctotheca**

16.' Ray florets female or if sterile then achenes with cavities:

17. Heads sessile; mat-forming subshrub ..... **Dymondia**

17.' Heads scapose:

18. Achenes dorsally with 3–5 strong ribs or wings enclosing cavities, usually with a basal tuft of hairs ..... **Arctotis**

18.' Achenes rather thinly ribbed and without cavities; perennials with rosulate, discolorous leaves ..... **Haplocarpha**

14.' Involucral bracts at least partially fused and pungent; rays 4-toothed:

19. Pappus absent; shrublets, densely leafy up to sessile heads ..... **Cullumia**

19.' Pappus present:

20. Leaves in a rosette tightly adpressed to the ground; acaulescent perennial with discoid heads crowded in a large, sessile secondary head in centre of rosette; pappus paleate ..... **Platycarpha**

20.' Not as above:

21. Receptacle with outer honeycomb cavities thick-walled and inner ones membranous; pappus scales ciliate or fimbriate:

22. Involucral bracts in 2 rows, outer largest and foliaceous; receptacle breaking up at maturity, outer parts adnate to outer bracts; leaves ± fleshy and simple ..... **Didelta**

22.' Involucral bracts in 3 rows, middle row largest; receptacle not breaking up; leaves rigid, pinnatisect ..... **Heterorhachis**

21.' Receptacle uniformly honeycombed; pappus scales various:

23. Involucral bracts shortly connate basally, pungent ..... **Berkheya**

23.' Involucral bracts connate in lower half to form a smooth cup:

24. Annuals; involucre becoming woody and enclosing achenes after anthesis:

25. Most disc florets female-sterile; pappus of minute scales hidden among achene hairs ..... **Gorteria**

25.' All disc florets fertile; pappus scales narrow, conspicuous ..... **Cuspidia**

24.' Perennials; involucre not becoming woody, rarely becoming leathery and enclosing achenes:

26. Outer pappus scales broad and overlapping, inner scales smaller or absent; shrublets without milky sap ..... **Hirpicium**

26.' Outer pappus scales narrow and not overlapping, inner subequal; perennial or annual herbs, usually tufted from base, with milky sap ..... **Gazania**

1.' Disc florets more shallowly lobed, lobes usually not longer than wide; anthers obtuse or tailed; stigmatic surface restricted to two marginal bands on inner face of style branches (subfamily ASTEROIDEAE):

27. Style branches filiform or terete, well exserted; scrambling climber with opposite, sagittate leaves and 4-flowered, white, discoid capitula ..... **Mikania**

27.' Style branches linear or lanceolate:
28. Pappus 0; receptacle epaleate; anthers acute or cuspidate; heads radiate; disc florets usually sterile, with simple style; mostly herbaceous plants, often glandular-haired:
29. Style of disc florets deeply bifurcate with linear lobes, covered with papillae to well below point of bifurcation ..... **Garuleum**
29.' Style of disc florets shortly bilobed with an annular collar of hairs:
30. Rays purple, lilac, white or cream-coloured to pale orange above and usually purplish beneath, never bright yellow, 2 or 3 times as long as involucre; involucral bracts ± uniseriate; disc florets either functionally male or fertile and disc achenes laterally flattened with thickened margins ..... **Dimorphotheca**
30.' Rays bright yellow, sometimes coppery beneath, usually < twice as long as involucre; involucral bracts mostly 2- or 3-seriate; disc florets always functionally male ..... **Osteospermum**
a. Fruits fleshy, subglobose ..... ***Chrysanthemoides* group**
a.' Fruits dry:
b. Achenes 3-winged with a fenestrate apical chamber ..... ***Tripteris* group**
b.' Achenes various, if 3-winged then without a fenestrate apical chamber .. ***Osteospermum* group**
28.' Not as above:
31. Involucre mostly uniseriate, with 0–several bracteoles near base; pappus usually of scabrid bristles:
32. Involucre usually calyculate, with at least 1 outer small basal bracteole, cylindrical or cup-shaped; involucral bracts always free to base:
33. Bracts in 2 or 3 series, outer resembling an epicalyx; robust, woolly perennials with conspicuous, radiate heads ..... **Capelio**
33.' Bracts uniseriate, sometimes with a calyculus:
34. Achenes dimorphic, ray achenes flattened, winged or ribbed, disc achenes terete or angular:
35. Ray/peripheral achenes pubescent and with caducous or persistent pappus:
36. Ray achenes flattened with persistent pappus; flower heads radiate; leaves usually petiolate-auriculate ..... **Cineraria**
36.' Ray/peripheral achenes banana-shaped with glabrous inner surface and caducous pappus; flower heads radiate or discoid; leaves never auriculate ..... **Bolandia**
35.' Ray achenes glabrous and with caducous pappus:
37. Ray achenes 4-winged; tufted perennial with loosely corymbose capitula with yellow rays ..... **Oresbia**
37.' Ray achenes 5- or 6- winged; shrublet with solitary, scapose capitula with white rays ..... **Phaneroglossa**
34.' Achenes monomorphic, all terete or angular:
38. Anther bases with sterile tails; climber with petiolate, toothed leaves and discoid heads in axillary corymbs ..... **Delairea**
38.' Anther bases acute:
39. Style branches stout, with a large sterile apical appendage and lacking sweeping hairs; shrublet with solitary, discoid heads ..... **Lamprocephalus**
39.' Style branches without a sterile apical appendage and with sweeping hairs:
40. Pappus 0 in ray florets; delicate annual with lyrate to deltoid leaves and disciform or sparsely radiate heads with 3 ligulate florets ..... **Stilpnogyne**
40.' Pappus present on all florets ..... **Senecio**
32.' Involucre ecalyculate; bracts usually ± fused below to form a smooth cup, rarely free but then involucre bowl-shaped:
41. Aquatic or semi-aquatic herb with white rays; heads solitary on leaf-opposed peduncles ..... **Senecio** (= *Cadiscus*)
41.' Nonaquatic herbs or shrubs with yellow rays:
42. Annual herbs:
43. Pappus 0 ..... **Steirodiscus**
43.' Pappus present at least in ray florets:
44. Leaves rosulate; flower heads in small clusters; bracts with resinous veins but without additional ducts between veins; pappus 0 in disc florets ..... **Gymnodiscus**
44.' Leaves cauline; flower heads solitary in open cymes; bracts with conspicuous resin-ducts in basal half between veins; pappus in all florets ..... **Oligothrix**
42.' Perennial herbs or shrubs:
45. Disc florets usually bisexual; pappus caducous or 0; pappus bristles flexuous, with teeth diverging in one plane ..... **Euryops**
45.' Disc florets functionally male; pappus usually persistent, often elongating conspicuously in fruit; pappus bristles straight, with teeth diverging in several directions:
46. Disc floret styles undivided (or minutely bifid) with ring of sweeping hairs below apical cone ..... **Othonna**

46.' Disc floret styles divided with branches hairy outside ..... **Hertia**
31.' Involucre 2–several-seriate; pappus of bristles or scales or absent:
47. Style branches acute, either with a papillose apical appendage or minutely downy on the outer surface; pappus of bristles:
48. Anther bases acute or tailed:
49. Heads heterogamous, obscurely radiate; perennial with lanceolate leaves, auriculate at base ..... **Pulicaria**
49.' Heads homogamous, discoid; shrublets with leaves tapering below or petiolate:
50. Petals hairy at tips; pappus bristles numerous; achenes glabrous ..... **Pegolettia**
50.' Petals glabrous; pappus bristles few; achenes hairy ..... **Pentatrichia**
48.' Anther bases obtuse:
51. Flower heads discoid or disciform (some outer florets filiform or unilabiate) (rarely radiate in **Chrysocoma** or discoid in **Felicia** but see details of these genera):
52. Heads homogamous and discoid:
53. Pappus bristles free, outer series of small scales or reduced or lacking; fruits apically with 2 resin sacs in ribs; ericoid shrublets with heads often solitary on slender peduncles ..... **Chrysocoma**
53.' Pappus bristles usually connate basally, of many bristles; fruits without resin sacs; shrublets, often viscid, mostly with opposite leaves with heads never solitary on slender peduncles ..... **Pteronia**
52.' Heads heterogamous and disciform with some outer florets tubular-filiform or unilabiate:
54. Pappus 0; annual with petiolate leaves and greenish florets ..... **Dicrocephala**
54.' Pappus present; annuals, perennials or shrublets with yellow or whitish florets ..... **Nidorella**
51.' Flower heads conspicuously radiate, rays mostly white, mauve or blue:
55. Scrambling climber with petiolate, deltoid, serrate leaves; heads in panicles, with white rays ..... **Microglossa**
55.' Annual or perennial herbs or shrublets with sessile leaves; heads solitary or corymbose:
56. Achenes with hairs plus multicellular glands:
57. Pappus bristles plumose; softly hairy, rosette-forming herbs; leaves in a basal tuft; heads solitary and scapose ..... **Mairia**
57.' Pappus bristles scabrid or barbellate; herbaceous perennials ..... **Afroaster**
56.' Achenes without multicellular glands:
58. Receptacle paleate ..... **Amellus**
58.' Receptacle epaleate:
59. Creeping perennials rooting from nodes; leaves succulent; anther connectives produced above into auricles; stigmas with a basal ring of long papillae or hairs ..... **Poecilolepis**
59.' Not as above:
60. Rays discolorous, white with pink or red below; achenes glabrous, with a horny apical collar; mostly closely leafy, straggling shrublets .. **Polyarrhena**
60.' Rays concolorous, blue or white; achenes without apical collar:
61. Pappus bristles plumose ..... **Zyrphelis**
61.' Pappus bristles scabrid or barbellate, sometimes absent or sparse in ray florets:
62. Disc florets functionally male; pappus bristles few, caducous, mostly lacking in ray florets; fertile achenes glabrous or papillate ..... **Gymnostephium**
62.' Disc florets bisexual, rarely functionally male; pappus bristles several, persistent, rarely absent in ray florets; fertile achenes hairy, rarely glabrous ..... **Felicia**
47.' Style branches linear and truncate, with bristly apex; pappus of bristles or scales or 0:
63. Anther bases usually obtuse, sometimes minutely tailed; pappus of scales, sometimes crown-like, or 0:
64. Closely leafy, silver-velvety shrublets; leaves elliptic, imbricate; heads discoid, epaleate, solitary or few in corymbs; florets 4-lobed ..... **Schistostephium**
64.' Not as above:
65. Annuals or small, rhizomatous perennials; receptacle epaleate; disc florets mostly 4-lobed:
66. Corolla tube of disc florets swollen and brittle, 4-ribbed ..... **Oncosiphon**
66.' Corolla tube not swollen and brittle:
67. Achenes flattened and often winged; ray florets usually stalked or peduncle conspicuously inflated apically in fruit ..... **Cotula**
67.' Achenes not flattened ..... **Foveolina**
65.' Shrubs; disc florets 5-lobed or receptacle paleate:
68. Heads homogamous, discoid:

69. Pappus 0, or a pseudopappus of glandular hairs present; corolla often with slender glandular hairs; plants glabrous or with an indumentum of stellate hairs:
70. Leaves opposite; heads solitary and sessile ..... **Asaemia**
70.' Leaves alternate; heads corymbose and pedunculate ..... **Athanasia**
69.' Pappus of scales:
71. Anthers tailed; leaves entire, toothed or lobed, gland-dotted ..... **Inulanthera**
71.' Anthers obtuse or acute:
72. Receptacle paleate, rarely epaleate; heads narrow, few-flowered (6–10 florets), in terminal corymbs; indumentum of stellate hairs ..... **Hymenolepis**
72.' Receptacle epaleate; hairs simple:
73. Pappus of 7–9 scales; shrubs with linear or tufted leaves ..... **Marasmodes**
73.' Pappus obliquely cup-shaped or divided into 3–5 scales; shrubs with simple or pinnatisect leaves ..... **Pentzia**
68.' Heads heterogamous, disciform or radiate:
74. Heads disciform, outer female florets filiform:
75. Receptacle paleate; achenes densely hairy; heads solitary ..... **Lasiospermum**
75.' Receptacle epaleate:
76. Heads solitary or few in corymbs; leaves simple or pinnatifid ..... **Hippia**
76.' Heads numerous in racemes or panicles; leaves bipinnatifid ..... **Artemisia**
74.' Heads radiate, outer florets ligulate:
77. Receptacle paleate:
78. Achenes woolly; rays 2 or 3; ericoid shrublets ..... **Eriocephalus**
78.' Achenes glabrous or with a basal tuft of hairs; rays several:
79. Inner involucral bracts broad, with membranous margins; anthers obtuse; pappus usually conspicuous, of 5 large whitish scales; rays yellow or white ..... **Ursinia**
79.' Involucral bracts herbaceous; anthers tailed; pappus scales small; rays white ..... **Osmitopsis**
77.' Receptacle epaleate:
80. Pappus 0:
81. Disc florets 4-lobed, achenes glandular; shrublets with broadly lobed, gland-dotted leaves ..... **Lidbeckia**
81.' Disc florets 5-lobed; achenes with white, slime-producing hairs; twiggy shrublets with simple, adpressed leaves ..... **Phymaspermum**
80.' Pappus present:
82. Pappus obliquely cup-shaped; achenes not compressed ..... **Cymbopappus**
82.' Pappus of 3 scales; achenes strongly compressed ..... **Leucoptera**
63.' Anthers tailed; pappus of bristles and sometimes scales; involucral bracts mostly dry, shiny ('everlastings'):
83. At least some heads radiate, with ligulate outer florets:
84. Ray florets white, pink or blue:
85. Leaves ericoid with involute margins, often twisted, upper surface more densely hairy than lower; ray florets few:
86. Pappus bristles plumose throughout; heads 6–15- flowered ..... **Amphiglossa**
86.' Pappus bristles plumose above or barbellate; heads 1–8-flowered:
87. Compact, cushion-forming shrublet ..... **Bryomorphe**
87.' Erect or sprawling shrubs ..... **Disparago**
85.' Leaves sometimes ericoid but margins flat or revolute, lower surface more densely hairy than upper:
88. Involucral bracts dry, slender and aristate with recurved tips; resprouting perennials from a woody rootstock ..... **Athrixia**
88.' Involucral bracts green and woolly; shrublets ..... **Printzia**
84.' Ray florets yellow, often coppery beneath; pappus of scales only or biseriate, of scales and bristles:
89. Plants compact, cushion-forming ..... **Oreoleysera**
89.' Plants not cushion-forming:
90. Pappus bristles distinctly plumose ..... **Leysera**
90.' Pappus bristles barbellate or absent:
91. Annual or biennial herbs:
92. Ovary densely hairy with long, apically coiled hairs ..... **Rhynchopsidium**
92.' Ovary glabrescent ..... **Nestlera**
91.' Perennials or shrublets:
93. Disc florets with 1–4 pappus bristles ..... **Rosenia**
93.' Disc florets without pappus bristles, scales sometimes needle-like:

94. Plants glabrous (rarely hairy); heads generally corymbose or clustered in secondary glomerules ..... **Oedera**
94.' Not as above:
95. Leaves with long, glandular hairs; resprouting perennial from a woody rootstock ..... **Comborhiza**
95.' Leaves without long glandular hairs; shrublets ..... **Relhania**

83.' Heads discoid or heterogamous and disciform but without developed ray florets:
96. Pappus biseriate, of narrow scales and a few barbellate bristles; shrublets with small, oblanceolate leaves and solitary heads ..... **Pentatrichia**
96.' Pappus uniseriate, of barbellate or plumose bristles:
97. Leaves dimorphic, cauline leaves linear and involute but peduncles closely invested with imbricate, clasping, scale-like leaves; heads large (20–30 mm long), solitary, conspicuous ..... **Edmondia**
97.' Leaves not dimorphic; heads mostly smaller:
98. Leaves mostly involute, ericoid, often twisted, rarely weakly involute and granular, upper surface densely white-woolly:
99. Pappus bristles plumose throughout or absent; achenes with a cupuliform apical appendage:
100. Heads 1-flowered, in spikes or glomerules ..... **Stoebe**
100.' Heads 2- or more-flowered:
101. Heads aggregated in glomerules or spikes; achenes without a lateral wing; ericoid shrublets but never spiny or wiry ..... **Elytropappus**
101.' Heads 1 or 2, not aggregated; achenes with a lateral wing; spiny or wiry shrublets ..... **Amphiglossa**
99.' Pappus bristles barbellate or plumose above:
102. Heads heterogamous; outer florets usually with pappus 0, or of 1 or 2 bristles and solitary in axils of outer bracts ..... **Ifloga**
102.' Heads homogamous; bracts often acute and squarrose:
103. Petals hairy; achenes hairy with a shallow, membranous crown; heads mostly solitary:
104. Leaves minute, granular, densely imbricate on brachyblasts; heads large and showy ..... **Phaenocoma**
104.' Leaves otherwise:
105. Apical anther appendages oblong and obtuse; apical cells of pappus bristles clavate; leaves scale-like, adpressed on short, whip-like branches ..... **Dolichothrix**
105.' Apical anther appendages lanceolate and acute; apical cells of pappus bristles not clavate ..... **Lachnospermum**
103.' Petals glabrous or papillate:
106. Heads small (3–13-flowered), often cylindrical:
107. Pappus bristles with flattened, ± clavate tips ..... **Metalasia**
107.' Pappus bristles not as above ..... **Planea**
106.' Heads larger (15–140-flowered), often campanulate:
108. Corolla cylindrical ..... **Calotesta**
108.' Corolla campanulate above:
109. Heads solitary ..... **Hydroidea**
109.' Heads corymbose ..... **Atricantha**
98.' Leaves flat or with margins revolute (rarely weakly involute), both surfaces equally woolly or lower more densely covered:
110. Pappus bristles plumose or barbellate, fused below into a smooth ring; style branches often rounded or truncate; silver- or grey-felted perennials with showy, everlasting heads ..... **Syncarpha**
110.' Not as above:
111. Inner involucral bracts at least with a translucent central strip in lower part:
112. Involucral bracts very obtuse or truncate, usually biseriate, or if in 3 series then pappus bristles expanded towards base and fused below into a smooth ring ..... **Lasiopogon**
112.' Involucral bracts usually in at least 3 series; pappus bristles never dilated below and fused into a ring:
113. Annual or weakly perennial grey-woolly herbs; heads small (up to 4 × 3 mm), involucral bracts with opaque white tips; pappus bristles subplumose above ..... **Vellereophyton**
113.' Usually perennial herbs or shrublets, but if annual then either bracts without opaque white tips or pappus not subplumose above:

114. Female flowers at least 5 times as many as hermaphrodite; heads campanulate with involucral bracts equalling flowers; perennial herb with lanceolate leaves expanded and clasping below and decurrent on stem ..... **Pseudognaphalium**
114.' Not as above ..... **Helichrysum**
111.' Involucral bracts without a translucent strip in lower part:
115. Central florets hermaphrodite; inner involucral bracts without conspicuously spreading white blades; annuals, perennials or shrublets:
116. Leaves linear to spathulate, sessile ..... **Gnaphalium**
116.' Leaves ovate or elliptic, petiolate:
117. Loosely tangled shrublets with heads in terminal corymbs ..... **Plecostachys**
117.' Small annual or weakly perennial herbs with heads on filiform peduncles ..... **Troglophyton**
115.' Central florets functionally male; inner involucral bracts with conspicuously spreading white blades; shrublets:
118. Leaves flat:
119. Receptacle paleate; involucral bracts clawed; pappus bristles subplumose above; style of disc florets simple ..... **Petalacte**
119.' Receptacle epaleate; involucral bracts not clawed; pappus bristles barbellate above; style of disc florets bifid ..... **Langebergia**
118.' Leaves revolute:
120. Flowering branches with leaves reduced above; corolla purplish; pappus reduced in female florets ..... **Anaxeton**
120.' Flowering branches evenly leafy to tip; corolla white or yellow; pappus well developed in all florets ..... **Anderbergia**

AFROASTER J.C.Manning & Goldblatt 18 spp., sub-Saharan Africa

bowiei (Harv.) J.C.Manning & Godlblatt (= *Aster bowiei* Harv.) Glabrous, slender perennial to 25 cm. Leaves linear to filiform. Flower heads radiate, solitary, subscapose, yellow with white rays. Mar.–Apr. Grassland, LB (Langeberg: Swellendam).•

hispida (Thunb.) J.C.Manning & Goldblatt (= *Aster bakerianus* Burtt Davy ex C.A.Sm.) Roughly hairy perennial to 70 cm. Leaves lanceolate, margins revolute, slightly toothed, 3–5-veined from base. Flower heads radiate, solitary, subscapose, yellow with blue or white rays. Mainly Nov.–May. Rocky grasslands, SE (George to Tanzania).

laevigatus (Sond.) J.C.Manning & Goldblatt (= *Aster laevigatus* (Sond.) Kuntze) Glabrous perennial to 30 cm. Leaves oblanceolate, 3–5-veined from base. Flower heads radiate, solitary, yellow with ?white to mauve rays. Oct. Grasslands, SE (Van Staden's Mtns).•

ALCIOPE DC. = **CAPELIO**

AMELLUS L. ASTERTJIE 12 spp., western southern Africa

*A. Plants prostrate or sprawling, to 20 cm high (see also **A. asteroides**)*

microglossus DC. Roughly hairy, sprawling annual to 15 cm. Leaves oblanceolate. Flower heads with reduced rays, solitary or in lax corymbs, yellow with white rays; pappus of scales and bristles. Aug.–Dec. Sandy flats and washes, NW, KM (S Namaqualand and W Karoo to Little Karoo). **gce**

strigosus (Thunb.) Less. Roughly hairy, sprawling annual to 10 cm. Leaves oblanceolate. Flower heads radiate, solitary, yellow with blue-mauve rays; pappus of scales and bristles. Aug.–Dec. Stony slopes, SW, AP, KM, LB, SE (Riviersonderend to E Cape and S Karoo).

tridactylus DC. Like **A. strigosus** but pubescence spreading, not adpressed. July–Sept. Dry washes and streambeds, NW, KM (S Namibia and Karoo to Witteberg).

A.' Plants erect, 20–80 cm high

alternifolius Roth Roughly hairy annual or short-lived perennial to 60 cm. Leaves oblong or pinnately lobed. Flower heads radiate, solitary, yellow with mauve rays; pappus of scales and bristles. Sept.–Nov. Sandy flats, NW (Namaqualand to Lambert's Bay). **gce**

asteroides (L.) Druce Silky to softly hairy, woody perennial to 40 cm. Leaves oblanceolate to spathulate. Flower heads discoid or radiate, solitary, yellow with white to mauve rays; pappus of scales and bristles. Oct.–Jan. Coastal dunes, NW, SW, AP (Lambert's Bay to Gansbaai).•

capensis (Walp.) Hutch. Grey-silky perennial to 35 cm. Leaves oblanceolate. Flower heads discoid or radiate, solitary, yellow with mauve rays; pappus of scales only. Dec.–Jan. Coastal dunes, SW, AP (Cape Peninsula to Agulhas).•

tenuifolius Burm. GRYSASTERTJIE Grey-silky, much-branched perennial or shrublet to 50 cm. Leaves narrowly oblanceolate to linear. Flower heads radiate (rarely discoid), solitary or in loose corymbs, yellow with mauve rays; pappus of scales and bristles. Sept.–Dec. Sandy flats near coast, NW, SW (S Namibia to Villiersdorp). **gce**

AMPHIGLOSSA DC. (= *PTEROTHRIX*) KOPSEERBOSSIE 11 spp., S Africa and Namibia, mostly W Karoo

A. Flower heads radiate

callunoides DC. Sprawling, thinly cobwebby shrublet to 50 cm with spur shoots, layering from branch tips. Leaves narrowly lanceolate, adpressed. Flower heads radiate, small, solitary on tips of spur shoots, rays 4 or 5, white, inner bracts mucronate. Dec.–Apr. Stony riverbeds, SE (Kouga Mtns to Uitenhage).•

grisea Koekemoer Rounded, white-woolly shrublet to 30 cm. Leaves involute-ericoid, adpressed. Flower heads small, radiate, solitary at branch tips, rays 3, white. Jan.–Mar. Sandy flats and slopes, NW (Bokkeveld Mtns to Clanwilliam).•

tomentosa (Thunb.) Harv. (= *Pterothrix flaccida* Schltr. ex Hutch. & E.Phillips) Wiry-stemmed, thinly woolly shrublet to 60 cm. Leaves involute-ericoid, suberect, sometimes twisted. Flower heads radiate, few in loose terminal groups, rays 3 or 4(5), pink or white, inner bracts reddish above. Nov.–Feb. Dry karroid slopes, NW, KM (Namibia to Little Karoo).

A.' Flower heads discoid

perotrichoides DC. (= *Pterothrix perotrichoides* (DC.) Harv.) Diffuse, stiffly branched, thinly white-woolly shrublet to 30 cm with spur shoots. Leaves involute-ericoid, suberect. Flower heads discoid, 1–few at branch tips, white, bracts acuminate-mucronate, spreading above, brown, silvery cobwebby below. Nov.–Jan. Karroid flats and slopes, NW, KM (Cedarberg and Little Karoo).•

rudolphii Koekemoer Dense, brittle shrub to 1.2 m. Leaves shortly petiolate, linear-oblong with involute margins, ascending. Flower heads small, discoid, few at branch tips, white, inner bracts mucronate. Feb.–Apr. Dry karroid slopes, NW (W Karoo to Worcester). **gce**

susannae Koekemoer Erect, wiry-stemmed shrublet to 50 cm. Leaves involute-ericoid, suberect, yellowish green and sometimes tufted on young shoots. Flower heads small, discoid, white, inner bracts spathulate. Nov.–Dec. Sandy pockets on sandstone, NW (Swartruggens).•

ANAXETON Gaertn.• 10 spp., SW Cape

angustifolium Lundgren Sparsely leafy, straggling, thinly white-woolly shrublet to 60 cm. Leaves linear, suberect, margins revolute. Flower heads discoid, small, several in small rounded clusters on long peduncles, yellow, bracts white and brown. Aug.–Sept. Sandstone slopes above 1 500 m, NW (Hex River Mtns: Milner Peak).•

arborescens (L.) Less. Like **A. laeve** but outer bracts glabrous. Mainly Aug.–Oct. Sandstone slopes, SW (Cape Peninsula).•

asperum (Thunb.) DC. Grey-woolly, softly woody shrublet to 30 cm. Leaves linear, often recurved and green above, margins revolute. Flower heads discoid, small, many in dense, rounded clusters on elongate peduncles, yellow, bracts white and brown. Mainly Aug.–Dec. Sandstone slopes, SW, AP (Bain's Kloof to Bredasdorp).•

brevipes Lundgren Like **A. nycthemerum** but outer bracts obtuse. Mainly Aug.–Oct. Sandstone slopes above 1 000 m, SW (Riviersonderend Mtns).•

ellipticum Lundgren White-woolly, spreading shrublet to 20 cm. Leaves broadly ovate, margins revolute, green and glabrous above, reflexed. Flower heads discoid, small, many in dense, rounded clusters ± nested in leaves, yellow, bracts white and brown. Sept.–Dec. Upper sandstone slopes above 1 500 m, SW (Franschhoek Peak to Hottentots Holland Mtns).•

hirsutum (Thunb.) Less. Grey-woolly shrublet to 30 cm, closely leafy below. Leaves narrowly elliptic to oblong, margins revolute, green and thinly hairy above. Flower heads discoid, small, many in dense, rounded clusters on short peduncles, yellow, bracts white and brown. Mainly Oct.–Nov. Sandstone slopes and summits, 500–1 500 m, SW (Riviersonderend Mtns and Caledon Swartberg).•

laeve (Harv.) Lundgren White-woolly shrublet to 45 cm. Leaves linear with revolute margins, green and glabrous above. Flower heads discoid, small, many in dense, rounded clusters on long peduncles, yellow, bracts whitish, outer silky, ovaries woolly. Mainly Dec.–May. Sandstone slopes, SW (Cape Peninsula to Stanford).•

lundgrenii B.Nord. Like **A. leave** but leaves oblanceolate, involucral bracts fewer, 9–13, and rays very short. Sept.–Nov. Sandstone crevices, SW (Kleinrivier Mtns).•

nycthemerum Less. White-woolly shrublet to 30 cm, closely leafy below. Leaves obovate with revolute margins. Flower heads discoid, small, many in dense, rounded clusters, yellow, bracts white and brown. Mainly Oct.–Dec. S-facing cliffs above 600 m, SW (Cape Peninsula to Kogelberg).•

virgatum DC. Slender, white-woolly shrublet to 50 cm. Leaves linear, spreading, margins revolute. Flower heads discoid, small with 2 or 3 florets, many in dense, rounded clusters on elongate peduncles, yellow, bracts white and brown. July–Oct. Sandstone slopes, SW, AP (Kleinmond to Potberg).•

ANDERBERGIA B.Nord.• 6 spp., SW Cape

elsiae B.Nord. Diffuse, grey-woolly shrublet to 50 cm. Leaves narrowly elliptic, margins revolute, glabrescent above, felted below. Flower heads in compact, rounded clusters, discoid, 4–4.5 mm long, yellowish, outer bracts woolly, inner petaloid bracts woolly below, male florets 6 or 7, female florets 1, ovary glabrous. Oct. Sandstone slopes, ± 1 000 m, NW (Worcester: Keeromsberg).•

epaleata (Hilliard & B.L.Burtt) B.Nord. (= *Petalacte epaleata* Hilliard & B.L.Burtt) Suberect shrublet to 50 cm. Leaves oblanceolate, margins revolute, glabrescent above, felted below, ± 10 mm long. Flower heads in loose corymbs, discoid, 5 mm long, yellowish, outer bracts brownish woolly, inner petaloid bracts woolly below, male florets 4 or 5, female florets 1, ovary glabrous. Sept. Sandstone slopes, KM (Klein Swartberg).•

fallax B.Nord. Diffuse, grey-woolly shrublet to 50 cm. Leaves narrowly elliptic, cobwebby above, felted below, margins revolute, 5–10 mm long. Flower heads discoid, shorter than 5 mm, many in rounded clusters, yellowish, outer involucral bracts < half as long as involucre, petaloid involucral bracts woolly from base, female florets (0)1, ovary hairy, male florets 4. Oct. S-facing sandstone slopes above 1 000 m, LB (Langeberg: near Swellendam).•

rooibergensis B.Nord. Like **A. epaleata** but leaves mostly oblong, smaller, ± 5 mm long, outer involucral bracts white-silky and ovary shortly hairy. Oct.–Nov. Sandstone slopes, ± 1 200 m, KM (Rooiberg).•

ustulata B.Nord. Like **A. elsiae** but male florets 4. Oct. Sandstone slopes above 1 000 m, NW (Worcester: Sawedge Peak).•

vlokii (Hilliard) B.Nord. (= *Petalacte vlokii* Hilliard) Like **A. elsiae** but claw of petaloid involucral bracts glabrous below and female florets usually 2. Sept.–Oct. Sandstone slopes above 1 000 m, KM (Waboomsberg).•

ANISOTHRIX O.Hoffm. = **PENTATRICHIA**

ARCTOTHECA J.C.Wendl. 5 spp., southern Africa

calendula (L.) Levyns CAPE WEED Tufted to sprawling, roughly hairy annual to 20 cm. Leaves mostly basal, lyrate to pinnatisect, sometimes bipinnatisect, lobes oblong, toothed, discolorous, woolly below, roughly hairy above. Flower heads radiate, solitary on roughly hairy scapes, black with yellow rays, sometimes with dark bases: outer bracts short, reflexed. Achenes woolly, pappus chaffy. Mainly July–Nov. Coastal areas or disturbed soil, NW, SW, AP, KM, LB, SE (Namaqualand and Karoo to Cape Peninsula and Humansdorp).

forbesiana (DC.) Lewin. Tufted, thinly white-woolly, scapose perennial to 15 cm, roots thick, fusiform. Leaves in a basal tuft, lyrate to pinnatisect, sometimes bipinnatisect, lobes lanceolate, margins revolute, discolorous, glabrous above. Flower heads radiate, solitary on elongate peduncles, yellow; outer bracts long. Achenes woolly, pappus chaffy. July–Oct. Damp sandy flats, SW, AP (Cape Peninsula to Elim).•

marginata Beyers Prostrate perennial rooting at nodes, softly hairy. Leaves linear-elliptic, margins crisped and rolled under, softly hairy above and felted beneath. Flower heads radiate, solitary on felted scapes, yellow with rays reddish outside, involucral bracts felted. Achenes woolly, pappus lacking. Oct.–Nov. Sandy edges of pans, NW (Bokkeveld Mountains).•

populifolia (P.J.Bergius) Norl. SEA PUMPKIN Mat-forming, white-felted perennial to 10 cm. Leaves petiolate, mostly entire, cordate, margins sparsely toothed. Flower heads radiate, solitary on woolly bracteate peduncles, yellow. Achenes woolly, pappus corona-like. Jan.–Dec. Coastal dunes, SW, AP, SE (Saldanha to Mozambique).

prostrata (Salisb.) Britten Like **A. calendula** but perennial, sprawling and rooting at nodes, softly hairy, leaves auriculate below, involucral bracts white-tipped. Achenes silky. Mainly Sept.–Nov. Sandy slopes and flats, coastal and near streams, NW, SW, AP, LB, SE (Cedarberg and W Karoo to KwaZulu-Natal).

ARCTOTIS L. (= *VENIDIUM*) ARCTOTIS, GOUSBLOM ± 50–60 spp., southern Africa to Angola

A. Annuals

B. Achenes with basal ring of hairs, pappus at least as long as achene

breviscapa Thunb. SANDVELDGOUSBLOM Tufted annual to 20 cm. Leaves lanceolate to pinnatifid, discolorous, woolly beneath, glabrescent above. Flower heads radiate, solitary, subscapose, rays orange or yellow, red on reverse, disc black; outer bracts with linear, felted, reflexed tail. Achenes with 2 lateral elongate cavities. Aug.–Nov. Sandy flats, NW, SW (Clanwilliam to Cape Peninsula and Stellenbosch).•

dregei Turcz. (= *Arctotis sulcocarpa sensu* Cape plants 2000) Thinly woolly, tufted annual to 20 cm. Leaves lyrate-pinnatifid, discolorous, grey-felted beneath, roughly hairy above. Flower heads radiate, solitary, disc dark or yellow with yellow rays, ray florets sterile; bracts with rudimentary tail. Achenes with single, undulate cavity. July–Aug. Clay flats and hills, NW, KM, SE (W Karoo and Bokkeveld Mtns to McGregor, Little Karoo to Gamtoos River and Great Karoo).

leiocarpa Harv. Cobwebby annual to 40 cm. Leaves oblanceolate-pinnatifid to lyrate or lacerate. Flower heads radiate, solitary, disc dark or yellow with white, orange or pale salmon rays; bracts with short, woolly tail. Achenes with 2 elongate cavities. Aug.–Oct. Gravel plains, KM (SE Namibia to Little and Great Karoo).

B.' Achenes without basal ring of hairs, pappus shorter than achene or lacking

erosa (Harv.) Beauverd Annual to 50 cm. Leaves lyrate-pinnatifid, roughly glandular-hairy. Flower heads radiate, dark with orange or yellow rays, often with dark ring. Achenes with single, linear-undulate cavity; pappus absent or rudimentary and without basal tuft of hairs. Aug.–Oct. Stony or sandy flats and watercourses, KM (Bitterfontein and Calvinia to Knersvlakte and Little Karoo). **gce**

flaccida Jacq. (incl. **A. gowerae** E.Phillips, **A. leucanthemoides** Jacq., **A. pusilla** DC., **A. venidioides** DC.) Like **A. hirsuta** but achene cavities elongate-undulate, flower heads sometimes with dark or yellow ring. Mainly July–Oct. Sandy flats and gravel slopes, NW (Brand-se-baai to Elands Bay). **gce**

hirsuta (Harv.) Beauverd GOUSBLOM Slightly fleshy, often robust annual to 45 cm. Leaves lyrate-pinnatifid, thinly hairy, often auriculate. Flower heads radiate, solitary, often several per branch, disc dark with cream-coloured or orange rays; outer bracts softly hairy, shortly tailed. Achenes small and black, with 2 rounded cavities; pappus short and with rudimentary basal tuft of hairs. Aug.–Oct. Sandy slopes and flats, often coastal, NW, SW, AP (Elands Bay to Potberg).•

A.' Perennials or shrubs

C. Tufted or rhizomatous perennials

acaulis L. (incl. **A. fosteri** N.E.Br.) RENOSTERGOUSBLOM Stemless perennial to 20 cm, with woody rootstock. Leaves lyrate-pinnatifid to oblanceolate or cordate, toothed, discolorous, grey-felted beneath, roughly hairy above. Flower heads radiate, solitary, scapose, black with orange, yellow or cream-coloured rays; outer bracts with slender woolly tip. Achenes constricted at

base with 2 rounded cavities. Aug.–Oct. Clay, granitic flats and limestones, NW, SW, AP, LB, SE (W Karoo and Bokkeveld Plateau to Langkloof). **gce**

acuminata K.Lewin Tufted, roughly hairy, thinly cobwebby perennial to 50 cm. Leaves oblanceolate to oblong, sharply toothed to pinnatifid, discolorous, margins revolute. Flower heads radiate, solitary, white to pink; bracts with sharp, leaf-like tips. Achenes with 2 elongate-undulate cavities. Nov.–Dec. Rocky sandstone slopes above 600 m, NW (Cedarberg to Cold Bokkeveld and Kwadouwsberg).•

adpressa DC. Shortly caulescent perennial from woody base. Leaves lyrate-pinnatifid, grey-felted. Flower heads radiate, solitary, scapose, disc yellow, rays yellow usually dark red beneath; outer bracts appressed, without tail. Achenes with 2 long, undulate cavities. Sept.–Nov. Sandstone slopes, NW (Pakhuis and Cedarberg).•

angustifolia L. (incl. **A. plantaginea** L.) Creeping, glandular perennial to 20 cm, with sprawling stems from woody rootstock. Leaves broadly obovate to oblanceolate, toothed to pinnatifid, usually discolorous, margins slightly revolute. Flower heads radiate, solitary, white or yellow with reddish reverse; outer bracts with linear tail. Achenes with 2 rounded cavities; pappus short, basal tuft of hairs deciduous and longer than achene. Mainly Sept.–Nov. Sandy slopes and flats, SW (Mamre to Caledon and Cape Peninsula).•

rotundifolia K.Lewin Like **A. angustifolia** but often forming dense mats, leaves white-cobwebby, leaf blades often rounded and ± spathulate, achene cavities elongate-undulate. Oct.–Dec. In sand on rocky, sandstone slopes, SW (Franschhoek Mtns to W Riviersonderend Mtns).•

schlechteri K.Lewin Decumbent perennial like **A. pinnatifida** but leaves elliptic to oblanceolate, petiolate and rays yellow above with dark red reverse. Nov.–Feb. Sandstone slopes, sandy or ferricrete flats, AP (Kleinrivier Mtns and Agulhas Plain).•

verbascifolia Harv. Like **sp. 1** but leaves white-felted on both surfaces, ovate-subcordate, margins crenate, ray florets cream-coloured or yellow, pink to purple on reverse, involucral bracts with tail short or lacking. Sept.–Oct. Sandstone slopes, NW (Witzenberg and Skurweberg).•

sp. 1 (**A. undulata** Jacq., nom. illegit.) Like **A. acaulis** but leaves with long petioles, almost spathulate or subcordate, not pinnatifid, flower heads with orange or cream-coloured rays. Aug.–Oct. Sandstone slopes, NW (Bokkeveld Plateau to Gouda and Ceres).•

C.' Sprawling perennials, subshrubs or shrubs
D. Achenes with 1 cavity

arctotoides (L.f.) O.Hoffm. (incl. **A. hispidula** (Less.) Beauverd, **A. microcephala** (DC.) Beauverd, **A. suffruticosa** K.Lewin) Sprawling to prostrate perennial to 30 cm. Leaves lyrate-pinnatifid or pinnatisect to almost spathulate, petioles sometimes decurrent and auriculate, roughly glandular-hairy or discolorous and thinly woolly beneath. Flower heads radiate, small, solitary on slender peduncles, yellow; bracts woolly or glandular-hairy, acute, acuminate, pandurate or tail lacking. Achenes with single elongate cavity, without pappus or basal tuft of hairs. Mainly Aug.–Mar. Mostly damp slopes and banks, SE (Namibia, S Botswana, Karoo to Mpumalanga, Knysna to KwaZulu-Natal).

D.' Achenes with 2 cavities

argentea Aiton Lax, rounded, silvery-felted shrub to 1 m. Leaves linear, margins revolute, sometimes toothed. Flower heads radiate, solitary on elongate pedicels, yellow; outer bracts without tail. Achenes with 2 elongate-undulate cavities. Oct.–Mar. Mostly sandstone slopes, NW, KM (Swartruggens to Swartberg).•

aspera L. TAAIGOUSBLOM Softly woody, glandular-hairy, sprawling, short-lived perennial to 2 m. Leaves auriculate, pinnatisect or bipinnatisect, segments narrow, sometimes grey below, margins revolute, roughly glandular-hairy. Flower heads solitary, purple or white, dark on reverse; bracts ± tailed. Achenes with 2 elongate-undulate cavities. Mainly Aug.–Oct. Rocky slopes, NW, SW (Elands Bay to Cape Peninsula).•

bellidifolia P.J.Bergius Tufted to sprawling perennial to 30 cm, from woody base. Leaves oblanceolate, toothed, margins slightly revolute, white-felted beneath, roughly hairy above, Flower heads solitary, orange, pink or white with darker reverse; bracts tailed. Achenes with 2 elongate-undulate cavities. Sept.–Nov. Sandy slopes, NW, SW (Cedarberg to Klipheuwel).•

formosa Thunb. Rhizomatous perennial with erect stems to 30 cm. Leaves pinnatisect, densely white-felted, undulate, dentate, recurved. Flower heads solitary, disc black, rays orange with red

reverse; outer involucral bracts with linear, felted, reflexed tail. Sept.–Oct. Silty floodplains and sandy flats, SW (Worcester to Swellendam).•

incisa Thunb. BOTTERBLOM Sprawling perennial to 30 cm. Leaves pinnatisect to lyrate, lobes toothed, broad to narrow, discolorous, white-felted beneath, roughly hairy to scabrid above, margins slightly revolute. Flower heads solitary, dark with white or orange rays reddish on reverse; bracts with long woolly tail. Achenes with 2 elongate-undulate cavities. Aug.–Oct. Sandy slopes and flats, NW, SW, AP, LB (Klawer to Swellendam).•

linearis Thunb. (incl. **A. lanceolata** Harv.) Tufted grey-felted perennial to 35 cm. Leaves linear to oblanceolate, distantly toothed. Flower heads radiate, solitary, disc black, rays yellow; bracts obscurely tailed. Achenes with 2 elongate-undulate cavities. Mainly June–Apr. Rocky sandstone slopes, KM, LB, SE (Tradouw Pass to Patensie).•

muricata Thunb. Erect, sparsely branched perennial to 60 cm. Leaves obovate to oblanceolate, pinnatifid, apex obtuse-truncate, roughly hairy, glandular, white-tomentose beneath. Flower heads radiate, solitary, dark with pale pink rays with dark, purple-red band; outer bracts with long linear tail. Achenes with 2 elongate cavities; pappus and basal tuft of hairs shorter than achene. Aug.–Oct. Damp, rocky sandstone slopes, NW (Olifants River Mtns).•

perfoliata (L.f.) Beauverd (incl. **A. discolor** (Less.) Beauverd) Sprawling perennial to 30 cm, stems roughly purple-hairy. Leaves lyrate-pinnatifid to ovate-petiolate, discolorous, margins slightly revolute, usually auriculate at base. Flower heads radiate, small, solitary on axillary peduncles, yellow; bracts woolly, acute. Achenes with 2 elongate cavities; pappus or basal tuft of hairs absent. Mainly Sept.–Jan. Damp, rocky slopes and stream banks, SW, LB, SE (Cape Peninsula to Van Staden's Mtns).•

pinnatifida Thunb. (incl. **A. cuneata** DC.) Rhizomatous, sprawling perennial to 30 cm. Leaves oblanceolate, pinnatifid, white-felted beneath, glabrescent above. Flower heads radiate, solitary, disc black, rays cream-coloured or yellow, often red-purple on reverse; outer bracts with white-woolly tail. Achenes with 2 elongate cavities. Sept.–Nov. Rocky slopes, SW, AP, LB (Albertinia to E Cape).

reptans Jacq. (incl. **A. petiolata** Thunb.) Prostrate perennial to 30 cm, stems long, sparsely branched, adventitiously rooting, flowering shoots erect. Leaves lyrate-pinnatifid to oblanceolate, toothed, white-felted or roughly hairy above, white-felted beneath. Flower heads radiate, solitary, dark with white or orange rays; bracts with linear, reflexed tail. Achenes with 2 elongate-undulate cavities. Aug.–Oct. Sandy flats, SW, AP (Piketberg to Albertinia).•

revoluta Jacq. (incl. **A. cineraria** Jacq., **A. cuprea** Jacq., **A. denudata** Thunb., **A. glabrata** Jacq., **A. laevis** Thunb., **A. squarrosa** Jacq.) KRULBLAARGOUSBLOM Softly woody shrub to 2 m, aromatic when crushed. Leaves usually bipinnatisect, segments linear, margins revolute, often discolorous and grey-felted beneath, glabrescent above. Flower heads radiate, solitary, yellow to orange; bracts tailed. Achenes with 2 cuneate cavities. Mainly Aug.–Nov. Rocky slopes, NW, SW (Namaqualand to Langebaan and Worcester). **gce**

rosea Jacq. Shortly stemmed perennial like **A. linearis** but with upper leaf surface white-felted to glabrescent, rays pale pink with pinkish red reverse, outer bracts with short felted tail. Sept.–Nov. Sand on gentle, sandstone-quartzite slopes, SW, LB (N foothills Riviersonderend Mnts. and Langeberg).•

scabra Thunb. (incl. **A. macrosperma** (DC.) Beauverd, **A. semipapposa** (DC.) Beauverd; = *A. flaccida sensu* Cape plants 2000) Roughly hairy, sprawling subshrub to 40 cm. Leaves oblanceolate to linear, entire to pinnatifid, sessile, margins revolute, often slightly toothed, discolorous, roughly hairy above, white-felted beneath, often auriculate at base. Flower heads radiate, solitary on leafy peduncles, disc yellow or dark, with yellow rays; bracts with linear tail. Achenes oblong, with 2 elongate cavities; pappus rudimentary and without basal tuft of hairs. Sept.–Apr. Sandstone slopes and flats, often among woody shrubs, NW, SW (Cedarberg to Kleinrivier Mtns).•

stoechadifolia P.J.Bergius KUSGOUSBLOM Sprawling, silvery woolly perennial with adventitiously rooting stems and erect flowering shoots to 35 cm. Leaves oblanceolate to lyrate-pinnatifid, densely white-felted. Flower heads radiate, solitary, disc black, rays cream-coloured or pale yellow with reddish reverse; outer bracts with woolly tail. Achenes with 2 elongate cavities. Sept.–Dec. Dunes and sandy flats, mostly coastal, SW (Yzerfontein to Cape Peninsula).•

virgata Jacq. (incl. **A. graminea** Lewin) Erect, tufted, sparsely branched perennial to 60 cm. Leaves linear-lanceolate, discolorous, white-felted beneath, glabrescent above. Flower heads radiate, solitary, disc black, rays yellow with red reverse; outer bracts with appressed, linear, white-felted tail. Mainly Nov.–Mar. Grassy flats, LB (Riversdale).•

sp. 2 Tufted perennial to 40 cm, from woody base. Leaves oblanceolate to lyrate-pinnatifid, densely white-felted beneath. Flower heads radiate, solitary, deep orange, sometimes with dark zone; outer bracts large, obtuse, with dark edges, tailed. Achenes with 2 elongate (undulate) cavities.

July–Sept. Rocky slopes in dry fynbos, NW, KM (Botterkloof and Cold Bokkeveld through Tanqua to Witteberg). **gce**

sp. 3 Softly woody, glandular-hairy, sprawling, short-lived perennial near **A. aspera**, to 2 m. Leaves pinnatisect, sessile above, segments pungent, roughly hairy. Flower heads radiate, solitary, yellow; bracts with leaf-like tip. Achenes with 2 elongate cavities. Mainly Aug.–Nov., mainly after fire. Sandstone slopes, NW (Cedarberg).•

sp. 4 Roughly glandular-hairy, sprawling perennial like **A. aspera**, but leaves leathery, laceratetoothed, lobes pungent, disc yellow, rays yellow with red-purple reverse, outer bracts with long, whip-like tail. Sept.–Nov. Stony, clay soil on sandstone slopes, SW (False Bay).•

sp. 5 Sprawling perennial to 40 cm, near **A. aspera**. Leaves oblanceolate, pinnatifid, margins revolute, roughly hairy. Flower heads radiate, solitary on leafy peduncles, white with purple reverse; outer bracts conspicuously tailed. Achenes with 2 elongate-undulate cavities. June–Oct. Limestone or sandy slopes, AP (De Hoop and Potberg).•

sp. 6 Erect, twiggy perennial to 30 cm. Leaves elliptic-lanceolate to 30 mm long, sessile, densely white-felted on both surfaces, toothed. Flower heads radiate, solitary, disc black, rays yellow-orange with black basal spot and red reverse, disc black; outer bracts with short tail. Sept.–Dec. Sandy patches on sandstone slopes and flats, NW (Olifants River Mtns to Bidouw).•

sp. 7 Erect perennial to 60 cm. Leaves oblanceolate, pinnatisect, glandular, auriculate. Flower heads radiate, solitary, small, yellow; outer bracts with broad, leafy tail. Sept.–Oct. Sandy lower slopes, LB (Montagu).•

sp. 8 Sprawling, short-lived perennial to 30 cm. Leaves lyrate-pinnatifid, roughly glandular-hairy. Flower heads radiate, small, yellow, rays pale red on reverse; outer bracts with rudimentary tail. Achenes with 2 elongate cavities; pappus ± as long as achene, basal tuft of hairs shorter than achene. Aug.–Oct. Stony or sandy watercourses, KM (Little Karoo, Swartberg).•

sp. 9 Decumbent or rhizomatous perennial like **A. pinnatifida** but leaves linear-lanceolate, glabrescent above, white-felted beneath, entire or dentate-sinuate. Flower heads radiate, disc yellow or black, rays white with yellow basal band and red reverse; outer bracts with linear, felted, ± appressed tail. Aug.–Feb. Seasonally damp flats and gentle slopes in deep, white sand, AP (S Agulhas Plain).•

sp. 10 Annual(?) to 40 cm. Upper leaves lanceolate, dentate to lobed, roughly hairy on both surfaces. Flower heads radiate, dark with yellow rays; outer bracts with linear, reflexed tail. Dec. N-facing sandstone slopes, KM (Swartberg).•

sp. 11 Clump-forming, decumbent perennial to 30 cm. Leaves pinnatisect, densely white-felted, margins dentate. Flower heads solitary, subscapose, disc black, rays yellow-orange with red reverse; outer involucral bracts with linear, felted tail. Aug.–Oct. Sandy flats, SW (Worcester: Brandvlei).•

[**Species excluded** No authentic material found and probably conspecific with one of the above: **A. caudata** Lewin, **A. sessilifolia** Lewin (possibly = **A. scabra**), **A. setosa** Lewin (probably = **Arctotheca calendula**); species described from cultivated material and known only from type: **A. aenea** Jacq., **A. grandiflora** Aiton]

ARTEMISIA L. WORMWOOD ± 390 spp., mainly N hemisphere, 2 in southern Africa

afra Jacq. ex Willd. WILDE-ALSIES Soft aromatic shrublet to 60 cm. Leaves bipinnatifid, canescent below. Flower heads discoid, nodding, crowded at branch tips, yellowish. Mar.–May. Streamsides and damp slopes, NW, SW, AP, LB, SE (Cedarberg to tropical Africa).

ASAEMIA (Harv.) Harv. ex Benth. & Hook. 1 sp., S Namibia, Great and W Karoo to W Cape

minuta (L.f.) K.Bremer (= *Athanasia minuta* (L.f.) Källersjö) VUURSIEKTEBOSSIE Glabrous, sprawling shrublet to 30 cm. Leaves opposite, joined below, linear. Flower heads discoid, solitary and sessile at branch tips and on short shoots, yellow, epaleate, florets glandular. Aug.–Dec. Arid slopes and flats, NW, KM (Namibia, Great and W Karoo to Worcester).

ASTER L., see **AFROASTER**

ATHANASIA L. (= *STILPNOPHYTON*) KLAASLOUWBOS 40 spp., southern Africa

*A. Leaves mostly deeply lobed (see also **A. trifurcata**)*

crithmifolia (L.) L. DRAADBLAAR-KLAASLOUWBOS Shrub to 2 m. Leaves pinnatisect with long, linear lobes. Flower heads discoid, in simple or compound, terminal corymbs, yellow, paleate, florets 30–65, glandular-hairy in a basal ring. Mainly Oct.–Jan. Sandy flats and slopes, often along drainage lines, NW, SW (Piketberg to Hermanus and Riviersonderend Mtns).•

elsiae Källersjö Mealy shrublet to 40 cm. Leaves 3-lobed, imbricate, ascending. Flower heads discoid, 1–3 in terminal corymbs, yellow, paleate, florets over 80, glandular-hairy in a basal ring. Dec.–Jan. Rocky, S-slopes above 1 500 m, NW (Hex River Mtns).•

imbricata Harv. Densely leafy, glabrous shrub to 60 cm. Leaves obovate, adpressed, imbricate, often reflexed at tips. Flower heads discoid, large, few in simple, terminal corymbs, yellow, paleate, florets > 60, glandular-hairy in a basal ring. Sept.–Oct. Moist slopes, SW (Riviersonderend: Hassaquaskloof).•

pectinata L.f. Erect, few-branched shrublet to 1.2 m. Leaves mostly pinnatisect with 3–5 linear lobes. Flower heads discoid, crowded in terminal, compound corymbs, yellow, paleate, florets 10–15. Oct.–Dec. Damp clay soils, SW, LB (Hermanus to Gouritsmond).•

pinnata L.f. Densely leafy, grey-velvety shrub to 2 m. Leaves pinnatisect with linear to filiform lobes. Flower heads discoid, in dense, terminal, compound corymbs, yellow, paleate, florets 15–20, glandular-hairy. Oct.–Dec. Rocky sandstone slopes, SE (Kouga Mtns to Grahamstown).

virgata Jacq. Erect shrub to 1 m, hairy on young parts. Leaves palmately 3–5-lobed. Flower heads discoid, in simple, terminal corymbs, yellow, paleate, florets 50–60, glandular-hairy in a basal ring. Nov.–Dec. Sandstone slopes, KM, SE (Kammanassie Mtns and Kouga Mtns).•

A.' Leaves mostly simple or toothed
B. Leaves subrotund, often recurved or reflexed

cochlearifolia Källersjö Shrub to 1 m, roughly mealy on young parts. Leaves subrotund, reflexed. Flower heads discoid, in simple, terminal corymbs, yellow, paleate, florets over 50, glandular-hairy in a basal ring. Nov. Mostly limestone outcrops, AP (Still Bay to Mossel Bay).•

cuneifolia Lam. (= *Athanasia obtusa* Compton) Densely leafy shrublet to 30 cm. Leaves obovate to rotund, recurving above. Flower heads discoid, in dense, terminal, compound corymbs, yellow, sparsely paleate, florets up to 10, glandular-hairy. Dec.–Jan. Rocky slopes, especially shale bands, NW (Hex River Mtns to Keeromsberg).•

dentata (L.) L. Densely leafy shrublet to 1.5 m. Leaves suborbicular, reflexed, margins serrate. Flower heads discoid, in dense, terminal, compound corymbs, yellow, paleate, florets 7–15. Nov.–Jan. Sandy coastal slopes, SW, AP, SE (Cape Peninsula to Struis Bay, George to Port Elizabeth).•

quinquedentata Thunb. (= *Athanasia dimorpha* DC.) Densely leafy shrublet to 60 cm. Leaves obovate, spreading to reflexed, often 3–5-toothed. Flower heads discoid, mostly in simple, terminal corymbs, yellow, paleate, florets 10–40, glandular-hairy in a basal ring. Oct.–Jan. Limestone and sandstone hills, SW, AP, SE (Stanford to Port Elizabeth).•

viridis Källersjö Densely leafy shrub to 1.5 m, mealy on young parts. Leaves subrotund, toothed, ascending. Flower heads discoid, in simple, terminal corymbs, yellow, paleate, florets 60–100, glandular-hairy in a basal ring. Dec. Rocky slopes, NW, KM, LB, SE (Keeromsberg to Outeniqua Mtns).•

B.' Leaves linear-obovate
C. Heads epaleate

alba Källersjö Shrublet to 50 cm. Leaves linear, sometimes with linear lobes near base. Flower heads discoid, few in terminal clusters, cream-coloured, epaleate, florets 30–35, glandular-hairy. Nov. Rocky sandstone slopes, NW (Worcester: Audensberg).•

inopinata (Hutch.) Källersjö (= *Stilpnophyton inopinatum* Hutch.) Slender, virgate shrublet to 1 m. Leaves linear. Flower heads discoid, large, solitary to few in terminal corymbs, yellow, bracts with papery margins, epaleate, florets > 100, glandular-hairy. Sept.–Dec. Sandstone slopes, LB (Langeberg: near Tradouw Pass).•

linifolia Burm. (= *Stilpnophyton linifolium* (L.f.) Less.) Slender, erect shrub to 1.5 m. Leaves linear, ascending. Flower heads discoid, large, in simple, terminal corymbs, yellow, epaleate, florets > 50, glandular-hairy. Aug.–Feb. Sandstone slopes, NW, KM, SE (N Cedarberg to Tsitsikamma Mtns).•

oocephala (DC.) Källersjö (= *Stilpnophyton oocephalum* DC.) Slender, erect shrub to 1 m. Leaves oblong, entire. Flower heads discoid, in dense, terminal, compound corymbs, yellow, epaleate, florets 15–20, glandular-hairy. Sept.–Nov. Dry, stony slopes, SW (Riviersonderend Mtns).•

C.' Heads paleate

adenantha (Harv.) Källersjö Glabrous or velvety, virgate shrub 1–2 m. Leaves oblong, scattered, adpressed. Flower heads discoid, solitary or few in simple corymbs, yellow, paleate, florets 50–70, glandular-hairy in a basal ring. Nov. Sandstone and shale flats, NW (Lokenberg to Wolseley).•

bremeri Källersjö Shrublet to 60 cm, woolly on young parts. Leaves simple, linear, imbricate, ascending. Flower heads discoid, mostly solitary and terminal, yellow, paleate, florets over 70, glandular-hairy in a basal ring. Sept.–Feb. Rocky slopes above 1 000 m, NW (N Cedarberg).•

calophylla Källersjö Erect, densely leafy, silvery velvety shrub to 1 m. Leaves cuneate, 3–12-toothed. Flower heads discoid, few in simple, terminal corymbs, yellow, paleate, florets ± 50, glandular-hairy in a basal ring. Dec. Rocky slopes, NW (N Cedarberg).•

capitata (L.) L. Densely leafy shrub to 1.2 m. Leaves obovate, ascending, sometimes densely silky hairy when young, or glabrous. Flower heads discoid, few in tight clusters nested in leaves, yellow, paleate, florets 30–60, glandular-hairy in a basal ring. Nov.–Feb. Stony flats, SW (Cape Peninsula to Klipheuwel).•

crenata (L.) L. Like **A. adenantha** but involucral bracts glabrous and fringed above. Oct.–Dec. Clay slopes, NW, SW (Piketberg to Drakenstein Mtns).•

filiformis L.f. KLAASLOUWBOS Like **A. flexuosa** but florets 15–25, glandular-hairy on tube. Oct.–Dec. Rocky slopes, NW, KM, LB, SE (Montagu to E Cape).

flexuosa Thunb. (incl. **A. glabrescens** DC.; **A. tomentella** Hutch.) Densely leafy shrub 1–2 m, grey-mealy on young parts. Leaves linear, spreading. Flower heads discoid, mostly in simple, terminal corymbs, yellow, paleate, florets 35–55, glandular-hairy in a basal ring. Mainly Sept.–Nov. Stony clay or sandstone slopes, NW, SW, KM (Namaqualand to Touws River and Cape Flats). **gce**

hirsuta Thunb. Like **A. flexuosa** but plants densely grey-velvety, heads in compound corymbs and florets 7–20, glandular-hairy on tube. Aug.–Dec. Rocky sandstone slopes, NW, KM (Michell's Pass to Montagu).•

humilis Källersjö Thinly white-velvety shrublet to 50 cm. Leaves narrowly oblanceolate, recurved at tips. Flower heads discoid, few in tight, simple, terminal corymbs, paleate, florets 25–30, glandular-hairy in a basal ring. Nov. Dry sandstone slopes, NW, SW (Riviersonderend and Langeberg: near Montagu).•

juncea (DC.) D.Dietr. Slender shrublet to 60 cm. Leaves simple, oblong, scattered, ascending. Flower heads discoid, in dense, terminal, compound corymbs, yellow, paleate, florets 12–25. Dec.–Apr. Rocky, shale slopes, SW, LB (Somerset West to Great Brak River).•

leptocephala Källersjö Slender, mealy shrublet to 40 cm. Leaves linear. Flower heads discoid, few in simple, terminal corymbs, yellow, paleate, florets 20–25, glandular-hairy in a basal ring. Nov.–Dec. Rocky sandstone slopes, NW (Gifberg).•

microphylla DC. Slender, erect shrublet to 60 cm. Leaves simple, triangular, adpressed. Flower heads discoid, few in weakly compound, terminal corymbs, yellow, paleate, florets 25–50, glandular-hairy in a basal ring. Mar.–Apr. Sandy and shale slopes, NW (Cedarberg).•

pachycephala DC. Diffuse, sparsely to densely woolly shrublet to 60 cm. Leaves linear to obovate, ascending. Flower heads discoid, 1–few in simple, terminal corymbs, yellow, paleate, florets 40–160, glandular-hairy in a basal ring. Dec.–May. Sandstone slopes, NW, KM (Cedarberg to Kammanassie Mtns).•

pubescens (L.) L. Densely leafy, grey-velvety shrub to 1.5 m. Leaves oblanceolate. Flower heads discoid, mostly in simple terminal corymbs, yellow, paleate, florets > 50, glandular-hairy in a basal ring. Sept.–Nov. Rocky sandstone slopes, NW (Olifants River Mtns to Piketberg).•

rugulosa E.Mey. ex DC. Virgate, sparsely branched shrub to 60 cm, woolly on young parts. Leaves lanceolate, adpressed. Flower heads discoid, in small, simple, terminal corymbs, yellow, paleate, florets 30–35, glandular-hairy in a basal ring. Oct.–Nov. Sandy flats, SW (Hopefield to Mamre).•

scabra Thunb. Much-branched, mealy shrub to 60 cm. Leaves linear, small. Flower heads discoid, solitary at branch tips, yellow, bract margins papery, paleate, florets 50–60, glandular-hairy in a basal ring. Dec. Sandstone slopes, SW (Villiersdorp: Donkerhoek Mtns).•

sertulifera DC. Grey-felted shrub to 1 m. Leaves oblanceolate–linear. Flower heads discoid, in simple, terminal corymbs, yellow, paleate, florets 30–40, glandular-hairy in a basal ring. Nov. Sandy flats, NW (Paleisheuwel).•

spathulata (DC.) D.Dietr. Similar to **A. cuneifolia** but corymbs less crowded and on longer stalks. Leaves spathulate, ascending. Dec.–Feb. Sandstone slopes, NW (Bokkeveld Mtns).•

tomentosa Thunb. Coarsely velvety, grey shrub to 2 m. Leaves simple, oblanceolate, entire, sometimes 2- or 3-toothed. Flower heads discoid, in dense, rounded, terminal, compound corymbs, yellow, paleate, florets 10–15, glandular-hairy. Nov.–Dec. Rocky sandstone slopes, KM, LB, SE (Swartberg and Langeberg to Antoniesberg).•

trifurcata (L.) L. KOUTERBOS Glabrous to grey-velvety shrub to 1.5 m. Leaves ascending cuneate, 3–5-toothed above. Flower heads discoid, in simple, terminal corymbs, yellow, paleate, florets 50–100, glandular-hairy in a basal ring. Mainly Oct.–Nov. Flats and rocky slopes, NW, SW, AP, KM, LB, SE (Springbok to Port Elizabeth). **gce**

vestita (Thunb.) Druce Compact, densely leafy shrub to 1 m. Leaves simple, linear. Flower heads discoid, small, in dense, terminal, compound corymbs, yellow, paleate, florets < 10. Aug.–Jan. Clay slopes in karroid scrub, NW, KM, SE (Robertson to Uniondale).•

ATHRIXIA Ker Gawl. BOESMANSTEE 14 spp., Africa and Madagascar

capensis Ker Gawl. Thinly cobwebby perennial from woody rootstock, to 35 cm. Leaves linear with involute margins, sharply mucronate, decurrent. Flower heads radiate, solitary at branch tips, yellow with pink or purple rays. Nov.–Dec. Lower to middle slopes, SW, LB (Cape Peninsula to Humansdorp).•

crinita (L.) Druce Thinly cobwebby perennial from woody rootstock, to 35 cm. Leaves ovoid to lanceolate with weakly involute margins, densely white-felted below. Flower heads radiate, solitary on long peduncles, yellow with pink or magenta rays. Dec.–Jan. Sandstone slopes, NW (Cedarberg to Elandskloof).•

heterophylla (Thunb.) Less. Cobwebby shrublet or perennial from woody rootstock, to 45 cm. Leaves ovate to narrowly linear, the lower much broader, with involute margins, slightly serrate, densely felted below, often scabrid above. Flower heads radiate, solitary, pink or magenta, outer pappus bristles scale-like. Aug.–Dec. Rocky slopes, SW, KM, LB, SE (Cape Peninsula to E Cape).

ATRICHANTHA Hilliard & B.L.Burtt• 1 sp., SW Cape

gemmifera (Bolus) Hilliard & B.L.Burtt Densely leafy, silvery woolly shrublet to 60 cm. Leaves narrowly lanceolate with involute margins. Flower heads discoid, in small terminal clusters, reddish, bracts white with maroon base. Oct.–Jan. Sandstone rocks above 1 000 m, NW, SW (N Cedarberg to Kogelberg).•

BERKHEYA Ehrh. DISSEL ± 75 spp., southern and tropical Africa.

A. Shrublets, shrubs or subshrubs
B. Leaves mostly opposite

angustifolia (Houtt.) Merr. Like **B. barbata** but leaves narrowly lanceolate. July–Sept. Rocky sandstone slopes, KM, SE (Swartberg to E Cape).•

barbata (L.f.) Hutch. White-felted shrublet to 60 cm, from woody caudex. Leaves opposite, elliptic, discolorous, leathery, white-felted beneath , glabrous above, margins revolute, slightly toothed and spiny. Flower heads radiate, solitary at branch tips, yellow. Mainly Aug.–Nov. Rocky sandstone slopes, NW, SW (Gifberg to Bredasdorp).•

B.' Leaves alternate
C. Plants ± glabrous

chrysanthemoides J.C.Manning & Goldblatt Glabrous shrub to 1.7 m. Leaves oblanceolate, leathery, margins deeply lobes and spiny. Flower heads conspicuously radiate, yellow, in lax, terminal corymbs; achenes puberulous with minute pappus scales. Aug.-Sept. Rocky, S-facing, sandstone slopes, NW (Bokkeveld Mtns).•

cruciata (Houtt.) Willd. DISSELDORING Glabrous shrub to over 1 m. Leaves spreading, rigid, striate, ovate, toothed and spiny, auriculate. Flower heads shortly radiate, yellow, in loose, terminal corymbs. Nov.-Feb. Sandstone slopes, KM, SE (Swartberg to Langkloof).•

spinosa (L.f.) Druce BOKDISSEL Glabrous shrub to 1 m. Leaves obovate, leathery, margins toothed and spiny. Flower heads radiate, yellow, in lax, terminal corymbs. Mainly Sept.-Nov. Dry, rocky, shale slopes, KM (W Karoo and Montagu to Willowmore).

C.' Plants pubescent or woolly

angusta Schltr. Erect, densely leafy shrub to over 1 m, white-woolly on young parts. Leaves ascending, linear, margins revolute, slightly spiny. Flower heads radiate, yellow, solitary, nested in upper leaves. July–Aug. Sandstone slopes, NW, SW (Langeberg E of Worcester and Bredasdorp Mtns).•

coriacea Harv. WITDISSEL White-woolly shrublet to 60 cm. Leaves oblanceolate, discolorous, leathery, margins revolute, toothed and spiny. Flower heads radiate, solitary at branch tips, yellow. Mainly Sept.–Oct. Limestone and calcareous sands, AP (Agulhas to Albertinia).•

cuneata (Thunb.) Willd. VAALDISSEL Grey-felted shrublet to 30 cm. Leaves cuneate, leathery, toothed and spiny above. Flower heads radiate, yellow, solitary at branch tips. Mar.–Oct. Sandstone slopes, KM (Montagu to Kammanassie Mtns).•

dregei Harv. Grey-woolly shrublet to 20 cm. Leaves oblong-oblanceolate, discolorous, thinly cobwebby above, white-woolly beneath , auriculate, margins undulate, closely toothed and spiny. Flower heads radiate, yellow, few in terminal corymbs. Dec.–Jan. Rocky sandstone slopes, NW (Pakhuis Mtns).•

fruticosa (L.) Ehrh. VAALDISSEL Grey-woolly shrub to 1.5 m. Leaves elliptic, discolorous, slightly toothed and spiny. Flower heads radiate, 1–few in terminal corymbs, yellow. July–Oct. Sandstone slopes and plateaus, NW (Namaqualand to Citrusdal). **gce**

tysonii Hutch. Shortly hairy shrublet to 30 cm. Leaves obovate, margins undulate, closely toothed and spiny. Flower heads radiate, yellow, few in terminal corymbs. Nov.–Jan. Sandstone rocks, NW (Cedarberg to Keeromsberg).•

A.' Tufted or rosulate perennials
D. Stems partially or completely winged

carduoides (Less.) Hutch. Perennial to 60 cm, sometimes cobwebby on young parts. Leaves oblanceolate, decurrent on stem as wings, pinnatifid, lobes rounded, toothed and spiny, margins slightly revolute. Flower heads discoid, few in terminal corymbs, yellow. Nov.–Jan. Grassy fynbos, LB, SE (Swellendam to E Cape).

decurrens (Thunb.) Willd. White-woolly perennial to 60 cm. Leaves oblanceolate, decurrent on stem as wings, discolorous, pinnatifid, lobes rounded, toothed and spiny, margins slightly revolute. Flower heads radiate, 1–few in terminal corymbs, yellow. Mainly July–Sept. Grassy slopes, SE (Humansdorp to E Cape).

D.' Stems not winged
E. Plants rosulate

armata (Vahl) Druce GROOTDISSEL Tufted perennial to 40 cm, with woody caudex. Leaves crowded basally, oblanceolate to obovate, glabrous above, white-felted beneath, margins slightly revolute, toothed and spiny. Flower heads radiate, 1–few in terminal corymbs on elongate peduncles, yellow. Sept.–Nov. Clay and granite slopes and flats, NW, SW, AP, LB (Olifants River Mtns to Mossel Bay).•

carlinoides (Vahl) Willd. BERGDISSEL Like **B. armata** but stems glandular-hairy. Mainly Oct.–Jan. Shale and clay slopes, NW, LB, SE (Citrusdal to George).•

francisci Bolus Densely white-woolly, tufted perennial to over 1.5 m. Leaves oblanceolate, lacerate-toothed and spiny, margins slightly revolute. Flower heads radiate, yellow, in dense clusters on elongate peduncles. Nov.–Jan. Rocky sandstone slopes, KM (Swartberg).•

herbacea (L.f.) Druce KAALDISSEL Like **B. armata** but leaves sometimes scarcely toothed or spiny, inner involucral bracts with broad, horny margins, entire. Oct.–Mar. Sandstone slopes, SW, KM (Du Toitskloof to Napier).•

sp. 1 (*Berkheya jardineana* J.C.Manning & Goldblatt *ms.*) Dwarf tufted perennial to 20 cm, forming small clumps. Leaves crowded basally, cuneate-spathulate, leathery, glabrescent above, white-

felted beneath, margins coarsely toothed and softly spiny. Flower heads discoid, 1–few in terminal racemes, yellow. Oct.–Dec. Sandstone plateaus, NW (Swartruggens).•

E.' Plants not rosulate

carlinifolia (DC.) Roessler Glabrescent or glandular-hairy perennial to 1.5 m. Leaves oblong, pinnatisect, lobes cuneate, toothed, spiny, upper surface sometimes bristly, upper leaves auriculate. Flower heads discoid, yellowish, several in terminal corymbs. Oct.–Dec. Dry watercourses and slopes, NW, SW, KM, LB (Namaqualand to Peninsula to Free State).

eriobasis (DC.) Roessler Like **B. rigida** but densely woolly. Oct.–Dec. Rocky slopes, NW (Cold Bokkeveld and W Karoo). **gce**

heterophylla (Thunb.) O.Hoffm. GRAWEELWORTEL Cobwebby perennial to 1 m. Leaves oblanceolate, discolorous, woolly beneath, pinnatifid, lobes rhombic, margins revolute, spiny. Flower heads radiate or discoid, yellow, in terminal corymbs. Sept.–Jan. Stony waste places, NW, KM, LB, SE (Worcester to E Cape).

onobromoides (DC.) O.Hoffm. & Muschl. RUIKDISSEL Glandular-hairy perennial to 1.5 m. Leaves oblong, pinnatifid, lobes cuneate, toothed, spiny, glandular-hairy beneath, upper leaves cordate-auriculate. Flower heads discoid, yellowish, several in terminal corymbs. Oct.–Dec. Dry watercourses, NW, SW, KM, SE (Namaqualand to Little Karoo and Langkloof). **gce**

rigida (Thunb.) Ewart, Jean White & B.Rees (*Berkheya rigida* (Thunb.) Bolus & Wolley-Dod ex Levyns, superfluous combination) Glabrescent to white-woolly perennial to 1 m. Leaves deeply pinnatifid, lobes narrow, margins revolute, spiny. Flower heads discoid, yellow, several terminal on lateral branches. Sept.–Jan. Clay and granite slopes and flats, often disturbed places, NW, SW, AP, LB (Langebaan to Riversdale).•

viscosa (DC.) Hutch. TAAIDISSEL Glandular-hairy perennial to 2 m. Leaves narrowly lanceolate, pinnatifid, lobes triangular, margins undulate, spiny. Flower heads radiate, yellow, in lax, terminal corymbs. Sept.–Oct. Sandstone slopes, NW (Pakhuis Mtns to Piketberg).•

BOLANDIA Cron 5 spp., S Africa and Lesotho

A. Heads radiate, bright yellow

argillacea (Cron) Cron (= *Cineraria argillacea* Cron) Tufted, thinly white-woolly perennial to 50 cm. Leaves petiolate, pinnatisect, lobed linear and toothed. Flower head radiate, solitary, on slender elongate peduncles, yellow. Oct.–Nov. Shale band, NW (Hex River Mtns).•

pedunculosa (DC.) Cron (= *Cineraria pedunculosa* DC.) Tufted, white-woolly perennial to 50 cm. Leaves petiolate, deltoid-lanceolate, crenate to pinnatisect. Flower heads radiate, solitary on bracteate peduncles, yellow. Sept.–Oct. Rocky slopes, especially after fire, NW, KM (W Karoo to Cedarberg and Swartberg, Drakensberg).

A.' Heads discoid, white or mauve to pale yellow

elongata (L.f.) J.C.Manning & Cron (= *Senecio scapiflorus* (L'Hér.) C.A.Sm.) PERSKOPPIE Tufted, sparsely white-woolly perennial to 60 cm. Leaves basal, petiolate, blade short, ovate-cordate, incised to lyrate-pinnatifid. Flower heads discoid, solitary on elongate, scaly peduncles, mauve to purple. Aug.–Oct. Coastal flats and outcrops, SW, AP (Saldanha to Peninsula to Still Bay).•

pinnatifida (Thunb.) J.C.Manning & Cron (= *Senecio diversifolius* (DC.) Harv., *S. petiolaris* DC.) Tufted, sparsely white-woolly perennial to 60 cm. Leaves basal, petiolate, lanceolate to cordate, toothed to pinnatifid or pinnatisect. Flower heads discoid, solitary on elongate, scaly peduncles, white or purple. Aug.–Oct. Rocky slopes and flats, mainly inland, NW, SW (Kamiesberg, W Karoo and Bokkeveld Mtns to Malmesbury). **gce**

BRACHYLAENA R.Br. BITTERBLAAR ± 15 spp., Africa, Madagascar, Mascarene Is

elliptica (Thunb.) DC. BITTERBLAAR, UMPHALHLA Dioecious shrub or tree to 15 m. Leaves aromatic, oblanceolate, broadly toothed above, white-felted beneath . Flower heads discoid, in short racemes or panicles, cream-coloured. Apr.–Aug. Coastal bush, SE (Uitenhage to KwaZulu-Natal).

glabra (L.f.) Druce MALBAR Dioecious shrub or tree to 20 m, similar to **B. neriifolia** but leaves obovate to broadly oblanceolate and often toothed above with bases acute and distinctly petiolate. Sept.–Oct. Coastal forests, SE (Humansdorp to KwaZulu-Natal).

ilicifolia (Lam.) E.Phillips & Schweick. HULSBITTERBLAAR Dioecious, rigid, divaricately branched shrub to 3 m. Leaves on short shoots, elliptic, glossy above, densely rust- to grey-felted beneath. Flower heads discoid, 1–few in leaf axils, creamy yellow. July–Nov. Scrub forests, SE (Joubertina to S Mozambique).

neriifolia (L.) R.Br. WATERWITELS Dioecious, leafy shrub or tree to 8 m, sparsely rusty velvety. Leaves aromatic, oblanceolate, sometimes slightly toothed, leathery, margins revolute, base decurrent into a short petiole. Flower heads discoid, in short racemes or panicles, whitish. Jan.–Mar. Streamsides, NW, SW, AP, LB, SE (Gifberg to Humansdorp).•

BRYOMORPHE Harv.• 1 sp., SW Cape

aretioides (Turcz.) Druce (= *Bryomorphe lycopodioides* auct.) Dwarf, silvery woolly, densely leafy, cushion-like shrublet to 5 cm. Leaves adpressed, linear with involute margins to granular. Flower heads radiate, in small, terminal clusters, ray florets female, white or pink. Oct.–Feb. Sandstone rocks above 1 000 m, NW, SW, KM (Cedarberg to Kogelberg and Anysberg).•

CADISCUS E.Mey. ex DC. = **SENECIO**

CALOTESTA P.O.Karis• 1 sp., SW Cape

alba P.O.Karis Densely white-woolly shrublet to 50 cm. Leaves involute ericoid, acute and often twisted. Flower heads discoid, terminal and solitary, reddish, bracts white. ?. Sandstone rocks above 1 800 m, KM (Klein Swartberg).•

CAPELIO B.Nord.• (= *ALCIOPE*) FIRE DAISY 3 spp., SW Cape

caledonica B.Nord. Thinly woolly shrublet to 1 m. Leaves obovate, tapering to base, not discolorous, margins revolute, sparsely toothed. Flower heads radiate, few in lax corymbs, yellow, bracts thinly woolly. Sept.–Nov. Coastal sandstone slopes, after fire, SW (Palmiet River Mtns).•

tabularis (Thunb.) B.Nord. (= *Alciope tabularis* (Thunb.) DC.) Erect, grey-felted shrublet to 50 cm from a woody base. Leaves petiolate, ovate, discolorous, margins revolute, sparsely toothed. Flower heads radiate, 1–few in loose, terminal corymbs, yellow, inner bracts glabrous. Apr.–July. Sandstone slopes, after fire, SW (Cape Peninsula to Betty's Bay).•

tomentosa (Burm.f.) B.Nord. (= *Alciope lanata* (Thunb.) DC.) Robust, grey-woolly perennial to 60 cm from a woody base. Leaves petiolate, ovate, discolorous, margins revolute. Flower heads radiate, few in lax, terminal corymbs, golden-orange, bracts densely woolly. Nov.–Jan. Shady ravines, after fire, NW (Cold Bokkeveld to Grootwinterhoek Mtns).•

CASTALIS Cass. = **DIMORPHOTHECA**

CHRYSANTHEMOIDES Fabr. = **OSTEOSPERMUM**

CHRYSOCOMA L. BEESBOS ± 20 spp., southern Africa

A. Leaves glabrous

ciliata L. (= *Chrysocoma tenuifolia* P.J.Bergius) BITTERBOS Glabrous, slender-stemmed, closely leafy shrublet to 60 cm. Leaves linear, ascending, 2–14 mm long. Flower heads discoid, solitary, yellow. Oct.–Jan. Rocky slopes and flats, NW, SW, AP, KM, LB, SE (Namaqualand to Mpumalanga).

coma-aurea L. Glabrous, closely leafy shrublet to 50 cm. Leaves linear, spreading to recurved, 3–20 mm long. Flower heads discoid, solitary, yellow. Oct.–Jan. Flats and lower slopes, SW (Cape Peninsula to Hermanus).•

longifolia DC. Densely leafy, glabrous shrub to 1 m. Leaves linear–filiform, 12–30 mm long. Flower heads discoid, in dense corymbs, yellow. Nov.–Dec. Rocky lower slopes, NW, SW (Namaqualand to Riebeek-Kasteel). **gce**

sparsifolia Hutch. Glabrous, sparsely leafy shrublet to 60 cm. Leaves ovoid, fleshy, recurved, 2–7 mm long. Flower heads discoid, solitary, yellow. Nov.–Dec. Rocky slopes, NW (Namaqualand to Cedarberg). **gce**

tridentata DC. Glabrous, slender-stemmed shrublet to 35 cm. Leaves linear or lobed, spreading, recurving at tips, 5–23 mm long. Flower heads discoid, solitary, yellow. Aug.–Sept. Sandstone flats and lower slopes, NW, KM (Worcester to Swartberg).•

valida Ehr.Bayer Glabrous, slender-stemmed shrublet to 35 cm. Leaves linear, ascending, 3–15 mm long. Flower heads discoid, solitary, yellow. Mainly Aug.–Sept. Sandstone flats and lower slopes, NW, KM (Lokenberg to Swartberg and W Karoo). **gce**

A.' Leaves hairy or scabrid, at least on margins

acicularis Ehr.Bayer Viscid, densely leafy shrublet to 30 cm. Leaves filiform, scabrid on margins, spreading, 7–25 mm long. Flower heads discoid, solitary, yellow. Oct.–Nov. Rocky sandstone ridges, KM (Witteberg).•

candelabrum Ehr.Bayer Roughly hairy shrublet to 40 cm. Leaves linear, scabrid, spreading to recurved, 4–15 mm long. Flower heads discoid, solitary, yellow. Dec.–Feb. Sandstone slopes, NW (Cedarberg).•

cernua L. Diffuse, glabrous shrublet to 35 cm. Leaves linear, ciliate on margins, 8–25(–30) mm long. Flower heads discoid, solitary, yellow. July–Sept. Rocky flats and slopes, NW (Namaqualand to Cold Bokkeveld). **gce**

esterhuyseniae Ehr.Bayer Slender, wiry-stemmed, glabrous shrublet to 40 cm. Leaves oblong, clasping stem, imbricate, scabrid on margins, 4–9 mm long. Flower heads discoid, solitary, yellow. Aug.–Sept. Coastal sands, SW (Hopefield to Melkbosstrand).•

flava Ehr.Bayer Slender, glandular-hairy, wiry-stemmed shrublet to 40 cm. Leaves linear, clasping stem, imbricate, scabrid on margins, ± 5 mm long. Flower heads shortly radiate, solitary, yellow. ? Shale hillsides, LB (Riversdale).•

oblongifolia DC. Twiggy shrublet to 30 cm. Leaves oblanceolate, ciliate on margins, 4–12(–20) mm long. Flower heads discoid, solitary, yellow. Aug.–Oct. Rocky slopes, NW, KM (Namaqualand to Hex River Mtns and Witteberg). **gce**

rigidula (DC.) Ehr.Bayer Grey-silky, much-branched shrublet to 35 cm. Leaves linear, recurved, imbricate, 3–13 mm long. Flower heads radiate, solitary, yellow with blue rays. June–Nov. Sandy flats or slopes, SE (Port Elizabeth to Alexandria).

strigosa Ehr.Bayer Densely leafy, dwarf shrublet to 15 cm with erect, scabrid stems. Leaves spathulate, ciliate on margins, 3–4 mm long. Flower heads discoid, solitary, yellow. Oct. Coastal limestone flats, AP (Agulhas to Still Bay).•

CINERARIA L. CINERARIA 35 spp., Africa, Madagascar

A. Leaves greyish-cobwebby or woolly

alchemilloides DC. Thinly cobwebby to glabrescent, sprawling perennial to 40 cm. Leaves palmately lobed, lobes irregularly toothed, glabrescent above but cobwebby beneath, with large or small, basal auricles. Flower heads radiate, in lax corymbs, yellow; involucral bracts glabrescent. Sept.–Nov. Damp slopes and gullies, NW (Namibia, Namaqualand and Calvinia to Tulbagh). **gce**

erosa (Thunb.) Harv. Cobwebby, sprawling shrublet to 50 cm. Leaves irregularly subbipinnatisect to multifid, lobes toothed, cobwebby above, sometimes glabrescent beneath, with large or small, basal auricles. Flower heads radiate, yellow; involucral bracts cobwebby or felted. Sept.–Oct. Lower sandstone slopes, NW, SW, KM (Namaqualand, Cedarberg to Paarl to Montagu, Witteberg and Swartberg).•

A.' Leaves glabrous or hairy but not cobwebby

angulosa Lam. Like **C. geifolia** but auricles at base of petioles inconspicuous or absent, and flower heads solitary or few on long peduncles; involucral bracts shortly hairy. Mainly Sept.–Oct. Rocky outcrops near the sea, SW (Saldanha Bay).•

geifolia (L.) L. Sprawling perennial to 60 cm. Leaves reniform, mostly shallowly and lobed or crenate and toothed, roughly hairy or hairless above, roughly hairy beneath, petioles with large, caducous, basal auricles. Flower heads radiate, in terminal corymbs, yellow; involucral bracts hairy or glabrous. Aug.–Nov. Mainly coastal bush, SW, AP, LB (St Helena Bay to Cape Peninsula to Cape Infanta).•

lobata L'Hér. Like **C. geifolia** but often ± glabrous, leaves more deeply lobed and flower heads smaller, usually with 7 or 8 involucral bracts and < 6 rays. Aug.–Jan. Shaded, rocky slopes, SW, KM, LB, SE (St Helena Bay to E Cape, Upper Karoo and N provinces).

platycarpa DC. Glabrescent annual to 20 cm. Leaves lyrate, terminal lobe cordate and crenate to toothed, uppermost leaves usually pinnatisect, glabrous above and thinly hairy and often purple beneath, petioles with basal auricles. Flower heads few to many in corymbs, radiate and yellow or sometimes discoid and cream-coloured; involucral bracts glabrous. July–Oct. Rocky slopes, SW, KM, SE (Karoopoort, Worcester through Little Karoo to E Cape).

saxifraga DC. Glabrous, diffuse perennial or soft shrub to 30 cm. Leaves palmately lobed, blades mostly cuneate at base, without auricles at petiole base. Flower heads radiate, in few-flowered, lax corymbs or solitary; involucral bracts glabrous. Sept.–Nov. Rocky slopes usually in shade, SE (Port Elizabeth to S Free State).

COMBORHIZA Anderb. & K.Bremer 2 spp., W Cape to KwaZulu-Natal

longipes (K.Bremer) Anderb. & K.Bremer Sparsely branched, glandular-hairy perennial to 20 cm with woody base. Leaves narrowly lanceolate, glabrous above. Flower heads radiate, solitary on elongate, wiry peduncles, yellow. Dec.–Jan. Sandstone slopes above 1 500 m, NW (Grootwinterhoek to Hex River Mtns).•

CONYZA see **NIDORELLA**

CORYMBIUM L. HEUNINGBOS 9 spp., W to E Cape

A. Long involucral bracts smooth

cymosum E.Mey. ex DC. Tufted perennial to 40 cm with smooth to slightly scabrid stems. Leaves filiform to linear, silky at base. Flower heads discoid, in dense corymbs, ivory, bracts smooth. Oct.–Dec. Lower sandstone slopes to 1 000 m, SW, LB (Malmesbury: Perdeberg to Mossel Bay).•

enerve Markötter Tufted perennial to 40 cm with scabrid stems. Leaves narrowly lanceolate, leathery with veins inconspicuous, silky at base. Flower heads discoid, in dense corymbs, white or pink, bracts smooth. Oct.–Jan. Damp, sandy flats and lower slopes, SW (Cape Peninsula to Hangklip).•

glabrum L. Tufted perennial to 60 cm with smooth stems. Leaves sword-shaped, leathery with veins prominent, silky at base. Flower heads discoid, in lax corymbs, pink or white, bracts smooth. Nov.–Jan. Rocky sandstone slopes, NW, SW, ?AP, KM, LB, SE (Cedarberg to Grahamstown).

laxum Compton Tufted perennial to 35 cm with smooth stems. Leaves filiform with involute margins, smooth, silky at base. Flower heads in lax panicles, pink, bracts smooth. Dec.–Feb. Upper slopes, NW, SW (N Cedarberg to Cold Bokkeveld and Franschhoek Mtns).•

A.' Long involucral bracts scabrid or sticky

africanum L. PLAMPERS Tufted perennial to 30 cm with scabrid stems. Leaves filiform to linear, silky at base. Flower heads discoid, in dense corymbs or panicles, purple, pink or white, bracts scabrid and sticky. Oct.–Nov. Sandy flats and slopes, NW, SW, AP, KM, LB, SE (Cedarberg to Grahamstown).

congestum E.Mey. ex DC. VINGERHOED Tufted perennial to 30 cm with scabrid, viscid stems. Leaves lanceolate, scabrid, silky at base. Flower heads discoid, in panicles of small corymbs, mauve to pink, bracts scabrid and viscid. Nov.–Feb. Damp, sandstone slopes, NW, SW (Pakhuis Mtns to Houwhoek).•

elsiae Weitz Tufted perennial to 25 cm with scabrid stems. Leaves filiform with involute margins, smooth, silky at base. Flower heads drooping, in lax panicles, mauve or white, bracts scabrid. Dec.–Jan. upper slopes, NW, SW (Ceres to Bain's Kloof).•

theileri Markötter Tufted perennial to 30 cm with scabrid stems. Leaves linear to falcate, leathery with veins prominent, silky at base. Flower heads discoid, in small, dense corymbs grouped in lax, compound corymbs, mauve, bracts scabrid. Nov.–Jan. Rocky sandstone slopes, NW (Piketberg).•

villosum L.f. HEUNINGBOSSIE Tufted perennial to 30 cm with scabrid stems. Leaves glandular-hairy, narrowly lanceolate, silky at base. Flower heads discoid, in dense corymbs, mauve to white, bracts scabrid and sticky. Oct.–Jan. Lower sandstone slopes and flats, NW, SW, ?AP (N Cedarberg to Bredasdorp).•

COTULA L. (= *CENIA*, *SPHAEROCLINIUM*) BUTTONS, KNOPPIES ± 50 spp., S hemisphere, mostly southern Africa

A. Flower heads homogamous, discoid, without marginal florets

barbata DC. KLEINGANSKOS Softly hairy annual to 15 cm. Leaves crowded below, opposite, clasping at base, pinnatisect or bipinnatisect. Flower heads discoid, solitary on slender, naked peduncles, yellow or white, bracts with membranous margins. July–Oct. Rocky slopes, NW (Namaqualand to Clanwilliam). **gce**

fallax D.J.N.Hind Grey or silvery velvety, sprawling perennial to 30 cm, with persistent creeping rhizome. Leaves opposite, crowded below, sheathing at base with long petioles, palmately bipinnatisect. Flower heads discoid, solitary on elongate, glabrous, naked peduncles, yellow. Nov.–Jan. Sandstone slopes and ridges above 1 000 m, NW (Cold Bokkeveld).•

melaleuca Bolus Like **C. barbata** but florets white with purple tips. Aug.–Oct. Sandstone slopes in sheltered sites, NW (Bokkeveld Mtns to N Cedarberg).•

pedicellata Compton Like **C. barbata** but to 30 cm. Achenes winged. July–Sept. Sandy flats, NW (Namaqualand to Clanwilliam). **gce**

A.' Flower head heterogamous, disciform or radiate
B. Flower heads obviously radiate
C. Peduncles conspicuously inflated apically in fruit

duckittiae (L.Bolus) K.Bremer & Humphries (= *Cenia expansa* Compton) Like **C. turbinata** but robust, to 40 cm. Flower heads large, with conspicuous, bright orange rays. Sept. Sandy coastal slopes, NW, SW (Elands Bay to Bokbaai).•

sericea L.f. (= *Cenia sericea* (L.f.) DC.) Silky, sprawling perennial, 20–40 cm, spreading from woody stem. Leaves crowded below, bi- or tripinnatisect, lobes linear. Flower heads shortly radiate, solitary on elongate, naked peduncles inflated above in fruit, yellow, bracts 3-nerved. Mainly July–Dec. Stony, coastal slopes, LB, SE (Mossel Bay to E Cape).

turbinata L. GANSKOS Softly hairy annual 5–30 cm. Leaves alternate, bi- or tripinnatisect, lobes linear to filiform. Flower heads shortly radiate, solitary on slender, naked peduncles inflated above in fruit, yellow or white, bracts 3-nerved. Mainly July–Oct. Sandy or disturbed areas, NW, SW, AP (N Cedarberg to Potberg).•

C.' Peduncles not inflated apically in fruit

andreae (E.Phillips) K.Bremer & Humphries (= *Matricaria andreae* E.Phillips) Silky, scapose perennial to 10 cm. Leaves palmately bipinnatisect, lobes oblong. Flower heads radiate, solitary on sparsely hairy, elongate peduncles, white with purple reverse, bracts woolly. Dec.–Jan. Damp sandstone slopes above 1 800 m, NW, KM (Hex River Mtns to Klein Swartberg).•

macroglossa Bolus ex Schltr. Softly hairy, scapose annual to 10 cm. Leaves bipinnatisect, lobes linear, crowded below. Flower heads conspicuously radiate, solitary on elongate, sometimes naked peduncles, yellow with blue or white rays mauve below, bracts silky. Sept.–Oct. Stony slopes, NW, KM (Cedarberg to Hex River Mtns and Witteberg).•

montana Compton Softly hairy, stoloniferous, tufted perennial to 12 cm. Leaves crowded basally, petiolate, bipinnatisect, lobes oblong. Flower heads radiate, on slender peduncles, yellow with white rays. Nov.–Jan. Sandstone slopes above 1 500 m, partly shaded, NW (Cedarberg to Cold Bokkeveld Mtns).•

nigellifolia (DC.) K.Bremer & Humphries (= *Matricaria nigellifolia* DC., *Sphaeroclinium nigellifolium* (DC.) Sch.Bip.) RIVIERALS Straggling to decumbent, glabrescent perennial rooting

from lower nodes, to 30 cm. Leaves irregularly bipinnatisect, lobes linear to oblong. Flower heads shortly radiate, globose, solitary in upper leaf axils, yellow with white or yellow rays. Oct.–Apr. Damp areas, LB, SE (Swellendam to tropical Africa).

B.' Flower heads disciform, with filiform or minutely ligulate marginal florets
D. Leaves sheathing at base, glabrous

coronopifolia L. GANSGRAS, EENDEKOS Erect or sprawling annual to 30 cm. Leaves alternate, sheathing at base, irregularly toothed to bipinnatisect. Flower heads disciform, solitary, on slender, minutely leafy peduncles, bright yellow. Mainly May–Oct. Seasonally wet areas, NW, SW, AP, KM, LB, SE (S Namibia to Mpumalanga, Australia).

filifolia Thunb. Slender annual to 20 cm. Leaves alternate, filiform, undivided, sheathing at base. Flower heads disciform, solitary on slender, naked peduncles, yellow to white, ovary winged. Aug.–Nov. Marshy ground, SW, AP (Hondeklip Bay to Agulhas). **gce**

myriophylloides Harv. WATERGRAS Prostrate, aquatic ?perennial. Leaves opposite, sheathing at base, divided into many filiform segments. Flower heads disciform, solitary on slender, naked peduncles in upper axils, yellow. Sept.–Dec. Coastal pools, SW (Cape Peninsula, Botrivier lagoon).•

pusilla Thunb. Dwarf, single-stemmed annual to 12 cm. Leaves alternate, linear to pinnatisect, sheathing at base. Flower heads disciform, solitary and terminal on leafy peduncles, whitish. July–Oct. Edges of pools in coastal sandy areas, SW (Saldanha to Milnerton).•

vulgaris Levyns Possibly conspecific with **C. filifolia** but distinguished by the unwinged ovary. Mainly July–Sept. Damp ground, SW (Darling to Cape Peninsula).•

D.' Leaves at most clasping, often pubescent

bipinnata Thunb. KLEINKNOPPIES Annual to 30 cm. Leaves alternate, sheathing at base, bi- or tripinnatisect. Flower heads disciform, solitary on slender, leafy peduncles, yellow to white. Aug.–Oct. Near seasonal pools, NW, SW (Namaqualand to Cape Flats). **gce**

ceniifolia DC. (= *Cotula paradoxa* Schinz) Softly hairy, slender, few-branched perennial to 15 cm, spreading on long, leafy runners. Leaves opposite and crowded below, clasping at base, bipinnatisect. Flower heads disciform, solitary on slender, naked peduncles, white. Aug.–Nov. Damp clay, SW, LB (Grabouw to Swellendam).•

eckloniana (DC.) Levyns Spreading annual branching from base, to 10 cm. Leaves linear to pinnatisect. Flower heads disciform, solitary on long, slender, naked peduncles, yellow, florets broadly winged. Aug.–Oct. Sandy coastal flats, SW (Berg River to Cape Peninsula).•

heterocarpa DC. Softly hairy, sprawling annual to 10 cm. Leaves alternate, bi- or tripinnatisect. Flower heads disciform, solitary on slender, naked peduncles, white or yellow. Mainly Sept.–Nov. Dry rocky slopes, KM, LB, SE (Witteberg and Albertinia to E Cape and Karoo).

laxa DC. Sparsely pilose to glabrescent, diffuse, spreading annual to 8 cm. Leaves pinnatisect, lobes linear, sometimes toothed. Flower heads disciform, small, solitary on slender, naked peduncles, white. Aug.–Nov. Partly shaded, rocky slopes, KM (Namaqualand to Montagu). **gce**

mariae K.Bremer & Humphries (= *Cenia pectinata* DC.) Like **C. sericea** but possibly annual, leaf lobes oblong, and flower heads larger. Oct.–Nov. Coastal slopes, AP, LB, SE (Agulhas to Port Elizabeth).•

microglossa (DC.) O.Hoffm. & Kuntze ex Kuntze (= *Cenia microglossa* DC.) KNOPPIES Diffuse, sprawling annual branching from below, to 20 cm. Leaves tripinnatisect, lobes linear. Flower heads disciform or obscurely radiate, solitary on long, naked peduncles inflated above in fruit, tawny-haired when young, yellow or orange, bracts 1-nerved. July–Sept. Rocky flats or slopes, NW (Namaqualand to Clanwilliam and W Karoo). **gce**

nudicaulis Thunb. WITEENDEKOS Softly hairy annual to 15 cm. Leaves crowded below, opposite, clasping at base, bipinnatisect. Flower heads disciform, solitary on slender, naked peduncles, yellow or white, bracts large and round. Achenes winged. July–Sept. Stony flats, NW (Bokkeveld Escarpment to Worcester and W Karoo). **gce**

tenella E.Mey. ex DC. Slender, glabrescent annual to 10 cm. Leaves alternate, clasping at base, linear to pinnatisect. Flower heads disciform, small, solitary on naked peduncles, yellow. Oct. Rocky slopes, NW (S Namibia to Hex River Pass). **gce**

zeyheri Fenzl Like **C. tenella** but softly hairy. May. Damp areas, SW, SE (Riviersonderend and Uitenhage).•

[**Species excluded** No authentic material found and probably conspecific with one of the above: **C. pedunculata** (Schltr.) E.Phillips]

CULLUMIA R.Br. ex Aiton STEEKHAARBOS 15 spp., winter-rainfall S Africa **gce**

A. Leaf margins unthickened or slightly revolute

aculeata (Houtt.) Roessler Prickly, erect, densely leafy shrub to 1 m, often thinly cobwebby. Leaves ascending, oblanceolate, decurrent, margins slightly revolute, bristly in 2 unequal rows, pungent, glabrous or cobwebby beneath. Flower heads radiate, small, pale yellow, solitary at branch tips, inner bracts unarmed. Mainly Sept.–Mar. Dry sandstone slopes, LB, SE (Langeberg: Garcia's Pass to George).•

carlinoides DC. Like **C. cirsioides** but leaves narrowly lanceolate. June–Sept. Coastal sands and limestones, AP, LB, SE (De Hoop to George).•

cirsioides DC. Prickly, densely leafy shrublet to 60 cm. Leaves reflexed, lanceolate, margins slightly revolute, bristly, pungent. Flower heads radiate, yellow, solitary at branch tips. July–Nov. Sandstone slopes, SE (Humansdorp to Port Elizabeth).•

micracantha DC. Like **C. aculeata** but plants glandular and sticky, weakly bristly, to 40 cm, inner bracts armed. Oct.–Jan. Sandstone slopes, NW (Olifants River Valley and Piketberg).•

A.' Leaf margins strongly revolute and mostly covering the underside

bisulca (Thunb.) Less. Like **C. sulcata** but to over 1 m, leaves broader and strongly recurved, spines and bristles longer. Mainly Aug.–Nov. Dry sandstone slopes, NW, SW, KM, SE (Bokkeveld Mtns to Kouga Mtns and Bredasdorp).•

decurrens Less. Like **C. squarrosa** but to 90 cm, glabrous, leaves recurved, shorter, to 10 mm long. Aug.–Jan. Sandstone slopes, often near streams, KM, LB, SE (Swartberg and Cloete's Pass to Port Elizabeth).•

patula (Thunb.) Less. Like **C. squarrosa** but to 30 cm, leaves spreading, acicular. Mainly Aug.–Sept. Dry sandstone slopes, NW, SW, KM, SE (Piketberg to Uniondale).•

squarrosa (L.) R.Br. GROOTSTEEKHAARBOS Prickly, robust, sprawling, densely leafy shrublet to 50 cm, cobwebby on young parts. Leaves reflexed, linear-lanceolate, (10–)15–25 mm long, margins strongly revolute, bristly, pungent. Flower heads radiate, yellow, inner involucral bracts unlike outer, unarmed. Mainly Sept.–Nov. Coastal bush, SW (Cape Peninsula to Stanford).•

sulcata (Thunb.) Less. Prickly, robust, sprawling, densely leafy shrublet to 50 cm, cobwebby on young parts. Leaves erect, linear, margins strongly revolute, bristly, pungent. Flower heads radiate, yellow, outer involucral bracts yellowish, not leaf-like. Sept.–Oct. Dry stony hillsides, NW, SW, KM (Caledon and Hex River Valley to Swartberg).•

A." Leaf margins thickened and hyaline

floccosa E.Mey. ex DC. Prickly, densely leafy shrublet to 90 cm, cobwebby in upper axils. Leaves ascending, oblanceolate, margins thickened, bristly in 2 rows, pungent. Flower heads radiate, yellow. Nov.–Dec. Sandstone slopes, NW (Olifants River Mtns and Piketberg).•

pectinata (Thunb.) Less. SLANGDISSEL Prickly, sprawling, densely leafy shrub to 1 m. Leaves incurved-adpressed, ovate, margins thick, finely bristly in 2 rows. Flower heads radiate, yellow, solitary at branch tips. Mainly Oct.–Dec. Sandstone slopes, NW (Bokkeveld Mtns).•

reticulata (L.) Greuter, M.V.Agab. & Wagenitz (= *Cullumia ciliaris* (L.) R.Br.) STEEKHAARBOS Prickly, straggling, densely leafy shrublet to 60 cm. Leaves ascending, ovate, margins thickened, bristly in 2 rows, tips pungent and reflexed. Flower heads radiate, mostly solitary at branch tips, yellow. July–Nov. Lower sandstone slopes, NW, SW (Olifants River Valley to Hottentots Holland Mtns).•

rigida DC. Like **C. setosa** but to over 1 m. Leaves stiff and leathery, apical spine not reflexed. Sept.–Dec. Sandstone slopes to 1 500 m, NW, KM (Kamiesberg, Bokkeveld Mtns and Little Karoo). **gce**

selago Roessler Prickly, densely leafy shrublet to 20 cm. Leaves spreading-incurved, elliptic, margins thickened with bristles in 2 rows, tips pungent, inflexed. Flower heads radiate, yellow. Mainly Dec. Stony slopes, SW (Caledon).•

setosa (L.) R.Br. STEEKHAARBOS Prickly, densely leafy, sprawling shrublet to 60 cm, sometimes cobwebby. Leaves ovate, recurved, margins thickened and bristly sometimes in 2 rows, tips pungent and reflexed. Flower heads radiate, yellow, solitary at branch tips. Mainly Aug.–Oct. Lower mountain slopes, SW (Cape Peninsula to Stanford and Riviersonderend Mtns).•

CUSPIDIA Gaertn. WORTELBOSSIE 1 sp., E Cape, Karoo

cernua (L.f.) B.L.Burtt Sprawling, thinly cobwebby, prickly leaved annual to 30 cm. Leaves oblanceolate, toothed and pungent. Flower heads radiate, pale yellow, bracts spreading, leafy, pungent. July–Sept. Rocky flats and lower slopes, KM, SE (Karoo to Calitzdorp and Uitenhage).

CYMBOPAPPUS B.Nord. 3 spp., southern Africa

adenosolen (Harv.) B.Nord. Glabrescent, twiggy shrublet to 60 cm. Leaves linear, often 3–5-lobed and hooked at tips, base often with 2 short lobes. Flower heads radiate, solitary on short terminal peduncles, often nodding, yellow with white rays. Sept.–Apr. Mostly clay slopes, renosterveld, SW, AP, LB (Caledon to Gourits River).•

CYPSELODONTIA DC. = **DICOMA**

DELAIREA Lem. 1 sp., E Cape to KwaZulu-Natal

odorata Lem. (= *Senecio mikanioides* Otto ex Harv.) Herbaceous climber. Leaves fleshy, cordate, 5–7-lobed, broadly toothed, palmately veined, petiolate, eared at base. Flower heads discoid, in dense corymbs on lateral branches, yellow. Apr.–May. Forest margins, SE (Uitenhage to KwaZulu-Natal).

DICHROCEPHALA L'Hér. ex DC. 4 spp., Africa and Asia

integrifolia (L.f.) Kuntze Diffuse, softly hairy annual to 15 cm. Leaves ovate, sometimes with small lobes below, toothed. Flower heads discoid, in sparse panicles, greenish. Nov.–Jan. Forest floors, LB, ?SE (Swellendam to tropical Africa).

DICOMA Cass. (= *CYPSELODONTIA*) WILDEKARMEDIK ± 30 spp., mainly Africa, also Madagascar and India

fruticosa Compton Twiggy shrublet to 50 cm, sticky on young parts. Leaves oblanceolate-spathulate, leathery, apiculate. Flower heads sparsely radiate, solitary at branch tips, pinkish, disc florets ± 5, bracts ovate, not spiny, margins membranous-lacerate. Sept.–Nov. Shale flats, KM (Klein Swartberg and Warmwaterberg).•

picta (Thunb.) Druce (= *Cypselodontia eckloniana* DC) KNOPPIESDORINGBOSSIE Softly woody, rigid shrublet to 60 cm, branches felted-striate. Leaves spathulate, grey-mealy. Flower heads radiate, in lax corymbs, white with pink to mauve rays, bracts stiffly acuminate. Oct.–Dec. Dry stony slopes, NW, KM, SE (Cedarberg to Uitenhage and Karoo).

DIDELTA L'Hér. SLAAIBOS 2 spp., S Namibia to S Cape **gce**

carnosa (L.f.) Aiton KUSSLAAIBOS Rounded, thinly or densely cobwebby shrublet to 1 m. Leaves fleshy, oblanceolate. Flower heads radiate, large, yellow, bracts leafy. July–Nov. Coastal dunes and sandy flats, NW, SW, AP, SE (S Namibia to Cape Peninsula, Agulhas to Wilderness). **gce**

spinosa (L.f.) Aiton SLAAIBOS Shrub or tree to 2 m, cobwebby on young parts. Leaves opposite, ovate to elliptic, cordate, margins slightly revolute, sometimes prickly. Flower heads radiate, large, solitary at branch tips, yellow, bracts leafy. July–Sept. Dry, granite and sandstone slopes, NW (S Namibia to Piketberg). **gce**

DIMORPHOTHECA Vaill. ex Moench (= *CASTALIS*) MARGRIET 15 spp., W Cape, and Karoo to Namibia

A. Annuals

pinnata (Thunb.) Harv.) (= *Osteospermum pinnatum* (Thunb.) Norl.) JAKKALSBIETOU Sprawling, glandular-hairy annual to 20 cm. Leaves pinnatisect, lobes linear to filiform. Flower heads

radiate, solitary at branch tips, disc yellow, rays white to orange or biscuit-coloured but dark at base. Ray achenes toothed or tubercled, disc florets sterile. July–Sept. Rocky slopes and flats, NW, KM (S Namibia and Karoo to Trawal and Little Karoo).

pluvialis (L.) Moench REËNBLOMMETJIE Erect to sprawling, glandular-hairy annual to 30 cm, branching from the base. Leaves oblanceolate, lobed to toothed. Flower heads radiate, solitary at branch tips, purple with white rays purple at base and darker on reverse. Ray achenes tubercled, disc achenes flattened. Mainly Aug.–Oct. Sandy and clay flats and slopes, NW, SW, AP (S Namibia and Richtersveld, Gordonia, Bokkeveld Mtns to Gouritsmond).

sinuata DC. NAMAQUALAND DAISY Like **D. pluvialis** but often less hairy and flower heads with yellow or orange to beige rays. Mainly Aug.–Oct. Sandy and limestone flats and ridges, NW, SW (S Namibia to Saldanha). [Partially sterile hybrids between **D. pluvialis** and **D. sinuata** are recorded where the two species co-occur].

A.' Tufted perennials or subshrubs

dregei DC. (= *Osteospermum dregei* (DC.) Norl.) BIETOU Roughly hairy, tufted perennial to 20 cm, from woody base. Leaves linear, usually sharply toothed. Flower heads radiate, solitary on elongate peduncles, purple with white rays brown on reverse. Ray achenes trigonous and warty, ± 3 mm long, disc florets sterile. Mainly Aug.–Sept. Sandstone slopes, NW, SW, KM, LB (Bokkeveld Mtns to Bredasdorp and Klein Swartberg).•

nudicaulis (L.) DC. WITMARGRIET Roughly glandular-hairy, tufted subshrub to 30 cm, clump-forming. Leaves ± basal, linear-oblanceolate, hispidulous, margins toothed. Flower heads radiate, solitary on elongate peduncles sparsely leafy below, yellow to purple with white, yellow or orange rays with purple to copper reverse. Ray achenes vestigial, disc achenes flattened. Aug.–Oct. Sandstone slopes, NW, SW, AP, KM, LB, SE (Bokkeveld Escarpment to George).• [See note under **D. tragus** in **Species excluded**]

montana Norl. (incl. **D. venusta** (Norl.) Norl.) Tufted to mat-forming, glandular-hairy perennial to 30 cm, from woody caudex. Leaves crowded basally, narrowly oblanceolate, subentire to toothed. Flower heads radiate, solitary on elongate, leafy peduncles, yellow, white or pink, with dark reverse. Ray achenes 3-winged, disc florets sterile. Nov.–Jan. Sandstone slopes and ridges, NW, KM, SE (Hex River Mtns through Little Karoo to Tsitsikamma Mtns).•

A." Prostrate to erect shrublets

acutifolia (Hutch.) B.Nord. (= *Osteospermum acutifolium* (Hutch.) Norl.; incl. **D. walliana** (Norl.) B.Nord.) Sprawling, roughly hairy shrublet to 50 cm. Leaves linear-oblanceolate, usually toothed, sometimes sharply so. Flower heads radiate, solitary at branch tips, purple to brown with white rays purple to brown on reverse. Ray achenes trigonous and warty, ± 6 mm long, disc florets sterile. Aug.–Nov. Sandstone slopes, NW, SW (N Cedarberg to Shaw's Mtns).•

chrysanthemifolia (Vent.) DC. MARGRIET Thinly glandular-hairy shrublet to 1 m. Leaves oblanceolate, toothed to pinnatifid. Flower heads radiate, large, solitary or few at branch tips, yellow or orange. Ray achenes shortly 3-winged, disc florets flattened. Oct.–Jan. Rocky sandstone slopes, NW, SW (Hex River Mtns to Simonsberg).•

cuneata (Thunb.) Less. BOSMARGRIET Rounded, glandular-hairy, viscid shrublet to 50 cm. Leaves cuneate-oblanceolate, toothed to lobed or pinnatifid. Flower heads radiate, solitary on short, naked peduncles, yellow with white or orange rays darker on reverse. Ray achenes trigonous, glandular, disc florets flattened. Mainly Sept.–Nov. Stony and shale ridges and flats, NW, KM, SE (Namaqualand and Karoo, Ceres to Uitenhage).

ecklonis DC. (= *Osteospermum ecklonis* (DC.) Norl.) VANSTADEN'S DAISY Sprawling, glabrescent, softly woody shrub, sometimes to 1.5 m. Leaves elliptic, mostly petiolate and toothed. Flower heads radiate, solitary on long peduncles, violet-blue with white rays. Ray achenes trigonous, ridged and rugose, disc florets sterile. Apr.–Oct. Rocky slopes and flats, SE (Langkloof to Uitenhage).•

fruticosa (L.) Less. (= *Osteospermum fruticosum* (L.) Norl.) RANKBIETOU Shortly hairy, sprawling to prostrate, softly woody shrublet. Leaves obovate, petiolate, fleshy, minutely toothed. Flower heads radiate, large, solitary on naked peduncles, purple with white or mauve rays. Ray achenes smooth, trigonous, ± 6 mm long, disc florets sterile. June–Oct. Coastal dunes and rocks, SW, AP, SE (Saldanha Bay to KwaZulu-Natal).

[**Species excluded D. tragus** (Aiton) B.Nord. was traditionally separated from *D. nudicaulis* by the orange *vs.* white rays but this colour difference appears not to hold and *D. tragus* is here restricted to specimens from Namaqualand (Richtersveld to Hol River) with subglabrous, often glaucous leaves]

DISPARAGO Gaertn. BASTERSLANGBOS 9 spp., W Cape to KwaZulu-Natal

A. Ray florets sterile

anomala Schltr. ex Levyns Like **D. kraussii** but pappus lacking. Dec.–Apr. Coastal sands and limestone, SW, AP (Cape Peninsula to Potberg).•

ericoides (P.J.Bergius) Gaertn. (= *Disparago lasiocarpa* Cass.) Thinly cobwebby shrublet to 30 cm. Leaves linear with involute margins, spreading to recurved and twisted. Flower heads radiate, in several, shortly stalked, terminal clusters, mostly 2-flowered, purple with pink rays, pappus bristles plumose, ovary of disc florets densely woolly, ray florets sterile. Nov.–Mar. Sandstone slopes, NW, SW, AP (Darling to Matroosberg and Gouritsmond).•

kraussii Sch.Bip. Thinly cobwebby shrublet to 80 cm. Leaves linear with involute margins, spreading and twisted, suberect above, bristle-tipped. Flower heads radiate, crowded in elongate, terminal clusters, 2-flowered, ?white with white or pink rays, pappus bristles plumose, ray florets sterile. Apr.–June. Sandstone, mostly coastal slopes, AP, LB, SE (Agulhas to Plettenberg Bay).•

laxifolia DC. Spreading, thinly cobwebby shrublet to 20 cm. Leaves linear with involute margins, spreading and twisted. Flower heads radiate, in dense, rounded clusters, 2-flowered, white, pappus bristles plumose, ray florets sterile. Oct.–Dec. Sandstone flats and lower slopes, SW (Cape Peninsula to Hermanus).•

A.' Ray florets female

barbata Koekemoer Trailing shrublet to 40 cm. Leaves linear with margins involute, twisted and spreading. Flower heads radiate, in dense, terminal clusters, 6-flowered, brownish with white rays, pappus bristles barbed, ray florets female. Nov.–Jan. Sandstone slopes above 1 200 m, NW (Matroosberg).•

gongylodes Koekemoer Intricately branched shrublet to 35 cm. Leaves ovate to rounded, margins involute, densely white-woolly above, spreading and twisted. Flower heads radiate, in small, terminal clusters, 7-flowered, white with purple rays, pappus bristles plumose, ray florets female. Sept.–Oct. Sandstone plateaus above 1 200 m, NW (Grootwinterhoek Mtns).•

kolbei (Bolus) Hutch. (= *Disparago rosea* Hutch.) Densely grey-woolly shrublet to 25 cm. Leaves linear, adpressed, 4-ranked, margins involute, densely white-woolly above. Flower heads radiate, in small, terminal, loosely aggregated clusters, 4–6-flowered, purple with white rays, pappus bristles plumose, ray florets female. Sept.–Apr. Rocky sandstone slopes and ridges above 1 200 m, KM, SE (Witteberg and Swartberg to Langkloof).•

pilosa Koekemoer Like **D. kolbei** but florets 8 per head and bracts and ovary hairy. Sept.–Apr. Sandstone slopes above 1 200 m, NW (Cold Bokkeveld to Hex River Mtns).•

tortilis (DC.) Sch.Bip. (= *Disparago ericoides* auct.) Much-branched, thinly cobwebby shrub to 90 cm. Leaves linear with involute margins, recurved and twisted, bristle-tipped. Flower heads radiate or disciform, mostly 1-flowered, grouped in dense, globose clusters, pink or white, pappus bristles plumose, ray florets female. Mainly May–Sept. Sandy slopes, SW, LB, SE (Hottentots Holland Mtns to S KwaZulu-Natal).

DISTEPHANUS Cass. ± 40 spp., Old World tropics

anisochaetoides (Sond.) H.Rob. & B.Kahn (= *Vernonia anisochaetoides* Sond.) Rampant climber. Leaves rhomboid. Flower head discoid, in divaricate panicles, yellow-beige. June–Sept. Coastal forest margins, SE (Knysna to KwaZulu-Natal).

DOLICHOTHRIX Hilliard & B.L.Burtt• KLIPRENOSTERBOS 1 sp., SW Cape

ericoides (Lam.) Hilliard & B.L.Burtt (= *Bryomorphe lycopodioides* (Sch.Bip. ex Walp.) Levyns) Rounded, minute-leaved shrub to 70 cm, branches white-felted. Leaves adpressed to stem, scale-

like. Flower heads discoid, solitary, crowded at branch tips, purplish, bracts white, reflexed at tips. Nov.–Feb. Sandstone rocks mostly above 1 500 m, NW, KM, SE (Cedarberg to Great Winterhoek Mtns).•

DYMONDIA Compton• CARPET GAZANIA 1 sp., SW Cape

margaretae Compton Mat-forming perennial to 5 cm with creeping rhizome, roots thickened, fusiform. Leaves in a basal rosette, narrowly oblanceolate, margins involute, sinuate, densely white-felted below. Flower heads radiate, sessile, yellow. Mainly Sept.–Nov., but throughout the year. Coastal flats at edges of pans and marshes, SW, AP (Agulhas to Potberg).•

EDMONDIA Cass.• SEWEJAARTJIE 3 spp., SW Cape

fasciculata (Andrews) Hilliard Like **E. sesamoides** but tips of upper peduncular leaves becoming dry and scale-like, bracts bright yellow. Sept.–Jan. Rocky sandstone slopes, NW, SW (Cedarberg to Riviersonderend Mtns).

pinifolia (Lam.) Hilliard Sparsely branched, thinly white-woolly shrublet to 60 cm. Leaves weakly dimorphic, linear and ascending below. Flower heads discoid, solitary on long peduncles bearing short, adpressed leaves, the uppermost becoming dry and papery, yellow, bracts papery, white to pink; cypselas flattened and winged. Sept.–Dec. Rocky sandstone slopes, NW, SW (Cedarberg to Cape Peninsula and Kogelberg).•

sesamoides (L.) Hilliard SEWEJAARTJIE Sparsely branched, thinly white-woolly shrublet to 30 cm. Leaves dimorphic, the cauline linear, spreading, with margins rolled upward. Flower heads discoid, solitary, peduncles long, bearing short, adpressed leaves, yellow, bracts papery, white to pink or pale yellow. Aug.–Dec. Rocky flats and slopes, NW, SW, AP, LB (Cedarberg to Mossel Bay).•

ELYTROPAPPUS Cass. RENOSTERBOS 10 spp., W to E Cape, Karoo

adpressus Harv. WYFIERENOSTERBOS Like **E. rhinocerotis** but leaves linear-ericoid and flower heads several in short spikes terminating shoots, not on lateral branches. Mar.–July. Sandstone slopes above 600 m, NW, KM (Cold Bokkeveld to Witteberg and Langkloof).•

aridus Koekemoer Glabrescent, reddish brown shrublet to 80 cm. Leaves ericoid with margins rolled upward, widely spaced, spreading and twisted. Flower heads discoid, few in terminal glomerules, pink to red, 2–4-flowered. Mainly Feb.–Apr. Rocky sandstone slopes, NW, KM (Matsikamma and Cedarberg to Swartberg).•

glandulosus Less. Glabrescent or woolly shrublet to 50 cm. Leaves linear with involute margins, glandular-hairy, adpressed or spreading and twisted. Flower heads discoid, few in axillary clusters forming slender spikes, mauve, 2(3)-flowered, florets tubular. Mar.–June. Sandstone slopes, NW, SW, LB (Cedarberg to Langeberg: Swellendam).•

gnaphaloides (L.) Levyns Like **E. glandulosus** but sparsely glandular-hairy and flower heads in open panicles. Jan.–Apr. Shale and stony slopes, NW, SW, AP, LB, SE (Bokkeveld Escarpment to Langkloof).•

hispidus (L.f.) Druce (= *Stoebe cyathiformis* DC.) Thinly woolly shrublet to 30 cm. Leaves ericoid with involute margins, twisted, glandular-hairy. Flower heads discoid, massed in rounded, terminal clusters, pinkish, 3- or 4-flowered. Achenes with horizontal ridges. Sept.–Dec. Rocky slopes, NW, KM (Bokkeveld Escarpment to Klein Swartberg).•

intricata (Levyns) Koekemoer (= *Stoebe intricata* Levyns) Intricately branched, glandular-woolly shrub to 1 m. Leaves narrowly lanceolate, often adpressed. Flower heads discoid, small, crowded in rounded clusters, purple, 1-flowered, bracts golden, acuminate. Apr.–July. Sandstone slopes, NW, KM, LB (Cold Bokkeveld to Swartberg).•

longifolius (DC.) Levyns Thinly white-woolly shrub to 1 m with stiffly erect branches. Leaves linear with involute margins, recurved and twisted, glandular-scabrid. Flower heads discoid, few in axillary clusters together forming elongate spikes or open racemes, pink, florets narrowly funnel-shaped, 3–6-flowered. Achenes warty above. Feb.–Apr. Sandstone slopes, SW (Cape Peninsula to Genadendal).•

monticola Koekemoer Sparsely branched, single-stemmed shrublet to 40 cm. Leaves linear, densely glandular-hairy, ascending above. Flower heads many in terminal glomerules, white, 5- or 6-flowered. Oct.–Nov. Sandstone slopes, LB (Langeberg: Riversdale).•

rhinocerotis (L.f.) Less. RENOSTERBOS Thinly grey-woolly, viscid shrub to 2 m with short whip-like branches. Leaves scale-like, adpressed. Flower heads discoid, few at tips of lateral branches, purple, mostly 3-flowered. Feb.–Apr. Dry shale and sandstone slopes and flats, NW, SW, AP, KM, LB, SE (S Namibia to E Cape and Karoo).

scaber (L.f.) Druce Wiry-stemmed, glandular-hairy shrub to 1 m. Leaves involute ericoid, adpressed. Flower heads discoid, few in axillary clusters scattered along upper stems, 2- or 3-flowered. Feb.–May. Sandstone slopes and plateaus, NW, SW (Bokkeveld Mtns to Bredasdorp).•

sp. 1 Like **E. aridus** but flowers yellow. Dec.–Apr. Dry, lower northern slopes, LB (Langeberg: Barrydale).•

ERIOCEPHALUS L. KAPOKBOSSIE, WILD ROSEMARY ± 34 spp., southern Africa

A. Flower heads inconspicuously radiate

ericoides (L.f.) Druce GEWONE KAPOKBOSSIE Twiggy, glabrescent shrub to 1 m. Leaves small, linear, opposite in axillary tufts. Flower heads radiate, appearing discoid, subsessile, solitary in axils of upper leaves, reddish. July–Nov. Stony clay and sandy flats, KM (widespread in dry parts of southern Africa).

racemosus L. KAPKOPPIE Silvery silky shrub to 1.5 m. Leaves linear, alternate, sometimes tufted. Flower heads radiate, appearing discoid, solitary in leaf axils, forming long racemes, pink. July–Sept. Coastal dunes and hills, NW, SW, AP, SE (S Namaqualand to Humansdorp). **gce**

A.' Flower head conspicuously radiate

africanus L. WILD ROSEMARY, KAPOKBOSSIE Silvery silky, twiggy shrub to 1 m. Leaves linear or trifid, in tufts. Flower heads radiate, in small, umbellate clusters at branch tips, rays conspicuous, purplish with white rays. Mainly Jan.–June. Mostly clay or granite hillsides, NW, SW, AP, LB, SE (S Namaqualand to Port Elizabeth and E Cape).

aromaticus C.A.Sm. Like **E. brevifolius** but leaves glabrescent, linear, slightly fleshy and punctate. July–Oct. Rocky sandstone slopes, NW, KM (Swartruggens to Swartberg).•

brevifolius (DC.) M.A.N.Müller Shortly hairy shrub to 1 m. Leaves linear, punctate, crowded on spur shoots and branch tips. Flower heads radiate, in small, umbellate clusters, rays conspicuous, purplish with white rays. Mainly July–Sept. Rocky slopes, NW, KM (Namaqualand and W Karoo to Swartruggens and Swartberg). **gce**

capitellatus DC. Silvery silky, slender shrub to 1.6 m. Leaves linear or trifid, in tufts. Flower heads radiate, subsessile, in small, axillary glomerules arranged in spikes, rays small, white. Jan.–Apr. Dry sandstone slopes, NW, KM, SE (Cedarberg to Swartberg Pass and Baviaanskloof Mtns).•

grandiflorus M.A.N.Müller Densely silvery silky, ± thorny, rigid shrublet to 45 cm. Leaves opposite and imbricate, linear. Flower heads radiate, large, few in terminal clusters, purplish with white rays. June–Sept. Stony ground, KM (W Karoo and Witteberg to Swartberg). **gce**

paniculatus Cass. Similar to **E. africanus** but bracts and ovaries densely golden woolly. Mainly July–Sept. Sandstone slopes, NW, SW, KM, LB, SE (Cedarberg to Somerset East).

punctulatus DC. BOEGOEKAPOKBOSSIE Like **E. brevifolius** but flower heads on longer, filiform peduncles. Aug.–Oct. Sandstone slopes, NW, SW (Namaqualand to Moorreesburg and W Karoo). **gce**

purpureus Burch. Twiggy shrublet to 60 cm. Leaves linear, in tufts and crowded on short shoots. Flower heads radiate, solitary on short shoots, rays conspicuous, mauve. July–Aug. Dry, rocky, karroid slopes, NW (Namaqualand to Cedarberg and W Karoo). **gce**

tenuipes C.A.Sm. Like **E. africanus** but leaves ± equal, punctate and often glabrous. Jan.–June. Rocky slopes, SE (Uniondale and Port Elizabeth).•

EURYOPS (Cass.) Cass. HARPUISBOS 97 spp., southern and tropical Africa, S Arabia

A. Pappus lacking or vestigial

bolusii B.Nord. Twiggy, closely leafy shrublet to 40 cm. Leaves mostly pinnatisect, 10–30 mm long, lobes short. Flower heads radiate, solitary on elongate, slender peduncles, yellow; pappus

absent. Achenes with ± 10 warty ridges. Nov.–Apr. Rocky sandstone slopes, KM (Swartberg to Kammanassie Mtns).•

ericifolius (Bél.) B.Nord. Like **E. ericoides** but to 30 cm. Leaves adpressed to stems, 1.5–5 mm long. Achenes with shortly hairy ridges. Mar.–Oct. Saline or limestone flats, SE (Port Elizabeth to Sundays River).

ericoides (L.f.) B.Nord. Twiggy, densely leafy shrublet to 60 cm. Leaves ascending, 2–5(–10) mm long, linear-trigonous and apiculate. Flower heads radiate, solitary on elongate peduncles, yellow; pappus absent. Achenes with ± 10 warty ridges. Mainly Feb.–Sept. Rocky, sandstone and limestone slopes, AP, LB (Swellendam and Agulhas to Ruitersbos).•

euryopoides (DC.) B.Nord. Like **E. pinnatipartitus** but leaves mostly 3-lobed and achenes with smooth ridges. Mainly Mar.–Dec. Rocky slopes in fynbos and forest margins, SE (Humansdorp to Grahamstown).

hebecarpus (DC.) B.Nord. Softly hairy shrublet to 35 cm. Leaves trifid, 20–50 mm long, lobes subterete. Flower heads radiate, large, mostly solitary on elongate, terminal peduncles, yellow or orange; pappus vestigial. Aug.–Sept. Limestone ridges, AP (Agulhas to Potberg).•

integrifolius B.Nord. Like **E. ericoides** but leaves obtuse and achenes minutely papillose. Nov. Rocky sandstone ridges above 1 200 m, SE (Tsitsikamma Mtns).•

munitus (L.f.) B.Nord. Similar to **E. bolusii** but leaves stiff and ascending, 3–10 mm long, lobes mucronate. Achenes almost smooth. Mainly Mar.–June. Clay and sandstone slopes on dry fynbos, SE (Langkloof to Port Elizabeth).•

pinnatipartitus (DC.) B.Nord. Densely leafy shrub to 90 cm, sometimes thinly woolly on young parts. Leaves pinnatisect, 10–30 mm long, lobes oblong to terete. Flower heads radiate, solitary, on short peduncles, yellow; pappus absent. Achenes with 10 warty ridges. Mainly July–Jan. Sandstone slopes, 500–1 500 m, KM, LB, SE (Swellendam to Kammanassie Mtns and Humansdorp).•

tenuilobus (DC.) B.Nord. Like **E. bolusii** but leaf lobes longer and filiform and achenes with 5–7 faint ridges. June–Aug. Clay hills in renosterbos, SW (Caledon District).•

ursinoides B.Nord. Like **E. bolusii** but to 2 m, thinly woolly in leaf axils, leaf lobes long and linear, pappus absent and achenes with 10 smooth ribs. July–Dec. Rocky sandstone slopes, SE (Van Staden's Mtns).•

A.' Pappus present
B. Disc florets widening gradually above

brevilobus Compton Like **E. speciosissimus** but stout shrub rarely over 1 m and leaves rigid with short lobes. July–Oct. Sandstone slopes, NW (Cedarberg to Swartruggens).•

decipiens Schltr. Sprawling shrublet to 20 cm. Leaves linear, 15–60 mm long, sometimes 1- or 2-lobed. Flower heads radiate, solitary on elongate, terminal peduncles, disc florets obconic, yellow. Oct.–Jan. Steep, moist, sandstone slopes above 1 200 m, SW (Bain's Kloof Mtns).•

othonnoides (DC.) B.Nord. Grey-felted shrublet to 40 cm. Leaves pinnatisect, 20–90 mm long, lobes 1–4 on each side, subterete, pungent. Flower heads radiate, solitary on elongate, terminal peduncles, yellow, disc florets obconic. Aug.–Dec. Sandstone rocks and cliffs, NW, KM (Pakhuis Pass to Hex River Mtns and Touwsberg).•

pectinatus (L.) Cass. WOLHARPUISBOS Densely grey-felted shrub to over 1.5 m. Leaves toothed to pinnatisect, 40–100 mm long, lobes linear, obtuse to acute. Flower heads radiate, large, solitary on stout, elongate peduncles in upper leaf axils, with cup-shaped involucre, yellow, disc florets obconic. Sept.–Dec. Rocky sandstone slopes, NW, SW (Gifberg to Cape Peninsula).•

serra DC. Like **E. brevilobus** but leaves with extremely short lobes, almost serrate. Aug.–Feb. Rocky sandstone slopes, NW (Grootwinterhoek Mtns).•

speciosissimus DC. PRONKHARPUISBOS Glabrous shrub to over 2 m. Leaves pinnatisect, (40–)60–200 mm long, lobes filiform, flexuose. Flower heads radiate, large, solitary, on thick, terminal peduncles < twice as long as leaves, with cup-shaped involucre, yellow, disc florets obconic. Mainly Aug.–Nov. Rocky sandstone slopes, NW (Bokkeveld Mtns to Tulbagh).•

tagetoides (DC.) B.Nord. Like **E. othonnoides** but taller, to 1 m. Leaves more finely divided, lobes 5–8 on each side. Flower heads orange, involucre cup-shaped. Aug.–Sept. Dry sandstone slopes in arid fynbos, NW (Botterkloof to N Cedarberg).•

wageneri Compton Like **E. speciosissimus** but leaves grey. Flower heads orange or deep yellow with wider rays, peduncles > twice as long as leaves. Aug.–Sept. Rocky sandstone slopes and plateaus, NW (Biedouw to N Cedarberg).•

B.' Disc florets abruptly flaring above

abrotanifolius (L.) DC. BERGHARPUISBOS Densely leafy shrub to 1 m. Leaves ascending, pinnatisect with linear to filiform lobes or sometimes entire, 60–90 mm long. Flower heads radiate, solitary on terminal peduncles woolly at base, yellow. Achenes glabrous, closely ribbed with terminal appendage. Mainly July–Dec. Sandstone slopes, NW, SW, LB (N Cedarberg to Langeberg: Riversdale).•

algoensis DC. KLEINHARPUISBOS Willowy, densely leafy shrub to 1.2 m. Leaves ascending, obovate, 3–5-toothed or lobed above, leathery and minutely warty, 6–25 mm long. Flower heads radiate, solitary in upper axils, yellow. Mar.–June. Mainly coastal scrub, LB, SE (Mossel Bay to Grahamstown).

brevipapposus M.D.Hend. Shrub 2–3 m. Leaves linear, clustered at branch tips, sometimes woolly in axils, 15–90 mm long. Flower heads radiate, solitary on short peduncles clustered among leaves, yellow. Mainly Oct.–Mar. Stony slopes and river banks, SE (Humansdorp to Limpopo.)

cuneatus B.Nord. Like **E. multifidus** but leaf lobes broad and flattened, somewhat cuneate and bracts free almost to base. July–Sept. Dry stony slopes, NW (Ceres and W Karoo). **gce**

dasyphyllus B.Nord. & Vlok *ined.* Like **E. oligoglossus** but leaves hairy and with long peduncles. Aug.–Sept. Rocky shale slopes, KM (Little Karoo: S of Anysberg).•

diosmoides B.Nord. & Vlok *ined.* Like **E. muirii** but leaves small 2–3 mm long. Sept.–Oct. Quartz outcrops, KM (Little Karoo: N foot of Warmwaterberg)•.

erectus (Compton) B.Nord. Densely leafy shrub to 1 m. Leaves needle-like, spreading to upcurved. Flower heads radiate, clustered at branch tips on filiform peduncles, bracts free. Aug.–Oct. Sandstone slopes, KM, SE (Witteberg to Swartberg).•

glutinosus B.Nord. Sparsely branched shrub to 1 m, woolly on young parts. Leaves linear-triquetrous, glutinous, margins prominent, 15–50 mm long. Flower heads radiate, solitary and few at branch tips, yellow. Oct.–Dec. Rocky sandstone slopes above 1 500 m, KM (Klein Swartberg).•

imbricatus (Thunb.) DC. Sprawling, shrub to over 1 m. Leaves crowded above, ascending, fleshy-spathulate, rugulose, bright green, 3–17 mm long. Flower heads radiate, solitary in upper axils, yellow. May–Dec. Rocky karroid flats and slopes, NW, KM (Hex River Pass to Witteberg and W Karoo). **gce**

indecorus B.Nord. Dark-stemmed shrub to 90 cm. Leaves clustered at branch tips, leathery, oblanceolate, mostly 3-lobed at tips, 15–70 mm long. Flower heads radiate, solitary on short peduncles, yellow. Oct.–Nov. Rocky sandstone slopes and ridges, SW (Cape Hangklip).•

lasiocladus (DC.) B.Nord. Slender, white-woolly shrublet to 10 cm. Leaves linear-filiform, acuminate, loosely twisted, 15–35 mm long. Flower heads radiate, solitary on elongate peduncles, yellow. June–Aug. Mountain slopes on shale band, 300–600 m, SW (Babilonstoring).•

lateriflorus (L.f.) DC. SOETHARPUISBOS Viscid shrub to 1 m or more, with stiffly erect branches, closely leafy above. Leaves leathery, grey, oblanceolate to obovate, often 3-veined from base, 8–30 mm long. Flower heads radiate, few, solitary on short, axillary peduncles, yellow. Mainly May–Aug. Dry sandstone and shale slopes, NW, KM, SE (S Namibia and W Karoo and Ceres to Uniondale). **gce**

linearis Harv. Densely leafy shrub to over 2 m. Leaves soft, mostly entire and linear, tapering below, with distinct midvein, 10–40 mm long. Flower heads radiate, on short, filiform peduncles in terminal umbels, with cup-shaped involucres, yellow. Mainly Aug.–Oct. Partly shaded on limestone ridges, AP (De Hoop to Potberg).•

linifolius (L.) DC. Like **E. rehmannii** but young branches cobwebby, tips of bracts overlapping and achenes glabrous. July–Sept. Sandy flats and slopes, NW, SW (Hopefield to Stellenbosch).•

longipes DC. Like **E. rupestris** but stems more slender, leaves often entire, and peduncles longer and filiform. Nov.–Apr. Sandstone slopes and ridges, NW, SW (Witzenberg and Bain's Kloof to Riviersonderend Mtns).•

microphyllus (Compton) B.Nord. Sparsely leafy, twiggy shrublet to 60 cm. Leaves adpressed to ascending, 1–6 mm long. Flowers heads radiate, solitary on slender peduncles, yellow. Achenes conspicuously woolly. July–Oct. Rocky slopes, KM (W Karoo to Witteberg). **gce**

mirus B.Nord. Dwarf, cushion-forming shrublet with taproot. Leaves pinnatifid, thinly hairy, 7–30 mm long, segments bristle-tipped. Flower heads radiate, solitary on long peduncles, yellow. Achenes shortly hairy. July–Sept. Clay soils in renosterveld, NW (Bokkeveld Mtns).•

muirii C.A.Sm. STRANDHARPUISBOS Dwarf, closely leafy, ericoid shrublet to 25 cm. Leaves ascending, closely imbricate, 2–5 mm long. Flower heads radiate, yellow, solitary, clustered at branch tips, bracts free. Sept. Limestone ridges, AP (near Still Bay).•

multifidus (Thunb.) DC. HANEPOOTHARPUISBOS Shrub to 1.5 m, with stiffly erect branches. Leaves crowded on short shoots, mostly trifid with forked lateral lobes, 6–35 mm long, lobes subterete. Flower heads radiate, solitary on short peduncles in leaf axils, yellow. Achenes conspicuously woolly. June–Sept. Rocky slopes, often on outcrops, NW, SW (Namaqualand to Saldanha, Worcester and W Karoo). **gce**

oligoglossus DC. WATERHARPUISBOS Lax shrub to 1.5 m, sometimes sparsely woolly in axils. Leaves lanceolate to linear, spreading, 5–15 mm long. Flower heads radiate, solitary on short peduncles in upper axils, yellow. Achenes densely white-hairy, mucilaginous when wet. Dec.–June. Rocky watercourses, NW (Hex River Mtns and Karoo to Lesotho).

rehmannii Compton Like **E. tenuissimus** but leaves (5–)10–50 mm long, flower heads borne above leaves, involucres cup-shaped and achenes shortly hairy. Mainly July–Oct. Karroid scrub or arid fynbos, NW, KM, SE (N Cedarberg to Worcester, Witteberg to Uitenhage and S Karoo).

rupestris Schltr. Gnarled, few-branched shrublet to 80 cm. Leaves clustered at ends of branches, 3–5-sect, 20–50 mm long, lobes linear-filiform. Flower heads radiate, solitary on long peduncles, yellow. July–Dec. Sandstone outcrops, mostly above 800 m, NW, SW (Witzenberg and Tulbagh Kloof to Riviersonderend Mtns).•

spathaceus DC. HARPUISBOS Densely leafy shrub to over 1 m. Leaves terete to oblanceolate, (10–)20–50 mm long. Flower heads radiate, solitary in upper axils, yellow, involucres fused when young, splitting into a few, irregular segments. Mainly Jan.–Apr. Rocky, karroid slopes, KM, SE (Swartberg to E Cape).

subcarnosus DC. SOETHARPUISBOS Twiggy shrub to 1 m. Leaves at branch tips and on short shoots, terete, linear or with 3–5 linear lobes, 2–30 mm long. Flower heads radiate, solitary on long peduncles in upper axils, yellow. Jan.–Dec. Varied habitats, KM, SE (S Namibia and Botswana to Little Karoo).

tenuissimus (L.) DC. RESIN BUSH, GROOTHARPUISBOS Shrub to 2.5 m, often mealy on young parts. Leaves filiform, sometimes 3-lobed, 15–150 mm long. Flower heads radiate, solitary on short, filiform peduncles clustered among leaves, yellow or orange. Achenes hairy, mucilaginous when wet. Mainly Aug.–Oct. Stony, karroid slopes, NW, SW, KM, LB, SE (Namaqualand and W Karoo to George). **gce**

thunbergii B.Nord. Closely leafy shrub to 1.2 m, densely cobwebby on young parts. Leaves spreading, filiform, terete or somewhat flattened, woolly on lower midline, 10–50 mm long. Flower heads radiate, on slender peduncles together forming loose umbels, yellow. Achenes white-puberulous, mucilaginous when wet. Mainly Sept.–Oct. Sandy flats and lower slopes, NW, SW (Gifberg to Tygerberg and Worcester).•

virgatus B.Nord. Twiggy shrublet to 50 cm. Leaves crowded at branch tips, small, pinnatisect, 3–15 mm long, lobes filiform. Flower heads radiate, nodding in bud, few, solitary or few on each branch, on long peduncles, yellow. July–Sept. Rocky flats, NW (Bokkeveld Escarpment).•

virgineus (L.f.) DC. RIVIERHARPUISBOS Densely leafy shrub to 3 m with stiffly erect stems. Leaves ascending, obovate, narrowly lobed to toothed above, 5–12 mm long. Flower heads radiate, small, solitary on short, filiform peduncles in upper axils, yellow. Mainly July–Nov. Stony flats in renosterveld, AP, KM, LB, SE (Swartberg and Still Bay to Alexandria).

vlokii B.Nord. *ined*. Like **E. cuneatus** but leaves broad and peduncles very long. Aug.–Sept. Limestone outcrops, KM (Little Karoo: W of Anysberg).•

sp. 1 Sparsely branched shrub with stems to 20 mm diam., covered with thick, fissured, corky bark, densely woolly on young parts. Leaves mop-like at branch tips, terete, 40–80 mm long. Flower heads radiate, solitary and few at branch tips, on very long peduncles, yellow. Sept.–Oct. Rocky sandstone cliffs, KM (Klein Swartberg: Buffelspoort).•

FELICIA Cass. (= *CHARIEIS*) ASTERTJIE 85 spp., southern and tropical Africa to Arabia

A. Involucral bracts strictly in 2 rows
B. Annuals or weak perennial herbs

amoena (Sch.Bip.) Levyns Softly hairy annual or weak perennial, 10–25 cm. Leaves oblanceolate, soft. Flower heads radiate, solitary, yellow with blue or white rays. Mainly June–Oct. Stony slopes, NW, SW, AP, KM, LB, SE (Cedarberg to E Cape).

annectens (Harv.) Grau Annual similar to **F. bergeriana** but floral bracts almost glabrous. ?. Sandy soils, SW (Hopefield to Riviersonderend).• [Probably a depauperate form of **F. bergeriana**.]

bellidioides Schltr. Softly hairy perennial to 25 cm. Leaves spathulate to narrowly oblanceolate, soft, in a basal tuft. Flower heads radiate, solitary on elongate peduncles, yellow with mauve or blue rays. Aug.–Jan. Rocks on S-facing slopes at high elevations, NW, SW, KM (Cedarberg to Oudtshoorn).•

bergeriana (Spreng.) O.Hoffm. Slender, hairy annual to 20 cm. Leaves obovate to oblanceolate. Flower heads radiate, solitary on elongate pedicels, yellow with blue or sometimes white rays, ray florets sometimes without pappus. Aug.–Oct. Rocky lower slopes and flats, NW, SW (Bokkeveld Mtns to Botrivier).•

heterophylla (Cass.) Grau (= *Charieis heterophylla* Cass.) BLOUBLOMASTERTJIE Roughly hairy annual with erect branches to 35 cm. Leaves oblanceolate. Flower heads radiate, solitary on elongate peduncles, blue, rarely yellow, with blue rays, ray florets without pappus. Aug.–Oct. Sandy flats and slopes, NW, SW (Clanwilliam to Cape Peninsula).•

hispida (DC.) Grau Diffuse, villous annual to 35 cm. Leaves narrowly lanceolate, margins revolute, sometimes slightly toothed. Flower heads radiate, solitary, yellow with white rays. Sept.–Dec. Rocky slopes and plateaus, NW (Cedarberg to Ceres).•

merxmuelleri Grau Softly hairy annual to 25 cm. Leaves oblanceolate. Flower heads radiate, solitary on elongate peduncles, yellow with blue rays, ray florets without pappus. Aug.–Sept. Rocky lower slopes and plateaus, NW (Namaqualand to Ceres and W Karoo). **gce**

minima (Hutch.) Grau Softly hairy, spreading annual, 5–20 cm. Leaves oblanceolate, obtuse. Flower heads radiate, solitary, yellow with pale blue or cream-coloured rays, ray florets without pappus. Sept.–Jan. Rocky slopes, NW, SW, KM, LB (Clanwilliam to Riversdale, Swartberg and W Karoo). **gce**

namaquana (Harv.) Merxm. Glandular-hairy, often robust annual to 30 cm. Leaves narrowly oblanceolate. Flower heads radiate, solitary on elongate peduncles, yellow with blue rays. May–Oct. Sandy flats, NW (Namibia to Worcester and W Karoo). **gce**

B.' Woody perennials or shrublets

aculeata Grau Roughly hairy, softly woody shrublet to 45 cm. Leaves oblong, margins revolute and harshly scabrid. Flower heads radiate, solitary, yellow with blue rays. Aug.–Sept. Coastal flats and lower slopes, SW, AP, LB, SE (Caledon to Knysna).•

aethiopica (Burm.f.) Bolus & Wolley-Dod ex Levyns WILDE-ASTERTJIE Thinly hairy, soft shrublet to 1 m. Leaves elliptic to ovate, often deflexed. Flower heads radiate, solitary, yellow with blue rays, outer involucral bracts 3-veined. Jan.–Dec. Rocky flats and slopes, NW, SW, AP, KM, LB, SE (Cedarberg to KwaZulu-Natal).

amelloides (L.) Voss Scabrid to almost glabrous, softly woody shrub to 1 m. Leaves ovate, ± petiolate, spreading, 3-veined from base. Flower heads radiate, solitary on elongate peduncles, yellow with blue rays. Mainly Oct.–Feb. Coastal bush, AP, LB, SE (Still Bay to E Cape).

cymbalarioides (DC.) Grau Softly hairy, softly woody perennial to 25 cm. Leaves broadly oblanceolate, toothed, soft, in tufts at branch tips. Flower heads radiate, solitary on elongate peduncles, yellow with blue rays. Oct.–Nov. Sandstone slopes in shade of rocks at high alt., SW (Cape Peninsula to Hex River Mtns).•

diffusa (DC.) Grau Thinly hairy, soft-stemmed shrublet to 15 cm. Leaves oblong, margins revolute. Flower heads radiate, solitary on slender peduncles, yellow with blue rays, ray florets without pappus. Oct. Shady upper slopes, NW, SW (Kamiesberg to Cedarberg, and Franschhoek). **gce**

ebracteata Grau Roughly hairy, closely leafy shrublet to 40 cm. Leaves oblong to lanceolate, suberect, margins revolute and spiny. Flower heads radiate, solitary, clustered at branch tips, yellow with dark blue rays. Sept.–Oct. Limestone hills, AP (De Hoop).•

elongata (Thunb.) O.Hoffm. Coarsely hairy, shrubby perennial to 30 cm. Leaves mostly clustered at base, lanceolate, margins revolute. Flower heads radiate, solitary on elongate peduncles, yellow with white rays maroon at base. Aug.–Oct. Coastal sands and limestone pavements, SW (Saldanha coast and hills).•

joubertinae Grau Roughly hairy, straggling shrublet to 40 cm. Leaves linear-oblong, margins revolute. Flower heads radiate, solitary, yellow with blue or white rays. Oct.–Jan. Rocky slopes often near streams, SE (Knysna to Humansdorp).•

linifolia (Harv.) Grau Sparsely hairy shrublet to 45 cm. Leaves linear-oblong, almost glabrous, margins revolute. Flower heads radiate, solitary, yellow with blue rays. Mainly May–Oct. Rocky slopes often in damp places, KM, SE (Ladismith to Uitenhage).•

ovata (Thunb.) Compton Sparsely hairy, diffuse shrublet to 60 cm. Leaves narrowly ovate, with long, white hairs, tips acute and recurved. Flower heads radiate, solitary, yellow with blue rays.

May–Nov. Karroid mountain slopes, NW, KM, LB, SE (Bokkeveld Escarpment to Port Elizabeth and Free State).

puberula Grau Robust, scabrid annual to 30 cm. Leaves narrowly oblanceolate. Flower heads radiate, solitary on elongate peduncles, yellow with blue rays. July–Sept. Shale and sandy slopes, NW (S Namaqualand to Piketberg and W Karoo). **gce**

stenophylla Grau Roughly hairy, straggling shrublet to 60 cm. Leaves linear-oblong, margins revolute. Flower heads radiate, solitary, yellow with blue to mauve rays. Oct. Mostly coastal sands, NW, SW (Namaqualand to Saldanha). **gce**

tsitsikamae Grau Softly villous, low shrublet to 30 cm. Leaves ovate, deflexed, margins revolute. Flower heads radiate, solitary, blue. Jan.–May. Rocky slopes at high alt., SE (Tsitsikamma Mtns).•

A.' Involucral bracts in 3 rows
C. Annual or perennial herbs

australis (Alston) E.Phillips SAMBREELASTERTJIE Thinly hairy, sprawling annual, 5–25 cm. Leaves linear, sometimes slightly toothed, ciliate on margins. Flower heads radiate, solitary, yellow with blue to mauve rays. Aug.–Sept. Sand or clay flats, NW, SW (Namaqualand and W Karoo to Franschhoek). **gce**

cymbalariae (Aiton) Bolus & Wolley-Dod ex Levyns Diffuse or sprawling, softly hairy perennial, 10–30 cm. Leaves long-petiolate, broad and deeply toothed. Flower heads radiate, solitary, white, yellow or purple with white to mauve rays. Sept.–Feb. Sandstone slopes in shade of rocks, NW, SW (Cedarberg to Riviersonderend Mtns).•

denticulata Grau Villous perennial to 40 cm. Leaves narrowly ovate, soft, often 3-veined from base. Flower heads radiate, solitary, blue. Aug.–Sept. S-facing, shale slopes, NW, KM, LB (Worcester to Bonnievale and Little Karoo).•

dubia Cass. Diffuse, villous annual, 5–40 cm. Leaves oblanceolate, sparsely toothed. Flower heads radiate, solitary, yellow with blue rays. July–Oct. Sand or gravel flats and slopes, NW, SW (Namaqualand to Cape Peninsula and W Karoo). **gce**

fascicularis DC. Scabrid, tufted, fine-leaved perennial to 30 cm. Leaves filiform, scabrid, often in tufts. Flower heads radiate, solitary, yellow with pale mauve rays. Feb.–June. Dry slopes, KM, SE (Montagu to Limpopo).

josephinae J.C.Manning & Goldblatt Roughly hairy annual branching from base, to 15 cm. Leaves oblanceolate. Flower heads radiate, solitary on long peduncles, purple-blue with cream-coloured rays, ray florets without pappus. Sept.–Oct. Sandy lower slopes, NW (Graafwater to Verlorenvlei hills).•

microsperma DC. Roughly hairy annual to 50 cm. Leaves linear. Flower heads radiate, solitary, yellow with blue rays. Sept.–Jan. Sandy soil near water, NW (Namibia to Clanwilliam). **gce**

nigrescens Grau Dwarf perennial to 6 cm. Leaves lanceolate, scabrid on margins. Flower heads radiate, solitary, yellow with blue rays. Apr. SW (Caledon).•

serrata (Thunb.) Grau Slender, thinly hairy annual, 10–40 cm. Leaves obovate to elliptic, larger below, finely serrate. Flower heads radiate, solitary, yellow with blue rays. Dec.–Feb. Damp rocky slopes at high alt., NW (Cold Bokkeveld to Saron, ?Piketberg).•

tenella (L.) Nees Thinly hairy annual, 5–25 cm. Leaves linear, scabrid on margins. Flower heads radiate, solitary, yellow with blue, violet or white rays. Mainly Aug.–Nov. Near water or coastal dunes, NW, SW, AP, LB (Bokkeveld Mtns to Albertinia).•

C.' Woody shrublets

cana DC. White-woolly, dwarf shrublet to 15 cm. Leaves narrowly oblanceolate, obtuse, clasping stem. Flower heads radiate, solitary, yellow with mauve rays. Apr.–May. Sandstone slopes, KM, LB (Montagu to Riversdale).•

canaliculata Grau Dwarf, roughly hairy shrublet to 20 cm. Leaves linear, canaliculate, ciliate on angles, imbricate. Flower heads radiate, solitary, yellow with blue to mauve rays. Sept. Coastal fynbos, AP (Bredasdorp to Struis Bay).•

comptonii Grau Softly hairy shrublet to 30 cm. Leaves narrowly oblong, scabrid on margins, spreading. Flower heads radiate, solitary, yellow with blue rays. Sept.–Oct. Rocky slopes, LB (Langeberg).•

dregei DC. Sprawling, puberulous shrub to over 1 m. Leaves oblanceolate, shortly toothed, gland-dotted. Flower heads radiate, solitary, yellow with mauve rays, fragrant. July–Sept. Sandy slopes and flats, NW, SW (Namaqualand to Saldanha and W Karoo). **gce**

echinata (Thunb.) Nees Rigid, densely leafy shrub to 1 m with white-woolly stems. Leaves ovate, glossy, margins scabrid, closely imbricate and reflexed. Flower heads radiate, solitary, crowded at ends of branches, yellow with mauve rays. Apr.–Oct. Coastal bush, LB, SE (Mossel Bay to Port Alfred).

erigeroides DC. Sprawling shrub to 1.2 m with pale stems. Leaves obovate, hairy, in tufts, usually 3-veined. Flower heads radiate, 1–few at branch tips, yellow with blue rays. Apr.–May. Coastal bush, SE (Humansdorp to KwaZulu-Natal).

esterhuyseniae Grau Roughly hairy shrublet to 25 cm. Leaves small, ascending and imbricate, subterete, scabrid, obtuse. Flower heads radiate, solitary, yellow with blue, white or mauve rays. Mar.–May. High sandstone slopes, KM (Kammanassie Mtns).•

ferulacea Compton Coarsely hairy, straggling shrub to 2 m. Leaves obovate, scabrid, recurved at tips. Flower heads radiate, solitary, yellow with mauve to blue or white rays. ?. Damp, often marshy slopes, NW, SW, KM (Pakhuis Mtns and Perdeberg to Swartberg).•

filifolia (Vent.) Burtt Davy DRAAIBOSSIE Like **F. fruticosa** but the leaves filiform and needle-like. Mainly Oct.–Dec. Flats and slopes, NW, SW, KM, LB, SE (Namibia to Port Elizabeth to Mpumalanga).

fruticosa (L.) G.Nicholson WILD ASTER, BOSASTERTJIE Much-branched shrub to 1 m. Leaves oblanceolate, small, fleshy, in tufts, slightly gland-dotted. Flower heads radiate, solitary, yellow with blue to mauve rays. Sept.–Nov. Rocky lower slopes, SW (Cape Peninsula to Somerset West and Limpopo).

hirsuta DC. Rounded, roughly hairy shrublet to 50 cm. Leaves narrowly linear, grey-hairy, often in tufts. Flower heads radiate, solitary, yellow with blue to mauve rays. Mainly Mar.–Oct. Dry flats and slopes, NW, KM, LB (Namibia to Swellendam to Free State).

hirta (Thunb.) Grau KAROOASTERTJIE Rounded, shortly hairy shrublet to 35 cm. Leaves narrowly linear-oblong. Flower heads radiate, solitary, yellow with blue rays. July–Oct. Lower slopes, NW (Namaqualand to Robertson and Karoo).

hyssopifolia (P.J.Bergius) Nees Thinly hairy to glabrous shrublet to 60 cm. Leaves narrowly linear-oblong, acute. Flower heads radiate, solitary, yellow with blue, mauve, pink or white rays. Apr.–Jan. Sandy flats or lower slopes, NW, SW, AP, LB, SE (Kamiesberg to Port Elizabeth and Lesotho).

macrorrhiza (Thunb.) DC. ASPOESTERTJIE Roughly hairy, gnarled dwarf shrublet to 15 cm. Leaves linear to oblanceolate, recurved at tips, canescent. Flower heads discoid, solitary, large, yellow or orange. July–Sept. Rocky slopes, KM (Bonteberg to Witteberg and W Karoo).

microcephala Grau Like **F. erigeroides** but leaves distinctly petiolate, always 1-veined. Sept.–Jan. Rocky ravines, SE (Outeniqua Mtns to Humansdorp).•

muricata (Thunb.) Nees TAAI-ASTERTJIE Almost glabrous shrublet to 70 cm. Leaves linear, ascending. Flower heads yellow with lilac or white rays. Nov.–Apr. Flats and mountains, KM, LB, SE (Oudtshoorn and Swellendam to tropical Africa).

nordenstamii Grau Stiffly erect, slender shrub to 60 cm. Leaves elliptic, softly hairy and scabrid below, imbricate. Flower heads radiate, solitary, nested in leaves, large, yellow with mauve rays. Sept.–Oct. Coastal limestone hills, AP (Agulhas to Potberg).•

oleosa Grau Shrublet to 25 cm. Leaves small, ascending and imbricate, subterete, glabrous, gland-dotted, acute, margins scabridulous. Flower heads radiate, solitary, large, yellow with blue to mauve rays. Oct. S-facing slopes below cliffs, KM (Witteberg and Swartberg).•

rogersii S.Moore Low, thinly hairy, rigid shrub to 30 cm. Leaves small, subterete, scabrid. Flower heads radiate, solitary, yellow with lilac or violet rays, fragrant. Aug.–Sept. Stony lower slopes, NW, KM (S Namaqualand and W Karoo to Hex River Valley). **gce**

scabrida (DC.) Range Diffuse, roughly hairy shrub to over 1 m. Leaves cuneate, toothed above. Flower heads radiate, solitary, yellow with blue to violet rays. July–Sept. Rocky lower slopes, NW (Lokenberg to Karoopoort).•

venusta S.Moore Low, broom-like shrub to 40 cm. Leaves ericoid, clasping stem, scabrid on margins. Flower heads radiate, solitary, yellow with blue to mauve rays. Aug.–Oct. Rocky slopes, NW, SW, KM (Clanwilliam and Wemmershoek to Montagu).•

westae (Fourc.) Grau Sprawling, sparsely hairy shrublet to 40 cm. Leaves linear, erect, imbricate, scabrid on margins. Flower heads radiate, solitary, nested in leaves, yellow with white to mauve rays. Sept.–Feb. Wet places, often stream banks, SE (Knysna to Humansdorp).•

zeyheri (Less.) Nees Roughly hairy to almost glabrous shrublet to 30 cm. Leaves linear to oblanceolate. Flower heads radiate, solitary, yellow with blue or purple rays. Mainly Oct.–Apr. Rocky slopes, KM, SE (Oudtshoorn to E Cape).

FOVEOLINA Källersjö WILDEKAMILLE 5 spp., western southern Africa

burchellii (DC.) Magee (= *Foveolina albidiformis* (Thell.) Källersjö, *Pentzia membranacea* Hutch.) Sprawling annual to 15 cm. Leaves bipinnatisect. Flower heads discoid, solitary on short peduncles, pale yellow, bracts with membranous margins. Sept.–Oct. Dry sandstone valleys, NW (N Cedarberg to Karoo).

tenella (DC.) Källersjö (= *Matricaria tenella* DC.) LAZY DAISY Sprawling, thinly hairy, aromatic annual to 25 cm. Leaves bipinnatisect. Flower heads radiate, solitary on long, naked peduncles, yellow with white rays. June–Sept. Sandy slopes and flats, mostly coastal, NW, SW (S Namaqualand to Yzerfontein). **gce**

GARULEUM Cass. 8 spp., S Africa and Namibia

bipinnatum (Thunb.) Less. Twiggy, scabrid, aromatic shrublet to 30 cm. Leaves pinnatisect, segments filiform. Flower heads radiate, solitary or few in lax corymbs, with white or blue rays and yellow disc. Achenes ovate and wedge-shaped, slightly wrinkled, olive-green. Mainly Sept.–Oct. Dry stony slopes, NW, KM (Bokkeveld and Kobee Mtns, Witteberg and Little Karoo to E Cape and Great Karoo).

pinnatifidum (Thunb.) DC. Like **G. bipinnatum** but leaves hairy and glandular, lobes not finely dissected. Oct.–Nov. Shale slopes and flats, KM (E Little Karoo and Great Karoo to Free State).

GAZANIA Gaertn. GAZANIA ± 16 spp., southern and tropical Africa

A. Annuals

lichtensteinii Less. GEELGAZANIA, KOUGOED Annual sometimes to 30 cm. Leaves oblanceolate, serrate or toothed, woolly beneath, glabrescent above, margins slightly revolute. Flower heads radiate, yellow, sometimes orange; involucre smooth, collared below, inner bracts acuminate. Mainly Aug.–Sept. Gravel and sandy flats, KM (Namibia to W Karoo, Little Karoo, Bushmanland and Upper Karoo).

pectinata (Thunb.) Spreng. Tufted, acaulescent annual to 20 cm. Leaves mostly pinnatisect, some linear-oblanceolate, leaflets linear to elliptic, white-felted beneath, sometimes rough above, margins revolute. Flower heads radiate, yellow or orange with dark ring; inner bracts attenuate. Aug.–Nov. Coastal flats and lower slopes, SW, AP (Saldanha to Potberg).•

tenuifolia Less. Tufted annual to 15 cm. Leaves pinnatisect, lobes linear, white-felted beneath, glabrescent above, margins revolute. Flower heads radiate, small, yellow or orange with dark ring; involucre flat at base, inner bracts attenuate. Aug.–Sept. Dry flats or lower slopes, NW (Namibia to Klawer and W Karoo). **gce**

A.' Perennials
B. Mat-forming perennials with stems rooting at nodes, or shrublets

maritima Levyns Creeping perennial rooting along rhizome, to 10 cm. Leaves alternate, pinnatisect, leaflets elliptic, thick, white-felted beneath, margins revolute, petioles often bristly. Flower heads radiate, yellow to orange with dark ring; inner bracts acute. Nov.–Feb. Coastal rocks and sands, NW, SW (Elands Bay to Cape Hangklip).•

othonnites (Thunb.) Less. Tufted, glabrous, mat-forming perennial to 10 cm. Leaves oblanceolate or pinnatifid, usually glaucous, glabrous beneath, margins roughly ciliate. Flower heads radiate, yellow or orange; involucre collared below. Oct.–Dec. Sandy and shale slopes, NW (Namaqualand and W Karoo to Bokkeveld Plateau). **gce**

rigens (L.) Gaertn. STRAND GAZANIA Sprawling, mat-forming perennial to 20 cm. Leaves mostly simple, alternate, oblanceolate, sometimes pinnatisect, white-felted beneath, margins revolute, petioles smooth. Flower heads radiate, yellow; involucral bracts partly white-woolly, inner bracts acute. Mainly Oct.–Feb. Coastal dunes and sandy flats, SE (George to S Mozambique).

B.' Tufted, acaulescent perennials

ciliaris DC. Tufted, acaulescent perennial to 15 cm. Leaves linear-oblanceolate or pinnatisect, white-felted beneath, margins revolute, petioles white-bristly. Flower heads radiate, orange with

dark ring; involucre truncate and collared below, inner bracts attenuate. July–Sept. Rocky slopes, NW, SW, LB, SE (Bokkeveld Mtns to Langkloof).•

krebsiana Less. ROOIGAZANIA Tufted, acaulescent perennial to 20 cm. Leaves linear-oblanceolate or pinnatisect, white-felted beneath, margins revolute. Flower heads radiate, yellow to orange; inner bracts acute. Mainly Sept.–Jan. Roadsides, flats or lower slopes, NW, SW, AP, KM, LB, SE (throughout southern Africa to Tanzania).

lanata Magee & Boatwr. Tufted, cushion-forming perennial to 10 cm. Leaves pinnatisect, lobes broadly obovoid, white-woolly above and white-felted beneath. Flower heads radiate, orange with dark ring; involucre cobwebby, bracteate to base. Aug.–Oct. Limestone ridges, NW (Robertson).•

linearis (Thunb.) Druce Tufted, acaulescent perennial with woody rootstock to 20 cm, decayed leaf bases accumulating as a fibrous sheath. Leaves mostly pinnatisect, some linear-oblanceolate, leaflets linear to elliptic, white-felted beneath, sometimes rough above, margins revolute. Flower heads radiate, yellow or orange with dark ring; inner bracts attenuate. Mainly Sept.–Dec. Grassy slopes, SE (Humansdorp to KwaZulu-Natal).

rigida (Burm.f.) Roessler KAROO GAZANIA Tufted, acaulescent perennial to 25 cm. Leaves pinnatisect, lobes elliptic, sometimes linear-oblanceolate, white-woolly beneath, margins revolute. Flower heads radiate, yellow or orange, usually with dark ring, involucre roughly hairy; inner bracts acute. July–Nov. Flats and lower slopes, NW, SW, KM, ?LB, ?SE (S Namaqualand and W Karoo to Caledon, ?Riversdale to Humansdorp). **gce**

serrata DC. Like **G. rigida** but leaves often linear-dentate, terminal leaf lobe largest and inner bracts attenuate. Aug.–Oct. Sandy and stony slopes and flats, NW, SW (Gifberg to Paarl).•

GERBERA L. AFRICAN DAISY ± 30 spp., Africa, tropical Asia, 1 sp. in S America

A. Scapes ebracteate

ambigua (Cass.) Sch.Bip. (= *Gerbera viridifolia* (DC.) Sch.Bip.) Tufted, acaulescent perennial, scapes to 35 cm. Leaves elliptic, petiolate, glabrescent or silky above, grey-felted below. Flower heads radiate, scapose, white to yellow with pink to copper reverse. Oct.–Feb. Grasslands, SE (George to tropical Africa).

cordata (Thunb.) Less. TONGBLAARBLOM Like **G. piloselloides** but leaves elliptic, cordate at base, petiolate, white-felted below. Flower heads white. Jan.–Dec. Coastal forests and bush, SE (George to East London).

piloselloides (L.) Cass. (= *Piloselloides hirsuta* (Forssk.) C.Jeffrey) SWARTTEE Acaulescent perennial with scapes to 30 cm. Leaves tufted, obovate, tapering below, softly hairy or cobwebby. Flower heads radiate, white, pink, red, or yellow; bracts hairy. July–Feb. Sandstone and limestone slopes, SW, AP, LB, SE (Cape Peninsula to palaeotropics).

A.' Scapes bracteate

crocea (L.) Kuntze (incl. **G. integralis** Sond. ex Harv.) DIALSATEE Acaulescent perennial to 40 cm. Leaves tufted, oblanceolate to elliptic, petiolate, glabrous to thinly cobwebby below, margins slightly toothed and rolled under. Flower heads radiate, scapose, white or pink, maroon on reverse; bracts glabrous to thinly cobwebby. Sept.–May. Sandstone slopes after fire, NW, SW, ?AP, KM (Olifants River Mtns to Bredasdorp and Swartberg).•

linnaei Cass. VARINGBLOM Acaulescent perennial to 40 cm. Leaves tufted, oblanceolate-pinnatisect, lobes round and twisted, yellow-felted below, margins revolute. Flower heads radiate, scapose, cream-coloured, sometimes yellow, maroon on reverse; bracts glabrous. Oct.–Jan. Sandstone slopes after fire, SW (Cape Peninsula to Riviersonderend).•

serrata (Thunb.) Druce Like **G. tomentosa** but bracts distinctly biseriate with inner acuminate. Aug.–Nov. Sandstone slopes in fynbos after fire, SW, LB, SE (Riviersonderend to Humansdorp).•

tomentosa DC. TONTELBLAARBOSSIE Tufted, acaulescent perennial to 30 cm. Leaves elliptic, long-petiolate, yellow-felted below, margins retrorse-toothed and revolute. Flower heads radiate, scapose, white, maroon on reverse; bracts softly felted. Mainly Oct.–Nov. Sandstone slopes after fire, SW, KM, LB, SE (Cape Peninsula to Great Winterhoek Mtns).•

wrightii Harv. Like **G. tomentosa** but scapes to 60 cm, thinly cobwebby, and leaves softy white-felted below. Sept.–Jan. Rocky lower slopes, SW (Cape Peninsula).•

GIBBARIA Cass. = **OSTEOSPERMUM**

GNAPHALIUM L. ± 50 spp., cosmopolitan

capense Hilliard Erect or sprawling, densely leafy, white-woolly perennial to 40 cm. Leaves narrowly oblanceolate, ascending. Flower heads discoid, in small, terminal corymbs, outer bracts brown and woolly, inner white-tipped. Mainly Sept.–Jan. Damp flats, SW, LB, SE (Velddrif to E Cape).

declinatum L.f. Mat-forming, silky silvery perennial, with closely leafy stems. Leaves oblong, imbricate. Flower heads discoid, in corymbs at branch tips, bracts brown, glabrous, the inner white-tipped. Oct.–Feb. Damp flats or lower slopes, SW, AP, LB (Grabouw to Riversdale).•

gnaphalodes (DC.) Hilliard & B.L.Burtt Nearly prostrate, stoloniferous, thinly grey-woolly perennial to 30 cm. Leaves oblong to spathulate, undulate, ascending to adpressed below, recurved above. Flower heads discoid, small, in terminal clusters, bracts white and brown. Sept.–May. Marshy areas, SE (Uitenhage to Transkei).

pauciflorum DC. Small, erect or spreading, white-woolly annual to 10 cm. Leaves linear. Flower heads discoid, 1–few in small, terminal clusters, bracts straw-coloured or golden-brown tinged with purple. Sept.–Oct. Flats and slopes, NW, SW, LB (Piketberg to Riversdale).•

vestitum Thunb. Similar to **G. capense** but inner bracts buff or dirty white. Mainly Nov.–Apr. Damp grasslands, SE (Plettenberg Bay to E Cape).

GORTERIA L. BEETLE DAISY 3 spp., Namibia to S Cape

diffusa Thunb. BEETLE DAISY Like **G. personata** but bracts acuminate, hairy to tips, mostly shorter than rays and ray florets orange with beetle-like markings. July–Oct. Clay flats or rocky lower slopes, NW, SW, ?AP, KM, ?LB (Namaqualand to Swellendam, W Karoo). **gce**

personata L. KLITSKRUID Roughly hairy, sprawling annual to 10 cm. Leaves oblanceolate, sometimes pinnatifid, margins revolute, roughly hairy above, white-felted below. Flower heads radiate, solitary at branch tips, rays yellow with greenish reverse; bracts glabrous above, pungent, longer than rays. Aug.–Oct. Rocky or sandy flats and lower slopes, NW, SW, AP, LB, SE (Bokkeveld Mtns to Humansdorp).•

GYMNANTHEMUM Cass. 43 spp., Africa

corymbosum (Thunb.) H.Rob. (= *Vernonia neocorymbosa* Hilliard) Robust, canescent shrub to 1 m. Leaves obovate, toothed above, discolorous, grey-velvety below. Flower heads discoid, in dense corymbs, mauve to white. Jan.–May. Forest margins, SE (Uitenhage to S Mozambique).

mespilifolium (Less.) H.Rob. (= *Vernonia mespilifolia* Less.) Scandent or sprawling shrub to 75 cm. Leaves cuneate, deeply toothed. Flower heads discoid, in dense corymbs, white to mauve. Oct.–Mar. Forest margins, SE (George to Swaziland).

GYMNODISCUS Less. GEELKRUID 2 spp., Namaqualand to W Cape **gce**

capillaris (L.f.) DC. Tufted, succulent annual to 20 cm. Leaves rosulate, oblanceolate to lyrate, usually lobed below. Flower heads radiate, small, in small corymbs on branched scapes, yellow. July–Oct. Sandy flats and lower slopes, NW, SW, AP, LB (Namaqualand to Mossel Bay and W Karoo). **gce**

GYMNOSTEPHIUM Less.• KAAPSE ASTERTJIE 7 spp., SW Cape

angustifolium Harv. Twiggy shrublet to 45 cm. Leaves linear-filiform, keeled, margins ciliate. Flower heads radiate, solitary on glandular-hairy peduncles, yellow with blue rays; bracts glabrous with ciliate margins. Apr. Sandstone slopes, SW (Riviersonderend Mtns).•

ciliare (DC.) Harv. Roughly hairy shrublet to 45 cm. Leaves linear-lanceolate, keeled, roughly hairy. Flower heads radiate, solitary on glandular-hairy peduncles, blue or mauve; bracts roughly hairy. Oct.–Jan. Sandstone slopes, SW (Houwhoek to Riviersonderend).•

corymbosum (Turcz.) Harv. Erect, closely leafy, willowy shrub to 1.5 m. Leaves lanceolate-attenuate, overlapping, often deflexed, glossy, roughly scabrid on margins. Flower heads radiate, solitary on glandular-hairy peduncles, together forming loose corymbs, yellow with white to mauve rays; bracts scabrid. July–Sept. Wet habitats, often along streams, SW (Riviersonderend Mtns).•

fruticosum DC. (incl. **G. gracile** Less) Sprawling shrublet to 40 cm. Leaves oblong, often deflexed, margins revolute. Flower heads radiate, solitary on thinly silky peduncles, yellow with blue rays; bracts glabrous with ciliate margins. June–Sept. Steep grassy slopes, LB (Langeberg: Swellendam).•

hirsutum Less. Scabrid shrublet to 40 cm. Leaves linear, scabrid. Flower heads radiate, solitary on glandular-hairy peduncles, yellow with blue rays; bracts scabrid. Oct.–Jan. Steep, S-facing, mountain slopes, SW (Genadendal).•

laeve Bolus Slender, erect, glabrous perennial with rod-like stems to 40 cm. Leaves erect, linear, margins revolute. Flower heads radiate, solitary on glabrous peduncles, yellow with mauve rays; bracts few, ovate, glabrous. Dec.–Apr. Damp mountain slopes, NW (Cold Bokkeveld).•

papposum G.L.Nesom (= *Mairia corymbosa* Harv.) Very like **G. corymbosum** but involucral bracts glabrous with ciliate margins and pappus bristles conspicuously plumose not barbellate. June–Aug. Lower mountain slopes near streams, SW (Riviersonderend and Kleinrivier Mtns).•

HAPLOCARPHA Less. BASTER GOUSBLOM 9 spp., tropical and southern Africa

lanata (Thunb.) Less. (= *Arctotis lanata* Thunb.) BRANDBLOM Tufted, densely white-woolly perennial to 15 cm. Leaves oblanceolate to elliptic, coarsely toothed, densely white-felted below, scabrid above. Flower heads radiate, solitary, scapose, yellow with red reverse. Achenes silky throughout, at base tufted with hairs longer than achene, and pappus exceeding achene. Mainly Mar.–Sept. Sandstone slopes, mainly after fire, SW, LB (Cape Peninsula to Swellendam).•

lyrata Harv. Tufted, densely white-woolly perennial to 20 cm. Leaves lyrate-pinnatisect, discolorous, glabrous above. Flower heads radiate, solitary, scapose, yellow. Achenes silky throughout, at base tufted with hairs longer than achene, and pappus exceeding achene. Mainly Aug.–Jan. Grasslands, SE (Langkloof to E Cape).

nervosa (Thunb.) P.Beauv. Tufted, white-felted perennial to 15 cm. Leaves elliptic, shortly petiolate, with recurved teeth, discolorous, white-felted below, sometimes roughly hairy above. Flower heads radiate, solitary, on short, densely hairy scapes, yellow with greenish reverse. Achenes glabrous or ciliate, with a basal circlet of delicate hairs, sometimes almost wanting, pappus rudimentary to 1.5 mm. Sept.–Oct. Marshy grasslands, SE (George to Zimbabwe).

oocephala (DC.) Beyers (= *Arctotis oocephala* DC.) Creeping perennial rooting at nodes, to 20 cm. Leaves oblanceolate to elliptic, sinuate toothed, white-felted below, roughly hairy above, Flower heads radiate, solitary, yellow with red reverse, bracts without tails. Achenes glabrous, tufted at base with hairs longer than achene, pappus scales longer than achene, obtuse or acuminate. Sept.–Dec. Sandy flats and rocky sandstone slopes, NW, SW (Pakhuis Mtns and N Cedarberg, Malmesbury).•

parvifolia (Schltr.) P.Beauv. Like **H. lanata** but leaves elliptic, petiolate, deeply sinuate, glabrescent above and achenes glabrous, at base tufted with hairs longer than achene, and pappus scales longer than achene, acuminate. Sept.–Oct. Sandstone slopes, NW (Cold Bokkeveld).•

HELICHRYSUM Mill. STROOIBLOM ± 500 spp., Old World, mainly Africa

A. Heads depressed-globose, large (florets > 300)

aureum (Houtt.) Merr. Tufted, white-woolly perennial to 80 cm from a woody rootstock. Leaves mostly radical, oblanceolate, clasping, roughly hairy and ± grey-woolly. Flower heads disciform, 1–6 at branch tips, large, depressed-globose, yellow, sometimes white, 15–25 mm diam., florets ± 300–1 860, ovary glabrous. July–Dec. Grasslands, SE (Humansdorp to Gauteng).

foetidum (L.) Moench Robust, foetid, glandular-hairy biennial to ± 1 m. Leaves oblong-lanceolate, auriculate and clasping, roughly hairy above, grey-woolly beneath. Flower heads disciform, in leafy corymbs, depressed-globose, yellow to cream-coloured, 15–25 mm diam., florets ± 400–800, ovary glabrous. Oct.–May. Damp rocky slopes, NW, SW, KM, LB, SE (Cedarberg to E Cape).

A.' Heads subglobose to cylindric
B. Annuals

herniarioides DC. Like **H. litorale** but flower heads campanulate, white sometimes pinkish, ± 4–5 × 4–6 mm, involucral bracts obtuse, abruptly spreading above. Mainly July–Sept. Sandy and stony flats, NW (Namibia and Karoo to Cold Bokkeveld). **gce**

indicum (L.) Grierson Erect or sprawling, grey-woolly annual to 30 cm, with a woolly taproot. Leaves oblanceolate-spathulate. Flower heads discoid sometimes disciform, crowded in terminal corymbs, cylindric-campanulate, white to cream-coloured, ± 3 × 2 mm, involucral bracts spreading above, florets 15–25, ovary papillate-hairy sometimes glabrous. Oct.–Feb. Sandy flats and slopes, often weedy, NW, SW (Lambert's Bay to Riviersonderend).•

leontonyx DC. Mat-forming, grey-woolly annual like **H. litorale** but heads smaller, ± 3–4 × 2–2.5 mm, involucral bracts acuminate and hooked, and pappus uniseriate. July–Oct. Sandy, often disturbed flats, NW, KM, SE (S Namibia and W Karoo to Little Karoo and Uniondale). **gce**

litorale Bolus Prostrate or diffuse, white-woolly annual or short-lived perennial with branches to 45 cm long. Leaves obovate-spathulate, woolly. Flower heads discoid or disciform, solitary or in glomerules enclosed by leafy bracts, cylindric, golden sometimes red, ± 5 × 2.5 mm, inner involucral bracts caducous, florets 10–30, ovary glabrous or papillate-hairy. Sept.–Dec. Coastal sands, SW, AP, SE (Saldanha to E Cape).

marmarolepis S.Moore Like **H. indicum** but flower heads campanulate and in tightly crowded clusters. Mainly Sept.–Oct. Coastal sands, NW, SW (Namaqualand to Paternoster). **gce**

micropoides DC. Like **H. litorale** but heads or glomerules crowded into more elongate, racemose, compound inflorescences and involucral bracts acuminate and hooked. July–Nov. Sandy flats, NW (S Namibia and W Karoo to Ceres). **gce**

moeserianum Thell. Grey-woolly to cobwebby annual to 30 cm, branching from base. Leaves oblanceolate, woolly. Flower heads discoid or disciform, many in terminal corymbs, campanulate, yellow, 3–4 × 2–3 mm, bracts spreading above, florets 12–30, ovary papillate-hairy, sometimes glabrous. Aug.–Feb. Sandy flats and slopes, NW, SW, AP (Bokkeveld Mtns to Mossel Bay).

solitarium Hilliard Like **H. litorale** but more delicate, leaves smaller, to 7 mm long and heads smaller, ± 4 × 3 mm and always solitary. Dec. Sandy flats, NW (Bokkeveld Tafelberg).•

tinctum (Thunb.) Hilliard & B.L.Burtt Cushion- or mat-forming annual like **H. litorale** but involucral bracts acuminate and hooked. Mainly Sept.–Dec. Sandy flats, NW, SW, AP, KM, LB, SE (Namaqualand and S Karoo to Uniondale).

versicolor O.Hoffm. & Muschl. Like **H. moeserianum** but leaves more oblong and stereome on the outermost but one series of bracts longer, ± 2 mm long. Mainly Oct.–Nov. Coastal sands, SE (Knysna to E Cape).

zwartbergense Bolus Like **H. litorale** but more densely branched and forming rounded cushions or mats. Mainly Dec.–Jan. Sandstone slopes, NW, SW, KM, SE (Cedarberg to Great Winterhoek Mtns).•

B.' Perennials

C. Stiffly erect, tufted perennials with unbranched stems; leaves mostly basal, glabrescent above, several-veined from base

mundii Harv. Tufted subshrub with erect, leafy stems to 1.5 m from a woody rootstock, felted above. Leaves mostly basal, oblanceolate-petiolate, decurrent, glabrous and rugose above, felted beneath, 3-net-veined from base, margins slightly revolute. Flower heads discoid, many in a large, branched corymb, campanulate, creamy white, ± 4 × 3.5 mm, florets 18–24, ovary glabrous. Feb.–Apr. Moist grasslands, streamsides, and forest margins, LB, SE (Swellendam to tropical Africa).

nudifolium (L.) Less. Subshrub with erect, peduncle-like stem to 1.5 m from a woody rootstock, thinly woolly above. Leaves mostly radical, oblanceolate, glabrescent but margins and veins roughly hairy, 3–7-net-veined from base. Flower heads discoid, many in a branched corymb, campanulate, pale yellow or brownish, ± 4–5 × 3 mm, florets 15–30, ovary glabrous. Mainly Nov.–Mar. Grasslands, NW, SW, KM, LB, SE (Piketberg to Middle East).

oxyphyllum DC. Subshrub with erect, peduncle-like stem to 60 cm from a woody rootstock, woolly above. Leaves mostly radical, ovate-petiolate, glabrescent above, felted beneath, 3(–5)-veined from base. Flower heads discoid, many in a compact corymb, campanulate, white and pink or red, ± 7 × 7 mm, florets 20–30, ovary glabrous. Aug.–Jan. Grasslands, SW, LB, SE (Caledon to tropical Africa).

pedunculatum Hilliard & B.L.Burtt Subshrub with erect, peduncle-like stem to 50 cm from a woody rootstock, felted above. Leaves mostly radical, oblanceolate, glabrescent above, felted beneath, 5–9-net-veined from base. Flower heads discoid, many in a branched corymb, campanulate, brownish, ± 7 × 7 mm, florets 30–60, ovary glabrous. Mainly Aug.–Sept. Grasslands, KM, LB, SE (Swartberg and Riversdale to Lesotho).

platypterum DC. Subshrub with erect, leafy stems to 1 m from a woody rootstock, thinly woolly above. Leaves mostly basal, elliptic-lanceolate, decurrent, glabrescent but roughly hairy on veins

and margins, 3–5-veined from base. Flower heads discoid, many in a branched, flat-topped corymb, campanulate, silvery white, ± 5 × 5 mm, florets 30–55, ovary papillate-hairy. Mainly Feb.–Apr. Moist grasslands and forest margins, SE (Tsitsikamma Mtns to Limpopo).

C.' Plants various but if tufted then not stiffly erect and leaves not glabrescent above
D. Flower heads large, 15–40 mm long, solitary, sometimes few; involucral bracts glossy

herbaceum (Andrews) Sweet Closely leafy, cobwebby shrublet or subshrub to 40 cm. Leaves imbricate, ascending, linear-lanceolate, cobwebby above, felted beneath, margins revolute. Flower heads solitary, sometimes few at branch tips, top-shaped, shiny golden or yellow, glabrous, ± 20 mm long, florets 100–210, ovary glabrous. Oct.–Apr. Grasslands, SE (Langkloof to tropical Africa).

lancifolium (Thunb.) Thunb. Like **H. retortum** but heads on scaly peduncles distinct from the leafy shoots. Sept.–Jan. Sandstone slopes, NW, KM, SE (Bonteberg to Baviaanskloof Mtns).•

retortum (L.) Willd. Straggling, closely leafy, silvery shrublet to 50 cm. Leaves imbricate, spreading or recurved above, oblong, folded, hooked, silvery silky with tissue paper-like hairs. Flower heads disciform, terminal, solitary and tips nested in leaves, top-shaped, shiny white often flushed pink and brown, glabrous, 25–40 × ± 40 mm, florets ± 100–250, ovary papillate-hairy. Aug.–Dec. Coastal sands and cliffs, SW, AP (Bloubergstrand to Still Bay).•

stoloniferum (L.f.) Willd. Like **H. retortum** but leaves mostly broader, narrowly obovate and heads smaller, 15–20 mm long, on scaly peduncles distinct from leafy shoots. Nov.–Feb. Sandstone slopes, NW, SW (Kamiesberg to Riviersonderend Mtns and Karoo).

D.' Flower heads smaller, 3–10 mm long
E. Ericoid shrublets; leaves small, < 10 mm, linear with strongly revolute margins; flower heads 1–4 at branch tips

asperum (Thunb.) Hilliard & B.L.Burtt Tangled, twiggy, thinly grey-woolly shrublet to 40 cm. Leaves often tufted on short shoots, linear, apiculate, woolly or glabrescent, margins strongly revolute. Flower heads discoid, 1–4 at branch tips, cylindric, brownish, ± 4 × 2 mm, florets ± 10, ovary papillate-hairy. Oct.–Jan. Stony slopes and flats, NW, SW, KM, LB, SE (Namibia to KwaZulu-Natal).

niveum (L.) Less. Twiggy, ericoid shrublet to 20 cm. Leaves small, spreading or reflexed, linear, glabrescent or woolly, margins strongly revolute. Flower heads discoid, in small terminal glomerules nested in leaves, cylindric, white sometimes pink, ± 4 × 1 mm, florets ± 5, ovary papillate-hairy. Mainly Dec.–Feb. Coastal sands, SW, AP (Saldanha to Still Bay).•

E.' Plants not ericoid; leaves various, if linear and revolute then larger and flower heads numerous
F. Closely leafy, dwarf shrubs or shrublets; leaves ascending, flat; flower heads 1(–3) at branch tips

altigenum Schltr. & Moeser Tufted, silvery, dwarf subshrub to 2 cm, stems decumbent, from a woody caudex. Leaves imbricate, obovate, some in basal rosettes, silvery with tissue paper-like hairs. Flower heads discoid or disciform, solitary, terminal and nested in leaves, campanulate, white or brownish, 8–10 × 16 mm, florets 40–60, ovary papillate-hairy. Nov.–Jan. Sandstone slopes, NW, KM, SE (Cold Bokkeveld to Great Winterhoek Mtns).•

archeri Compton Like **H. saxicola** but leaves narrower, linear to oblong. Sept.–Nov. Quartzite patches and crevices, KM (Witteberg).•

saxicola Hilliard Gnarled, cushion-forming, closely leafy shrublet to 5 cm. Leaves small, imbricate, ascending, elliptic, grey-felted. Flower heads discoid, solitary, sessile at branch tips, campanulate, whitish, ± 5 × 4 mm, bracts spreading above, florets ± 25, ovary papillate-hairy. Dec.–Mar. Sandstone crevices, 1 500–2 000 m, KM (Swartberg).•

simulans Harv. & Sond. Gnarled, closely leafy shrublet to 15 cm. Leaves small, imbricate, ascending, linear-spathulate, felted with tissue paper-like hairs. Flower heads discoid, 1–3, sessile at branch tips, cylindric, brownish, ± 5–6 × 2–3 mm, florets 10–15, ovary papillate-hairy. Nov.–Dec. Sandy and quartzitic flats, NW, KM (Vredendal to Little Karoo).•

F.' Larger, mostly less densely leafy shrubs or perennials; flower heads (1–)few to many
G. Flower heads very small, cylindric, ± 3 × 2 mm, many in crowded corymbs

albanense Hilliard Erect or sprawling, silvery felted perennial to 40 cm. Leaves elliptic, ± hooked, silvery felted, hairs ± skin-like. Flower heads discoid, crowded in terminal corymbs, narrowly campanulate, yellow, ± 3 × 2 mm, florets ± 10, ovary glabrous. July–Oct. Grasslands, SE (Clarkson to E Cape).

cymosum (L.) D.Don. Straggling, thinly woolly shrub to 1 m. Leaves linear to elliptic, thinly silky or hairs skin-like above, white-felted beneath, margins slightly revolute. Flower heads disciform, sometimes discoid, crowded in terminal corymbs, cylindric, yellow, ± 3 × 1 mm, florets 6–20, ovary glabrous. Sept.–Apr. Sandy slopes in damp places, SW, AP, KM, LB, SE (Mamre to Mpumalanga).

helianthemifolium (L.) D.Don Like **H. tenuiculum** but bracts silvery to white. Dec.–Jan. Rocky slopes in damp places, NW, SW, KM, LB, SE (Cedarberg to Uitenhage).•

odoratissimum (L.) Sweet Straggling, aromatic, thinly white-woolly shrublet to 50 cm. Leaves linear to spathulate, clasping, decurrent, grey-woolly, undulate. Flower heads disciform, densely matted together in terminal cymes, narrowly campanulate, brown and yellow, ± 3 × 2 mm, florets ± 5–15, ovary papillate-hairy. Mainly Aug.–Dec. Rocky slopes, NW, SW, KM, LB, SE (Gifberg to tropical Africa).

rutilans (L.) D.Don Stiffly branched, twiggy, grey-felted shrublet to 60 cm. Leaves linear to oblong, often folded, hooked, grey-felted. Flower heads disciform, sometimes discoid, crowded in terminal corymbs, cylindric, lemon-yellow, ± 3.5 × 2 mm, florets 3–8, ovary glabrous. All year. Rocky slopes, NW, SW, AP, KM, LB, SE (Mamre and Worcester to Free State).

simillimum DC. Closely leafy, grey-felted shrublet to 40 cm. Leaves ascending, imbricate, lanceolate, revolute, grey-felted. Flower heads disciform, crowded in terminal corymbs, oblong-campanulate, pale yellow or whitish, ± 3.5 × 2.5 mm, florets ± 15–25, ovary glabrous. Mainly Jan.–Apr. Rocky slopes, especially forest margins, SE (George, E Cape to KwaZulu-Natal).

subglomeratum Less. Tufted, silvery felted perennial to 60 cm from a woody rootstock. Leaves oblanceolate, silvery felted but hairs almost skin-like. Flower heads discoid, densely matted together in terminal cymes, narrowly cylindric, yellow, ± 3 × 2 mm, florets 4–13, ovary glabrous. Mar.–June. Rocky slopes, SE (Uitenhage to Okavango).

tenuiculum DC. Straggling, thinly woolly shrub to 1 m. Leaves broadest below, linear-lanceolate to ovate, glabrous or cobwebby above, thinly woolly beneath, margins slightly revolute. Flower heads disciform, sometimes discoid, crowded in terminal corymbs, cylindric, ± 3 × 1 mm, florets 6–20, straw-coloured or tawny above, ovary glabrous. Jan.–Feb. Rocky slopes in damp places, NW, SW (Cold Bokkeveld to Paarl and Karoo).

G.' Flower heads larger, 4–10 × 2–16 mm
H. Involucral bracts bright yellow

anomalum Less. Grey-woolly shrublet to 30 cm. Leaves ascending, imbricate, linear, grey-woolly, margins revolute. Flower heads disciform, crowded in terminal cymes, cylindric-campanulate, bright yellow, ± 4 × 2.5 mm, bracts spreading above, florets 15–50, ovary glabrous, pappus reduced. Sept.–May. Stony slopes, KM, LB, SE (Outeniqua and Kammanassie Mtns to Lesotho).

excisum (Thunb.) Less. Densely twiggy, closely leafy shrublet to 45 cm, grey-felted on young parts. Leaves imbricate, spathulate, hooked, grey-felted. Flower heads discoid, in terminal corymbs, narrowly top-shaped, yellow, ± 4 × 2.5 mm, involucral bracts recurved above, florets ± 10, ovary papillate-hairy. Nov.–Feb. Sandstone slopes, SW, KM, LB, SE (Bredasdorp and Little Karoo to Langkloof).•

intricatum DC. Wiry, grey-woolly shrublet or subshrub to 60 cm. Leaves oblanceolate, margins slightly revolute, glabrescent but roughly hairy above, woolly beneath. Flower heads discoid or disciform, many congested in terminal corymbs, campanulate, canary-yellow, 4 × 2.5 mm, florets 8–15, ovary glabrous or papillate-hairy. Dec.–Jan. Seeps on slopes, SE (Outeniqua Mtns to E Cape).

splendidum (Thunb.) Less. Grey-felted shrub to 1.5 m with rod-like branches closely leafy above. Leaves linear-oblong, often glabrescent above, felted beneath, margins revolute. Flower heads disciform, many in terminal corymbs, hemispherical, bright yellow, 4–5 × 5–8 mm, florets 50–100, ovary papillate-hairy. Oct.–Jan. Rocky slopes, KM, SE (Swartberg and Outeniqua Mtns to tropical Africa).

H.' Involucral bracts white to straw-coloured or pale yellow
I. Inner involucral bracts opaque white, obtuse and sharply spreading at tips; leaves soft, flat

acrophilum Bolus Rounded or twiggy, grey-woolly shrublet to 30 cm. Leaves mostly crowded on short shoots, small, spathulate-truncate, felted. Flower heads discoid, 1–few at branch tips, campanulate, white flushed pink below, ± 7 × 12 mm, inner bracts spreading above, florets 30–60, ovary papillate-hairy. Mainly Dec.–Jan. Sandstone slopes, NW, KM (Pakhuis Mtns to Swartberg).•

aureofolium Hilliard Like **H. cylindriflorum** but flower heads broadly campanulate, florets 60–75, and tips of involucral bracts flat, acute and ± 2 mm long. Sept. Sandstone slopes, NW (Cedarberg, Swartruggens and Tanqua Karoo). **gce**

cochleariforme DC. GOLD-AND-SILVER Rounded, grey-woolly shrublet to 20 cm. Leaves oblanceolate-spathulate, grey-woolly. Flower heads disciform, 1–few at tips of branchlets, subglobose, golden-brown, ± 5–7 × 5–8 mm, involucral bracts concave, inner tipped white and minutely spreading, florets 60–120, ovary glabrous or papillate-hairy. Sept.–Dec. Coastal sands, NW, SW, AP (Aurora to Gouriqua).•

crispum (L.) D.Don Rounded, white-woolly subshrub to 50 cm. Leaves obovate, thickly woolly. Flower heads discoid sometimes disciform, many congested in terminal clusters, campanulate, white, 3–6 × 3.5–4 mm, inner bracts spreading above, florets 10–50, ovary glabrous or papillate-hairy. Oct.–Dec. Mainly coastal sands, SW, AP, SE (Bloubergstrand to George).•

cylindriflorum (L.) Hilliard & B.L.Burtt (= *Helichrysum fastgiatum* Harv.) Bushy, grey-woolly shrublet to 30 cm. Leaves oblong-lanceolate, grey-woolly. Flower heads disciform sometimes discoid, clustered in branched corymbs, cylindric-campanulate, golden-brown, ± 4–5 × 2.5–3 mm, involucral bracts sharply spreading above, inner tipped white, tips ± 1 mm long, florets ± 15–30, ovary papillate-hairy sometimes glabrous. Sept.–Dec. Rocky slopes, NW, SW, KM, LB, SE (Namaqualand to Langkloof). **gce**

diffusum DC. Like **H. crispum** but leaves oblong with broad, clasping base and flower heads somewhat larger, ± 5–7 × 10–14 mm. Sept.–Dec. Sandstone slopes, NW, SW (Hex River Mtns to Kogelberg and KwaZulu-Natal: Mtamvuna).

felinum Less. Grey-woolly shrublet to 80 cm with rod-like branches. Leaves spreading or deflexed, ovate-lanceolate, rough and glabrescent above, felted beneath. Flower heads discoid, many in corymbs on peduncle-like stems, subglobose, white, 5–7 × 7–10 mm, inner bracts spreading above, florets 40–100, ovary papillate-hairy. Sept.–Dec. Sandstone slopes, SW, KM, LB, SE (Cape Peninsula to KwaZulu-Natal).

fruticans (L.) D.Don Like **H. grandiflorum** but leaves thinly woolly above, flower heads larger, ± 11 × 20 mm in a spreading corymb and involucral bracts much exceeding florets. Sept.–Dec. Sandstone slopes, SW (Cape Peninsula).•

grandiflorum (L.) D.Don Grey-woolly, somewhat tufted subshrub to 50 cm. Leaves obovate, densely woolly. Flower heads discoid, many congested in terminal clusters on peduncle-like stems, campanulate, white, ± 7 × 7 mm, inner bracts spreading above, florets 70–100, ovary glabrous. Dec.–Feb. Sandstone slopes, SW (Cape Peninsula).•

incarnatum DC. Like **H. cylindriflorum** but bracts flatter and more acute, often tinged red. Sept.–Nov. Sandy flats, NW, LB (Hex River Valley to Riversdale).•

outeniquense Hilliard Like **H. felinum** but smaller, to 30 cm, leaves more woolly and flower heads smaller, ± 4 × 3 mm. Jan. Peaty slopes, SE (Outeniqua Mtns: Joubertina).• EXTINCT

pulchellum DC. Like **H. cylindriflorum** but heads campanulate, with 40–70 florets and involucral bracts almost uniformly golden-brown, tips not spreading. Sept.–Nov. Stony slopes, NW, KM (Namaqualand to Koo and Witteberg). **gce**

rotundifolium (Thunb.) Less. Tufted, grey-woolly subshrub to 15 cm with decumbent stems from a woody rootstock. Leaves obovate, densely woolly, the lower in basal rosettes. Flower heads discoid, few in terminal clusters enclosed by leafy bracts, campanulate, white, 5–8 × 4–5 mm, inner bracts spreading above, florets 20–50, ovary papillate-hairy. Mainly Nov.–Jan. Sandstone slopes, NW, SW, KM, LB, SE (Grootwinterhoek Mtns to Uniondale).•

sphaeroideum Moeser Straggling, white-felted subshrub to 60 cm. Leaves oblanceolate to obovate, pseudopetiolate, glabrescent above, felted beneath. Flower heads discoid, few to many in dense, terminal clusters, cylindric-campanulate, white, ± 3.5 × 3 mm, inner bracts spreading above, florets 8–30, ovary hairy. Mainly Dec.–Jan. Damp sandstone slopes, NW, SW, LB (Elandskloof to Langeberg).•

stellatum (L.) Less. Rounded, grey-woolly shrublet to 45 cm. Leaves oblanceolate-spathulate, grey-woolly. Flower heads disciform, several in terminal corymbs, broadly campanulate, ± 7 × 7 mm, golden-brown and white sometimes pink, involucral bracts spreading above, florets 60–140, ovary glabrous or papillate-hairy. Mainly Sept.–Oct. Sandy flats and slopes, NW, SW (Namaqualand to Riviersonderend). **gce**

I.' Inner involucral bracts not as above or leaves firmer with margins revolute

appendiculatum (L.f.) Less. SHEEP'S EARS Leafy, grey-woolly subshrub to 50 cm. Leaves imbricate, oblanceolate, woolly but thinly woolly to glabrescent above. Flower heads discoid, many in congested corymbs, campanulate, creamy white flushed yellowish or red, 7–14 mm long, bracts sometimes acuminate-recurved, florets 30–60, ovary glabrous. Mainly Dec.–Feb. Rocky slopes, LB, SE (Swellendam to Limpopo).

bachmannii Klatt Like **H. revolutum** and **H. rosum** but flower heads oblong-campanulate, involucral bracts oblong and tipped opaque white. Aug.–Nov. Coastal sands and granite, SW (Vredenburg).•

capense Hilliard Diffuse, straggling shrublet to 50 cm, white-felted on young parts. Leaves obovate, spreading, often glabrescent above, white-felted beneath. Flower heads disciform, few in congested, terminal clusters, campanulate, straw-coloured, ± 4 × 4 mm, bracts densely silky, florets 15–30, ovary hairy. Mainly Nov.–Dec. Sheltered sandstone slopes, SW, LB (Cape Peninsula to Robinson Pass).•

catipes (DC.) Harv. Bushy, grey-woolly shrublet to 50 cm. Leaves oblong-ovate, grey-woolly, often glabrescent above. Flower heads disciform, few webbed together in terminal clusters enclosed by leafy bracts, campanulate, straw-coloured, ± 5 × 3 mm, florets ± 26, ovary hairy. Dec.–Mar. Sandstone slopes, NW (Cedarberg to Hex River Mtns).•

dasyanthum (Willd.) Sweet Like **H. hebelepis** but with silky, spreading, often rufous hairs as well as woolly hairs. Mainly Sept.–Nov. Sandy flats and slopes, NW, SW, AP, KM, LB, SE (Namaqualand to Baviaanskloof Mtns). **gce**

dunense Hilliard Trailing, white-woolly, short-lived perennial with slender branches to 60 cm long from a woody caudex. Leaves spathulate, grey-woolly. Flower heads discoid, several in dense, terminal clusters, enclosed by leaves, cylindric-campanulate, translucent purplish, ± 4 × 3 mm, bracts apiculate, florets ± 10, ovary glabrous. Oct.–Dec. Coastal sands, NW (Namaqualand to Lambert's Bay). **gce**

fourcadei Hilliard Twiggy, silvery shrublet. Leaves spathulate, hooked, silvery felted with tissue paper-like hairs. Flower heads discoid, 1–3 at branch tips, narrowly top-shaped, reddish brown, ± 6 × 4 mm, bracts sharply reflexed above, florets ± 20, ovary papillate-hairy. Dec. Stony slopes, SE (Uniondale and S Karoo).

hamulosum E.Mey. ex DC. Erect, closely leafy shrublet to 60 cm. Leaves imbricate, linear, hooked, glabrous above, felted beneath, margins strongly revolute. Flower heads discoid, many in rounded corymbs, cylindric, straw-coloured, ± 6 × 2 mm, florets 5–15, ovary papillate-hairy. Dec.–Mar. Rocky slopes, NW, KM (Namaqualand to Little and Great Karoo).

hebelepis DC. Straggling, grey-woolly shrub to 1.5 m. Leaves spreading, linear to elliptic-oblong, grey-woolly, margins often undulate and slightly revolute. Flower heads disciform, many in compact, terminal corymbs, campanulate, straw-yellow, ± 4 × 3 mm, florets 15–30, ovary hairy. Mainly Aug.–Sept. Stony slopes and flats, NW, SW, KM (Namaqualand to Little Karoo). **gce**

interzonale Compton Straggling shrublet to 50 cm, white-felted on young parts. Leaves ascending, later recurved, linear, revolute, mucronate, glabrescent above, white-woolly beneath. Flower heads disciform, sometimes discoid, 1–12 at branch tips, campanulate, tawny, ± 5 × 4 mm, florets 15–30, ovary glabrous. Sept.–Nov. Rocky slopes, NW, KM, SE (Swartruggens to Uniondale: Suurberg).•

lambertianum DC. Erect or straggling, grey-woolly shrublet or subshrub to 60 cm. Leaves linear-lanceolate, white-felted. Flower heads discoid, several in compact, terminal corymbs, campanulate, ± 5 × 5 mm, bracts narrow, entirely grey-felted, florets 20–35, ovary hairy. Oct.–Jan. Rocky slopes, NW, KM, SE (Gifberg to Uniondale).•

marifolium DC. Like **H. capense** but leaves narrowly ovate and usually smaller, mostly 5–10 mm long. Sept.–Oct. Damp sandstone slopes, SW (Riviersonderend Mtns).•

pandurifolium Schrank Straggling, grey-woolly shrublet or shrub. Leaves ovate, pseudopetiolate and auriculate-clasping below, crisped, grey-woolly. Flower heads discoid, few to many in terminal corymbs on peduncle-like branches, campanulate, creamy, ± 5–8 × 6–10 mm, florets 12–40, ovary glabrous. Mainly Oct.–Jan. Sandy flats and slopes, SW, LB, SE (Bain's Kloof to Kouga Mtns).•

patulum (L.) D.Don Like **H. pandurifolium** but involucral bracts obtuse. Mainly Dec.–Jan. Sandy flats and slopes, often coastal, SW, LB, SE (Cape Peninsula to Mossel Bay).•

pentzioides Less. Twiggy shrublet to 1 m, thinly grey-felted on young parts. Leaves obovate-spathulate, hooked, grey-felted. Flower heads discoid, few in terminal clusters, cylindrical, straw-coloured, ± 5 × 3 mm, florets 8–15, ovary papillate-hairy. Mainly Dec.–Jan. Stony slopes and flats, NW, SW, KM, LB, SE (Montagu and Bredasdorp to Free State).

petiolare Hilliard & B.L.Burtt Like **H. pandurifolium** but leaves abruptly and conspicuously petiolate and not crisped, and involucral bracts obtuse. Dec.–Jan. Sheltered slopes and forest margins, NW, SW, LB, SE (Cedarberg and Jonkershoek Mtns to KwaZulu-Natal).

plebeium DC. Like **H. hebelepis** but leaves always linear to linear-oblong with margins strongly revolute and receptacle smooth, not honeycombed nor fimbrilliferous. Aug.–Oct. Sandstone slopes, LB (Langeberg).•

revolutum (Thunb.) Less. Sprawling, thinly grey-woolly shrub to 2 m. Leaves often in axillary tufts, linear-lanceolate, slightly auriculate, revolute, glabrescent above, white-woolly beneath. Flower heads disciform, in compact, terminal corymbs, campanulate, straw-coloured, ± 5 × 4 mm, florets 20–40, ovary papillate-hairy. July–Oct. Rocky or sandy flats and slopes, NW, SW, KM (S Namibia to Cape Peninsula and Witteberg). **gce**

rosum (P.J.Bergius) Less. Like **H. revolutum** but involucral bracts tipped milk-white. Mainly Sept.–Mar. Stony slopes and flats, SW, AP, KM, LB, SE (Stellenbosch to Free State).

rotundatum Harv. Like **H. capense** but plants coarser with larger leaves, mostly 15–20 mm long and flower heads ± 6 × 5 mm. Oct.–Dec. Damp sandstone slopes, SW (Riviersonderend Mtns).•

rugulosum Less. Thinly white-felted perennial to 30 cm, stems usually unbranched. Leaves oblong-lanceolate, slightly revolute, thinly felted above, densely so beneath. Flower heads disciform, in compact, terminal corymbs, campanulate, creamy, ± 5 × 4 mm, bracts crisped, florets ± 15–40, ovary papillate-hairy. Mainly Dec.–Mar. Stony grasslands, KM, LB, SE (Langeberg and Swartberg to Gauteng).

scabrum (Thunb.) Less. Like **H. revolutum** but leaves roughly glandular-hairy and margins conspicuously crisped. Aug.–Dec. Rocky slopes, NW (Namaqualand to Ceres and Piketberg). **gce**

spiralepis Hilliard & B.L.Burtt Tufted, grey-woolly, short-lived perennial to 30 cm. Leaves oblanceolate, the lower in a rosette, densely woolly. Flower heads disciform sometimes discoid, congested in glomerules enclosed by leafy bracts, narrowly campanulate, creamy or reddish, ± 5 × 3 mm, bracts acuminate-hooked, florets 12–40, ovary papillate-hairy. Sept.–Feb. Sandy slopes, SW, LB, SE (Cape Peninsula to Lesotho).

teretifolium (L.) D.Don Straggling, thinly felted, closely leafy shrublet to 30 cm. Leaves stiffly spreading, linear, revolute, hooked, glabrescent above, white-woolly beneath. Flower heads disciform, sometimes discoid, in dense, terminal corymbs, campanulate, creamy white, ± 5 × 5 mm, bracts spreading above, florets 17–60, ovary glabrous or papillate-hairy. July–Nov. Sandy slopes and dunes, NW, SW, AP, KM, LB, SE (Piketberg to KwaZulu-Natal).

tricostatum (Thunb.) Less. Straggling, grey-woolly shrublet to 1.5 m. Leaves spreading, oblanceolate to oblong, grey-woolly, margins slightly revolute. Flower heads disciform, many in compact, terminal corymbs, campanulate, straw-yellow, ± 4 × 3 mm, bracts subglabrous, florets 15–30, ovary glabrous. Sept.–Dec. Coastal sands, NW, SW (Namaqualand to Bokbaai). **gce**

zeyheri Less. Twiggy, grey-woolly shrublet mostly to 70 cm, branches often stiff. Leaves oblong to obovate, often pseudopetiolate, grey-woolly, crisped. Flower heads discoid, in compact, terminal cymes, cylindric, white, ± 4 × 2 mm, florets 5, ovary glabrous. Mainly Nov.–May. Stony slopes, NW, SW, KM, LB, SE (dry parts of southern Africa).

HERTIA Less. SPRINGBOKBOS ± 10 spp., S Africa to SW Asia

alata (Thunb.) Kuntze Slender-stemmed shrub to 80 cm. Leaves decurrent in broad stem wings, oblanceolate towards base, obovoid above. Flower heads disciform, few in nodding, terminal or axillary clusters, yellow. Nov.–Dec. Rocky sandstone ridges, KM (Swartberg and Karoo).

kraussii (Sch.Bip.) Fourc. Twiggy shrublet to 50 cm. Leaves oblanceolate, leathery, sometimes slightly toothed. Flower heads disciform, small, solitary on long peduncles, terminal or axillary, yellow. June–July. Clay soils in renosterveld and karroid scrub, SE (Kammanassie Mtns to Port Elizabeth).•

sp. 1 Like **H. kraussii** but leaves sometimes slightly decurrent. Flower heads few, in terminal and axillary corymbs. Apr.–Oct. Damp lower slopes, SE (Kammanassie Mtns to Port Elizabeth).•

HETEROLEPIS Cass. (= *MINUROTHAMNUS*) ROTSGOUSBLOM 4 spp., W to E Cape

aliena (L.f.) Druce (= *Minurothamnus phagnaloides* DC.) Sprawling, closely leafy, cobwebby shrublet to 30 cm, with woody rootstock. Leaves linear, margins slightly revolute, sparsely toothed, densely woolly below, (10–)15–30 mm long. Flower heads radiate, large, solitary on short, roughly hairy peduncles, yellow. Mainly Sept.–Dec. Rocky sandstone slopes and outcrops, NW, SW, KM (Cedarberg to Witteberg and Hermanus).•

anomala J.C.Manning & Goldblatt Sprawling, closely leafy, thinly cobwebby shrublet to 30 cm, with woody rootstock. Leaves linear-needle-like, pungent, margins closely revolute and concealing lower surface, 10–15 mm long. Flower heads discoid, solitary on roughly hairy peduncles, yellow. Oct.–Apr. Dry N-facing sandstone slopes, LB (Langeberg: Garcia's Pass).•

peduncularis DC. Like **H. aliena** but flower heads on elongate peduncles. Sept.–Dec. Rocky slopes, NW, SW, AP, KM, LB (Hex River Mtns to Hottentots Holland Mtns, Potberg to Langeberg).•

HETERORHACHIS Sch.Bip. ex Walp.• KAAPSEKARMEDIK 2 spp., N and W Cape

aculeata (Burm.f.) Roessler Spiny, densely leafy, cobwebby shrub to 60 cm. Leaves pinnatisect, rigid and pungent, margins usually revolute. Flower heads radiate, several at branch tips, yellow; outer bracts leaf-like, toothed and pungent, inner lanceolate. Aug.–Sept. Stony flats, NW, SW (Bokkeveld Escarpment to Koeberg).•

hystrix J.C.Manning & P.O.Karis Like **H. aculeata** but flower heads discoid and involucral bracts all ovate-lanceolate. Aug.–Sept. Stony flats, NW (Graafwater).•

HILLIARDIELLA H.Rob. BLOUTEEBOS 8 spp., Africa

pinifolia (Less.) H.Rob. (= *Vernonia capensis* (Houtt.) Druce) BLOUNAALDETEEBOSSIE Erect, canescent perennial from woody rootstock, to 50 cm. Leaves linear, margins revolute, silvery hairy below. Flower heads discoid, in dense corymbs, purple. Oct.–Jan. Grassy fynbos, SE (George to tropical Africa).

HIPPIA L.• RANKALS 5 spp., W to E Cape

frutescens (L.) L. (= *Hippia hirsuta* DC.; incl. **H. montana** Compton) RANKALS Shortly hairy, straggling shrublet to 60 cm. Leaves pectinate-pinnatifid, lobes oblong to linear. Flower heads discoid, in branched corymbs, yellow. Achenes winged. Mainly Oct.–Mar. Sandstone slopes, often near streams or marshes, NW, SW, AP, KM, LB, SE (Ceres to Storms River).•

hutchinsonii Merxm. Slender-stemmed shrublet to 25 cm. Leaves trifid, lobes linear. Flower heads discoid, in sparse, terminal corymbs, yellow. Achenes ellipsoid. Nov.–Dec. Sandstone slopes, LB (Langeberg: Swellendam).•

integrifolia Less. Sprawling, slender-stemmed shrublet to 20 cm. Leaves ovate, sometimes palmately few-toothed to lobed. Flower heads discoid, few in terminal umbels, yellow. Achenes broadly winged. Mainly Sept.–Jan. Damp, shady sandstone slopes, LB (Langeberg: Swellendam to Riversdale).•

pilosa (P.J.Bergius) Druce (= *Hippia bolusiae* Hutch.) Thinly hairy, slender, erect or sprawling shrublet to 30 cm, young buds often with long, russet hairs. Flower heads discoid, white or yellow. Achenes ellipsoid. Aug.–Nov. Damp sandstone slopes often in shade, NW, SW, KM, LB (Ceres to Witteberg, Cape Peninsula to Swellendam).•

sp. 1 Dwarf, tufted perennial to 10 cm, with long, russet hairs on young parts. Leaves mostly in a dense, basal tuft, lobes linear. Flower heads discoid, in dense, terminal corymbs, yellow. Achenes ellipsoid. Nov.–Dec. Rocky sandstone slopes, SW (Worcester: Louwshoek Mtns).•

HIRPICIUM Cass. HAARBOSSIE 12 spp., tropical and southern Africa

alienatum (Thunb.) Druce Twiggy shrublet like **H. integrifolium** but involucral bracts acuminate, shortly bristly. Aug.–Dec. Stony shale slopes, NW, KM, SE (S Namibia to Uitenhage and Karoo).

integrifolium (Thunb.) Less. HAARBOSSIE Shrublet to 40 cm. Leaves linear to oblanceolate, margins revolute, white-felted below, bristly above. Flower heads radiate, solitary at branch tips, yellow; bracts filiform, plumose. Aug.–Oct. Dry rocky slopes, NW, KM (Worcester to Willowmore).•

HOPLOPHYLLUM DC. YLKARMEDIK 2 spp., southern Africa

spinosum DC. Rigid, spiny shrub to 1 m. Leaves linear, hard and spine-like. Flower heads discoid, sessile in small, terminal clusters, yellow. Sept.–Oct. Stony karroid slopes, NW (Namaqualand to Clanwilliam and S Karoo).

HYDROIDEA P.O.Karis• BERGBLOMBOS 1 sp., SW Cape

elsiae (Hilliard) P.O.Karis Grey-woolly shrublet to 15 cm. Leaves needle-like with involute margins, twisted, in tufts. Flower heads discoid, solitary on short peduncles, purplish, bracts white. Jan.–Mar. Sandstone rocks above 1 000 m, SW (Du Toitskloof Mtns).•

HYMENOLEPIS Cass. BASTERKAROO 7 spp., W to E Cape

crithmoides (L.) Greuter, M.V.Agab. & Wagenitz (= *Hymenolepis parviflora* (L.) DC.) Thinly woolly shrub, 1–3 m, densely leafy above. Leaves large, pinnatisect, segments linear with revolute margins. Flower heads discoid, small, massed in dense, compound corymbs, yellow. Nov.–Dec. Rocky sandstone slopes, NW, SW (Namaqualand to Villiersdorp). **gce**

cynopus K.Bremer & Källersjö Grey-woolly, densely leafy shrub to 1.5 m. Leaves obovate, with revolute margins, dentate above. Flower heads discoid, small, massed in rounded corymbs, yellow; bracts densely silky. Aug.–Sept. Sandstone slopes, KM (Touwsberg).•

dentata (DC.) Källersjö (= *Athanasia schizolepis* Harv.) Glabrous shrub to 1.2 m. Leaves linear or almost filiform, entire to deeply toothed, rarely lobed. Flower heads discoid, small, crowded in rounded corymbs, yellow. Aug.–Oct. Rocky sandstone slopes, NW (Cedarberg to Matroosberg).•

gnidioides (S.Moore) Källersjö (= *Phaeocephalus gnidioides* S.Moore) White-woolly, slender, few-branched shrub, 1–3 m. Leaves oblong, warty below. Flower heads yellow; bracts silky. Oct.–Jan. Sandstone slopes and ridges, KM (Langeberg to Kammanassie Mtns).•

incisa DC. Glabrescent, erect-stemmed shrub, 30–90 cm. Leaves pinnatisect, segments linear with revolute margins. Flower heads discoid, small, crowded in rounded corymbs, yellow; bracts velvety. Aug.–Nov. Rocky sandstone slopes, NW, KM, LB (Ceres to Swartberg).•

indivisa (Harv.) Källersjö Slender, few-branched shrub to 1.3 m. Leaves filiform with revolute margins. Flower heads discoid, small, crowded in rounded corymbs, yellow. Oct.–Nov. Sandstone slopes, SE (Great Winterhoek Mtns to Grahamstown).

speciosa (Hutch.) Källersjö Grey-felted shrub to 1 m, golden on young parts. Leaves pinnatisect, lobes linear with revolute margins. Flower heads discoid, small, massed in dense, compound corymbs, yellow; bracts velvety. Sept.–Nov. Sandstone slopes above 1 200 m, NW (Piketberg to Hex River Mtns).•

sp. 1 Like **H. gnidioides**, but plants < 1 m, leaves linear and hairy. Mainly Oct. Clay slopes, after fire, KM (foothills of Kammanassie Mtns).•

IFLOGA Cass. (=*TRICHOGYNE*) NAALDEBOS 15 spp., southern Africa to N Africa and Middle East

A. Ericoid shrublets

ambigua (L.) Druce (= *Trichogyne ambigua* (L.) Druce) Sprawling, grey and thinly white-hairy, ericoid shrublet to 50 cm. Leaves filiform or granular, in tufts. Flower heads discoid, axillary and forming dense, spike-like racemes, cream-coloured; florets funnel-shaped. Mainly Apr.–Nov. Sandy coastal flats and slopes, NW, SW, KM (Pakhuis Pass to Cape Peninsula and Robertson).•

pilulifera Schltr. (= *Trichogyne pilulifera* (Schltr.) Anderb.) GEELNAALDEBOSSIE Similar to **I. repens** but flowering branchlets not secund and flower heads yellow. July–Sept. Sandstone slopes in fynbos, NW (Bokkeveld Mtns to Cold Bokkeveld).•

repens (L.) Hilliard & B.L.Burtt (= *Trichogyne repens* (L.) Anderb., *T. reflexa* (L.f.) Less.) WITNAALDEBOSSIE Like **I. ambigua** but main branches prostrate, bearing secund, short, erect flowering branches to 10 cm, terminating in tight, rounded clusters of flower heads. July–Oct. Coastal dunes and sandy flats, SW, AP (Vredenburg to Mossel Bay).•

woodii (N.E.Br.) B.L.Burtt (= *Trichogyne decumbens* (Thunb.) Less.) Gnarled, dwarf, white-membranous, ericoid shrublet to 15 cm. Leaves filiform, suberect, imbricate. Flower heads discoid, crowded apically, white; florets funnel-shaped. Aug.–Mar. Stony, karroid slopes, NW, KM (Cold Bokkeveld to W Lesotho).

A.' Annual herbs

B. Corolla funnel-shaped; styles in hermaphrodite florets undivided

polycnemoides Fenzl (= *Trichogyne polycnemoides* (Fenzl) Anderb.) Like **I. verticillata** but to 15 cm and flower heads reddish. Mainly Aug.–Sept. Sandstone slopes above 600 m, NW (Namaqualand to Worcester and W Karoo). **gce**

verticillata (L.f.) Fenzl (= *Trichogyne verticillata* (L.f.) Less.) Thinly white-membranous annual to 20 cm with stems stiffly erect above. Leaves linear, margins revolute. Flower heads discoid, in axillary clusters along stems, straw-coloured; florets funnel-shaped. Mainly Aug.–Oct. Coastal dunes and sandy flats, NW, SW, AP (Lambert's Bay to Still Bay).•

B.' Corolla cylindrical; styles in hermaphrodite florets divided

anomala Hilliard Like **I. glomerata** but ovaries of hermaphrodite flowers aborted. Mainly July–Oct. Disturbed places, NW, AP, KM, LB (Swartruggens, Montagu to Mossel Bay and southern Karoo).

glomerata (Harv.) Schltr. Thinly white-membranous annual to 10 cm, stems stiffly erect above. Leaves linear, margins revolute. Flower heads discoid, clustered along stems, straw-coloured; florets cylindrical. Mainly Aug.–Nov. Usually disturbed, sandy soil, SE (Namibia to Free State and S to Humansdorp).

thellungiana Hilliard & B.L.Burtt Erect or mat-like, thinly white-membranous annual to 15 cm. Leaves distant, linear-lanceolate, margins revolute, white-mucronate. Flower heads discoid, 1–few, nested among leaves, straw-coloured; florets cylindrical. Sept.–Oct. Sandstone flats and slopes, NW, SW (Cold Bokkeveld to Cape Peninsula and W Karoo). **gce**

INULANTHERA Källersjö 10 spp., southern and tropical Africa, Madagascar

dregeana (DC.) Källersjö (= *Athanasia dregeana* (DC.) Harv.) Glabrescent, slender-stemmed shrub to 1.5 m. Leaves linear, crowded in tufts, slightly dentate. Flower heads discoid, in terminal corymbs, yellow. Mar.–May. Grasslands and forest margins, SE (Langkloof to S KwaZulu-Natal).

INULOIDES B.Nord. = **OSTEOSPERMUM**

LACHNOSPERMUM Willd. 4 spp., Namaqualand to SW Cape **gce**

fasciculatum (Thunb.) Baill. Thinly felted shrublet to 60 cm. Leaves involute-ericoid, in tufts. Flower heads discoid, few at branch tips, yellow, bracts white-woolly, acute-acuminate with small, brown or purplish, ascending or weakly spreading tips. Jan.–Mar. Sandy lower slopes, NW, SW (S Namaqualand to Greyton).

imbricatum (P.J.Bergius) Hilliard Glabrescent shrublet to 50 cm with stiffly erect branches. Leaves ovate with involute margins, imbricate. Flower heads discoid, few in loose, terminal clusters, purple, inner bracts with papery white tips. Jan.–Mar. Coastal sands and limestone outcrops, SW, AP (Mamre to Cape Flats and Elim to Agulhas).•

neglectum Schltr. ex J.C.Manning & Goldblatt Like **L. fasciculatum** but branching divaricate and flower heads ± cylindrical with bract tips straw-coloured, attenuate and sharply reflexed. Jan.–Feb. Dry, rocky, sandstone slopes, NW, SW (Hex River Valley to Worcester).•

umbellatum (L.f.) Pillans ROOIBLOMBOS Thinly felted, stiffly erect shrublet to 30 cm. Leaves involute-ericoid, densely tufted. Flower heads discoid, several in corymbs at branch tips, pinkish, most bracts with papery pink tips, reflexed. Nov.–Mar. Sandy lower slopes, SW (Cape Peninsula to Hermanus).•

LAMPROCEPHALUS B.Nord.• 1 sp., SW Cape

montanus B.Nord. Thinly cobwebby shrublet to 50 cm. Leaves linear, keeled below, ascending, slightly succulent, prominently apiculate. Flower heads discoid, solitary on elongate peduncles, cream-coloured drying reddish. Dec.–Jan. Rocky, often S-facing slopes above 1 000 m, often on shale, NW (Cedarberg to Hex River Mtns).•

LANGEBERGIA Anderb.• (= *PETALACTE* in part) 1 sp., SW Cape

canescens (DC.) Anderb. (= *Petalacte canescens* DC.) Sprawling, silvery felted shrublet to 30 cm. Leaves oblanceolate. Flower heads discoid, small, many in dense clusters, purple, bracts white. Mainly Aug.–Dec. Rocky summits and S slopes above 1 000 m, LB (Langeberg: Swellendam).•

LASIOPOGON Cass. 8 spp., southern Africa, N Africa to Middle East

brachypterus O.Hoffm. ex Zahlbr. Dwarf, white-woolly annual to 5 cm. Leaves oblanceolate. Flower heads disciform, in terminal clusters, white; pappus shortly plumose above. Mainly Sept.–Nov. Rocky sandstone slopes and outcrops, NW, SW (Kamiesberg to Hottentots Holland Mtns). **gce**

debilis (Thunb.) Hilliard Dwarf, glabrescent, mat-forming annual to 5 cm. Leaves oblanceolate, thinly fleshy. Flower heads disciform, in terminal glomerules; pappus bristles shortly plumose above. July–Oct. Silty or sandy flats and washes, KM (southern Namaqualand to Little Karoo). **gce**

glomerulatus (Harv.) Hilliard Similar to **L. brachypterus** but pappus barbellate throughout. May–Oct. Stony and gravelly flats, KM (S Namibia to Worcester and to Zambia).

muscoides (Desf.) DC. Dwarf, densely grey-woolly, prostrate annual to 5 cm. Leaves spathulate. Flower heads disciform, in dense rounded woolly clusters, white; pappus plumose. Mainly Aug.–Sept. Stony flats, KM (Namaqualand to E Cape).

LASIOSPERMUM Lag. GIFKNOPPIES 4 spp., southern Africa

bipinnatum (Thunb.) Druce Glabrescent perennial with erect to sprawling stems from woody rootstock, to 60 cm. Leaves bipinnatisect. Flower heads radiate, globose, yellow with white rays. Aug.–Dec. Grasslands or disturbed soils, NW, KM (Cedarberg through Little Karoo to Gauteng).

brachyglossum DC. Glabrescent annual with ascending stems to 40 cm. Leaves bipinnatisect. Flower heads shortly radiate, globose, yellow and red with reddish rays. July–Oct. Clay and gravel slopes, NW, KM (S Namibia to Oudtshoorn). **gce**

pedunculare Lag. (= *Lasiospermum erectum* (Lam.) Druce) Silvery silky perennial with erect to sprawling stems from woody rootstock. Leaves bipinnatisect. Flower heads discoid, globose, yellow, fragrant. Aug.–Oct. Clay slopes, NW (Namaqualand and W Karoo to Ceres). **gce**

LEUCOPTERA B.Nord. 3 spp., winter-rainfall S Africa

nodosa (Thunb.) B.Nord. Slender shrublet to 50 cm. Leaves filiform or pinnatisect with filiform lobes, bases persistent and nodular. Flower heads radiate, solitary on elongate peduncles, yellow with white rays. July–Sept. Sandveld, NW (Hondeklip Bay to Elands Bay). **gce**

LEYSERA L. TEEBOS 3 spp., southern Africa and Mediterranean to SW Asia

gnaphalodes (L.) L. SKILPADTEEBOSSIE, TERINGTEEBOSSIE Glabrous to cobwebby shrublet to 40 cm. Leaves linear, glandular-hairy. Flower heads radiate, solitary on slender, wiry peduncles, yellow; pappus bristles plumose from base. Mainly Sept.–Nov. Sandy flats and slopes, NW, SW, AP, KM, LB, SE (S Namibia to E Cape).

tenella DC. VAALTEEBOSSIE Slender, glabrescent to cobwebby annual, sometimes perennial, to 20 cm. Leaves linear, glandular-hairy. Flower heads radiate, solitary on wiry peduncles, yellow; pappus bristles plumose above. Mainly Aug.–Oct. Sandy and stony flats and slopes, NW, SW, KM, LB, SE (S Namibia to Willowmore and Karoo).

LIDBECKIA P.J.Bergius• BERGASTER 3 spp., SW Cape

pectinata P.J.Bergius Glaucous, aromatic shrub to 1.5 m. Leaves pinnatifid, lobes oblong to obovate, gland-dotted below. Flower heads radiate, large, solitary on long peduncles at branch tips, yellow with white rays. Sept.–Nov. Shady sandstone slopes, NW (Grootwinterhoek Mtns to Roodezandberg).•

pinnata J.C.Manning & N.A.Helme Twiggy, thinly velvety shrub to 50 cm. Leaves 3–5-pinnatisect, lobes linear. Flower heads radiate, solitary on long peduncles, yellow with white rays. Mar.–May. Dry, stony, lower slopes, LB (Langeberg to Mossel Bay).•

quinqueloba (L.f.) Cass. (= *Lidbeckia lobata* Thunb.) Silky, sprawling shrublet with velvety leaves, to 60 cm. Leaves deeply palmately lobed, petiolate. Flower heads radiate, solitary on long peduncles at branch tips, yellow with white rays. Sept.–Dec. Shady sandstone slopes, NW (N Cedarberg to Olifants River Mtns).•

MACLEDIUM Cass. (= *DICOMA* in part) 20 spp., tropical and southern Africa

relhanioides (Less.) S.Ortíz (= *Dicoma relhanioides* Less.) Cushion-like, stout, densely leafy shrublet to 15 cm. Leaves lanceolate, sessile, margins involute, sometimes woolly above, pungent. Flower heads discoid, solitary at branch tips, mauve, bracts ovate, shortly spiny. Dec.–Mar. Stony ?shale slopes, KM (Huisrivierberg).•

spinosum (L.) S.Ortíz (= *Dicoma spinosum* L.) STEEKBLOM Cushion-forming, usually grey-felted shrublet to 20 cm. Leaves obovate, slightly toothed and pungent, glabrescent above. Flower heads obscurely radiate, solitary at branch tips, pink or white, bracts broad below, narrow and spiny above. Flowering erratically. Dry, rocky, shale slopes, SW, ?AP, KM, LB, SE (Du Toitskloof to Somerset East).

MAIRIA Nees• FIRE ASTER, PLUIMASTER 6 spp., SW Cape

A. Leaves entire or broadly toothed distally

burchellii DC. (= *Zyrphelis burchellii* (DC.) Kuntze) Tufted perennial to 15 cm. Leaves numerous, mostly in a basal tuft, linear, silky beneath. Flower heads radiate, 1–few, subscapose, yellow with mauve rays. Nov.–Apr. Sandy slopes after fire, NW, SW, KM (Porterville Mtns and Cape Peninsula to Ladismith).•

coriacea Bolus Tufted perennial to 12 cm. Leaves in a basal rosette, obovate, petiolate, often broadly toothed above, margins revolute, leathery, with 5 main veins, margins thickened, silky beneath, glabrescent above. Flower heads radiate, solitary, subscapose, yellow with purple rays. Nov.–Mar. Rocky slopes after fire, SW (Cape Peninsula, Rooiels to Potberg).•

A.' Leaves crenate or lacerate

crenata (Thunb.) Nees Tufted perennial to 15 cm. Leaves in a basal rosette, obovate, leathery, margins revolute, regularly crenate-toothed, often reddish, silky beneath. Flower heads radiate, solitary, subscapose, yellow with pink to mauve or white rays. Sept.–Mar. Rocky sandstone slopes and outcrops, mainly after fire, SW, KM, LB, SE (Cape Peninsula to Great Winterhoek Mtns).•

hirsuta DC. Tufted subshrub to 30 cm, russet silky or woolly. Leaves in basal tufts, oblanceolate, margins crenate and revolute, russet silky or woolly beneath, glabrescent above but not discolorous. Flower heads radiate, solitary, subscapose, yellow with mauve-pink rays, ray florets without staminodes. July–Sept. Mountain slopes after fire, LB (Langeberg).•

petiolata Z.-Wiegand Tufted perennial to 20 cm. Leaves in a basal rosette, petiolate, elliptic-obovate, margins mostly ragged, softly woolly beneath or glabrescent. Flower heads radiate, solitary on few-branched peduncles, yellow with pink rays. Dec.–Jan. Sandstone slopes above 1 000 m, after fire, LB (Langeberg: Swellendam).•

robusta (Z.-Wiegand) J.C.Manning & Goldblatt (= *M.hirsuta* subsp. *robusta* Z.-Wiegand.) Tufted subshrub to 30 cm. Leaves in basal tufts, oblanceolate, margins crenate and revolute, densely pale felted beneath, glabrescent above and strongly discolorous. Flower heads radiate, solitary, sub-

scapose, yellow with mauve-pink rays, ray florets without staminodes; bracts felted, with flexouse tips. Oct.–Dec. Mountain slopes after fire, SW (Hex River Mtns and Bain's Kloof to Hottentot's Holland Mtns).•

MARASMODES DC.• 12 spp., SW Cape

A. Heads obconic or broadly campanulate, 5–7 mm long

defoliata S.Ortíz Straggling shrublet to 30 cm. Leaves lax, linear or rarely 3-lobed, suberect-spreading, deciduous, 9–23 mm long. Flower heads discoid, broadly campanulate, solitary, yellowish, 5–7 mm long, bracts erect with purple tips, florets ± 20 per head. Apr.–May. Seasonally wet flats, SW (Riverlands).•

macrocephala S.Ortíz Erect-stemmed shrublet. Leaves suberect-spreading, linear, (4–)10–18 mm long. Flower heads discoid, obconic, solitary on short shoots, 6–7 mm long. Flower heads discoid, obconic, solitary on slender branchlets, yellowish, 6–7 mm long, bracts erect, florets ± 18 per head. Apr.–June. Stony flats, NW (De Doorns).•

oubinae S.Ortíz Ericoid shrublet to 30 cm. Leaves linear or with lateral lobes, spreading-recurved, linear, often with axillary tufts, 2–5 mm long. Flower heads discoid, obconic, in clusters of 1–3, yellowish, 5–6 mm long, bracts erect, florets 10–15 per head. Gravelly flats, SW (Paardeberg).•

schlechteri Magee & J.C.Manning Ericoid shrublet to 60 cm. Leaves linear or with basal lobes, spreading, often with axillary tufts, 5–10 mm long. Flower heads discoid, obconic, solitary on short shoots, 6–7 mm long, bracts erect with green-flanked stereome, florets 15–18 per head. May–June. Gravelly slopes in renosterveld, NW (Eendekuil).•

undulata Compton Ericoid shrublet to 30 cm. Leaves linear, suberect, 3–5 mm long. Flower heads discoid, obconic, solitary, 5–6 mm long, bracts with prominent scarious margins and tips, apically recurved, florets ± 16 per head, yellowish. Apr.–May. Gravelly flats in renosterveld, SW (Paarl: New Orleans).•

A.' Heads cylindrical-campanulate, 4–5 mm long
B. Heads in clusters

dummeri Bolus ex Hutch. Ericoid shrublet with whip-like branches to 30 cm. Leaves linear, adpressed, 2–3 mm long. Flower heads discoid, subcylindrical, in short spikes of 2–8, yellowish, ± 4 mm long, bracts erect, florets 4 or 5 per head, yellowish. May–June. Stony gravel in renosterveld, SW (Klipheuwel to Muldersvlei).•

fasciculata S.Ortíz Ericoid shrublet to 30 cm. Leaves linear or with lateral lobes, spreading-recurved, with axillary tufts, mostly 2–5 mm long. Flower heads discoid, campanulate, in groups of 2–20, yellowish, 3–5 mm long, bracts erect, florets 8–16 per head. May–July. Loamy flats in renosterveld, SW (Atlantis to Malmesbury).•

polycephala DC. (incl. **M. beyersiana** S.Ortíz) Ericoid shrublet to 20 cm. Leaves linear or trifid, suberect, 3–7 mm long. Flower heads discoid, campanulate, in groups or short spikes of 3–10, yellowish, 3–4 mm long, bracts erect, tipped dark purple, florets ± 8 per head; pappus scales poorly developed. May–June. Seasonally wet, clay flats in renosterveld, SW (Faure to Gordon's Bay).•

B.' Heads solitary

oligocephala DC. Like **M. trifida** but leaves shorter, 2–8 mm long, and never lobed. Apr.–May. Clay flats, SW (Mamre).•

reflexa S.Ortíz Ericoid shrublet to 30 cm. Leaves often reflexed, linear or laterally lobed, 2–7 mm long. Flower heads discoid, campanulate, solitary on short shoots, yellowish, 3–4 mm long, bracts erect, florets 8–12 per head. May–June. Clay flats in renosterveld, SW (Napier).•

spinosa S.Ortíz Densely branched, ericoid shrublet to 30 cm. Leaves dense, spreading, pinnately (3–)5–9-lobed, 2–5 mm long. Flower heads discoid, campanulate, solitary on short-shoots, yellowish, 4–5 mm long, bracts erect, florets 13–17 per head; pappus scales poorly developed. May–June. Seasonally wet, gravel flats in alluvial fynbos, SW (Bo-Hermon).•

trifida S.Ortíz Ericoid shrublet to 30 cm. Leaves linear or irregularly 2–4-lobed apically, ascending, mostly 6–11 mm long. Flower heads discoid, campanulate, solitary (rarely 2 or 3), yellowish, ± 4 mm long, bracts erect, florets ± 15 per head, yellowish. Apr.–May. Brackish clay flats, SW (Dassenberg to Kalabaskraal).•

METALASIA R.Br. BLOMBOS 52 spp., S Africa, mainly W Cape

*A. Capitula 3- or 4-flowered (see also **M. aurea, M. calcicola, M. densa, M. luteola, M. montana, M. muricata** and **M. plicata**)*

acuta P.O.Karis Rigid, white woolly shrub to 1.5 m. Leaves pungent, twisted, 3–15 mm long, with axillary tufts. Flower heads discoid, several in dense, terminal clusters, 3- or 4-flowered, bracts erect, inner petaloid, serrate, white. Nov.–Apr. Sandy and clay flats and slopes up to 1 300 m, SW, AP, KM, LB (Cape Hangklip to George).•

albescens P.O.Karis Densely white-woolly shrublet to 80 cm. Leaves reflexed, twisted, 2–6 mm long, with axillary tufts. Flower heads discoid, several in terminal clusters, 3(4)-flowered, bracts erect, inner petaloid, pink. Dec.–Jan. Sandstone slopes, NW (S Cedarberg).•

brevifolia (Lam.) Levyns (= *Metalasia intermedia* DC.) Erect, white-woolly shrub to 1 m but usually less. Leaves reflexed, twisted, 2–8 mm long, with axillary tufts. Flower heads discoid, in terminal clusters, 3-flowered, bracts erect, concave above, inner petaloid, white. Sept.–Dec. Sandstone flats and slopes, NW, SW, AP, LB, SE (Bokkeveld Mtns to Cape Peninsula and to Port Elizabeth).•

capitata (Lam.) Less. (= *Metalasia bolusii* L.Bolus) Spreading, white-woolly shrublet to 60(–100) cm. Leaves on older branches spreading and twisted, adpressed on young shoots, imbricate and not twisted, 2–12 mm long, without axillary tufts. Flower heads discoid, in dense, terminal clusters, 3- or 4(5)-flowered, bracts slightly spreading, inner petaloid, white. Aug.–Sept. Sandy coastal flats, NW, SW (Piketberg to Paarl).•

cymbifolia Harv. Similar to **M. serrata** but leaves strongly incurved and not twisted. June–Nov. Sandstone slopes, 200–900 m, SW (Babilonstoring and Kleinrivier Mtns).•

erectifolia Pillans Erect, white-woolly shrublet to 50 cm. Leaves adpressed, imbricate, not twisted, 3–10 mm long. Flower heads discoid, several in dense, terminal clusters, 3-flowered, bracts erect, inner petaloid, brown to white. Sept. Limestone hills, AP (Agulhas to Still Bay).•

erubescens DC. White-woolly shrub to 1 m. Leaves twisted, 2–18 mm long. Flower heads discoid, several in dense terminal clusters, 3- or 4(5)-flowered, bracts erect, inner petaloid, pink sometimes white. Sept.–Feb. Sandy flats and lower slopes, to 1 000 m, SW, AP (Hottentots Holland Mtns to Agulhas).•

phillipsii L.Bolus (= *Metalasia incurva* Pillans) Glabrescent shrublet to 40 cm. Leaves slightly twisted, 2–6 mm long, with axillary tufts. Flower heads discoid, many in interlocking, terminal clusters, 3-flowered, bracts erect, inner petaloid, whitish to pink. Nov.–Feb. Sandstone slopes 1 500–2 200 m, NW, SW (Cold Bokkeveld to Bain's Kloof and Hex River Mtns).•

rhoderoides T.M.Salter Spreading, coarsely hairy shrublet to 40 cm. Leaves greyish and coarsely hairy, lanceolate, smaller and fewer above, 2–12 mm long, with axillary tufts. Flower heads discoid, several, fused in terminal clusters, 3- or 4-flowered, bracts erect, inner petaloid, white. Feb.–Apr. Stony slopes, 700–1 000 m, SW (Tulbagh: Elandskloof Mtns to Slanghoek Mtns).•

riparia T.M.Salter Robust, white- or green-woolly shrub to 2.5 m, young branches reddish. Leaves densely hairy, slightly twisted, 3–12 mm long. Flower heads discoid, numerous, fused in terminal clusters, 3(4)-flowered, bracts erect, inner petaloid, white. Dec.–Feb. Stream banks, SW (Hottentots Holland to Kleinrivier Mtns).•

rogersii S.Moore Slender, sprawling, white-woolly shrublet to 30 cm. Leaves reflexed, twisted, 1–6 mm long, with small axillary tufts. Flower heads discoid, several in completely interlocking, terminal clusters, 3-flowered, bracts erect, concave above, inner petaloid, pink sometimes white. Oct.–Jan. Sandstone slopes, NW (Cold Bokkeveld to Hex River Mtns).•

seriphiifolia DC. Slender, sparsely white-woolly shrublet to 40 cm. Leaves needle-like, sometimes hairy, twisted, mostly 2–10 mm long, with axillary tufts. Flower heads discoid, several in terminal clusters, 3-flowered, bracts erect, inner petaloid, 3-toothed, pink to whitish. Aug.–Sept. Lower sandstone slopes, to 100 m, SW (Kleinrivier Mtns).•

serrata P.O.Karis White-woolly shrublet to 60 cm. Leaves slightly twisted, 2–11 mm long, with small axillary tufts. Flower heads discoid, several in interlocking, terminal clusters, 3-flowered, bracts erect, concave above, inner petaloid, keeled at tips, pink or white. July–Aug. Sandstone slopes to 450 m, SW (Kleinrivier Mtns to Bredasdorp).•

serrulata P.O.Karis Similar to **M. rogersii** but leaves 2–10 mm long and mostly without axillary tufts, heads fewer and inner bracts white. Dec.–Jan. Sandstone slopes, NW (Grootwinterhoek Mtns to Skurweberg).•

tenuifolia DC. Sprawling, slender, sparsely white-woolly shrublet to 20 cm. Leaves twisted, sometimes densely woolly, 3–14 mm long. Flower heads discoid, few in terminal clusters, 3-flowered, bracts slightly spreading, inner petaloid, whitish or cream-coloured. Aug. Sandstone slopes, 300–900 m, SW (Houwhoek, Kogelberg and Riviersonderend Mtns).•

tenuis P.O.Karis Spreading white-woolly shrublet to 20 cm. Leaves reflexed, twisted, 2–5 mm long. Flower heads discoid, many in terminal clusters, 3-flowered, bracts erect, concave above, inner petaloid, pink. Dec.–Jan. Lower, sometimes damp, sandstone slopes, SW (Riviersonderend Mtns).•

trivialis P.O.Karis Erect, white-woolly shrub to 3 m. Leaves spreading, lanceolate to ovate, twisted, keeled, 4–15 mm long, with axillary tufts. Flower heads discoid, several in terminal clusters, 3- or 4-flowered, bracts erect, outer brown, inner petaloid, white. Sept.–Dec. Rocky slopes, KM, SE (Klein Swartberg to Cathcart).

A.' Capitula with 5 or more flowers

adunca Less. White-woolly shrub to 1.5 m. Leaves curved outwards, hooked apically, not twisted, 2–10 mm long, without axillary tufts. Flower heads discoid, several in terminal clusters, 5-flowered, inner bracts petaloid, concave, white. Mainly Aug.–Oct. Sandy flats and lower slopes, to 1 000 m, NW, SW (Namaqualand to McGregor). **gce**

agathosmoides Pillans Compact, white-woolly shrublet to 60 cm. Leaves narrowly triangular, not twisted, 2–6 mm long, with axillary tufts. Flower heads discoid, several in dense, rounded, terminal clusters, 5-flowered, bracts erect, slightly concave above, inner petaloid, pink to white. Oct.–Dec. Sandstone slopes, 1 200–1 700 m, NW, KM (Cedarberg to Bonteberg).•

alfredii Pillans Compact, white-woolly shrublet to 1 m. Leaves narrowly obovate, scarcely twisted, usually densely hairy, 2–9 mm long. Flower heads discoid, several in terminal clusters, mostly 5- or 6-flowered, bracts spreading, irregularly serrate, inner petaloid, white. Mainly Feb.–Mar. Sandstone slopes above 1 600 m, SW (Riviersonderend Mtns).•

aurea D.Don GEELBLOMBOS White-woolly shrub to 1.5 m. Leaves twisted, pungent, 4–18 mm long, with axillary tufts. Flower heads discoid, several in numerous terminal clusters, 3–5-flowered, bracts erect, inner petaloid, concave above, dull yellow. Apr.–June. Grassy flats, SW, SE (Potberg to Port Elizabeth).•

bodkinii L.Bolus White-woolly shrublet to 20 cm. Leaves straight or twisted, woolly, 2–7 mm long. Flower heads discoid, several at branch tips, 5-flowered, innermost bracts petaloid, tips recurved, white. Sept.–Nov. Sandstone slopes, SW (Caledon Swartberg).•

calcicola P.O.Karis Erect, densely white-woolly shrub to 1 m. Leaves strongly incurved, not twisted, 2–4 mm long, with conspicuous axillary tufts. Flower heads discoid, several in terminal clusters, 3–5-flowered, inner bracts truncate, white. May–Aug. Limestone hills and dunes, AP (Baardskeerdersbos to Still Bay).•

cephalotes (Thunb.) Less. Spreading, white-woolly shrub sometimes to 1 m. Leaves reflexed, scarcely twisted, 3–20 mm long, with axillary tufts. Flower heads discoid, several, fused in dense, terminal clusters, 5-flowered, bracts all petaloid, usually glandular, inner spreading, pink or white. Mainly Aug.–Nov. Sandstone slopes, NW, SW (Du Toitskloof Mtns to Kogelberg).•

compacta Zeyh. ex Sch.Bip. Robust, white-woolly shrub to 1.3 m. Leaves ascending, twisted, 6–15 mm long. Flower heads discoid, several in dense, terminal clusters, 6-flowered, bracts all petaloid, slightly spreading, outer reddish to pink, inner white. July–Dec. Sandy flats and slopes to 700 m, SW (Cape Peninsula).•

confusa Pillans Spreading, white-woolly shrublet to 40 cm. Leaves lanceolate, glabrescent, slightly twisted, 3–10 mm long, with axillary tufts. Flower heads discoid, few, fused in terminal clusters, (4)5-flowered, bracts slightly spreading, inner petaloid, white or pinkish. Nov.–Mar. Damp sandstone slopes, SW (Kogelberg to Palmiet River Mtns).•

densa (Lam.) P.O.Karis BLOMBOS Erect white-woolly shrub to 2.5(–4) m. Leaves often reflexed, lanceolate to ovate, twisted, 2–15 mm long, with axillary tufts. Flower heads discoid, several in terminal clusters, 3–5-flowered, bracts erect or rarely spreading, outer brown below, inner petaloid, white sometimes brown. Mainly June–Oct. Sandy or stony flats and slopes, NW, SW, AP, KM, LB, SE (Namaqualand to Limpopo).

distans (Schrank) DC. Slender, weak, sparsely leafy, white-woolly shrublet to 80 cm. Leaves twisted, sparsely hairy, 10–30 mm long. Flower heads discoid, several in terminal clusters, 5-flowered, inner bracts petaloid, spreading, white to yellow sometimes with reddish tips. Mar.–June. Sandy hills and flats, SW (Darling to Kraaifontein).•

divergens (Thunb.) D.Don Sprawling, white-woolly shrublet to 70 cm. Leaves reflexed, slightly twisted, 2–12 mm long, with axillary tufts. Flower heads discoid, several, fused, in dense, terminal clusters, 5-flowered, bracts all petaloid, mostly glandular, outer brown to reddish, inner spreading, white or pink. Aug.–Jan. Sandstone slopes, SW (Cape Peninsula to Gordon's Bay).•

dregeana DC. Similar to **M. densa** but young branches densely woolly and bracts acuminate and recurved, white or cream-coloured. Mar.–Apr. Sandstone and clay slopes NW, SW (Cedarberg to Helderberg).•

fastigiata (Thunb.) D.Don Densely white-woolly shrublet to 1.5 m. Leaves reflexed, twisted, 4–20 mm long, with axillary tufts. Flower heads discoid, several, in terminal clusters, 5-flowered, bracts erect, inner petaloid, pink. Aug.–Dec. Sandy flats and slopes, NW, SW (Kamiesberg and Bokkeveld Mtns to Wellington).•

galpinii L.Bolus Erect, white-woolly shrub to 1.2 m. Leaves ascending, curved inwards with reflexed tips, not twisted, 3–15 mm long. Flower heads discoid, few in terminal clusters, 5-flowered, bracts mostly spreading above, inner petaloid, white. Nov.–Dec. Stony, N-facing, clay slopes, 350–750 m, LB (Langeberg).•

helmei P.O.Karis White-woolly shrublet to 40 cm. Leaves narrowly triangular, not twisted, 3–7 mm long, without axillary tufts. Flower heads discoid, several in dense, campanulate, terminal clusters, 5-flowered, bracts erect, outer dark brown above, inner petaloid, white. Aug.–Oct. Sandstone slopes, 1 400–1 800 m, NW, (Worcester: Kwadousberg).•

humilis P.O.Karis Similar to **M. bodkinii** but leaves glabrescent, outer involucral bracts reddish to purplish and inner cream-coloured. Oct.–Dec. Sandstone slopes. SW (Houwhoek Mtns).•

inversa P.O.Karis Like **M. pulchella** but yellowish woolly and outer bracts shorter than inner. Aug.–Dec. Stony slopes to 600 m, SW (Stellenbosch to Bredasdorp).•

juniperoides Pillans Spreading, white-woolly shrub to 3 m. Leaves glandular, 2–20 mm long, with or without axillary tufts. Flower heads discoid, few in terminal clusters exceeded by a few bract-like leaves, 5-flowered, bracts erect, inner petaloid, white. Jan.–Mar. Sandstone slopes, NW (Cold Bokkeveld).•

lichtensteinii Less. Robust, white-woolly shrub to 1.5 m. Leaves twisted, 4–15 mm long, with axillary tufts. Flower heads discoid, several in terminal clusters, 8–13-flowered, bracts recurved at tips, inner petaloid, white. Aug.–Jan. Lower sandstone slopes to 600 m, SW (Gordon's Bay to Botrivier).•

luteola P.O.Karis Erect, densely white-woolly shrub to 1.5 m. Leaves curved, twisted, 4–6 mm long, with conspicuous axillary tufts. Flower heads discoid, several in terminal clusters, 4- or 5-flowered, inner bracts spreading, truncate, pale yellow. July–Aug. Limestone hills, AP (Still Bay).•

massonii S.Moore Like **M. densa** but flower heads 5-flowered, bracts more reflexed and spreading at tips. Aug.–Oct. Mountain slopes, 300–1 700 m, KM, LB, SE (Klein Swartberg to Uitenhage).•

montana P.O.Karis Compact, white-woolly shrublet to 30 cm. Leaves spreading, lanceolate to ovate, twisted, 4–10 mm long, with axillary tufts. Flower heads discoid, several in terminal clusters, 5-flowered, bracts erect or rarely spreading, outer brown below, inner petaloid, white sometimes brown. Dec.–May. Sandstone slopes, 1 200–1 700 m, SW (Stettynsberg and Wemmershoek Mtns).•

muraltiifolia DC. (= *Metalasia barnardii* L.Bolus) Rigid, white-woolly shrub to 2.5 m. Leaves slightly twisted, 7–15 mm long, with small axillary tufts. Flower heads discoid, several, fused, in dense, branched, terminal clusters, 5-flowered, bracts erect, inner petaloid, irregularly toothed above, pink or white. Oct.–Nov. Sandstone slopes, 600–800 m, NW, SW (Witzenberg to Wemmershoek Mtns).•

muricata (L.) D.Don BLOMBOS Similar to **M. densa** but leaves hooked at tips, bracts brown, inner bracts thick and faintly keeled above. May–Sept. Coastal sands to 300 m, SW, AP, LB, SE (Yzerfontein to Transkei).

octoflora DC. Erect, white-woolly shrublet to 40 cm. Leaves twisted, 2–11 mm long, with axillary tufts. Flower heads discoid, few in terminal clusters, 5–7-flowered, bracts erect, inner bracts petaloid, dull yellow. Mar.–Apr. Clay flats in renosterveld, SW (Durbanville to Wolseley).•

oligocephala P.O.Karis Spreading white-woolly shrublet to 50 cm. Leaves twisted, hairy, 4–6 mm long. Flower heads discoid, 1 or 2 at branch tips, 5-flowered, florets slightly zygomorphic, innermost bracts petaloid, whitish, tips recurved and hairy. Nov.–Dec. Shale bands, LB (Langeberg).•

pallida Bolus Erect, white-woolly shrub to 2 m. Leaves curved inwards with reflexed tips, not twisted, 2–15 mm long. Flower heads discoid, several in terminal clusters, 6–15-flowered, bracts erect, inner petaloid, concave above and serrulate, light brown to white. Aug.–Nov. Rocky slopes, KM, SE (Klein Swartberg to Humansdorp and S Karoo).

plicata P.O.Karis Like **M. densa** but inner bracts often cream-coloured and apically pleated. Apr.–May. Clay slopes, SW, LB (Houwhoek to Swellendam).•

pulchella (Cass.) P.O.Karis Erect or sprawling, white-woolly shrublet to 40 cm. Leaves spreading, twisted, 4–15 mm long, with axillary tufts. Flower heads discoid, several, fused in dense, terminal clusters, 5-flowered, bracts all petaloid, usually glandular, inner erect, folded and irregularly toothed above, white. Oct.–Dec. Sandy flats and slopes to 200 m, SW (Cape Peninsula and Cape Flats).•

pulcherrima Less. Erect, white-woolly shrub to 1.5 m. Leaves erect, narrowly elliptic, not twisted, 2–15 mm long. Flower heads discoid, few in terminal clusters, 5(6)-flowered, bracts erect, inner petaloid, yellow to white. Mainly Sept.–Dec. Stony sandstone slopes, 600–2 000 m, KM, SE (Witteberg to Langkloof).•

pungens D.Don Like **M. densa** but leaves not twisted, outer bracts acuminate. Mainly Apr.–July. Mostly sandstone slopes, to 1 800 m, AP, KM, LB, SE (Agulhas to Grahamstown).

quinqueflora DC. Sparsely white-woolly shrublet to 50 cm. Leaves twisted, 3–18 mm long. Flower heads discoid, several in terminal clusters, 5-flowered, outer bracts recurved, inner petaloid, erect, white or pink. Aug.–Mar. Coastal sandy flats and lower slopes to 400 m, SW (Hottentots Holland Mtns to Botrivier).•

strictifolia Bolus Compact, white-woolly shrublet to 50 cm. Leaves erect, scarcely twisted, 3–9 mm long. Flower heads discoid, few in dense, terminal clusters, 5-flowered, inner bracts petaloid, spreading, white. Nov.–Jan. Sandstone slopes and ridges, 1 200–1 500 m, KM, SE (Klein Swartberg to Kouga Mtns).•

tricolor Pillans Densely white-woolly shrublet to ± 60 cm. Leaves not twisted, with axillary tufts. Flower heads discoid, few in terminal clusters, 6–8-flowered, inner bracts petaloid, spreading, pleated, pink or white. May–July. Sandstone slopes, KM (Rooiberg).•

umbelliformis P.O.Karis Erect, white-woolly shrub to 1.2 m. Leaves slightly twisted, hooked at tips, 3–9 mm long, with axillary tufts. Flower heads discoid, several in globose, terminal clusters, 5-flowered, inner bracts petaloid, spreading, keeled above, white, sometimes reddish. Sept.–Oct. Limestone ridges, AP (Pearly Beach to Brandfontein).•

MICROGLOSSA DC. ± 10 spp., Africa, Madagascar and Asia

mespilifolia (Less.) B.L.Rob. Scrambling, softly woody shrub, 1–2 m, sometimes to 4 m. Leaves petiolate, deltoid and coarsely toothed. Flower heads shortly radiate, several in dense corymbs, yellow with dull white rays. Jan.–Dec. Coastal bush, SE (Van Staden's Mtns to KwaZulu-Natal).

MIKANIA Willd. ± 430 spp., pantropical, mainly America, 2 in southern Africa

capensis DC. Scrambling climber. Leaves sagittate, slightly toothed. Flower heads discoid, in corymbs, white, 4-flowered; involucral bracts 4 or 5, in 1 row. Aug.–Oct. Forests and bush, SE (Knysna to tropical Africa).

MINUROTHAMNUS DC. = **HETEROLEPIS**

MONOCULUS B.Nord. = **OSTEOSPERMUM**

NEPHROTHECA B.Nord. & Källersjö = **OSTEOSPERMUM**

NESTLERA Spreng. 1 sp., winter-rainfall S Africa **gce**

biennis (Jacq.) Spreng. (= *Relhania biennis* (Jacq.) K.Bremer) Thinly cobwebby annual or ?biennial to 35 cm. Leaves linear, gland-dotted, with revolute margins. Flower heads radiate, solitary and terminal, yellow with yellow rays. Sept.–Oct. Sandy flats and lower slopes, NW, SW (S Namaqualand to Hopefield). **gce**

NIDORELLA Cass. (= *CONYZA* in part) VLEIKRUID ± 23 spp., southern and tropical Africa

A. Shrublets

foetida (L.) DC. Aromatic, scabrid, softly woody shrub to 60 cm. Leaves narrowly oblanceolate, in tufts. Flower heads discoid, in dense corymbs, often nodding, yellow. Mainly Sept.–Apr. Damp sites, often seeps and marshes, NW, SW, AP, LB, SE (Lambert's Bay to E Cape).

ivifolia (L.) J.C.Manning & Goldblatt (= *Conyza scabrida* DC.) BAKBESEMBOSSIE, OONDBOS Slender, pale-stemmed shrub with willowy branches to 2 m. Leaves petiolate, lanceolate, serrate. Flower heads disciform, in dense corymbs, cream-coloured to pale yellow. Mainly Nov.–Apr. Sandstone slopes or forest margins, often near streams, NW, SW, AP, KM, LB, SE (Clanwilliam to Zimbabwe).

A.' Annual or perennial herbs
B. Leaves pinnatifid

pinnata (L.f.) J.C.Manning & Goldblatt Thinly scabrid perennial with erect stems from stolons, to 50 cm. Leaves oblanceolate, pinnatifid, lobes entire or toothed, cauline leaves sessile. Flower heads disciform, often nodding, in corymbs, yellow. Oct.–Jan. Damp areas, often marshes, SW, LB, SE (Cape Peninsula to Mpumalanga).

pinnatifida (Thunb.) J.C.Manning & Goldblatt Softly hairy, sprawling perennial to 45 cm. Leaves pinnatisect, lobes sometimes toothed, cauline leaves sessile. Flower heads disciform, in corymbs, yellow. Jan.–May. Damp sites along the coast, often seeps and marshes, SW (Cape Peninsula to Cape Hangklip).•

B.' Leaves entire or toothed (rarely lobed)

auriculata DC. Shortly hairy, single-stemmed, erect perennial to 1.5 m. Leaves oblanceolate, auriculate at base, coarsely toothed, serrate. Flower heads discoid, in dense, nodding corymbs, yellow. Jan.–June. Damp places, often marshes, or forest margins, SW, LB, SE (Caledon to tropical Africa).

resedifolia DC. Stout, roughly hairy annual to 90 cm. Leaves obovate, half-clasping at base, sometimes lobed. Flower heads discoid, in dense corymbs, yellow. Sept.–Apr. Roadsides and grasslands, SW, LB, SE (Caledon to tropical Africa).

ulmifolia (Burm.f.) J.C.Manning & Goldblatt Erect, shortly hairy, branched perennial to 1 m. Leaves with eared petioles, ovate and toothed. Flower heads disciform, in loose corymbs, yellow. Dec.–May. Damp places, often along streams, NW, SW, KM, LB, SE (Cedarberg and Stellenbosch to E Africa).

undulata (Thunb.) Sond. ex Harv. Single-stemmed perennial to 90 cm. Leaves crowded at base, obovate, leathery, slightly toothed. Flower heads discoid, in dense corymbs, yellow. Oct.–Jan. Damp grasslands and seeps, LB, SE (Riversdale to tropical Africa).

NORLINDHIA B.Nord. = **OSTEOSPERMUM**

OEDERA L. (= *RELHANIA* in part) PERDEKAROO 18 spp., Namaqualand to E Cape

A. Flower heads congested in false capitula

capensis (L.) Druce Densely leafy, sprawling shrublet to 30 cm. Leaves lanceolate, spreading or recurved, glandular-scabrid on margins, sometimes silky. Flower heads radiate, several crowded in a large false head, orange or yellow. June–Sept. Dry stony flats and slopes, SW, AP, KM, LB (Cape Peninsula to Albertinia and Little Karoo).•

hirta Thunb. Like **O. capensis** but leaves glandular-scabrid on underside, often twisted. Sept.–Dec. Sandstone slopes, NW, SW (Cold Bokkeveld and Piketberg to Wemmershoek Mtns).•

imbricata Lam. (= *Oedera intermedia* DC.) Similar to **O. capensis** but leaves broadly lanceolate to ovate. Aug.–Nov. Sandstone slopes, SW, AP, KM, LB, SE (Yzerfontein to Grahamstown).

laevis DC. (= *Oedera muirii* C.A.Sm.) Densely leafy shrublet to 45 cm. Leaves lanceolate, striate, pungent, minutely toothed. Flower heads shortly radiate, small, subsessile, crowded in terminal umbels, with 1 reduced ray floret per head, yellow. Oct. Rocky sandstone slopes, LB (Langeberg: near Garcia's Pass).•

sp. 1 Densely leafy, prostrate dwarf shrublet to 10 cm. Leaves imbricate, linear-lanceolate, slightly fleshy. Flower heads shortly radiate, several crowded in a large, false head, yellow, involucral bracts large, leafy, the inner ciliate, pappus scales free, needle-like. Sept.–Mar. Sandstone outcrops, NW (Cold Bokkeveld and Hex River Mtns).•

A.' Flower heads in umbels or solitary

epalacea Beyers Twiggy shrublet to 60 cm. Leaves oblanceolate, spreading, gland-dotted. Flower heads radiate, few in slender peduncles in lax umbels, yellow, disc florets female-sterile. Achenes hairy. June–Sept. Sandstone outcrops in cracks, NW (Swartruggens).•

foveolata (K.Bremer) Anderb. & K.Bremer Like **O. multipunctata** but leaves smaller, flower heads campanulate and achenes densely hairy. Sept. Rocky slopes, NW (Karoopoort).•

genistifolia (L.) Anderb. & K.Bremer KLEINPERDEKAROO Twiggy shrub to 1 m. Leaves oblong, erect or spreading, often recurved at tips, often gummy above. Flower heads radiate, few in dense, terminal umbels, with glandular-hairy florets, yellow. Aug.–Nov. Shale and clay slopes in renosterveld, NW, SW, AP, KM, LB, SE (Namaqualand to E Cape).

multipunctata (DC.) Anderb. & K.Bremer PERDEKAROO Twiggy shrub to 1 m, white-woolly on young parts. Leaves oblanceolate, spreading, gland-dotted. Flower heads radiate, few in slender peduncles in lax umbels, yellow. Aug.–Oct. Rocky sandstone slopes, NW (Bokkeveld Mtns to Swartruggens).•

resinifera (K.Bremer) Anderb. & K.Bremer Similar to **O. multipunctata** but leaves elliptic, densely glutinous and not gland-dotted. Aug.–Oct. Karroid lower slopes, KM (Klein Swartberg and Touwsberg foothills).•

sedifolia (DC.) Anderb. & K.Bremer Similar to **O. multipunctata** but leaves smaller. Flower heads subsessile and solitary. Mainly Aug.–Dec. Rocky sandstone slopes, NW, KM (Namaqualand to Witteberg and W Karoo). **gce**

squarrosa (L.) Anderb. & K.Bremer VIERKANTPERDEKAROO Similar to **O. genistifolia** but leaves obovate, recurved and mucronate at tips, young leaves 4-ranked. Mainly Sept.–Nov. Stony sand or clay slopes and flats, NW, SW, AP, KM, LB, SE (Bokkeveld Mtns to Port Elizabeth).•

steyniae (L.Bolus) Anderb. & K.Bremer Densely leafy shrublet to 30 cm, somewhat woolly on young parts. Leaves lanceolate, keeled and pungent, woolly on margins, 4-ranked. Flower heads shortly radiate, subsessile in terminal umbels, yellow. July–Sept. Limestone rocks, AP (Still Bay to Gouritsmond).•

uniflora (L.f.) Anderb. & K.Bremer KALKSTEENPERDEKAROO Rounded, twiggy shrublet to 50 cm. Leaves oblong, channelled and recurved at tips, 4-ranked. Flower heads radiate, solitary at branch tips, yellow. Oct.–Jan. Coastal sands and limestones, SW, AP, LB (Saldanha Bay to Mossel Bay).•

viscosa (L'Hér.) Anderb. & K.Bremer Like **O. genistifolia** but leaves thick, somewhat channelled and glutinous. Sept.–Nov. Clay or sandy lower slopes, NW, SW (Piketberg to Tygerberg).•

OLDENBURGIA Less. KREUPELBOS 4 spp., W to E Cape

intermedia Bond Cushion-forming shrublet to 30 cm, densely woolly in axils. Leaves leathery, oblanceolate, margins revolute, woolly below. Flower heads radiate, solitary on white-woolly peduncles, white. Mainly Feb.–Mar. Sandstone rocks above 1 000 m, NW, SW (Cedarberg to Hex River Mtns and Hottentots Holland Mtns).•

papionum DC. Dwarf, gnarled shrublet to 1 m, woolly in axils. Leaves large, leathery, oblanceolate, margins revolute, woolly below. Flower heads radiate, 1–3 on branched, glabrescent peduncles, pinkish with white rays. Mar.–June. Sandstone slopes, to 1 400 m, SW (Tulbagh Kloof to Du Toitskloof).•

paradoxa Less. Like **O. intermedia** but flower heads sessile. Jan.–June. Sandstone rocks at high alt., SW, KM, LB, SE (Villiersdorp to Avontuur).•

OLIGOCARPUS Less. = **OSTEOSPERMUM**

OLIGOTHRIX DC.• 1 sp., SW Cape

gracilis DC. Diffuse, wiry stemmed annual to 30 cm. Leaves obovate and tapering below, coarsely toothed, becoming narrower above and clasping. Flower heads radiate, small in open corymbs, yellow with yellow or white rays; bracts with resin ducts in basal half between veins. Dec.–Jan. Sandstone slopes above 1 000 m, NW (Cedarberg).•

ONCOSIPHON Källersjö STINKKRUID 7 spp., southern Africa

A. Decumbent shrublets or short-lived perennials; leaves with broad lobes

sabulosus (Wolley-Dod) Källersjö (= *Pentzia sabulosa* (Wolley-Dod) Hutch.) Decumbent shrublet or short-lived, woody perennial to 20 cm. Leaves bipinnatisect with broad lobes. Flower heads discoid, few in dense, terminal corymbs, yellow. Sept.–Mar. Coastal dunes, SW, AP (Velddrif to Agulhas).•

schlechteri (Bolus ex Schltr.) Källersjö (= *Matricaria schlechteri* Bolus ex Schltr.) Like **O. sabulosum** but leaves spathulate and lobed apically. Oct.–Nov.(–Apr). Coastal dunes, NW (Namaqualand to Lambert's Bay). **gce**

A.' Erect annuals; leaf lobes narrow
B. Involucral bracts pubescent

grandiflorum (Thunb.) Källersjö (= *Pentzia grandiflora* (Thunb.) Hutch.) GROOTSTINKKRUID Robust, aromatic annual to 45 cm. Leaves bipinnatisect. Flower heads discoid, solitary, yellow, bracts woolly. Aug.–Nov. Sandy and stony flats and lower slopes, NW, SW (S Namibia and W Karoo to Melkbosstrand). **gce**

intermedius (Hutch.) Källersjö (= *Pentzia intermedia* Hutch.) Like **O. grandiflorum** but corolla lobes elongate giving heads a fluffy appearance, peduncles thick and flowers deep yellow to orange. Sept.–Oct. Sandy lower slopes, NW (N Cedarberg).•

B.' Involucral bracts glabrous

africanus (P.J.Bergius) Källersjö (= *Matricaria africana* P.J.Bergius, *M. hirta* (Thunb.) DC., *O. glabratum* (Thunb.) Källersjö) WILD CHAMOMILE Erect to spreading annual to 30 cm. Leaves pinnatisect to bipinnatisect. Flower heads radiate, solitary on thick peduncles, yellow with white rays. Sept.–Oct. Margins of seasonal, often saline pans waterlogged in winter, NW, SW (Leipoldtville to Cape Peninsula).•

piluliferus (L.f.) Källersjö (= *Pentzia pilulifera* (L.f.) Fourc.) KAROOSTINKKRUID Like **O. suffruticosum** but usually to 30 cm. Leaves bipinnatisect. Flower heads discoid, solitary or few in lax corymbs on slender peduncles. Aug.–Dec. Dry stony or sandy slopes and flats, often disturbed soil, NW, KM, SE (S Namibia to Ceres and Oudtshoorn to E Cape and Karoo).

suffruticosus (L.) Källersjö (= *Pentzia suffruticosa* (L.) Hutch. ex Merxm.) STINKKRUID, WURMBOSSIE Much-branched, aromatic annual to 50 cm. Leaves bi- to tripinnatisect. Flower heads discoid, many in dense corymbs, yellow. Sept.–Dec. Sandy flats and slopes, often coastal, NW, SW, AP (S Namibia and W Karoo to Gansbaai). **gce**

OREOLEYSERA K.Bremer• 1 sp., SW Cape

montana (Bolus) K.Bremer Dwarf, cushion-forming, grey-felted shrublet to 8 cm. Leaves oblanceolate, erect. Flower heads radiate, slender, solitary on wiry, pubescent peduncles, yellow. Nov.–Jan. Sandstone rocks, NW, SW (Hex River Mtns to Jonkershoek).•

ORESBIA Cron & B.Nord.• 1 sp., SW Cape

heterocarpa Cron & B.Nord. (= *Cineraria tomentosa* (DC.) Less.) Stout, white-woolly perennial to 75 cm, woody below. Leaves oblanceolate, sometimes slightly lobed, margins toothed, glabrescent above, white-woolly below. Flower heads radiate, in lax corymbs on stout peduncles, yellow. Sept.–Nov. Moist slopes and ravines, NW, SW, KM (Cedarberg and Peninsula to Riviersonderend Mtns and Swartberg).•

OSMITOPSIS Cass.• BELSKRUIE 9 spp., SW Cape

A. Pappus absent

asteriscoides (P.J.Bergius) Less. BELSKRUIE Sparsely branched, aromatic shrub to 2 m with erect stems densely leafy above. Leaves lanceolate, smooth or felted, ascending, 10–60(–80) mm long. Flower heads radiate, in terminal corymbs, yellow with white rays; pappus absent. Mainly Aug.–Dec. Marshes and seeps on sandstone, SW (Cape Peninsula to Riviersonderend Mtns).•

nana Schltr. Perennial to 15 cm with erect stems from woody rootstock. Leaves oblanceolate, reflexed, toothed above, 5–25 mm long. Flower heads radiate, solitary, yellow with white rays; pappus absent. Oct.–Feb. Sandstone rocks mostly above 600 m, NW, SW (Grootwinterhoek Mtns to Genadendal).•

parvifolia (DC.) Hofmeyr Densely leafy shrublet to 40 cm. Leaves ovate, reflexed, toothed, 4–10 mm long. Flower heads radiate, solitary, yellow with white rays; pappus absent. Sept.–Feb. Stony sandstone slopes and rock crevices, SW (Sir Lowry's Pass to Betty's Bay).•

tenuis K.Bremer Slender, sprawling, aromatic, thinly woolly shrublet to 25 cm. Leaves obovate, reflexed, sparsely toothed and apiculate, 6–15 mm long. Flower heads radiate, solitary, yellow with white rays; pappus absent. Aug.–Feb. Moist rocky slopes often in shade, SW (Bain's Kloof to Du Toitskloof).•

A.' Pappus present at least in disc florets

afra (L.) K.Bremer Densely leafy perennial with erect stems from woody rootstock, to 40 cm. Leaves oblong, the lower larger, reflexed, the upper ascending, finely toothed above, densely felted, 5–20 mm long. Flower heads radiate, solitary on long peduncles, yellow with white rays; pappus of subequal scales. Mainly Nov.–Feb. Sandstone slopes, SW (Du Toitskloof to Kogelberg).•

dentata (Thunb.) K.Bremer KAAPSEBELSKRUIE Perennial to 50 cm with erect stems from woody rootstock. Leaves oblanceolate, the lower larger, spreading, the upper ascending, sharply toothed, 5–45 mm long. Flower heads radiate, large, solitary, yellow with white rays; pappus of subequal scales. Mainly Oct.–Feb. Damp rocky slopes, SW (Cape Peninsula).•

glabra K.Bremer Like **O. afra** but leaves glabrous and toothed throughout. Nov.–Feb. Rocky, S-facing, sandstone slopes, SW (Grabouw to Palmiet River Mtns).•

osmitoides (Less.) K.Bremer BASTERBELSKRUIE Softly woody shrublet 15–60 cm with slender erect branches. Leaves oblanceolate, deeply to slightly toothed, 15–80 mm long. Flower heads radiate, solitary on long peduncles, yellow with white rays; pappus of subequal scales. Aug.–Jan. Moist slopes and forest margins, SW, LB, SE (Riviersonderend Mtns to Great Winterhoek Mtns).•

pinnatifida (DC.) K.Bremer Densely leafy shrublet to 50 cm. Leaves oblong, deeply lobed to pinnatifid, spreading to reflexed, 5–40 mm long. Flower heads radiate, solitary at branch tips, yellow with white rays; pappus of dimorphic scales. Mainly Nov.–Jan. Rocky sandstone slopes mostly above 800 m, SW (Du Toitskloof to Jonkershoek).•

OSTEOSPERMUM L. (= *CHRYSANTHEMOIDES, GIBBARIA, INULOIDES, MONOCULUS, NEPHROTHECA, NORLINDHIA, OLIGOCARPUS, OXYLAENA, TRIPTERIS*) BONESEED ± 80 spp., mainly Africa, Middle East (2), St Helena (1)

Chrysanthemoides group

incanum Burm. f. (= *Chrysanthemoides incana* (Burm.f.) Norl.) GRYSBIETOU Sprawling, white-woolly, sparsely thorny shrublet to 80 cm. Leaves ovate to elliptic, toothed. Flower heads radiate, few in terminal corymbs, yellow, bracts densely woolly. Mainly Dec.–May. Coastal dunes or sandy inland slopes, NW, SW, AP, KM (Namibia and Karoo to Bredasdorp).

moniliferum L. (= *Chrysanthemoides monilifera* (L.) Norl.) BIETOU, BOSLUISBESSIE Rounded shrub to over 1.5 m, thinly woolly on young parts. Leaves obovate to elliptic, toothed, dark green, leathery. Flower heads radiate, few in terminal corymbs on short peduncles, yellow. Mainly Mar.–July. Sandstone and limestone slopes and flats, NW, SW, AP, KM, LB, SE (Namaqualand to tropical Africa).

Tripteris group

A. Annuals

breviradiatum Norl. (= *Norlindhia breviradiata* (Norl.) B.Nord., *Tripteris breviradiata* (Norl.) B.Nord.) LEMOENBOSSIE Glandular-hairy annual to 50 cm. Leaves soft, lanceolate, sparsely toothed, the lower petiolate, upper clasping. Flower heads radiate, small, yellow. Achenes ± 5 mm long, winged, apical chamber 3-fenestrate. Aug.–Sept. Rocky hills, NW (S Namibia and W Karoo to Botterkloof). **gce**

microcarpum (Harv.) Norl. (= *Tripteris microcarpa* Harv.) BOEGOEBOSSIE Robust, roughly glandular-hairy annual to 80 cm. Leaves oblanceolate, toothed to pinnatifid, the upper clasping. Flower heads radiate, small, yellow. Achenes 4–5 mm long, winged, apical chamber 3-fenestrate. Mainly May–Sept. Rocky slopes and flats, NW (S Angola to Pakhuis Mtns).

monstrosum (Burm.f.) J.C.Manning & Goldblatt (= *Monoculus monstrosus* (Burm.f.) B.Nord., *Osteospermum clandestinum* (Less.) Norl., *Tripteris clandestina* Less.) TREKKERTJIE Glandular-hairy, aromatic annual to 40 cm. Leaves oblanceolate, toothed to lobed. Flower heads radiate, few in branched panicles, dark purplish with pale yellow rays brown at base. Achenes 8–9 mm long, winged, apical chamber 1-fenestrate. July–Sept. Sandy and rocky flats, NW, SW (S Namibia and Namaqualand to Cape Peninsula and Riviersonderend). **gce**

A.' Perennials or shrubs
B. Rays usually with purple base, forming dark eye

calcicola (J.C.Manning & Goldblatt) J.C.Manning & Goldblatt Rhizomatous perennial to 40 cm, with annual stems from a creeping rhizome. Leaves congested basally, smaller above, lower leaves broadly ovate to oblanceolate, puberulous with glandular and eglandular trichomes. Flower heads radiate, solitary on elongate peduncles, large, dark with straw-yellow rays darkly banded at base. Achenes 10–12 mm long, winged, apical chamber 3-fenestrate. July–Aug. Limestone pavements, SW (Saldanha coast and hills).•

scariosum DC. (= *Tripteris aghillana* DC.) SKAAPBOS Roughly hairy or bristly perennial to 30 cm, with woody base. Leaves mostly basal, oblanceolate, entire to sharply toothed. Flower heads radiate, 1–few on elongate peduncles, dark with yellow or cream-coloured rays usually darkly banded at base. Achenes 9–12 mm long, winged, apical chamber 3-fenestrate. July–Oct. Rocky slopes and hills, NW, SW, AP, KM, LB, SE (Worcester and Agulhas to Mpumalanga).

spathulatum (DC.) Norl. (= *Tripteris spathulata* DC.) Like **O. scariosum** but leaves mostly entire, glabrous, spathulate, and achenes with wings 1 mm wide. July–Oct. Dry karroid slopes, SE (Uitenhage to Grahamstown).

B.' Rays plain yellow

connatum DC. (= *Tripteris amplexicaulis* (Thunb.) Less.) Like **O. dentatum** but lower leaves ovate and clasping. Achenes 5–6 mm long, dimorphic, 3-winged and also angled-fusiform. Sept.–Nov. Sandstone slopes, NW (Gifberg to Saron).•

dentatum Burm.f. (= *Tripteris dentata* (Burm.f.) Harv.) Sprawling, roughly hairy perennial to 60 cm. Leaves oblong to obovate, toothed to pinnatifid, the lowermost opposite. Flower heads radiate, in branched corymbs, yellow. Achenes dimorphic 9–12 mm long, winged, apical chamber 3-fenestrate. Aug.–Oct. Sandy coastal slopes and flats, NW, SW (Redelinghuys to Cape Peninsula).•

norlindhianum J.C.Manning & Goldblatt Like **O. dentatum** but leaves narrowly oblanceolate, obscurely toothed with cilate margins. Achenes dimorphic, body turbinate and glandular-scabrid. Sept.–May. Sandstone plateaus, NW (Cold Bokkeveld).•

oppositifolium (Aiton) Norl. (= *Tripteris oppositifolia* (Aiton) B.Nord.) STINKSKAAPBOS Rounded, glaucous shrub to 1 m. Leaves opposite, narrowly oblanceolate, succulent. Flower heads radiate, solitary, few at branch tips, dark with yellow rays. Achenes 10–15 mm long, winged, apical chamber 3-fenestrate. July–Sept. Rocky sandstone or granite slopes, NW (Namaqualand to Clanwilliam). **gce**

sinuatum (DC.) Norl. (= *Tripteris sinuata* DC.) KLEINSKAAPBOSSIE Twiggy shrublet to 50 cm. Leaves opposite, lanceolate, toothed, fleshy and puberulous. Flower heads radiate, 1–few at branch tips, yellow. Achenes 9–12 mm long, winged, apical chamber 3-fenestrate. June–Sept. Rocky clay flats and slopes, NW, KM, SE (S Namibia to Uniondale and Karoo).

tomentosum (L.f.) Norl. (= *Inuloides tomentosa* (L.f.) B.Nord., *Tripteris tomentosa* (L.f.) Less.) White-woolly perennial with woody base, to 20 cm. Leaves tufted, spathulate, recurved at tips. Flower heads radiate, scapose, yellow. Achenes ± 9 mm long, winged, efenestrate. Aug.–Oct. Sandstone slopes, NW, SW, LB (Grootwinterhoek Mtns to Mossel Bay).•

Osteospermum group

A. Annuals

acanthospermum (DC.) Norl. ONKRUIDBIETOU Prostrate, thinly hairy annual to 15 cm. Leaves oblanceolate, toothed. Flower heads shortly radiate, small, solitary at branch tips, pale yellow. Achenes spiny. Aug.–Oct. Gravel and sandy flats, NW (Namaqualand and Karoo to Hex River Valley).

calendulaceum L.f. (= *Oligocarpus calendulaceus* (L.f.) Less.) BOEGOEBOSSIE Sprawling, foetid annual to 40 cm. Leaves oblanceolate, toothed. Flower heads radiate, small, few at branch tips, yellow. Achenes mostly irregularly warty. June–Dec. Dry rocky hills and flats, NW, AP, KM, SE (Worcester to E Cape).

A.' Perennials or shrubs
B. Leaves linear-oblanceolate or pinnatisect

aciphyllum DC. Trailing shrublet to 30 cm, thinly woolly on young parts. Leaves linear, pungent, margins revolute, minutely toothed. Flower heads radiate, solitary at branch tips, rays twice as long as bracts, yellow. Achenes smooth. Sept.–Dec. Rocky sandstone slopes, NW, SW (Piketberg to Caledon).•

asperulum (DC.) Norl. Roughly hairy shrub to 1 m with suberect branches, thinly woolly on young parts. Leaves linear, ascending, margins scabrid and slightly toothed and thickened. Flower heads radiate, solitary or in lax corymbs, yellow, often copper on reverse. Achenes smooth. May–Oct. Rocky sandstone ridges above 700 m, KM (Swartberg).•

bidens Thunb. Thinly woolly perennial from woody rootstock, to 60 cm. Leaves crowded at base, linear-oblanceolate, margins revolute, toothed, discolorous, densely woolly below. Flower heads radiate, in lax corymbs, yellow. Achenes smooth, oblong. Sept.–Dec. Rocky flats and slopes, NW (Namaqualand to Worcester). **gce**

bolusii (Compton) Norl. Willowy perennial to 80 cm, with ribbed stems. Leaves sparse, linear, adpressed, caducous. Flower heads radiate, in lax, terminal panicles, yellow. Achenes smooth and winged, ± 3 mm long. Mainly Apr.–May. Sandstone slopes, KM, ?LB, SE (Witteberg to Langkloof).•

glabrum N.E.Br. (= *Gibbaria glabra* (N.E.Br.) B.Nord. & Källersjö) Twiggy, dichotomously branched shrub to 70 cm, densely leafy above. Leaves linear-trigonous, ascending. Flower heads radiate, solitary, nested in leaves, yellow or orange with dark reverse. Achenes smooth, trigonous. Aug.–Sept. Sandstone slopes, LB, SE (Garcia's Pass to Humansdorp).•

rigidum Aiton Roughly hairy or prickly, stiffly branched shrublet to 60 cm. Leaves foetid, pinnatifid, lobes acute and pungent. Flower heads radiate, solitary at branch tips, yellow. Achenes smooth or warty and winged. Aug.–Sept. Rocky slopes or near water, NW, SW (S Namaqualand and Karoo to Paarl and to Witteberg).

scabrum Thunb. (= *Gibbaria scabra* (Thunb.) Norl., *Oxylaena acicularis* (Benth.) Anderberg) Roughly hairy, willowy shrublet to 20 cm. Leaves filiform, spreading. Flower heads radiate, solitary or few at branch tips on short wiry peduncles, yellow or white with orange reverse. Achenes reniform, smooth, ± 3 mm long. Aug.–Sept. Riverine bush and forest margins, SE (Knysna to Uitenhage).•

spinosum L. Glandular-hairy, aromatic, intricately branched, thorny shrub to 1.2 m. Leaves linear to pinnatisect. Flower heads radiate, solitary at branch tips, pale yellow. Achenes, smooth, ± 8 mm long, sometimes angled. Mainly May–Oct. Gravelly slopes and flats, NW, SW, KM (Pakhuis Mtns to Tulbagh and Riviersonderend Mtns).•

subulatum DC. (incl. **O. hafstroemii** Norl.) Thinly white-woolly, densely leafy, prostrate shrublet to 20 cm. Leaves linear, recurved above, margins revolute. Flower heads radiate, solitary on short, hairy peduncles, yellow or orange. Achenes smooth, narrowly winged, ± 5 mm long. Aug.–Apr. Limestone hills, AP (Agulhas to Potberg).•

triquetrum L.f. Like **O. aciphyllum** but leaves linear-trigonous, acute, not pungent, margins entire and ray florets not much longer than bracts. Oct.–Dec. Sandstone slopes and gullies, KM, LB, SE (Riversdale to George).•

sp. 2 Decumbent perennial to 30 cm. densely white-felted on young parts, rooting along trailing stems. Leaves narrowly oblanceolate, pungent, margins weakly revolute and bristly. Flower heads radiate, solitary at branch tips on short, densely bracteate peduncles, yellow. Aug.–Apr. Silcrete, AP (Potberg).•

B.' Leaves lanceolate-ovate
C. Upright, few-branched, often willowy shrubs

corymbosum L. Robust, stiffly erect, single-stemmed shrub to 2.5 m. Leaves lanceolate, decreasing in size above. Flower heads radiate, in terminal, branched corymbs on roughly hairy peduncles, yellow. Achenes smooth, ± 7 mm long. Aug.–Feb. Sandstone slopes above 500 m, LB, SE (Langeberg to George).•

herbaceum L.f. Willowy to straggling, glabrescent perennial to 1.2 m. Leaves opposite, ovate, clasping, toothed. Flower heads radiate, solitary on elongate peduncles, yellow. Achenes smooth, 3-angled. Mar.–Apr. Forest margins, SE (Knysna to KwaZulu-Natal).

junceum P.J.Bergius Softly woody, single-stemmed shrub to 3 m, white-woolly when young. Leaves oblanceolate, toothed, decreasing in size above. Flower heads radiate, in lax, branched corymbs on woolly peduncles, yellow. Achenes smooth, slightly lobed. July–Jan. Sandstone slopes, NW, SW, AP, KM, LB, SE (Olifants River Mtns to Grahamstown).

polygaloides L. (incl. **O. imbricatum** L.) Densely leafy, glabrescent shrub to 2 m, branches stiffly erect. Leaves oblong to ovate, leathery, ascending, recurved at tips. Flower heads radiate, solitary on short, roughly hairy peduncles, yellow. Achenes ribbed and pitted, 5–7 mm long. Mainly Aug.–Dec. Rocky, mostly sandstone slopes, NW, SW, AP, KM, LB, SE (Olifants River Mtns to KwaZulu-Natal).

rotundifolium (DC.) Norl. Like **O. polygaloides** but leaves broadly ovate. Flower heads in lax panicles. Achenes smooth and obscurely ribbed, ± 4 mm long. Oct.–Dec. Sandstone slopes, SW, AP, KM (Kogelberg to Franskraal, Witteberg).•

sp. 3 Like **O. junceum** but young parts and involucres densely felted. Flower heads crowded on short, densely felted peduncles. Sept.–Oct. Rocky sandstone ridges above 1 000 m, SE (Great Winterhoek Mtns).•

C.' Straggling perennials and shrublets

australe B.Nord. Closely leafy shrublet to 1 m, white-woolly when young. Leaves imbricate, elliptic-oblanceolate, leathery with thickened margins. Flowers heads radiate, large, solitary on short, woolly peduncles, nested among leaves, yellow. Achenes obovoid, smooth, ± 5 mm long. Mainly Oct.–Apr. Limestone hills, AP (Agulhas Peninsula).•

burttianum B.Nord. Densely leafy, glabrescent, rounded or spreading shrublet to 1 m. Leaves oblong-lanceolate, leathery, ascending, margins minutely scabrid. Flower heads radiate, solitary on short, roughly hairy peduncles, yellow. Achenes obscurely ribbed, 5–7 mm long. Mainly Dec.–May. Rocky sandstone slopes, LB (Langeberg near Heidelberg).•

ciliatum P.J.Bergius Thinly woolly, sprawling shrublet to 50 cm. Leaves elliptic, margins revolute, crenate. Flower heads radiate, small, few at branch tips, yellow. Achenes smooth. Mainly Sept.–Dec. Sandstone slopes, SW (Cape Peninsula to Houwhoek).•

elsieae Norl. Cobwebby, sprawling, tangled shrublet to 50 cm. Leaves petiolate, rounded, discolorous, glabrescent above, margins revolute, undulate. Flower heads radiate, solitary on short, slender peduncles, yellow. Achenes smooth. Sept.–Oct. Rocky southern slopes in gullies, SW (Potberg).•

grandidentatum DC. Sprawling, roughly hairy perennial to 1 m. Leaves elliptic to oblanceolate, toothed, clasping at base. Flower heads radiate, solitary at branch tips, yellow. Achenes smooth, ± 8 mm long. Oct.–Jan. Grassy slopes, SE (Nature's Valley to Swaziland).

grandiflorum DC. STINKBIETOU Roughly hairy, foetid shrublet to 80 cm. Leaves oblanceolate to ovate, usually slightly toothed. Flower heads radiate, in lax, terminal corymbs, orange or yellow. Achenes broadly winged, ± 12 mm long. July–Oct. Rocky slopes, NW, SW (Namaqualand to Saldanha Bay). **gce**

hispidum Harv. Roughly hairy, sprawling shrublet to 30 cm. Leaves lanceolate, margins revolute, apiculate, cobwebby below. Flower heads radiate, 1–few at branch tips, yellow. Achenes smooth. Aug.–Oct. Rocky lower slopes, SW, LB (Caledon to Langeberg: Heidelberg).•

ilicifolium L. (= *Gibbaria ilicifolia* (L.) Norl., *Nephrotheca ilicifolia* (L.) B.Nord. & Källersjö) Scabrid, sprawling, densely leafy, aromatic shrub to 1 m, sometimes thinly woolly on young parts. Leaves

lanceolate to ovate, margins revolute, usually sharply toothed. Flower heads radiate, solitary at branch tips, yellow. Achenes reniform, warty, ± 4.5 mm long. Aug.–Mar. Sandstone or limestone slopes, NW, SW, AP (Cape Peninsula and Ceres to Cape Infanta).•

potbergensis A.R.Wood & B.Nord. Decumbent to prostrate shrublet to 20 cm. Leaves leathery, petiolate, often sparsely dentate, margins curved under. Flower heads radiate, solitary on white-woolly peduncles, yellow. July–Dec. Stony lower slopes, SW (Potberg).•

pterigoideum Klatt Like **O. ciliatum** but leaves entire and cobwebby when young. Nov.–Mar. Sandstone slopes, SE (George to Humansdorp).•

pyrifolium Norl. Like **O. ciliatum** but leaves petiolate and white-woolly when young. Flower heads large. Oct. Sandstone slopes, LB (only Garcia's Pass, Riversdale).•

sp. 4 Like **O. elsiae** but leaves almost hastate and toothed, and flower heads on very short, stout peduncles. Aug.–Mar. Dry stony, sandstone slopes, KM (Rooiberg).•

OTHONNA L. BOBBEJAANKOOL ± 140 spp., W Cape to KwaZulu-Natal and Namibia

A. Flower heads disciform

arbuscula (Thunb.) Sch.Bip. TRAAP Di- or trichotomously branched, fleshy, often leafless shrub to 2 m, thinly or densely woolly on young parts. Leaves oblanceolate, sometimes coarsely toothed. Flower heads disciform, yellow, 1 or 2 at branch tips on short peduncles; pappus of marginal florets elongated in fruit. Mainly May–July. Dry rocky slopes, NW, KM (Namaqualand through W Karoo to Worcester and Witteberg). **gce**

digitata L. Tuberous, succulent perennial to 30 cm. Leaves oblanceolate or cuneate, often lobed to pinnatisect, woolly in axils. Flower heads disciform, solitary at branch tips on elongate peduncles, mauve to purple; pappus of marginal florets much elongated in fruit. June–Oct. Sandy flats and slopes, NW, SW (Piketberg to Elim).•

gymnodiscus (DC.) Sch.Bip. (= *Othonna semicalva* (DC.) Sch.Bip.) Tuberous, erect or sprawling, succulent perennial to 35 cm. Leaves oblanceolate to elliptic, leathery, tapering below and weakly clasping. Flower heads disciform, solitary, terminal or axillary, yellow; disc florets ± without pappus, pappus of marginal florets much elongated in fruit. July–Aug. Sandy slopes and flats, NW, SW, KM, LB, SE (Cedarberg to Worcester, Little Karoo to Port Elizabeth).•

linearifolia (DC.) Sch.Bip. Tuberous, succulent perennial with slender stem to 30 cm. Leaves linear or linear-lanceolate, lower axils woolly. Flower heads disciform, solitary or few at branch tips, yellow; pappus of marginal florets much elongated in fruit. Apr.–Aug. Sandy flats and lower slopes, NW, SW (Piketberg to Atlantis).•

retrofracta Jacq. (incl. **O. lobata** Schltr.) Deciduous, fleshy-leaved, divaricately branched shrublet to 30 cm, with swollen fleshy caudex. Leaves oblanceolate, pinnatifid, in tufts at branch tips, woolly in axils. Flower heads disciform, 1–3 on terminal peduncles, yellow; pappus of marginal florets elongated in fruit. May–Sept. Dry rocky slopes, NW, SW, KM (Namaqualand to Witteberg and Little Karoo to Caledon). **gce**

undulosa (DC.) J.C.Manning & Goldblatt (= *Othonna filicaulis* auct., *sensu* Cape plants 2000) BOBBEJAANKOOLKLIMOP Straggling, tuberous, succulent perennial to 70 cm, stems from a woolly crown. Leaves lanceolate to rotund, clasping and cordate at base, glaucous. Flower heads disciform, solitary, terminal or axillary, white or yellow, involucral bracts 10–12 mm long; pappus of marginal florets much elongated in fruit, 10–12 mm long. May–Aug. Sandy flats and slopes, often coastal, NW, SW, KM, LB, SE (S Namibia to Uniondale). **gce**

sp. 1 (= *Othonna semicalva sensu* Cape plants 2000) Tuberous, erect or sprawling, succulent perennial to 35 cm. Leaves oblanceolate to elliptic, leathery, tapering below and weakly clasping, often revolute. Flower heads disciform, solitary, terminal or axillary, yellow; pappus of marginal florets elongated in fruit. July–Aug. Coastal on sandy slopes and flats, NW (Namaqualand to Doringbaai). **gce**

A.' Flower heads radiate
B. Geophytes with leaves mostly basal, rarely cauline

auriculifolia Licht. ex Less. Stemless, tuberous perennial to 15 cm. Leaves radical, petiolate, oblanceolate, toothed to deeply lobed or pinnatifid, woolly in axils. Flower heads radiate, solitary on stiff, naked peduncles, yellow often with red reverse; pappus of ray florets much elongated in fruit. Apr.–Sept. Stony clay slopes and flats, NW, KM (Bokkeveld Escarpment and W Karoo to Klein Swartberg). **gce**

bulbosa L. (= *Othonna lingua* L.f.) Tuberous perennial to 30 cm. Leaves mostly basal, woolly in axils, the lower petiolate, oblanceolate to elliptic, sometimes lobed. Flower heads radiate, solitary on sparsely leafy stems, yellow. June–Oct. Sandy slopes and flats, NW, SW, AP (Cold Bokkeveld and Piketberg to Bredasdorp).•

hederifolia B.Nord. Like **O. auriculifolia** but leaves cuneate, broadly toothed above. June–Aug. Sandstone pavements, NW, KM (Bokkeveld Mtns to Witteberg).•

heterophylla L.f. Similar to **O. bulbosa** but leaves usually slightly toothed to crenate and roughly hairy or woolly especially beneath, margins revolute. May–Sept. Sandy and clay flats and slopes, SW, LB (Cape Peninsula to Langeberg: Heidelberg).•

oleracea Compton Like **O. bulbosa** but leaves larger. Flower heads on rigid, simple or sometimes branched peduncles. Aug.–Sept. Sandstone slopes, NW (Cedarberg to Karoopoort).•

perfoliata (L.f.) Jacq. (= *Othonna amplexifolia* DC., *O. filicaulis* Jacq.) Straggling, tuberous, succulent perennial to 70 cm, stems from a woolly crown. Leaves lanceolate to rotund, clasping and cordate at base, glaucous. Flower heads radiate, solitary and terminal or axillary, yellow, involucral bracts 8–10 mm long; mature pappus 5–8 mm long. May–Sept. Sandstone slopes, NW, SW (Bokkeveld Mtns to Caledon Swartberg).•

petiolaris DC. Tuberous, succulent perennial to 40 cm, stems from a woolly crown. Leaves mostly basal, large, ovate, petiolate, irregularly lobed or lacerate. Flower heads radiate, in lax corymbs on stout, elongate peduncles, yellow. June–Aug. Sandstone slopes, NW (Gifberg to Clanwilliam).•

pinnata L.f. (incl. **O. reticulata** DC.) Tuberous perennial to 20 cm. Leaves mostly basal, woolly in axils, lower with wiry petioles, firm-textured with thickened margins, usually pinnatisect with elliptic lobes. Flower heads radiate, solitary on sparsely leafy stems, yellow; mature pappus 5–8 mm long. June–Sept. Sandy flat and slopes, often seasonally wet, NW, SW (Olifants River Mtns to Cape Peninsula and Worcester).•

sonchifolia DC. (incl. **O. papaveroides** Hutch.) Like **O. auriculifolia** but to 30 cm, leaves pinnatisect with lobes quadrate and flower heads 1–few on stout naked peduncles. July–Aug. Granite outcrops, NW, SW (Doringbaai to Darling).•

stenophylla Levyns Tuberous perennial to 40 cm. Leaves mostly basal, from a woolly crown, on long, wiry petioles, narrowly elliptic to linear. Flower heads radiate, solitary on terminal or axillary peduncles, yellow. June–Sept. Damp sandy flats, SW (Yzerfontein to Gordon's Bay and Worcester).•

tephrosioides Sond. Like **O. pinnata** but flower heads several in branched corymbs. June–July. Rocky sandstone slopes, NW (Cedarberg to Piketberg).•

B.' Dwarf succulents with tuber-like caudex and tufted leaves

cacalioides L.f. (incl. **O. minima** DC.) Dwarf succulent to 10 cm, from tuber-like caudex. Leaves tufted, dry to green at flowering, small, from woolly crown, oblanceolate, sometimes finely toothed. Flower heads shortly radiate, mostly solitary on stiff, naked peduncles, yellow. May–Oct. Sandstone pavements, NW (Bokkeveld Mtns to Gifberg).•

pygmaea Compton Dwarf perennial to 10 cm, from tuber-like caudex. Leaves tufted, spathulate, mostly slightly toothed above, brown-woolly in axils, emerging at flowering time. Flower heads minutely radiate, several in lax corymbs on slender peduncles, yellow. Mar.–May. Sandstone pavements, NW (Bokkeveld Mtns to Biedouw Valley).•

B." Larger subshrubs or shrublets
C. Leaves usually clustered on short shoots

coronopifolia L. SANDBOBBEJAANKOOL (incl. **O. mucronata** Harv.) Semisucculent shrub to 1.5 m. Leaves oblanceolate, often irregularly toothed, usually in tufts on short branches. Flower heads radiate, solitary on long peduncles, yellow; pappus of marginal florets much elongated in fruit. July–Nov. Rocky sandstone and granite slopes, especially along coast, NW, SW (S Namaqualand coast and Pakhuis Mtns to Stanford). **gce**

leptodactyla Harv. Like **O. coronopifolia** but leaves narrowly lanceolate, often sparsely and irregularly toothed. Flower heads on shorter peduncles. Aug.–Sept. Rocky sandstone slopes, NW (Namaqualand to Piketberg). **gce**

ramulosa DC. Succulent-leaved shrub to 1.5 m. Leaves oblanceolate, mostly in tufts on short shoots, sometimes sparsely toothed. Flower heads radiate, solitary on short axillary or terminal peduncles, yellow; pappus of marginal florets elongated in fruit. May–Sept. Rocky, karroid slopes, NW, KM (Swartruggens to Worcester, Witteberg to W Karoo). **gce**

spinescens DC. Spiny shrub, older branches slender and stiff. Leaves tufted on short shoots, narrowly oblanceolate, coriaceous, felted in axils. Flower heads radiate, solitary on short, terminal peduncles, yellow; pappus of marginal florets elongating in fruit. Sept. Rocky sandstone slopes, NW, KM (Cedarberg and Swartruggens to Witteberg).•

vanillodora B.Nord. & Vlok *ined.* Decumbent, densely branching shrub to 60 cm. Leaves oblanceolate, entire or few-lobed, mostly fascicled on short shoots. Flowering heads large, solitary on stout peduncles 20 cm long, radiate, yellow, with strong smell of vanilla. ?. Rocky, loamy soil on sandstone outcrops, KM (Anysberg: Keurkloof).•

C. Leaves at branch tips, not on short shoots
D. Leaves ± fusiform

capensis L.H.Bailey Sprawling succulent to 1.5 m, rooting at nodes. Leaves fleshy, fusiform, sometimes whorled, woolly in axils. Flower heads radiate, mostly few on slender, terminal peduncles, white or yellow. May–Aug. Dry rocky flats, KM, SE (Ladismith to E Cape).

carnosa Less. (incl. **O. alba** Compton, **O. sparsiflora** (S.Moore) B. Nord.) Succulent shrublet with short, erect or sprawling branches, 10–30 cm. Leaves fleshy, ovoid to fusiform. Flower heads radiate, few in lax, terminal cymes on slender peduncles, yellow or white. Mainly Apr.–Oct. Sandstone slopes and stony flats, NW, SW, AP, KM, LB, SE (S Namibia to E Cape, ?KwaZulu-Natal).

cylindrica (Lam.) DC. Brittle-stemmed, succulent shrub to 1 m. Leaves fleshy, fusiform, clustered at branch tips. Flower heads radiate, few in lax, terminal corymbs on long peduncles, yellow. Mainly July–Oct. Sandy and stony coastal flats, NW, SW (central Namaqualand coast to Yzerfontein). **gce**

protecta Dinter Dwarf, succulent shrublet with fleshy stems to 20 cm. Leaves crowded at branch tips, fleshy, fusiform to terete, woolly in axils. Flower heads sparsely radiate, rays narrow, few on sparsely leafy peduncles, yellow; pappus of marginal florets much elongated in fruit. May–Oct. Karroid slopes, often under shrubs, NW, KM (S Namibia to Witteberg and W Karoo). **gce**

D.' Leaves ± plane
E. Subshrubs with slender stems from woody caudex

ciliata L.f. Sprawling perennial to 30 cm, woody only near base. Leaves oblanceolate, usually pinnatifid, margins conspicuously bristled. Flower heads radiate, solitary on long, terminal peduncles, yellow. July–Sept. Sandy slopes, NW, SW (Ceres to Cape Peninsula and Sir Lowry's Pass).•

multicaulis Harv. Subshrub with sprawling or suberect stems to 40 cm from slender, woody caudex. Leaves crowded basally, lanceolate to terete, succulent, sometimes sparsely toothed. Flower heads radiate, few to many in terminal panicles, yellow. Mainly Apr.–July. Stony sandstone slopes, SW, LB, SE (Hottentots Holland Mtns to George).•

sp. 2 Sprawling, softly woody subshrub to 30 cm. Leaves leathery, broadly oblanceolate, toothed above. Flower heads radiate, solitary on elongate peduncles, yellow. Apr.–Nov. Coastal limestone sands, AP (De Hoop to Still Bay).•

E.' Shrublets or shrubs
F. Pappus of ray florets elongating markedly in fruit

arborescens L. BOBBEJAANKOOL Brittle-stemmed, succulent shrublet to 60 cm. Leaves oblanceolate, crowded at branch tips, margins entire or slightly lobed to toothed, woolly in axils. Flower heads radiate, mostly solitary on elongate peduncles, yellow; pappus of ray florets much elongated in fruit. May–Sept. Coastal dunes or rocks, SW (St Helena Bay to Cape Peninsula).•

humilis Schltr. Gnarled, multi-stemmed, cushion-forming dwarf subshrub to 10 cm. Leaves clustered at branch tips, oblanceolate-spathulate, toothed, leathery. Flower heads radiate, solitary on short peduncles scarcely longer than leaves, yellow; pappus of marginal florets elongated in fruit. Sept.–Oct. Sandstone crevices, NW (Cedarberg).•

quercifolia DC. (incl. **O. humilis** Schltr., **O. macrosperma** DC., **O. obtusiloba** Harv.) Brittle-stemmed, succulent shrublet to 40 cm, from fleshy caudex. Leaves oblanceolate, variously toothed to lobed, woolly in axils. Flower heads radiate, 1–few in lax corymbs on long peduncles, yellow; pappus of ray florets much elongated in fruit. May–Sept. Sandstone and granite outcrops, NW, SW (Namaqualand to Tygerberg). **gce**

F. Pappus of ray florets not elongating markedly in fruit

dentata L. Succulent shrublet to 70 cm, with fleshy caudex. Leaves obovate to oblanceolate, slightly toothed, crowded at branch tips. Flower heads radiate, 1–several in lax corymbs on stout peduncles, yellow. June–Dec. Rocky outcrops, SW, AP (Cape Peninsula to Still Bay).•

membranifolia DC. Like **O. quinquedentata** but flower heads somewhat larger (involucres ± 9 mm long) and achenes glabrous. Apr.–May. Riverine bush, SE (Humansdorp to Uitenhage).•

osteospermoides DC. Arborescent shrub to 1 m, stems often maroon. Leaves obovate, tapering below, shallowly toothed, leathery. Flower heads radiate, in lax, terminal corymbs, yellow. July–Aug. Seeps on sandstone slopes, KM (Warmwaterberg and Klein Swartberg).•

parviflora P.J.Bergius (= *Othonna amplexicaulis* Thunb., *O. rigens* (L.) Levyns; incl. **O. umbelliformis** DC.) BOBBEJAANKOOL Robust shrub to 2 m. Leaves oblanceolate, weakly clasping at base, margins finely toothed, sometimes smooth. Flower heads radiate, many in dense, branched, terminal corymbs, yellow. Mainly July–Nov. Sandstone slopes, NW, SW, KM, LB, SE (Bokkeveld Mtns to Langkloof).•

quinquedentata Thunb. (= *Othonna parviflora* L.) Shrub with several, slender, erect stems to 1 m. Leaves ascending, leathery, crowded below, oblanceolate to obovate, often toothed above. Flower heads radiate, many in lax, terminal corymbs, yellow. Mainly Oct.–Mar. Rocky sandstone slopes, often damp places, NW, SW, LB, SE (Cape Peninsula to Langkloof).•

triplinervia DC. Brittle-stemmed shrub to 1.5 m. Leaves crowded at branch tips, obovate, scarcely lobed. Flower heads radiate, many in terminal corymbs on long peduncles, yellow. Apr.–June. Rocky slopes, SE (Humansdorp to Grahamstown).

OXYLAENA Benth. ex Anderb. = **OSTEOSPERMUM**

PEGOLETTIA Cass. DRAAIBOS 9 spp., Africa to India

baccaridifolia Less. Twiggy, aromatic shrublet to 30 cm. Leaves ovate, petiolate, coarsely toothed. Flower heads discoid, solitary and terminal, yellow. Mainly July–Nov. Dry sandstone slopes, KM, SE (Swartberg to E Cape).

retrofracta (Thunb.) Kies DRAAIBOS Twiggy shrublet to 60 cm. Leaves obovate, shortly petiolate, margins undulate. Flower heads discoid, solitary and terminal, yellow. Mainly Sept.–Nov. Karroid scrub, NW, KM (Namibia to Oudtshoorn, E Cape and Karoo).

PENTATRICHIA Klatt (= *ANISOTHRIX*) 5 spp., southern Africa)

integra (Compton) Klaassen & Bergh (= *Anisothrix integra* (Compton) Anderb.) Twiggy shrublet to 20 cm. Leaves narrowly oblanceolate. Flower heads disciform, solitary, terminal on short peduncles, yellow. Nov.–Dec. Rocky, S-facing, sandstone slopes, KM (Swartberg: Seweweekspoort).•

kuntzei (O.Hoffm.) Klaassen & Bergh (= *Anisothrix kuntzei* O.Hoffm.) Twiggy shrublet to 30 cm. Leaves oblanceolate, sharply toothed. Flower heads disciform, 1–few at branch tips, yellow. Mainly Nov.–May. Rocky sandstone slopes, NW (Langeberg: Robertson to Montagu).•

PENTZIA Thunb. SKAAPKAROO ± 27 spp., southern and N Africa

dentata (L.) Kuntze GROOTSKAAPKAROO Silvery felted, aromatic, twiggy shrublet 60 cm. Leaves petiolate, deltoid, palmately toothed to lobed above. Flower heads discoid, in dense, terminal corymbs, yellow. Mainly Aug.–Jan. Dry, stony, sandstone slopes, NW, KM, LB, SE (Olifants River Mtns to Swartberg, Riversdale to E Cape).

elegans DC. FYNSKAAPKAROO Grey-mealy, aromatic, twiggy shrublet to 40 cm. Leaves petiolate, palmatisect, segments lobed. Flower heads discoid, in dense, terminal corymbs, yellow. Mar.–Aug. Dry rocky slopes, AP, KM, LB, SE (Montagu to Avontuur).•

incana (Thunb.) Kuntze SKAAPKAROO White-woolly stemmed, aromatic, twiggy shrub to 1 m. Leaves pinnatisect, lobes linear. Flower heads discoid, solitary on long, sometimes leafy peduncles, yellow. Mainly Nov.–Jan. Dry habitats, NW, KM, LB, SE (Namaqualand to E Cape and Karoo).

trifida Schltr. ex Magee & J.C.Manning AGULHASKAROO Grey felted, aromatic shrublet to 1 m. Leaves petiolate, trifid, lobes linear. Flower heads discoid, in dense, terminal corymbs, yellow; pappus extending to base of corolla limb. Jan.–June. Coastal limestone flats, AP (Bredasdorp to Still Bay).•

PERDICIUM L. 2 spp., winter-rainfall S Africa **gce**

capense L. (= *Perdicium taraxaci* Vahl) Acaulescent, tufted perennial. Leaves prostrate, lyrate-pinnatifid, lobes rounded, glabrous or scarcely woolly beneath. Flower heads obscurely radiate, solitary, scapose, white. Achenes pilose. Aug.–Oct. Sandstone slopes, NW, SW, KM (Bokkeveld Mtns to Mamre and Witteberg).•

leiocarpum DC. Like **P. capense** but leaves thickly white-woolly below and achenes glabrous. Aug.–Sept. Sandy slopes and flats, NW (Kamiesberg and Bokkeveld to Cedarberg).

PETALACTE D.Don.• WILDESEWEJAARTJIE 1 sp., SW Cape (see also **ANDERBERGIA**)

coronata (L.) D.Don Erect, grey-felted, densely leafy shrublet to 50 cm, golden-hairy on young parts. Leaves oblanceolate, suberect. Flower heads discoid, in several clusters at branch tips, mauve, bracts all with white, papery appendages, receptacle paleate. Aug.–Nov. Coastal dunes and sandstone slopes, NW, SW, AP (Pakhuis Mtns to Agulhas).•

PHAENOCOMA D.Don.• ROOISEWEJAARTJIE, RED EVERLASTING 1 sp., SW Cape

prolifera (L.) D.Don Divaricately branched, white-stemmed shrublet to 60 cm. Leaves densely imbricate on spur shoots, involute-granular. Flower heads discoid, large, solitary, purple, bracts papery, pink shading to red. Sept.–Mar. Sandstone slopes in fynbos, NW, SW, KM, LB (Ceres to Cape Peninsula to Robinson Pass).•

PHANEROGLOSSA B.Nord.• 1 sp., SW Cape

bolusii (Oliv.) B.Nord. Glabrous shrublet to 40 cm. Leaves fleshy, crowded at branch tips, woolly in axils, narrowly oblanceolate, margins revolute, slightly toothed. Flower heads radiate, large, solitary on elongate, almost naked peduncles, yellow with white or yellow rays. Mainly Nov.–Jan. Sandstone slopes in fynbos, NW (Skurweberg and Hex River Mtns).•

PHYMASPERMUM Less. BANKROTBOS 17 spp., southern Africa

appressum Bolus Twiggy, minute-leaved shrub to 1 m, with numerous spur shoots. Leaves scale-like, closely imbricate and adpressed. Flower heads radiate, solitary at branch tips, yellow with white to pink rays. May–Dec. Sandstone slopes and ridges, KM (Anysberg to Swartberg Pass).•

leptophyllum (DC.) Benth. & Hook. ex B.D.Jacks. Twiggy, sprawling shrub to 1 m. Leaves linear, fleshy, closely imbricate. Flower heads radiate, solitary at branch tips, yellow with white rays. Mainly May–Sept. Dry rocky slopes, KM (Barrydale to Oudtshoorn).•

PLANEA P.O.Karis• 1 sp., SW Cape

schlechteri (L.Bolus) P.O.Karis (= *Metalasia schlechteri* L.Bolus) Rigid, densely grey-woolly shrublet, 30–100 cm. Leaves involute-ericoid, in tufts. Flower heads discoid, few in dense, terminal clusters, red, bracts white. Feb. Sandstone rocks, SW (Bain's Kloof to Klapmuts).•

PLATYCARPHA Less. 3 spp., E Cape to Namibia and KwaZulu-Natal

glomerata (Thunb.) Less. Acaulescent perennial to 5 cm. Leaves prostrate, pinnatisect, lobes toothed and pungent, margins curving upward, glabrescent above, white-felted below. Flower heads discoid, crowded in a sessile, compound head, purple. June–Dec. Stony or sandy soils, SE (Humansdorp to KwaZulu-Natal).

PLECOSTACHYS Hilliard & B.L.Burtt VAALTEE 2 spp., southern Africa

polifolia (Thunb.) Hilliard & B.L.Burtt Sprawling, thinly white-woolly, much-branched shrublet to 1 m. Leaves obovate. Flower heads discoid, in congested, terminal clusters, yellow tinged with purple, bracts whitish. Sept.–Dec. Stream banks and forest margins, NW, SW, ?AP, KM, LB, SE (Cape Peninsula to Swaziland).

serpyllifolia (P.J.Bergius) Hilliard & B.L.Burtt VAALTEE Similar to **P. polifolia** but leaves suborbicular with undulate margins, floral bracts milky white. Mainly Mar.–May. Sandy coastal flats or damp slopes, often coastal, SW, AP, LB, SE (Langebaan to KwaZulu-Natal).

POECILOLEPIS Grau 2 spp., W to E Cape

ficoidea (DC.) Grau Sprawling perennial with fleshy stems to 10 cm, rooting at nodes. Leaves opposite, fleshy, subterete, clasping at base, ± 20 × 3–4 mm. Flower heads radiate, yellow with white rays, bracts scabrid. Nov.–Apr. Saline marshes, SW, AP, LB, SE (Cape Peninsula to E Cape).

maritima (Bolus) Grau Slender, creeping perennial with wiry stems to 5 cm, rooting at nodes. Leaves alternate, fleshy, subterete, clasping at base, ± 10–20 × 1–2 mm. Flower heads on glandular peduncles, radiate, yellow with white rays, bracts glabrous with scarious margins. Jan.–June. Saline marshes, SW, AP (Cape Peninsula to Bredasdorp).•

POLYARRHENA Cass.• 4 spp., SW Cape

imbricata (DC.) Grau Erect, slightly hairy shrublet to 20 cm. Leaves closely set, narrowly oblong, ciliate on margins, ascending to spreading. Flower heads radiate, solitary, yellow with white rays pink on reverse; bracts hairy. Oct.–Jan. Sandstone rocks at high alt., NW, SW (Cedarberg to Saw Edge Peak).•

prostrata Grau Straggling, scabrid, softly woody shrublet to 40 cm. Leaves spreading, oblong, obtuse, margins revolute. Flower heads radiate, solitary, yellow with white rays reddish on reverse; bracts hairy. Sept.–Oct. Rocky slopes in fynbos, NW, SW (Bain's Kloof and Brandwacht to Wemmershoek Mtns).•

reflexa (L.) Cass. WILDE-ASTER (= *Cullumia setosa* Sieber ex DC.) Sprawling, softly woody, tangled shrub, 30–100 cm. Leaves deltoid, reflexed, closely set, margins with prickly teeth. Flower heads radiate, solitary, yellow with white rays pink on reverse; bracts glabrous. June–Oct. Sandstone slopes in fynbos, SW (Cape Peninsula to Caledon).•

stricta Grau Sparsely branched, hairy shrub to 30 cm. Leaves lanceolate, spreading to recurved above, margins scabrid. Flower heads radiate, several in corymbs at branch tips, yellow with white rays purplish on reverse; bracts glabrous below. July–Sept. Rocky sandstone slopes in fynbos, SW (Hottentots Holland Mtns to Elim).•

PRINTZIA Cass. 6 spp., S Africa

aromatica (L.) Less. Much-branched, densely leafy, silvery felted shrublet to 40 cm. Leaves linear with revolute margins. Flower heads radiate, in terminal corymbs or solitary, yellow with pink or white rays. Nov.–Feb. Mountain slopes, NW, SW (Clanwilliam to Riviersonderend Mtns).•

polifolia (L.) Hutch. Stiffly branched, white-woolly shrub, 1–2 m. Leaves obovate, glabrescent above, weakly toothed and undulate, decurrent. Flower heads radiate, solitary, yellow with mauve-blue rays. July–Nov. Flats and hills mostly on clay below 500 m, NW, SW, AP, KM, LB, SE (Bokkeveld Mtns to Port Elizabeth).•

PSEUDOGNAPHALIUM Kirp. ± 80 spp., cosmopolitan

***luteo-albidum** (L.) Hilliard & B.L.Burtt Grey-woolly annual to 50 cm. Leaves oblanceolate-obtuse, grey-woolly on both surfaces. Flower heads disciform, in dense glomerules, silvery buff. Jan.–Dec. Damp places and gardens, NW, SW, AP, KM, LB, SE (cosmopolitan weed).

undulatum (L.) Hilliard & B.L.Burtt Much-branched, aromatic, grey-woolly annual to 50 cm. Leaves narrowly lanceolate-acute, clasping at base, broadly decurrent, discolorous, glabrescent and glandular above, white felted beneath. Flower heads disciform, in dense corymbs, whitish. Nov.–Apr. Damp grassy or rocky slopes, NW, SW, LB, SE (Namibia to Port Elizabeth and S Mozambique).

PTERONIA L. GOMBOS ± 80 spp., mainly southern Africa, 1 sp. in Zimbabwe

A. Leaves white-woolly

cinerea L.f. Grey-leaved shrub to 30 cm. Leaves minute, keeled below, white-woolly. Flower heads discoid, solitary at branch tips, yellow, ± 20 × 10 mm; outer bracts partly white-woolly. Sept.–Dec. Rocky mountain slopes, NW, KM (Kamiesberg to Olifants River Mtns and Witteberg). **gce**

incana (Burm.) DC. ASBOSSIE Divaricately branched, grey-leaved shrub, 50–100 cm. Leaves small, white-woolly. Flower heads discoid, solitary at branch tips, yellow, 15 × 10 mm; bracts glabrous. Mainly Sept.–Oct. Stony slopes on sand or clay, NW, SW, KM, LB, SE (Namaqualand and W Karoo to E Cape).

ovalifolia DC. GRYSGOMBOS Grey-leaved shrub to 30 cm. Leaves ovate, keeled below, white-woolly. Flower heads discoid, large, solitary at branch tips, yellow, 20–30 × ± 20 mm; bracts partly white-woolly. Aug.–Oct. Rocky slopes and flats, NW, SW (S Namaqualand and W Karoo to Hex River Valley). **gce**

*A.' Leaves glabrous (see also **P. camphorata**)*

ciliata Thunb. Twiggy shrub, 30–100 cm. Leaves linear, fleshy. Flower heads discoid, solitary at branch tips, yellow, 15–20 × 6–7 mm; bracts ciliate on margins. Oct.–Dec. Dry stony hills, NW (Namibia to Clanwilliam and W Karoo). **gce**

fasciculata L.f. Rigid shrub to 1 m, stems naked below. Leaves linear-lanceolate, rigidly coriaceous, viscid, crowded at branch tips. Flower heads discoid, 1-flowered, in tight rounded clusters, yellow, 18 × 3 mm. Oct.–Jan. Mountain fynbos, NW, SW, KM, SE (Cedarberg to Witteberg and Uniondale).•

fastigiata Thunb. Low, twiggy shrublet to 40 cm. Leaves semiterete, connate below around stem, closely imbricate, viscid. Flower heads discoid, narrow, mostly solitary at branch tips, yellow, 12–15 × 4–5 mm. Nov.–Dec. Stony clay slopes, NW, KM (Bushmanland to Worcester Karoo and Witteberg).

flexicaulis L.f. Shrub to 50 cm. Leaves subterete, viscid, connate below around stem, clustered at ends of branches. Flower heads 1–3 at branch tips, yellow, viscid, 20–25 mm long. Nov.–Dec. Karroid slopes, NW, KM (Ceres to Oudtshoorn and S Karoo).

glabrata L.f. Spreading shrublet to 40 cm, stems brittle. Leaves oblong, fleshy. Flower heads discoid, globose, solitary at branch tips, yellow, 15–20 × 20 mm. July–Dec. Coastal dunes and saline soils, NW (S Namibia to Clanwilliam and W Karoo). **gce**

oblanceolata E.Phillips Low, spreading shrublet to 15 cm, branches sprawling. Leaves spathulate, fleshy. Flower heads discoid, solitary, white, 15–20 × 15 mm; bract margins minutely ciliate and broadly translucent. Sept.–Nov. Stony slopes, NW, KM (Vanrhynsdorp and Witteberg to Ladismith).•

pallens L.f. AASVOËLBOSSIE, WITGATBOSSIE Twiggy shrub to 60 cm, stems pale. Leaves subterete. Flower heads discoid, globose, 1–3 at branch tips, yellow or orange, 13 mm long; bracts obtuse with minutely ciliate margins. Sept.–Dec. Stony karroid slopes, KM (Calvinia to Kimberley and Little Karoo).

paniculata Thunb. GOMBOSSIE Much-branched shrub to 1 m. Leaves subterete, viscid, connate below around stem. Flower heads narrow, several in crowded corymbs at branch tips, golden-yellow, 10 × 3 mm. Mainly Nov.–Jan. Karroid slopes on shale, NW, KM, LB, SE (Namibia to Port Elizabeth, E Cape and Karoo).

tenuifolia DC. Slender shrublet to 30 cm, stems stiffly erect, arising from rhizomes. Leaves linear and channelled, warty. Flower heads discoid, solitary at branch tips, orange, 20–25 × 20 mm; bracts minutely ciliate on margins. Nov.–Dec. Sandstone slopes in fynbos, SW (Kleinmond to Elim).•

teretifolia (Thunb.) Fourc. (= *Pteronia trigona* E.Phillips) Much-branched, erect shrublet to 50 cm. Leaves subterete, keeled. Flower heads discoid, crowded at branch tips, cream-coloured or white, 10 × 3 mm. Jan.–June. Limestone outcrops or forest margins, AP, SE (Potberg to E Cape).

uncinata DC. STRANDGOMBOS Erect shrub to 90 cm. Leaves subterete, keeled, spreading, hooked at tips. Flower heads discoid, in loose, corymbose clusters at branch tips, yellow, 10 × 3 mm. Dec.–Apr. Coastal sands, NW, SW, AP (Lambert's Bay to Still Bay).•

*A". Leaves papillose, scabrid or ciliate (see also **P. fasciculata**)*

adenocarpa Harv. Twiggy shrublet to 50 cm. Leaves ovate, flat, recurving at tips, scabrid on margins. Flower heads discoid, solitary at branch tips, pinkish, fragrant, 30 × 15 mm; bracts obtuse, viscid. Aug.–Dec. Karroid areas, NW, KM, SE (Tulbagh to E Cape and Karoo).

ambrariifolia Schltr. Twiggy shrublet to 25 cm. Leaves subterete, keeled, alternate, imbricate, crowded at branch tips. Flower heads discoid, solitary at branch tips, yellow, 15 × 10 mm; bracts keeled above, margins minutely ciliate. Aug.–Sept. Sandstone slopes in fynbos, NW (Lokenberg to Cedarberg).•

beckeoides DC. Slender, twiggy shrub. Leaves powdery, linear. Flower heads discoid, solitary on branch tips, yellow, 14–20 mm long; bracts with membranous margins. ?. ?, LB (Swellendam).•

camphorata (L.) L. SANDGOMBOS Slender, aromatic shrub to 1 m. Leaves linear to filiform, ciliate. Flower heads discoid, 1–few at branch tips, yellow, 15 × 15 mm; bracts shortly and closely ciliate. Aug.–Nov. Coastal to upper slopes, NW, SW, AP, KM, ?LB, SE (Kamiesberg to Uniondale). **gce**

centauroides DC. Slender, grey perennial to 30 cm with woody rootstock. Leaves oblong, powdery scabridulous. Flower heads 1 or 2 at branch tips, yellow, 25–30 × 13 mm; bracts ovate. Nov.–Feb. Granite slopes, SW (Du Toitskloof).•

diosmifolia Brusse Rounded, densely leafy shrublet to 50 cm. Leaves 4-ranked, ovate-oblong, leathery, papillose. Flower heads discoid, narrow, in dense corymbs, yellow, 8–12 × 4–6 mm. Feb.–Mar. Limestone flats, AP (De Hoop).•

divaricata (P.J.Bergius) Less. GEELGOMBOS Rounded, leafy shrub to 2 m. Leaves broadly ovate, puberulous to scabrid. Flower heads discoid, in dense corymbs, yellow or whitish, 15 mm long; bracts ovate to linear. Aug.–Nov. Sandy and stony slopes and flats, NW, SW (S Namibia to Tygerberg Hills). **gce**

elongata Thunb. Like **P. staehelinoides** but bracts with broad fringed margins. Oct.–Jan. Renosterveld, KM, LB, SE (Oudtshoorn and Swellendam to E Cape).

glomerata L.f. Low, twiggy shrublet to 25 cm, branches often viscid above. Leaves minute, in tight clusters, shortly ciliate on margins. Flower heads discoid, solitary at branch tips, yellow, 20 × 10 mm; bracts viscid. Aug.–Nov. Clay slopes, NW (S Namaqualand, Ceres to Witteberg and W Karoo). **gce**

hirsuta L.f. Twiggy shrublet to 25 cm. Leaves oblong, keeled, recurving, ciliate on margins and sometimes on undersides. Flower heads discoid, cylindric, solitary at branch tips, pink, 20–30 × 10–15 mm; bracts viscid. Nov.–Jan. Sandstone slopes, NW, SW, KM, LB (Piketberg and Cape Peninsula to Mossel Bay).•

hutchinsoniana Compton Rigid, much-branched, scabridulous shrub to 1 m. Leaves oblong-lanceolate, keeled, roughly ciliate on margins. Flower heads discoid, solitary at branch tips, cream-coloured or yellow, 25–35 × 8–12 mm; bracts brown with broad membranous, fringed margins. Mainly Sept.–Oct. Dry sandstone slopes, KM (Klein Swartberg and S Karoo).

membranacea L.f. Shrub to 60 cm. Leaves scabrid, oblong. Flower heads discoid, large, solitary at branch tips, pale yellow, 25 × 15 mm; bracts with broad membranous margins. Oct.–Dec. Mostly dry sandstone slopes, NW, KM, SE (Montagu and Bonteberg to E Cape and Karoo).

onobromoides DC. SAB Rounded, aromatic shrub to 1 m. Leaves oblong, dark green, margins roughly ciliate. Flower heads discoid, solitary at branch tips, yellow, 35 × 15–25 mm; bracts ovate, dry. Mainly Nov.–Dec. Sandy coastal flats, NW, SW (S Namibia to Saldanha). **gce**

oppositifolia L. Low shrublet to 20 cm. Leaves ovate, puberulous. Flower heads discoid, solitary at branch tips, yellow, 20 × 13 mm; bracts scarious with dark tips. Nov.–Dec. Dry stony flats, KM, LB (Touws River to Mossel Bay).•

scabra Harv. Scabrid perennial to 20 cm with woody rootstock. Leaves linear, scabrid. Flower heads solitary at branch tips, large, yellow, 25–30 × 15 mm; bracts lanceolate. Dec.–Jan. Rocky slopes, SW (Houwhoek to Elim).•

staehelinoides DC. Rigid, much-branched, scabridulous shrub to 30 cm. Leaves oblong-lanceolate, keeled, roughly ciliate on margins. Flower heads discoid, solitary at branch tips, yellow, 25–30 × 20 mm; bracts viscid. Mainly Sept.–Dec. Stony slopes, KM, LB, SE (Swartberg to E Cape and Karoo).

stricta Aiton KAATJIEGERT Densely leafy, scabrid shrub to 1.5 m, with long, erect branches. Leaves in tufts, subterete, fleshy, ciliate. Flower heads discoid, 1–few at branch tips, yellow, 20 × 15 mm; bracts long and attenuate. Sept.–July. Moist upper slopes, KM, SE (Swartberg to Joubertina).•

succulenta Thunb. Twiggy shrublet to 40 cm. Leaves few, crowded at branch tips, linear-trigonous, papillose. Flower heads discoid, 1–3 at branch tips, pale yellow, 10–15 × 5–7 mm. Oct.–Dec. Stony slopes, KM (Namaqualand to Little Karoo). **gce**

undulata DC. Like **P. divaricata** but leaves strongly undulate or crisped, glandular papillate. Sept.–Oct. Rocky slopes, NW (Namaqualand, Swartruggens). **gce**

utilis Hutch. Spreading shrublet to 30 cm, branches prostrate, roughly hairy. Leaves oblong, scabrid, grey. Flower heads discoid, large, solitary at branch tips, yellow, 20–25 × 15 mm; bracts acute. Nov.–Dec. Sandstone mountain slopes, NW (Cedarberg and Olifants River Mtns).•

viscosa Thunb. Twiggy shrublet, 30–100 cm, branchlets whitish, glabrous. Leaves oblong-lanceolate, keeled, leathery, setulose-ciliate. Flower heads discoid, solitary at branch tips, yellow, 20–25 × ± 15 mm; bracts rough, margins obscurely fringed. Oct.–Dec. Rocky slopes, NW, KM (Namaqualand, W Karoo to E Cape, Swartruggens, Little Karoo: Ladismith).

PULICARIA Gaertn. FLEABANE ± 80 spp., mainly Mediterranean, N Africa and Asia

scabra (Thunb.) Druce Erect, single-stemmed, thinly woolly, foetid-smelling perennial to 1 m. Leaves lanceolate, auriculate at base, often scabrid above. Flower heads obscurely radiate, solitary at branch tips, yellow. Mainly Dec.–Apr. Marshes and stream banks, NW, SW, AP, KM, LB, SE (Bokkeveld Mtns to tropical Africa).

RELHANIA L'Hér. PERDEKAROO 13 spp., southern Africa

A. Flower heads in corymbs

corymbosa (Bolus) K.Bremer Felted shrublet, silvery on new parts, to 40 cm. Leaves oblanceolate with involute margins, densely white-woolly above. Flower heads radiate, small, in terminal corymbs, yellow. Oct.–Apr. Upper mountain slopes, NW, KM (Cedarberg to Witteberg).•

garnotii (Less.) K.Bremer Dwarf, sparsely cobwebby shrublet to 50 cm. Leaves ericoid, 4-ranked, recurving. Flower heads radiate, small, in terminal corymbs, yellow. July–Oct. Coastal sand or clay, AP, LB (Agulhas to Mossel Bay).•

tricephala (DC.) K.Bremer Thinly white-cobwebby shrublet to 45 cm. Leaves linear with involute margins, white-woolly above and twisted. Flower heads discoid, small, several in rounded, terminal corymbs, yellow. Sept.–Nov. Clay or sandy flats and slopes, NW, KM (Ceres to Witteberg).•

A.' Flower heads solitary

calycina (L.f.) L'Hér. Twiggy, glabrescent shrub to 1 m. Leaves ascending, lanceolate, pungent, 3–9-veined below. Flower heads radiate, solitary and terminal, yellow. Oct.–Jan. Stony, shale and sandstone slopes, NW, KM, LB, SE (Cedarberg to E Cape).

decussata L'Hér. Glabrescent shrublet up 30 cm. Leaves linear, imbricate, 4-ranked. Flower heads radiate, solitary, terminal, yellow. Sept.–Nov. Dry sandstone slopes, KM, SE (Swartberg to Kouga Mtns).•

fruticosa (L.) K.Bremer Thinly woolly, densely leafy shrublet to 50 cm. Leaves involute-ericoid, densely white-woolly above and recurving. Flower heads radiate, small, solitary and terminal, yellow; pappus tubular. Mainly Sept.–Nov. Clay or sandy flats in fynbos, NW, SW (Piketberg to Gordon's Bay).•

pungens L'Hér. Thinly white-woolly shrublet to 50 cm. Leaves linear, pungent, white-woolly above. Flower heads radiate, solitary and terminal, yellow. Oct.–Feb. Stony clay and limestone flats and slopes, SW, AP, LB, SE (Caledon and Worcester to KwaZulu-Natal).

relhanioides (Schltr.) K.Bremer Twiggy, white-woolly shrublet to 50 cm. Leaves narrowly oblanceolate with involute margins, spreading, densely woolly above. Flower heads radiate, solitary and terminal, yellow. Aug.–Oct. Sand or clay flats and lower slopes, NW, KM (Cold Bokkeveld Mtns to Witteberg).•

rotundifolia Less. Erect, few-branched, grey-felted shrublet to 60 cm. Leaves obovate, margins involute, densely woolly above. Flower heads radiate, solitary and terminal, yellow; pappus tubular. Sept.–Oct. Sandy hills, SW (Hopefield to Darling).•

spathulifolia K.Bremer Like **R. rotundifolia** but receptacle epaleate, ovaries densely hairy and pappus lacerate. Sept.–Oct. Damp places, AP (Agulhas).•

speciosa (DC.) Harv. Similar to **R. calycina** but leaves spreading and 5–9-veined and flower heads orange-yellow. Sept.–Dec. Rocky sandstone slopes, SW, KM, SE (Riviersonderend Mtns and Witteberg to Port Elizabeth).•

RHYNCHOPSIDIUM DC. (= *RELHANIA* in part) GEELSNEEU 2 spp., winter-rainfall S Africa **gce**

pumilum (L.f.) DC. (= *Relhania pumila* (L.f.) Thunb.) GEELSNEEU Spreading, thinly cobwebby annual to 20 cm. Leaves linear, glandular-hairy. Flower heads radiate, solitary on short, slender peduncles, yellow. Aug.–Oct. Sandy and clay flats and slopes, NW, SW, KM (Namaqualand to Oudtshoorn). **gce**

sessiliflorum (L.f.) DC. (= *Relhania sessiliflora* (L.f.) Thunb.) Like **R. pumilum** but heads smaller with reduced rays, sessile. Mainly Aug.–Nov. Clay flats, NW, SW, AP, KM, LB, SE (Clanwilliam to Port Elizabeth and W Karoo). **gce**

ROODEBERGIA B.Nord.• 1 sp., SW Cape

kitamurana B.Nord. Diffuse perennial rooting at nodes to 20 cm. Leaves opposite, elliptic, roughly hairy. Flower heads discoid, solitary, reddish purple. Jan. Rocky sandstone slopes, 1 850 m, NW (Hex River Mtns).•

ROSENIA Thunb. HARTEBEESKAROO 4 spp., S Africa and Namibia

glandulosa Thunb. Like **R. humilis**, but involucral bracts with brown middle stripe and papery margins. Aug. Rocky shale slopes, KM (W Karoo and Matjiesfontein to Montagu and Ladismith).

humilis (Less.) K.Bremer Gnarled, twiggy, cobwebby shrublet to 30 cm. Leaves linear to oblanceolate, often glandular-hairy. Flower heads radiate, solitary at branch tips, yellow. Mainly Aug.–Oct. Stony clay or sandy flats, KM, SE (Namibia and Karoo, Swartruggens to Swartberg).

oppositifolia (DC.) K.Bremer Like **R. humilis**, but involucre < 6 mm wide. Mainly Sept.–Oct. Rocky slopes on shale, NW, KM (Hex River Valley to central Karoo, also eastern Little Karoo: De Rust to Uniondale).

SCHISTOSTEPHIUM Less. (= *PEYROUSIA*) 12 spp., southern Africa

umbellatum (L.f.) K.Bremer & Humphries (= *Peyrousia umbellata* (L.f.) Fourc.) Densely leafy, silvery tomentose, sparsely branched shrub to 2 m. Leaves elliptic, ascending. Flower heads discoid, solitary but grouped in lax corymbs, golden-yellow. Mainly Aug.–Nov. Forest margins or fynbos to ± 1 000 m, KM, LB, SE (Montagu to Humansdorp and Swartberg).•

SENECIO L. GROUNDSEL, HONGERBLOM, RAGWORT ± 1 200 spp., cosmopolitan

A. Annuals

*B. Disc and/or rays purple (see also **S. paarlensis, S. sophioides**)*

agapetes C.Jeffrey (= *Senecio amabilis* DC.) Roughly hairy annual to 1 m. Leaves pinnatifid, clasping at base, often woolly below, margins sharply dentate and prickly. Flower heads discoid or radiate, in compound panicles, the lower clusters sometimes sessile, purple, involucre calycled. Mar.–May. Sandstone slopes, NW, LB (Cold Bokkeveld to Robinson Pass).•

arenarius Thunb. (= *Senecio cakilefolius* DC.) HONGERBLOM Glandular-hairy annual, 15–40 cm. Leaves toothed to pinnatisect, margins sometimes revolute. Flower heads radiate, several, terminal in branched corymbs, yellow with mauve (rarely white or pale yellow) rays. July–Sept. Sandy and gravelly flats and washes, NW, SW, AP (central Namibia, Namaqualand through western S Africa to De Hoop and Karoo Mtns).

elegans L. VELD CINERARIA Densely glandular-hairy annual to 1 m. Leaves fleshy, incised to pinnatisect, margins revolute. Flower heads radiate, numerous in dense corymbs, yellow with purple rays, involucre conspicuously calycled. Mainly Sept.–Nov. Coastal sands, SW, AP, SE (Saldanha to Port Alfred).

B.' Disc and rays yellow

abruptus Thunb. (incl. **S. diffusus** Thunb.) BASTERGEELHONGERBLOM Erect, glabrescent to shortly hairy annual to 60 cm. Leaves obovate to oblanceolate, toothed to slightly pinnatifid,

sometimes auriculate at base. Flower heads radiate, in lax, terminal corymbs, yellow, small, involucre not calycled. July–Nov. Stony slopes, NW, SW (Clanwilliam to Peninsula).•

cardaminifolius DC. Like **S. abruptus** but leaves deeply pinnatifid or bipinnatifid. July–Oct. Stony and gravelly flats, NW, SW (Namaqualand to Worcester and Laingsburg). **gce**

glutinarius DC. Sprawling, glandular-hairy annual to 40 cm. Leaves toothed or lobed. Flower heads radiate, several in clustered corymbs, yellow with short rays and glabrous involucre. Sept.–Oct. Seashore, SW (Saldanha to Cape Peninsula).•

glutinosus Thunb. TAAIGEELHONGERBLOM Glandular-hairy annual mostly to 40 cm. Leaves toothed to pinnatisect. Flower heads radiate, several in branched, terminal corymbs, yellow. July–Sept. Rocky, mostly sandstone slopes, NW, KM (S Namibia to Piketberg and Montagu). **gce**

laevigatus Thunb. Glabrescent to roughly hairy annual slightly woody below, to 30 cm. Leaves linear to pinnatisect. Flower heads radiate, few, terminal on slender peduncles, yellow, involucres calycled. Oct.–May. Sand over limestone, AP (Agulhas to Breede River Mouth).•

littoreus Thunb. GEELHONGERBLOM Erect, glabrescent to shortly hairy annual to 40 cm. Leaves obovate to oblanceolate, toothed to slightly pinnatifid, sometimes auriculate at base. Flower heads radiate, in lax, terminal corymbs, yellow, involucre calycled. Aug.–Nov. Mainly coastal sands, NW, SW (Namaqualand: Koekenaap to Cape Peninsula and Napier). **gce**

maritimus L. STRANDHONGERBLOM Sprawling to prostrate annual to 30 cm. Leaves fleshy, oblong-obovate, slightly toothed, auriculate at base, obtuse to truncate. Flower heads radiate, in lax, terminal corymbs, yellow, involucre calycled. Aug.–Dec. Coastal dunes and slopes, NW, SW, AP (S Namaqualand to Agulhas). **gce**

paarlensis DC. Softly hairy annual, 15–30 cm. Leaves bipinnatisect, often with acute auricles at base. Flower heads radiate, few, terminal on slender peduncles, yellow with yellow rays, blue on reverse. Sept.–Dec. Partly shaded rocky slopes and below cliffs, NW, SW (Cold Bokkeveld to Du Toitskloof Mtns).•

pinnulatus Thunb. Erect, softly woody perennial or annual to 70 cm, glabrous or hairy below. Leaves pinnatisect, lobes linear, margins revolute. Flower heads radiate, in lax, terminal corymbs, yellow, involucres calycled. July–Oct. Moist sandy slopes, NW, SW, LB, SE (Bokkeveld Mtns to E Cape).

***pterophorus** DC. Robust, thinly grey-cobwebby annual or short-lived perennial to 2 m, branching above. Leaves oblanceolate, coarsely toothed, margins revolute, glabrescent above, white-felted beneath. Flower heads radiate, in lax, terminal corymbs, yellow, involucre calycled. Oct.–Jan. Pioneer of disturbed slopes, SW, KM (naturalized from E Cape and KwaZulu-Natal).

repandus Thunb. Delicate or sprawling annual, 10–30 cm, roughly hairy on young parts and bracts. Leaves soft, deltoid to reniform, lobed to pinnatifid, lower petiolate, upper auriculate. Flower heads radiate, 1–few on short to long, slender peduncles, yellow. July–Oct. Partial shade on sandstone slopes, NW, SW (Pakhuis Mtns to Cape Peninsula).•

sophioides DC. Diffuse, minutely glandular-hairy annual to 20 cm. Leaves petiolate, pinnatisect, lobes linear, sometimes 1 or 2 toothed and with small, white, terminal calluses. Flower heads radiate, 1–few, terminal on slender peduncles, purple or yellow. July–Oct. Middle slopes, NW, SW (Cedarberg to Caledon).•

***vulgaris** L. GROUNDSEL Erect, subglabrous annual or biennial to 40 cm. Leaves oblong-oblanceolate, irregularly lacerate-pinnatifid, lower petiolate, upper auriculate. Flower heads discoid, in leafy corymbs, yellow, involucre calycled; florets with lower slender portion of tube 3× as long as upper inflated portion. May–Dec. Weed of disturbed places, NW, SW (European weed).

A.' Perennials with leaves mostly basal
*C. Flower heads discoid (see also **S. crispus, S. erosus**)*

anthemifolius Harv. Tufted, glabrous perennial to 30 cm. Leaves mostly basal, bipinnatisect, lobes linear. Flower heads discoid, solitary on sparsely leafy peduncles, yellow, involucres calycled. July–Aug. Clay slopes, SW, LB (Worcester to Langeberg).•

comptonii J.C.Manning & Goldblatt (= *Senecio petiolaris sensu* Cape plants 2000) Perennial to 30 cm. Leaves fleshy, basal, petiolate, obovate to round, slightly toothed. Flower heads discoid, scapose, solitary on bracteate peduncles, creamy to yellow. Sept.–Nov. Shady sandstone slopes, NW, KM (Cedarberg to Witteberg).•

crenulatus DC. Erect, glabrous perennial to 30 cm, basal leaves long-petiolate, linear-lanceolate, margins revolute, minutely toothed. Flower heads discoid, few in corymbs on leafy scapes, yellow, involucres calycled. Apr.–May. Stony grasslands, SE (Humansdorp to E Cape).

incertus DC. (= *Senecio tuberosus* (DC.) Harv.) Like **S. hastifolius** but heads discoid, white. Sept.–Oct. Sandstone slopes, NW, SW, LB (Cedarberg to Swellendam).•

lanifer Mart. ex C.Jeffrey (= *Senecio erubescens* Aiton) Glandular-hairy, rosulate perennial to 60 cm. Leaves oblanceolate, lobed to toothed to lacerate. Flower heads discoid (?rarely radiate), in lax, terminal corymbs, usually magenta. July–Oct. Sandstone slopes in fynbos or grasslands, NW, SW, KM, LB, SE (Cedarberg and Cape Peninsula to S tropical Africa).

othonniflorus DC. Perennial to 60 cm, with woody base, woolly in leaf axils. Leaves crowded below, linear-lanceolate, slightly toothed, margins revolute. Flower heads discoid, in lax corymbs on sparsely leafy scapes, yellow, bracts broad. Nov.–June. Grasslands, SE (Knysna to Mpumalanga).

purpureus L. (incl. **S. odontopterus** DC.) Like **S. lanifer** but heads crowded in compound corymbs and achenes glabrous and striate. Oct.–Feb. Moist slopes, especially after fire, SW, LB, SE (Cape Peninsula to S KwaZulu-Natal).

rhomboideus Harv. Tuberous-rooted, glabrous, tufted perennial to 30 cm. Leaves fleshy, petiolate, obovate to rhomboid, deeply toothed. Flower heads discoid, in lax corymbs on elongate, naked peduncles, yellow. Nov.–Mar. Grasslands, SE (Langkloof to Mpumalanga).

wittebergensis Compton Tufted, sparsely woolly perennial to 20 cm. Leaves petiolate, lanceolate, toothed to pinnatifid, crowded at base. Flower heads discoid, mostly solitary, on elongate, sparsely leafy peduncles, yellow, involucres sparsely calycled. Oct. Sandstone slopes in arid fynbos, KM (Witteberg).•

C.' Flower heads radiate

albanensis DC. Stout, tufted, thinly white-woolly perennial to 80 cm, basal leaves sometimes dead at flowering, petiolate, oblanceolate, finely serrate, margins revolute. Flower heads radiate, in lax corymbs on leafy scapes, yellow, involucres conspicuously calycled. Aug.–Apr. Grasslands, SE (Baviaanskloof Mtns to Limpopo).

albifolius DC. Silvery woolly, tufted perennial, 5–20 cm. Leaves oblanceolate, regularly pinnatisect, lobes oblong and toothed, margins revolute. Flower heads radiate, 1–3 on almost naked scapes, yellow sometimes with red reverse, involucre calycled. Aug.–Jan. Rock ledges at high alt., NW, KM (Cedarberg to Hex River Mtns and Klein Swartberg).•

cordifolius L.f. Like **S. hastifolius** but leaves cordate to ovate, margins revolute and finely toothed. Flower heads on slender, naked peduncles, yellow. Jan.–Apr. Sandstone slopes in sheltered sites, SW, LB (Cape Peninsula to Swellendam).•

coronatus (Thunb.) Harv. SYBOSSIE Tufted, thinly cobwebby perennial with woolly crown, to 40 cm. Leaves mostly basal, petiolate, obovate, leathery, margins crenulate to finely dentate. Flower heads radiate, large, in lax corymbs on sparsely leafy scapes, yellow, involucre conspicuously calycled. July–Sept. Grasslands, SE (Sedgefield to tropical Africa).

crispus Thunb. Tufted perennial to 40 cm. Leaves petiolate, oblanceolate, sparsely toothed, margins revolute. Flower heads radiate or discoid, in lax corymbs on sparsely leafy scapes, yellow, involucre calycled. Dec.–Mar. Damp sandstone slopes above 800 m, SW, LB (Cape Peninsula with radiate heads, Babilonstoring to Swellendam with discoid heads).•

erosus L.f. (= *Cineraria incisa* (Thunb.) Willd., *Senecio eriobasis* DC., *S. panduratus* (Thunb.) Less.) WOOLLY-STEMMED GROUNDSEL Tufted, glabrous to roughly hairy perennial with woolly crown, to 60 cm. Leaves mostly basal, petiolate, lanceolate, margins irregularly serrate to lacerate or pinnatifid. Flower heads radiate (rarely discoid), solitary or in corymbs on sparsely leafy stalks, yellow, involucre calycled. Aug.–Sept.(–Feb.) Rocky slopes, NW, SW, AP, KM, LB (Namaqualand to Swellendam). **gce**

gramineus Harv. Tufted, thinly white-woolly perennial to 25 cm. Leaves linear, margins revolute, accumulating in a fibrous base. Flower heads radiate, solitary or few in lax corymbs on elongate, sparsely leafy peduncles, yellow. Nov.–Jan. Grassy slopes, SE (George to KwaZulu-Natal).

hastatus L. GROUNDSEL Tufted, sticky perennial from short, erect rhizome, to 40 cm. Leaves oblanceolate, petiolate below, lacerate to pinnatifid. Flower heads radiate, in branched corymbs, yellow, involucre cylindrical, mostly 8–10 mm long, sticky, sparsely calycled. Sept.–May. Rocky, mostly karroid slopes, NW, SW, AP, KM, LB, SE (Ceres to KwaZulu-Natal and Karoo).

hastifolius (L.f.) Less. (= *Senecio cymbalariifolius* (Thunb.) Less.) Tuberous, tufted perennial to 40 cm. Leaves often polymorphic, long-petiolate, sagittate to reniform, or lyrate and pinnatisect with terminal lobe largest, sometimes auriculate, often purple beneath, margins revolute, sometimes roughly hairy. Flower heads radiate, 1–few on scaly scapes, sometimes in lax corymbs,

purple or yellow with purple or white rays, bracts broad. Sept.–Oct. Damp sandstone slopes and marshes, NW, SW, AP (Olifants River Mtns to Elim).•

robertiifolius DC. (= *Senecio panduratus* auct.) GREATER GROUNDSEL Tufted, sticky perennial from short, horizontal rhizome, to 60 cm. Leaves oblanceolate, petiolate below, lacerate to pinnatifid. Flower heads radiate, few on pedunculate corymbs, yellow, involucre campanulate, 10–12 mm long, smooth or sticky, sparsely calycled. Aug.–Sept. Dry flats and slopes, NW, SW, KM, SE (Namaqualand to Montagu, Little Karoo to Humansdorp). **gce**

ruwenzoriensis S.Moore (= *Senecio pauciflorus* Thunb.) Tuberous-rooted, glabrous, tufted perennial to 30 cm. Leaves lanceolate, sparsely toothed, 3-veined from base. Flower heads radiate, in lax corymbs on elongate, naked peduncles, yellow. Dec.–May. Grassy slopes, LB, SE (Swellendam to tropical Africa).

speciosus Willd. Glandular-hairy, rosulate perennial to 50 cm. Leaves oblanceolate, lobed to lacerate. Flower heads radiate, several in lax, terminal corymbs, magenta. July–Dec. Damp upper slopes, NW, SW, LB, SE (Cold Bokkeveld to Cape Peninsula to Mozambique).

spiraeifolius Thunb. FERN-LEAVED GROUNDSEL Thinly rough-woolly, tufted perennial to 30 cm. Leaves petiolate, lanceolate, regularly pinnatisect, lobes oblong and toothed. Flower heads radiate, in terminal corymbs, yellow, involucre thinly woolly and calycled. July–Sept. Rocky, mainly shale soils, NW, SW (Bokkeveld Escarpment to Riebeek-Kasteel and Tulbagh, also W Karoo). **gce**

A." Perennials with leaves mostly cauline
D. Climbers or scandent shrubs with broad leaves

angulatus L.f. CAPE IVY Scrambling, half-climbing shrub. Leaves petiolate, ovate to lanceolate, coarsely lobed. Flower heads radiate, in branched corymbs or panicles, yellow, involucres calycled. Apr.–Aug. Forest margins, SE (George to E Cape).

deltoideus Less. Soft-leaved climber with zigzag branching. Leaves deltoid, petiolate, eared at base, toothed. Flower heads discoid, in corymbose panicles, orange or yellow, bracts 5. May–July. Forest margins and cliffs, LB, SE (Swellendam to tropical Africa).

macroglossus DC. NATAL IVY Herbaceous, somewhat succulent climber. Leaves petiolate, sagittate. Flower heads radiate, large, mostly solitary, cream-coloured to pale yellow, conspicuously calycled. Aug. Forest margins, SE (Humansdorp to tropical Africa).

quinquelobus (Thunb.) DC. Herbaceous, semisucculent climber. Leaves ivy-like. Flower heads discoid, large, few in terminal clusters on lateral branches, conspicuously calycled, orange or yellow. Mainly Feb.–May. Forest margins, LB, SE (Swellendam to KwaZulu-Natal).

D.' Erect or sprawling, aquatic or terrestrial perennials or shrubs
E. Leaves ± fleshy and succulent or scale-like and dry

abbreviatus S.Moore Prostrate rhizomatous perennial. Leaves succulent, ellipsoid, glaucous, secund. Flower heads radiate, solitary and terminal on minutely bracteate, purplish peduncles, yellow, fragrant. June–Aug. Dry karroid stony slopes, NW, KM (Hex River Valley to Prince Albert and Karoo).

acaulis (L.f.) Sch.Bip. Like **S. crassulifolius** but flower heads solitary, large, and outer florets female with reduced corolla. Oct.–Nov. Rocky, karroid slopes, NW, KM, SE (Ceres Karoo and W Karoo to Grahamstown).

addoensis Compton Like **S. scaposus** but leaves apically toothed or lobed. Mar. Stony sandstone slopes, SE (Great Winterhoek Mtns and E Cape).

aloides DC. GROOTDIKBLAAR Thick-stemmed, glabrous shrub to 75 cm. Leaves in terminal clusters, cylindric, fleshy. Flower heads radiate, mostly solitary on sparsely scaly, terminal peduncles, yellow, involucres calycled. July–Oct. Coastal rocks and dunes, NW, SW (S Namibia to Cape Peninsula). **gce**

articulatus (L.) Sch.Bip. (= *Kleinia articulata* (L.) Haw.) WORSIES Succulent shrublet to 60 cm, with swollen, jointed stems. Leaves sagittate and toothed. Flower heads discoid, few in terminal corymbs on long, naked peduncles, white or yellowish. Apr.–June. Rocky slopes, KM, SE (Montagu to Uitenhage and Great Karoo).

bulbinifolius DC. KRAALTJIES Sprawling succulent to 15 cm, spreading by prostrate runners. Leaves cylindric, fleshy. Flower heads radiate, solitary on sparsely scaly, slender peduncles, yellow. Aug.–Sept. Rocky slopes, NW (S Namaqualand to Klawer). **gce**

cadiscus B.Nord. & Pelser (= *Cadiscus aquaticus* E.Mey. ex DC.) Aquatic perennial with spongy, floating stems to 60 cm. Leaves narrowly oblanceolate, leathery, clasping stem. Flower heads radiate, solitary and leaf-opposed, with white rays and yellow disc, deflexed in fruit. Aug.–Sept. Seasonal pools, NW, SW (Eendekuil to Tygerberg).•

citriformis G.D.Rowley Cushion-like succulent to 10 cm, from creeping rhizomes. Leaves compressed-fusiform, glaucous. Flower heads discoid, 1 or 2 on terminal, naked peduncles, creamy yellow. Jan.–Feb. Rocky flats, KM (Klein Swartberg foothills).•

corymbiferus DC. Gnarled or erect, succulent shrub with cane-like stems, 30–200 cm. Leaves fusiform, glaucous, striate. Flower heads discoid, in sparse corymbs clustered apically, yellow. Mar.–July. Rocky hills, often granite, NW (S Namibia and Bushmanland to Cedarberg and Swartruggens).

cotyledonis DC. Thick-stemmed, succulent shrublet to 60 cm. Leaves cylindric, fleshy, crowded apically, pungent. Flower heads radiate, in dense corymbs nested in leaves, yellow. June–Sept. Stony, karroid slopes, KM (Little Karoo: Swartberg and Kamanassie Mtns, Great and Upper Karoo).

crassiusculus DC. Loosely branched, succulent shrub to 50 cm. Leaves linear to narrowly lanceolate, fleshy, often irregularly lobed, margins slightly revolute. Flower heads radiate, in loosely branched corymbs on naked peduncles, yellow, involucres minutely calycled. Oct.–Mar. Stony slopes, LB, SE (Langeberg: Cloete's Pass to Grahamstown).

crassulifolius (DC.) Sch.Bip. (incl. **S. aizoides** (DC.) Sch.Bip., **S. serpens** G.D.Rowley; = *Kleinia repens* (L.) Haw.) Erect or sprawling, succulent perennial to 30 cm. Leaves in terminal tufts, fusiform-terete. Flower heads discoid, 1–few on elongate, sparsely bracteate, terminal peduncles, white, sometimes yellow, involucral bracts ± 8. Mainly Aug.–Dec. Rocky outcrops and ledges, NW, SW, KM, LB, SE (Cedarberg to Uitenhage).•

ficoides (L.) Sch.Bip. Sprawling, succulent perennial to 50 cm. Leaves fleshy, compressed-fusiform glaucous. Flower heads discoid, several in 1–few-branched corymbs, white. Mar.–July. Rocky slopes, KM (Swartberg to E Cape: Suurberge).

haworthii (Sweet) Sch.Bip. Thick-stemmed, white-felted shrub to 70 cm. Leaves in terminal clusters, cylindric or fusiform, succulent, white-felted. Flower heads discoid, large, mostly solitary on thickly felted peduncles, yellow, involucres calycled. Nov.–Mar. Rocky slopes, KM (Richtersveld and W Karoo to Witteberg). **gce**

junceus (DC.) Harv. SJAMBOKBOS Apparently leafless, succulent-stemmed shrub to 90 cm with rod-like stems from woody rootstock. Leaves scale-like, dry. Flower heads radiate, in terminal clusters, yellow. Feb.–Apr. Dry rocky lower slopes, KM, LB, SE (Namaqualand and W Karoo through Little Karoo to Grahamstown).

linifolius L. (= *Senecio longifolius* L., *S. odontophyllus sensu* Cape plants 2000) Loosely branched shrub to 1 m. Leaves fleshy, filiform. Flower heads radiate, in branched corymbs on naked peduncles, yellow, involucres minutely calycled. Mainly Apr.–Nov. Stony slopes, SE (Humansdorp to E Cape).

muirii L.Bolus Sprawling succulent to 40 cm, stems often rooting from nodes. Leaves obovate, glaucous, margins sometimes slightly toothed, veins 3–5 from base, transparent below. Flower heads discoid, few in lax corymbs, pale straw-coloured, involucres sparsely calycled. Mar.–Apr. Shale cliffs, KM, LB (Calitzdorp to Gourits River).•

ovoideus (Compton) H.Jacobsen (= *Kleinia ovoidea* Compton) Like **S. crassulifolius** but leaves thicker, ovoid and obtuse. Dec.–June. Dry stony slopes, KM (western Little Karoo).•

pyramidatus DC. Thick-stemmed, white-woolly, fleshy-leaved shrub to 40 cm. Leaves cylindric, succulent, crowded at tops of branches. Flower heads radiate, large, in small clusters on long, naked peduncles, yellow, involucres calycled. July–Nov. Karroid bush, SE (Humansdorp to E Cape).

radicans (L.f.) Sch.Bip. (= *Kleinia radicans* (L.f.) Haw.) BOBBEJAANTOONTJIES, VINGERTJIES Trailing, succulent perennial. Leaves fusiform, secund. Flower heads discoid, solitary or few on sparsely bracteate peduncles to 10 cm, white or mauve, fragrant. Apr.–Sept. Rock outcrops on flats and hills, NW, SW, KM, SE (S Namibia to Saldanha and E Cape).

sarcoides C.Jeffrey (= *Senecio succulentus* DC.) Like **S. aloides** but flower heads smaller, several in branched corymbs. July–Oct. Rocky areas, NW, SW, KM (S Namibia to Cape Peninsula, Witteberg and W Karoo). **gce**

scaposus DC. Silver-leaved, tufted succulent to 40 cm. Leaves lanceolate, fleshy, densely cobwebby. Flower heads radiate, large, in lax panicles on thinly white-woolly peduncles, yellow, involucres sparsely calycled. Dec.–Jan. Rocky, karroid slopes and cliffs, KM, SE (Montagu to E Cape).

toxotis C.Jeffrey (= *Kleinia archeri* Compton) Like **S. crassulifolius** but leaves laterally flattened and bracts about 16. Feb.–May. Rocky, karroid slopes, SW, KM, LB (Witteberg to Potberg and Cloete's Pass).•

E.' Leaves not fleshy or succulent
*F. Leaves or lobes mostly linear or needle-like, margins mostly revolute (see also **S. muricatus** and **S. rehmannii**)*

angustifolius (Thunb.) Willd. Twiggy, glabrous shrublet to 60 cm. Leaves linear, minutely toothed, margins revolute, often with axillary tufts. Flower heads discoid, few in small corymbs, yellow or white. Mainly Oct.–Mar. Stony flats and slopes, NW, SW, KM (Cedarberg and W Karoo to Stormsvlei and Little Karoo). **gce**

burchellii DC. (= *Senecio dracunculoides* DC.) GEELGIFBOS Softly woody, glabrous shrublet to 40 cm, sometimes roughly hairy below. Leaves linear, margins revolute, sometimes toothed, usually with axillary tufts. Flower heads radiate, in lax corymbs, yellow, involucres conical, calycled. Mainly Apr.–July. Sandy and stony slopes, NW, SW, AP, KM, LB, SE (Namibia to Cape Peninsula to Port Elizabeth).

chrysocoma Meerb. Like **S. paniculatus** but leaves mostly filiform and flower heads fewer and larger, bright yellow. Nov.–Jan. Mostly grassy slopes and forest margins, KM, LB, SE (Swartberg and Langeberg to KwaZulu-Natal).

esterhuyseniae J.C.Manning & Goldblatt Slender-stemmed perennial to 70 cm from woody base. Leaves terete, slightly fleshy. Flower heads discoid, forming lax panicles, peduncles wiry, minutely scaly below apex, cream-coloured, bracts broad, only 5. Mainly Mar.–Sept. Rocky sandstone slopes, KM, LB (Langeberg to Klein Swartberg and Rooiberg).•

juniperinus L.f. Like **S. ilicifolius** but leaves narrow, not or hardly toothed and margins strongly revolute. Sept.–Jan. Mountain slopes, NW, SW, KM, SE (Kamiesberg to Caledon and Oudtshoorn to S KwaZulu-Natal).

leptophyllus DC. (incl. **S. mucronatus** (Thunb.) Willd.) Like **S. angustifolius** but leaves slightly eared at base and plants usually thinly cobwebby. Mainly Aug.–Jan. Dry, stony, karroid slopes, LB, SE (Albertinia to Free State).

lycopodioides Schltr. Like **S. pinifolius** but to 10 cm with stems sprawling. Leaves oblanceolate, short, reflexed. Flower heads on sparsely leafy peduncles. Mar.–Apr. Limestone rocks, AP (Agulhas to Still Bay).•

paniculatus P.J.Bergius (incl. **S. diodon** DC.) Willowy or rod-like, glabrous perennial to 80 cm, sometimes sparsely hairy below. Leaves usually pinnatisect with filiform lobes, rarely filiform, margins revolute and minutely toothed. Flower heads discoid, in lax, branched corymbs, mostly white or cream-coloured, rarely yellow or mauve, involucres calycled. Oct.–Dec. Rocky sandstone slopes, NW, SW, AP, KM, LB, SE (Bokkeveld Mtns to Uniondale).•

pillansii Levyns Spreading, densely leafy, thinly white-woolly shrublet to 30 cm. Leaves linear, revolute-ericoid, pungent. Flower heads radiate, sometimes discoid, solitary on elongate, sparsely scaly peduncles, yellow, involucres conspicuously calycled. Nov.–Jan. Coastal slopes, SW, AP (Cape Peninsula to Elim).•

pinifolius (L.) Lam. Sparsely branched, densely leafy shrublet to 40 cm. Leaves needle-like. Flower heads radiate, mostly solitary, subsessile, yellow, involucres calycled. Mainly Mar.–May. Sandstone slopes in fynbos, NW, SW, KM, LB, SE (Pakhuis Mtns to E Cape).

retortus (DC.) Benth. Like **S. pinifolius** and possibly not distinct, but leaves conspicuously recurved. Dec.–Mar. Sandstone slopes, SW (Riviersonderend Mtns).•

rosmarinifolius L.f. GRYSHONGERBLOM Rounded, softly woody, thinly white-woolly shrublet to 80 cm. Leaves linear, margins revolute, sometimes toothed, usually in axillary tufts. Flower heads radiate, in dense clusters on branched corymbs, yellow, involucres calycled. Mainly Oct.–Mar. Sandy and stony slopes, NW, SW, AP, KM, LB, SE (Namaqualand to Cape Peninsula to E Cape and Karoo).

triqueter DC. Like **S. pinifolius** but flower heads discoid, whitish, on slender peduncles bearing scale-like leaves. Mar.–July. Rocky sandstone slopes, SW, AP, KM (Cape Peninsula to Ladismith and Pearly Beach).•

umbellatus L. (= *Senecio filifolius* Harv.; incl. **S. grandiflorus** P.J.Bergius, **S. leucoglossus** Sond., **S. mitophyllus** C.Jeffrey) Glabrous perennial to 80 cm, sometimes sparsely hairy below. Leaves filiform or pinnatisect with linear to filiform lobes, margins revolute and minutely toothed. Flower heads radiate, in lax, branched corymbs, yellow with magenta to pink or sometimes white rays, involucres finely calycled. Sept.–Dec. Sandstone flats and slopes, NW, SW, AP, KM, LB, SE (Cedarberg to Uitenhage).•

*F.' Leaves variously and more broadly lobed (see also **S. umbellatus**)*
G. Leaves pinnatisect

carroensis DC. (= *Senecio parvifolius* DC.) Thinly hairy, softly woody shrublet to 30 cm. Leaves pinnatisect, lobes short and toothed, margins revolute. Flower heads radiate, few in lax corymbs, yellow, involucres calycled. Aug.–Nov. Rocky sandstone slopes, NW, SW, KM (Namaqualand through Swartruggens to Little Karoo). **gce**

cinerascens Aiton HANDJIESBOS White-woolly shrub to 2 m. Leaves pinnatisect, lobes linear, margins revolute. Flower heads radiate, in branched terminal corymbs, yellow, involucres calycled. July–Sept. Rocky slopes, NW (S Namibia to Cedarberg and W Karoo). **gce**

euryopoides DC. Willowy, densely leafy shrub to over 1.5 m. Leaves pinnatisect, lobes filiform. Flower heads radiate, in dense corymbs nested in upper leaves, yellow, involucres calycled. Nov.–May. Marshes and seeps, SE (Langkloof).•

foeniculoides Harv. FENNEL-LEAVED GROUNDSEL Like **S. pinnatifidus** but glabrous, densely leafy. Flower heads 12–15-flowered and more numerous in branched corymbs. Nov.–Feb. Sandy flats and lower slopes, SW (Mamre to Cape Peninsula).•

muricatus Thunb. Scabrid, diffuse shrublet to 60 cm. Leaves pinnatisect, lobes linear-oblong and toothed, margins revolute. Flower heads radiate, few in lax corymbs, yellow, involucres calycled. Aug.–Oct. Rocky sandstone slopes, NW (Bokkeveld Mtns to Nardouwsberg).•

pinnatifidus (P.J.Bergius) Less. DILL-LEAVED GROUNDSEL Erect, softly woody, roughly hairy perennial to 50 cm, from woody rootstock. Leaves pinnatisect to bipinnatisect, lobes narrow, margins revolute, sometimes toothed. Flower heads discoid, large, 30–40-flowered, few in lax, terminal corymbs, yellow. Sept.–Feb. Sandstone slopes, NW, ?KM (Pakhuis Mtns to Piketberg and Ceres and ?Klein Swartberg).•

serrurioides Turcz. Erect, softly woody, densely leafy perennial to 50 cm, from woody rootstock. Leaves bipinnatisect, lobes filiform. Flower heads radiate, large, 80–100-flowered, few in lax, terminal corymbs on stout peduncles, yellow. Oct.–Nov. Sandstone slopes, SE (Van Staden's Mtns).•

umbricola Cron & B.Nord. (= *Senecio cinerarioides* Schltr. *ms*.) Delicate, shortly hairy perennial to 15 cm spreading on thin woody rhizomes. Leaves tufted, pinnatisect, lobes rhomboid, the terminal large and toothed. Flower heads radiate, 1 or 2 on slender peduncles, white or purple with white rays. Dec.–Jan. Shady places below rocks above 1 200 m, NW (Cedarberg and Cold Bokkeveld Mtns).•

G.' Leaves toothed or lacerate-pinnatifid

arniciflorus DC. Sprawling, white-woolly shrublet to 30 cm. Leaves oblanceolate, toothed above, margins revolute, spreading to reflexed, glabrescent above. Flower heads radiate, few to several in terminal corymbs, yellow, involucres calycled. Aug.–Oct. Sandy coastal flats and lower slopes, SW, AP (Mamre to Agulhas).•

bipinnatus (Thunb.) Less. Like **S. pinnatifidus** but flower heads 4–6-flowered, rarely cream-coloured or mauve, in congested, branched corymbs. Jan.–Mar. Sandstone slopes in damp places, NW, SW, LB (Cold Bokkeveld to Cape Peninsula and Langeberg: Swellendam).•

brachypodus DC. Scandent, glabrous shrub to 2 m. Leaves ovate, shortly petiolate, fleshy, slightly toothed. Flower heads radiate, numerous in crowded, branched corymbs, yellow. Apr.–June. Forest margins, SE (Humansdorp to tropical Africa).

coleophyllus Turcz. Sparsely white-woolly shrublet to 50 cm. Leaves lanceolate to oblong, spreading to reflexed, discolorous and densely woolly below, strongly toothed, margins revolute. Flower heads radiate, 1–3 on elongate peduncles, pink or magenta, involucres calycled. Oct.–Nov. Sandstone slopes, SW (Riviersonderend Mtns).•

crenatus Thunb. Singled-stemmed, closely leafy, thinly woolly shrub to 1 m. Leaves shortly petiolate, elliptic, margins slightly revolute, closely toothed, recurved at tips. Flower heads radiate, in dense, branched corymbs, yellow, involucres calycled. Mainly Nov.–May. Sandstone slopes in fynbos, LB, SE (Swellendam to Port Elizabeth).•

dissidens Fourc. (incl. **S. dumosus** Fourc.) Robust, glabrescent shrub to 2 m. Leaves lanceolate, deeply toothed, narrowed below and obscurely auriculate, margins slightly revolute. Flower heads radiate, numerous in branched, terminal corymbs, yellow, involucre calycled. Nov.–Dec. Sandstone slopes often along streams, LB, SE (Langeberg: near Mossel Bay to Langkloof).•

glastifolius L.f. WATERDISSEL Rigid, glabrous, softly woody perennial to 1 m. Leaves lanceolate, coarsely toothed, margins revolute, ascending, clasping at base. Flower heads radiate, large, in

lax, branched corymbs, yellow with mauve rays, involucres calycled. Sept.–Nov. Forest margins, SE (George to Humansdorp).•

halimifolius L. TABAKBOS Thinly white-cobwebby, glaucous shrub to 1.5 m. Leaves oblanceolate to obovate, narrow below, coarsely toothed above. Flower heads radiate, in dense, terminal corymbs, yellow, involucres calycled. Nov.–Jan. Coastal sands, NW, SW (Lambert's Bay to Hermanus).•

hirtifolius DC. Densely leafy, roughly velvety shrub to 80 cm. Leaves ascending, obovate, toothed above, 3-veined from base. Flower heads radiate, yellow, involucres calycled. Dec.–Apr. SE (Uitenhage).•

hollandii Compton Densely white-felted shrub to 70 cm. Leaves ovate, petiolate, discolorous, glabrous above, sharply toothed, margins revolute. Flower heads radiate, in branched, terminal corymbs, yellow, involucres calycled. Sept.–Dec. Sandstone slopes in arid fynbos, KM, SE (Witteberg to Uitenhage).•

ilicifolius L. (incl. **S. aquifoliaceus** DC.) SPRINKAANBOS Thinly white-woolly, softly woody, short-lived shrub to 1 m. Leaves discolorous, oblong, sharply toothed, margins revolute, thickly white-woolly below. Flower heads radiate, in lax corymbs, yellow, involucres calycled, ± 5 mm long. June–Jan. Clay flats and slopes, KM, LB, SE (Ladismith and Langeberg to E Cape).

lanceus Aiton Thinly woolly perennial to 2.5 m. Leaves lanceolate, ascending, clasping at base, margins revolute, finely toothed. Flower heads shortly radiate, crowded in small clusters on branched, terminal corymbs, yellow, involucres calycled. Jan.–Mar. Sandstone slopes near streams, NW, SW, KM, SE (Cedarberg to Cape Peninsula and to KwaZulu-Natal).

lineatus (L.f.) DC. (incl. **S. quinquenervius** Sond.) Densely leafy, grey-felted shrublet to 60 cm. Leaves elliptic, 3-veined from base, usually slightly toothed above, narrowly few-lobed basally, discolorous and grey below. Flower heads radiate, in dense, terminal corymbs, yellow, involucres calycled. Jan.–May. Sandstone slopes, SW, KM, LB, SE (Cape Peninsula to Grahamstown).

lyratus L.f. Similar to **S. rigidus** but softer, with lyrate to lacero-pinnatisect leaves, stems slightly woolly to softly scabrid. Nov.–Feb. Moist flats or mountain slopes, SW, LB (Cape Peninsula to Swellendam).•

mimetes Hutch. & R.A.Dyer Like **S. lanceus** but glabrous to roughly hairy below. Leaves often entire. Dec.–Feb. Sandstone slopes near water, NW, KM, SE (Hex River Valley to Van Staden's Mtns and E Cape).

oederiifolius DC. Like **S. ilicifolius** in leaf but teeth often revolute. Flower heads few and larger with involucre ± 8 mm long. Sept.–Nov. Damp grasslands, SE (Humansdorp to Van Staden's Mtns).•

paucifloscul osus C.Jeffrey (= *Senecio oliganthus* DC.) Densely leafy, grey-felted shrublet to 30 cm. Leaves elliptic, discolorous, often glabrous above, entire or toothed above, usually 3-veined from base. Flower heads discoid, in dense, terminal clusters, pale yellow, involucres calycled. Feb.–May. Sandstone slopes, SW, KM, LB, SE (Du Toitskloof to E Cape).

pubigerus L. (= *Senecio expansus* Harv.; incl. **S. anapetes** C.Jeffrey, **S. incisus** Thunb.) SKRAALBOSSIE Diffusely branched, roughly hairy, softly woody shrub to 1 m. Leaves oblong, coarsely toothed, margins revolute. Flower heads few-rayed, few in white-woolly, axillary clusters on rigid, scaly branches, yellow, involucres calycled. Mar.–July. Dry stony clay (or granite), often disturbed sites, NW, SW (Darling to Cold Bokkeveld and Riviersonderend Mtns).•

rehmannii Bolus Willowy, shortly hairy perennial to 60 cm. Leaves linear to oblanceolate, often toothed, margins revolute, thinly woolly below. Flower heads radiate, small, in lax, branched corymbs, yellow, involucres calycled. Jan.–Apr. Stony flats, NW, LB (Hex River Valley to Swellendam).•

rigidus L. (incl. **S. subcanescens** (DC.) Compton) ROUGH RAGWORT Robust, densely leafy, roughly hairy shrub to 1.5 m, with scabrid stems. Leaves oblong to oblanceolate, irregularly toothed, margins revolute, clasping at base, often woolly below with raised veins. Flower heads radiate, small, in branched corymbs, yellow, involucres calycled. Nov.–Jan. Sandstone slopes and gullies, NW, SW, LB, SE (Olifants River Valley to Uitenhage).•

skirrhodon DC. Glabrous perennial to 30 cm. Leaves oblanceolate, clasping below, margins revolute, minutely toothed, curved upward above, pungent. Flower heads radiate, in lax corymbs, yellow. Mainly Aug.–Nov. Coastal sands, SE (Humansdorp to tropical Africa and Madagascar).

sociorum Bolus Thinly woolly perennial to 45 cm from woody rootstock. Leaves elliptic, finely toothed, 5-veined from base. Flower heads radiate, few in terminal corymbs, orange or yellow, bracts broad, calycled. Mar.–May. Rocky sandstone slopes, NW, SW (Ceres to Franschhoek).•

speciosissimus J.C.Manning & Goldblatt Robust, densely leafy, sparsely white-woolly perennial to 2 m. Leaves lanceolate, ascending, margins revolute, slightly toothed. Flower heads radiate,

large, in lax, terminal corymbs, yellow with mauve or white rays, involucres calycled. Sept.–Nov. Sandstone slopes near water, above 800 m, SW (Bain's Kloof to Palmiet River Mtns).•

tortuosus DC. Twiggy, roughly hairy shrublet to 30 cm. Leaves petiolate, cuneate-obovate, toothed to pinnatifid. Flower heads radiate, solitary on short peduncles in upper leaf axils, yellow with white rays. July–Oct. Rock crevices, NW (Gifberg to Cedarberg).•

verbascifolius Burm.f. Robust, white-woolly perennial to 60 cm. Leaves ovate-cordate, petiolate and clasping at base, glabrescent above, margins revolute, minutely toothed. Flower heads radiate in compound, branched corymbs, yellow, involucre calycled, bracts thickened below. Sept.–Dec. Sheltered rocky slopes, SW (Cape Peninsula and Hottentots Holland Mtns).•

vestitus (Thunb.) P.J.Bergius PAPERLEAF RAGWORT Glabrous, sometimes glaucous, softly woody shrub to 1.5 m. Leaves oblanceolate, eared below, coarsely toothed. Flower heads radiate, in dense, branched, terminal corymbs, yellow, involucres calycled. Sept.–Jan. Sandstone slopes, NW, KM (Namaqualand to Paarl and Montagu). **gce**

sp. 3 Like **S. ilicifolius** but flower heads smaller, discoid. Dec.–Jan. Rocky sandstone slopes, above 1 500 m, NW (Cedarberg).•

[**Species excluded** No authentic material found and probably conspecific with one of the above: **S. infirmus** C.Jeffrey (= *Senecio debilis* Harv.), **S. laxus** DC., **S. matricariifolius** DC., **S. thunbergii** Harv.; known from a single collection at Stellenbosch and probably cultivated: **S. subsinuatus** DC.; not from the area: **S. inaequidens** DC.]

STEIRODISCUS Less. GEELKRUID 5 spp., W Karoo to W Cape **gce**

A. Bracts ± free

capillaceus (L.f.) Less. Annual with wiry, flexuose stems, 5–20 cm. Lower leaves pinnatisect with filiform segments, upper leaves filiform. Flower heads radiate, yellow; ovaries hairy. Aug.–Sept. Sandy flats and slopes, NW (Bokkeveld Mtns and W Karoo to Piketberg). **gce**

schlechteri Bolus ex Schltr. Annual with wiry, flexuose stems, 5–20 cm. Leaves pinnatisect with filiform segments. Flower heads radiate, yellow; ovaries glabrous. July–Sept. Sandy flats, NW (Vanrhynsdorp to foot of Gifberg). **gce**

A.' Bracts fused to form a cup

gamolepis Bolus ex Schltr. Diffuse, wiry annual, 5–10 cm. Leaves pinnatisect, segments filiform. Flower heads radiate, yellow, solitary on swollen peduncles, small, bracts fused to form a cup; ovaries hairy. Aug.–Oct. Moist gravelly flats and lower slopes, NW (Tulbagh Valley to Hermon).•

speciosus (Pillans) B.Nord. Wiry-stemmed annual to 20 cm. Leaves pinnatisect, segments linear. Flower heads radiate, orange-yellow, solitary at branch tips, bracts fused to form a cup; ovaries glabrous. Sept.–Oct. Sandy flats and dunes, SW (Mamre).•

tagetes (L.) Schltr. Wiry-stemmed annual to 50 cm. Leaves pinnatisect, segments linear. Flower heads radiate, yellow, solitary at branch tips, bracts fused to form a cup; glands present at base of rays; ovaries glabrous. Sept.–Oct. Sandy flats, SW (Hopefield to Cape Peninsula).•

STILPNOGYNE DC. 1 sp., winter-rainfall S Africa **gce**

bellidioides DC. Delicate, glabrous annual, 5–20 cm. Leaves long-petiolate, lyrate to deltoid, coarsely toothed. Flower heads disciform or 3-radiate, yellow. Aug.–Oct. Shade on rocky slopes, NW, KM (S Namaqualand and W Karoo to Witteberg). **gce**

STOEBE L. HARTEBEESKAROO 34 spp., Mainly W Cape, S tropical Africa, Madagascar, Reunion

A. Corolla purple, brown or yellow with small, erect lobes

cinerea (L.) Thunb. VAAL HARTEBEESKAROO Grey-woolly, much-branched shrub to 1.5 m, with short shoots. Leaves needle-like with bulbous base, spreading and twisted. Flower heads discoid, in dense, axillary glomerules together forming elongate spikes, purplish; bracts golden, acuminate. Apr.–May. Rocky slopes often shale, SW (Cape Peninsula to Riviersonderend Mtns).•

incana Thunb. Grey-woolly, ericoid shrublet to 60 cm. Leaves needle-like with involute margins, twisted and recurved. Flower heads discoid, crowded in terminal heads, brownish; bracts golden-brown, acuminate. Feb.–May. Sandstone slopes, SW (Cape Peninsula to Hermanus).•

plumosa (L.) Thunb. (= *Stoebe burchellii* Levyns) SLANGBOS Sprawling, white-woolly, softly woody shrub to 1 m, with short shoots. Leaves granular and tufted. Flower heads discoid, in axillary glomerules forming spike-like inflorescences; bracts golden, acuminate. Mainly Apr.–June. Rocky flats and slopes, NW, SW, KM, LB, SE (throughout southern Africa).

saxatilis Levyns Intricately branched, white-woolly shrublet 20–60 cm. Leaves linear-lanceolate, incurved, closely and obliquely set. Flower heads discoid, in terminal clusters, purple; bracts golden, acuminate. Mar.–May. Sandstone rocks above 1 000 m, NW, SW (Cedarberg to Bain's Kloof).•

spiralis Less. Similar to **S. incana** but bracts yellow and shorter than yellow flowers. Mar.–May. Damp sandstone slopes, NW, SW, KM, LB (Elandskloof to Robinson Pass).•

sp. 1 Densely leafy, white-cobwebby shrublet to 40 cm. Leaves lanceolate, erect. Flower heads discoid, in axillary clusters aggregated in dense, terminal spikes, purple?; bracts golden. Sept.–Nov. Sandstone slopes above 1 000 m, SW (Kogelberg).•

A.' Corolla white, pink or mauve, usually with conspicuous lobes

aethiopica L. KNOPPIESSLANGBOS Rigid, densely leafy, glabrescent or thinly grey-woolly shrub to 1.5 m. Leaves needle-like with involute margins, usually twisted and recurved, pungent. Flower heads discoid, crowded in terminal heads, florets conspicuous, white; bracts brown. Mainly Sept.–Nov. Sandstone slopes, NW, SW, KM, SE (Bokkeveld Mtns to Langkloof).•

alopecuroides (Lam.) Less. KATSTERTSLANGBOS Robust, thinly hairy, grey shrub to 10 cm. Leaves stiffly needle-like with involute margins, spreading, twisted. Flower heads discoid, massed in elongate spikes, florets conspicuous, white; bracts brown. July–Dec. Forest margins and fynbos, KM, LB, SE (Riversdale and Swartberg Pass to Uitenhage).•

capitata P.J.Bergius (= *Stoebe bruniades* (Rchb.) Levyns) Erect or spreading, thinly cobwebby shrublet to 50 cm. Leaves ericoid, spreading and twisted. Flower heads discoid, in dense, globose clusters at branch tips, florets conspicuous, mauve to pink or white; bracts brown. Dec.–Mar. Sandstone slopes and coastal sands, slopes, NW, SW, LB, SE (Piketberg to Grahamstown).

cyathuloides Schltr. (= *Stoebe humilis* Levyns, *S. sphaerocephala* Schltr.) Erect or spreading, glabrescent shrublet to 40 cm. Leaves lanceolate with slightly involute margins, twisted. Flower heads discoid, crowded in terminal heads, florets conspicuous, pink or white; bracts inconspicuous, brownish. Nov.–Feb. Coastal fynbos, SW, AP, LB (Cape Peninsula to Albertinia).•

fusca (L.) Thunb. Densely branched, grey-woolly shrublet to 25 cm. Leaves needle-like, twisted and recurved with involute margins. Flower heads discoid, in terminal glomerules, florets conspicuous, pink or mauve; bracts golden. Mar.–May. Sandstone slopes, NW, SW (Gifberg to Bredasdorp).•

gomphrenoides P.J.Bergius Sparsely branched, cobwebby shrublet to 30 cm. Leaves lanceolate with ciliate margins. Flower heads discoid, in dense, terminal clusters, cream-coloured; bracts acuminate, cream-coloured. Mainly Nov.–Dec. Sandy hills, SW (Malmesbury to Pella).•

leucocephala DC. Spreading, silvery woolly shrublet to 15 cm. Leaves linear with involute margins, twisted. Flower heads discoid, in terminal clusters, pink, inconspicuous among white bracts. Oct.–Jan. Sandstone slopes, NW, SW (Bokkeveld Mtns to Malmesbury).•

microphylla DC. Glabrescent, slender-branched shrublet to 20 cm. Leaves scale-like, adpressed. Flower heads discoid, small, in terminal clusters, pink; bracts acuminate, white to yellow. Feb.–May. Stony slopes, KM, LB, SE (Swartberg to Uitenhage).•

montana Schltr. ex Levyns Like **S. capitata** but leaves blunt and pappus lacking. Jan. Rocky sandstone slopes, NW (Ceres: Skurweberg).•

muirii Levyns Densely leafy, silvery woolly shrublet to 80 cm, branches often whorled. Leaves oblong with involute margins, strongly curled. Flower heads discoid, crowded in dense, cylindrical spikes, florets conspicuous, pink; bracts acuminate, brown. Mar.–Apr. Coastal dunes and limestones, AP (De Hoop to Still Bay).•

nervigera (DC.) Sch.Bip. Stiffly branched shrublet to 30 cm. Leaves ericoid, erect or recurved, imbricate, pungent. Flower heads discoid, few in terminal clusters, florets conspicuous, cream-coloured; bracts golden, acuminate. Jan.–July. Sandy or clay slopes and flats, NW, SW, LB (Namaqualand to Albertinia). **gce**

phyllostachya (DC.) Sch.Bip. (= *Stoebe copholepis* Sch.Bip., *S. ensorii* Compton) Densely leafy, thinly white-woolly shrublet to 40 cm. Leaves linear with involute margins, often twisted, erect

on peduncles but spreading elsewhere. Flower heads discoid, crowded in terminal glomerules, florets conspicuous, white; bracts brown. Feb.–Apr. Sandstone slopes, SW, LB, SE (Grabouw to Langkloof).•

prostrata L. Sprawling, grey-woolly shrublet to 25 cm. Leaves lanceolate with involute margins, twisted and recurved, glabrescent above. Flower heads discoid, in dense, terminal heads, florets conspicuous, mauve; bracts inconspicuous, brownish. Jan.–Mar. Sandstone slopes, SW (Cape Peninsula to Riviersonderend Mtns).•

rosea Wolley-Dod Stiffly branched, densely leafy shrub to 50 cm. Leaves ericoid, recurved and twisted. Flower heads discoid, crowded in dense, terminal heads, florets conspicuous, pink; bracts hidden among conspicuous, feathery pappus bristles. Jan.–Mar. Sandstone slopes, SW (Cape Peninsula).•

rugulosa Harv. Densely branched, thinly white-woolly shrublet to 40 cm. Leaves linear, adpressed, 3-veined with recurved mucro. Flower heads discoid, in terminal clusters, florets conspicuous, pink to magenta; bracts golden. Feb.–May. Coastal flats in renosterveld, AP, LB (Bredasdorp to Albertinia).•

schultzii Levyns (= *Stoebe salteri* Levyns) Spreading, thinly white-woolly shrublet to 30 cm. Leaves diamond-shaped, adpressed. Flower heads discoid, in terminal clusters, florets conspicuous, white; pappus absent; bracts inconspicuous. Oct.–Dec. Damp coastal flats, SW, AP (Caledon to Agulhas).•

SYNCARPHA DC. (= *HELIPTERUM* in part) EVERLASTING, SEWEJAARTJIE ± 25 spp., southern Africa

A. Flower heads to 15 mm diam.

chlorochrysum (DC.) B.Nord. (= *Helichrysum chlorochrysum* DC.) GOLD EVERLASTING Erect, densely leafy, silvery felted shrub to 1.5 m. Leaves ovate, spreading to recurving, 5-veined, attenuate. Flower heads discoid, several in loose corymbs, subglobose, 10–12 mm diam.; bracts papery, acute, pale yellow. June–Nov. Limestone hills in fynbos, AP (Potberg to Still Bay).•

dregeana (DC.) B.Nord. (= *Helipterum dregeanum* DC.) ROOISEWEJAARTJIE Divaricately branched, grey-felted, closely leafy shrub to 60 cm. Leaves obovate, recurved at tips, the upper often rusty on margins. Flower heads discoid, solitary, nested in leaves, hemispherical, 12–15 mm diam.; bracts papery above, obtuse, bright crimson above. Oct.–Jan. Dry sandstone slopes, NW, KM (Pakhuis Mtns to Witteberg).•

gnaphaloides (L.) DC. (= *Helipterum gnaphaloides* (L.) DC.) VLAKTETEE Erect, white-felted shrublet to 30 cm. Leaves linear, ascending, margins involute. Flower heads discoid, solitary on long peduncles, fragrant, cylindrical, ± 10 mm diam.; bracts reddish brown, dry above, attenuate and sharply reflexed. Oct.–Dec. Sandstone slopes, SW, LB (Cape Peninsula and Tulbagh to Outeniqua Mtns).•

marlothii (Schltr.) B.Nord. (= *Helipterum marlothii* Schltr.) Dwarf, few-branched, densely leafy, grey-woolly shrublet to 35 cm. Leaves ovate, imbricate, ascending. Flower heads discoid, several in loose corymbs nested in leaves, subglobose, 12–15 mm diam.; bracts papery, obtuse, white. Jan.–Mar. Sandstone rocks on S slopes above 1 400 m, NW, SW (Cold Bokkeveld to Villiersdorp).•

milleflora (L.f.) B.Nord. (= *Helipterum milleflorum* (L.f.) Druce) KNOPPIESSEWEJAARTJIE Mostly single-stemmed, robust, closely leafy, silvery felted shrub to 2 m. Leaves large, lanceolate, imbricate. Flower heads discoid, crowded in dense, terminal corymbs, cylindrical, 6–8 mm diam.; bracts papery, obtuse, white to pink. July–Dec. Dry, N-facing, sandstone slopes, KM, LB, SE (Ladismith to Grahamstown).

mucronata (P.J.Bergius) B.Nord. (= *Helichrysum mucronatum* (P.J.Bergius) Less.) Silvery felted shrublet to 45 cm. Leaves linear, 1-veined, apiculate. Flower heads discoid, few in terminal clusters, subglobose, 6–10 mm diam.; bracts papery, obtuse, white or yellow. Aug.–Mar. Sandy slopes, NW, SW, AP (Gifberg to Agulhas).•

paniculata (L.) B.Nord. (= *Helichrysum paniculatum* (L.) Willd.) SEWEJAARTJIE Erect, densely leafy, silvery felted shrublet to 60 cm. Leaves linear, ascending, apiculate. Flower heads discoid, few to several in terminal clusters, hemispherical, ± 10 mm diam.; bracts papery, acute, yellow or pink in bud, ageing to white. Mainly Oct.–June. Coastal and lower slopes, NW, SW, AP, KM, LB, SE (Gifberg to Port Elizabeth).•

sordescens (DC.) B.Nord. (= *Helichrysum sordescens* DC.) Densely leafy, grey-woolly shrublet to 30 cm. Leaves oblanceolate, recurved above, acuminate, 3-veined. Flower heads discoid, few in terminal clusters, hemispherical, 10–15 mm diam.; bracts papery, acute, whitish. Dec.–Jan. Dunes and sandy slopes, SE (Port Elizabeth to Alexandria).

striata (Thunb.) B.Nord. (= *Helichrysum striatum* Thunb.) Closely leafy, hairy, softly woody shrublet to 60 cm. Leaves linear and channelled, ascending, 3-veined. Flower heads discoid, few to several in loose, terminal clusters nested in leaves, hemispherical, 10–15 mm diam.; bracts papery, acute, white. Sept.–May. Coastal grasslands, SE (Humansdorp to East London).

A.' Flower heads > 15 mm diam.
B. Bracts white with dark brown tips

loganiana (Compton) B.Nord. (= *Helichrysum loganianum* Compton) Densely leafy, grey-felted shrublet to 25 cm. Leaves oblanceolate, ascending. Flower heads discoid, solitary, conical, 30–40 mm diam.; bracts papery, acute, white with chocolate-coloured tips. Oct.–Jan. Rocky sandstone ridges, NW, KM (Gydo Pass to Witteberg and Touwsberg).•

montana (B.Nord.) B.Nord. (= *Helipterum montanum* B.Nord.) Gnarled, grey-felted shrublet to 30 cm. Leaves oblanceolate, spreading. Flower heads discoid, solitary on short peduncles, conical, 20–25 mm diam.; bracts papery, acute, white with chocolate-coloured tips. Mainly Oct.–Feb. Sandstone rocks above 1 600 m, KM (Swartberg and Kammanassie Mtns).•

variegata (P.J.Bergius) B.Nord. (= *Helipterum variegatum* (P.J.Bergius) DC.) BONTSEWEJAARTJIE Erect, closely leafy, densely grey-felted shrublet to 40 cm. Leaves ovate-oblong, ascending, imbricate, upper leaves dry-tipped. Flower heads discoid, solitary, subglobose, 40–60 mm diam.; bracts papery, obtuse, white with brown tips. Sept.–Dec. Rocky sandstone slopes, often at high alt., NW, SW (N Cedarberg to Bredasdorp).•

B.' Bracts unicoloured or reddish above
*C. Flower heads few to many in corymbs (see also **S. canescens**)*

argentea (Thunb.) B.Nord. (= *Helichrysum argenteum* Thunb.) SILVER EVERLASTING Sprawling, silvery felted shrublet to 60 cm. Leaves oblanceolate, 3-veined, spreading, recurved above. Flower heads discoid, 1–several in terminal clusters on long, sparsely leafy peduncles, hemispherical, 15–20 mm diam.; bracts papery, acute, white, pink above. Apr.–July. Coastal grasslands and scrub, SE (Uitenhage to E Cape).

argyropsis (DC.) B.Nord. (= *Helipterum argyropsis* DC.) WITSEWEJAARTJIE Closely leafy, silvery felted shrublet to 70 cm. Leaves oblanceolate, ascending, imbricate. Flower heads discoid, few to several in lax, terminal clusters, hemispherical, 15–20 mm diam.; bracts papery, acute, white. Aug.–Nov. Coastal slopes, sometimes on limestone, SW, ?AP, SE (Rooiels to Plettenberg Bay).•

eximia (L.) B.Nord. (= *Helipterum eximium* (L.) DC.) STRAWBERRY EVERLASTING Mostly single-stemmed, robust, closely leafy, silvery felted shrub to 40 cm. Leaves ovate, imbricate, ascending. Flower heads discoid, large, crowded in dense corymbs nested in leaves, hemispherical, 20–25 mm diam.; bracts papery, obtuse, bright red. Nov.–Mar. S-facing sandstone slopes, SW, LB, SE (Riviersonderend Mtns to Uitenhage).•

vestita (L.) B.Nord. (= *Helichrysum vestitum* (L.) Willd.) CAPE SNOW Densely leafy, grey-woolly, softly woody shrublet to 1 m. Leaves oblanceolate, ascending. Flower heads discoid, few to several in loose, terminal clusters nested in leaves, conical, 35–40 mm diam.; bracts papery, acute, white. Nov.–Jan. Rocky slopes and flats, SW, LB, SE (Cape Peninsula to George).•

zeyheri (Sond.) B.Nord. (= *Helipterum zeyheri* Sond.) Densely leafy, grey-felted shrublet to 30 cm, mostly single-stemmed below. Leaves elliptic, ascending, imbricate. Flower heads discoid, few in terminal clusters, conical, ± 30 mm diam.; bracts papery, acuminate, white to pink or purple. Aug.–Oct. Sandstone flats and slopes, SW (Cape Peninsula to Hermanus).•

*C.' Flower heads solitary (see also **S. argentea**)*

affinis (B.Nord.) B.Nord. (= *Helipterum affine* B.Nord.) Straggling, grey- to rust-felted, sparsely branched shrublet to 60 cm. Leaves lanceolate, spreading, rusty on upper margins, brown-tipped. Flower heads discoid, solitary on slender peduncles, shallowly hemispherical, 20–30 mm diam.; bracts papery, obtuse, reddish or straw-coloured. July–Dec. Rocky slopes, NW (Piketberg to Cold Bokkeveld).•

aurea B.Nord. Like **S. chlorochrysum** but peduncles naked. Nov. Alluvial shales on limestone, AP (Agulhas Peninsula).•

canescens (L.) B.Nord. (= *Helipterum canescens* (L.) DC.) PIENKSEWEJAARTJIE Sparsely branched, closely leafy, grey-felted shrublet to 50 cm. Leaves small, elliptic, ascending and imbricate. Flower heads discoid, mostly solitary at branch tips, conical, 25–35 mm diam.; bracts papery, acuminate, pink to red. Jan.–Sept. Rocky sandstone slopes and flats to upper slopes, NW, SW, ?AP, KM, LB, SE (Kamiesberg, Gifberg to Humansdorp). **gce**

dykei (Bolus) B.Nord. (= *Helichrysum dykei* Bolus) Dwarf, grey-woolly shrublet to 10 cm. Leaves obovate, leathery. Flower heads discoid, solitary on short peduncles covered with papery scales, conical, 20–30 mm diam.; bracts papery, acute, white to pink. Dec.–Apr. Rocky sandstone slopes above 1 600 m, NW (Skurweberg and Hex River Mtns).•

ferruginea (Lam.) B.Nord. (= *Helipterum ferrugineum* (Lam.) DC.) Closely leafy, grey-felted shrublet to 40 cm. Leaves oblanceolate, ascending, with long dry bristles. Flower heads solitary on short, bracteate peduncles, shallowly hemispherical, 30–50 mm diam.; bracts papery, yellow or rosy, acuminate. Aug.–Feb. Dry rocky slopes, KM, SE (Witteberg to Port Elizabeth).•

flava (Compton) B.Nord. (= *Helipterum flavum* Compton) Closely leafy, grey-felted shrublet to 40 cm. Leaves obovate, ascending, the uppermost with long, dry bristles. Flower heads solitary on short peduncles, hemispherical, 25–30 mm diam.; bracts papery, acuminate and shorter than pappus in fruit. Dec.–Mar. Dry sandstone slopes, NW, KM (Cold Bokkeveld to Swartberg).•

lepidopodium (Bolus) B.Nord. (= *Helichrysum lepidopodium* Bolus) Densely leafy, silvery felted shrublet to 60 cm. Leaves oblanceolate, ascending. Flower heads discoid, solitary on long peduncles covered with papery scales, conical-hemispherical, 40–50 mm diam.; bracts papery, acuminate, white. Oct.–Dec. Rocky slopes above 1 500 m, upper slopes, SW (Franschhoek Mtns).•

recurvata (L.f.) B.Nord. (= *Helichrysum recurvatum* (L.f.) Thunb.) Spreading to prostrate, thinly woolly shrublet to 20 cm. Leaves lanceolate, channelled, strongly recurved, 3-veined, bristly on margins. Flower heads discoid, solitary on short peduncles, conical, 15–20 mm diam.; bracts acuminate, pink. Sept.–Dec. Sandstone slopes to 500 m, SE (George to Grahamstown).•

speciosissima (L.) B.Nord. (= *Helipterum speciosissimum* (L.) DC.) CAPE EVERLASTING Sprawling, white-woolly shrublet, 20–60 cm, with erect, annual stems. Leaves oblong to linear, clasping at base. Flower heads discoid, solitary on elongate peduncles, hemispherical, 30–40 mm diam.; bracts papery, acuminate, white to cream-coloured. July–Jan. Sandstone slopes, SW, LB (Cape Peninsula to Tradouw Pass).•

staehelina (L.) B.Nord. (= *Syncarpha virgata* auct.) Erect, grey-felted shrublet to 40 cm, often rusty on peduncles. Leaves lanceolate, spreading, brown-tipped. Flower heads discoid, solitary on slender peduncles, shallowly hemispherical, 15–20 mm diam.; bracts papery, acuminate, white or yellow. Oct.–Jan. Rocky slopes, NW, SW, KM, LB (Cedarberg to Witteberg and N Langeberg).•

virgata (P.J.Bergius) B.Nord. (= *Helipterum variegatum* (P.J.Bergius) DC., *Syncarpha scariosa* B.Nord. *ms*.) Closely leafy, grey-felted shrublet to 40 cm. Leaves obovate, ascending, the uppermost often with dry bristles. Flower heads solitary on long, bracteate peduncles, hemispherical, 25–30 mm diam.; bracts papery, acute, yellow. Nov.–Mar. Dry upper mountain slopes, KM (Swartberg and Kammanassie Mtns).•

TARCHONANTHUS L. CAMPHOR TREE, KANFERBOS, ISIDULI 6 spp., Africa

littoralis P.P.J.Herman (= *Tarchonanthus camphoratus* in part) Dioecious, grey-felted shrub or small tree to 5 m, strongly scented of camphor. Leaves elliptic, dull green above. Flower heads discoid, in large panicles, cream-coloured. Achenes woolly. Dec.–Apr. Widespread, mainly coastal, SW, AP, KM, LB, SE (Cape Peninsula to S KwaZulu-Natal).

THAMINOPHYLLUM Harv.• 3 spp., SW Cape

latifolium Bond Sprawling, silky shrublet to 75 cm. Leaves elliptic with margins recurved, spreading or reflexed, mucronate. Flower heads radiate, 1–3 on slender peduncles at branch tips, yellow with rounded pink or white rays. Aug.–Dec. Sandstone slopes in coastal fynbos, SW (Hermanus Mtns).•

multiflorum Harv. Silvery silky shrublet to 60 cm, sometimes to 1.5 m. Leaves linear, mostly spreading. Flower heads radiate, 1–3 at branch tips, yellow with elliptic white rays. Aug.–Jan. Damp, rocky, sandstone slopes in fynbos, SW (Viljoen's Pass to Houwhoek).•

mundii Harv. Similar to **T. multiflorum** but flower heads several at branch tips and ray florets only 2–4. July–Nov. Damp sandstone slopes in fynbos, SW (Kogelberg to Caledon Swartberg).•

TRICHOGYNE Less. = **IFLOGA**

TRIPTERIS Less. = **OSTEOSPERMUM**

TROGLOPHYTON Hilliard & B.L.Burtt 6 spp., southern Africa

capillaceum (Thunb.) Hilliard & B.L.Burtt Delicate, white-woolly annual to 30 cm. Leaves petiolate, ovate, pale green and glabrescent above. Flower heads discoid, few, subracemose, white to purple, homogamous. Mainly Sept.–Oct. Damp, shady slopes under shrubs, NW, SW, KM, LB, SE (S Namibia to Lesotho).

elsiae Hilliard Delicate, white-woolly annual to 15 cm. Leaves petiolate, ovate, pale green and glabrescent above. Flower heads discoid, few, subracemose, white to purple, heterogamous. Dec.–Jan. Damp, sheltered slopes above 1 500 m, NW (Cold Bokkeveld to Hex River Mtns).•

leptomerum Hilliard Similar to **T. tenellum** but bracts acute. Sept.–Dec. Shade under rocks, NW (Namaqualand to Piketberg). **gce**

parvulum (Harv.) Hilliard & B.L.Burtt Like **T. tenellum** but bracts acute and female flowers twice as many as hermaphrodite ones. Aug.–Nov. Damp, often shady slopes, NW, SW (S Namibia and W Karoo to Cape Peninsula and Riviersonderend Mtns). **gce**

tenellum Hilliard Delicate, diffuse, grey-woolly annual to 15 cm. Leaves oblanceolate, glabrescent above. Flower heads discoid, single and axillary on slender peduncles, or few at branch tips, heterogamous. Sept.–Oct. Sands in shady sites, NW (Kamiesberg to Botterkloof). **gce**

URSINIA Gaertn. BERGMARGRIET 38 spp., mainly southern Africa, 1 in N Africa.

A. Paleae boat-shaped (disc shining); pappus 2-seriate

cakilefolia DC. GANSOOGBERGMARGRIET Sprawling annual to 45 cm. Leaves mostly bipinnatisect, 20–50 mm long, lobes linear. Flower heads radiate, solitary on long, terminal peduncles, yellow or orange, ± 25–50 mm diam., paleae boat-shaped and longer than disc florets; pappus scales 5, plus 5 bristles, biseriate. July–Oct. Sandy flats and slopes, NW (Namaqualand and W Karoo to Redelinghuys). **gce**

chrysanthemoides (Less.) Harv. Like **U. cakilefolia** but ± woody below. Flower heads yellow or rays sometimes white or red with dark reverse, paleae shorter than disc florets. Aug.–Nov. Sandy and gravel slopes and flats, NW, SW, LB, SE (Namaqualand and Karoo to Port Elizabeth and E Cape).

nana DC. KLEINBERGMARGRIET Spreading annual or perennial to 20 cm. Leaves bipinnatisect, 15–50 mm long. Flower heads radiate, solitary on short peduncles, yellow, ± 10–35 mm diam., paleae boat-shaped, bracts rounded, often with dark crescent marks; pappus scales 5, plus 5 bristles, biseriate. Mainly Aug.–Oct. Gravel slopes and flats, NW, SW, KM, LB, SE (Namaqualand to Mpumalanga).

speciosa DC. Like **U. cakilefolia** but all involucral bracts rounded and papery above. Aug.–Oct. Sandy slopes and flats, NW, SW (Namaqualand to Hopefield). **gce**

A.' Paleae oblong (disc dull); pappus 1-seriate or lacking
B. Annuals

anthemoides (L.) Poir. MAGRIET Annual to 50 cm. Leaves pinnatisect or bipinnatisect, 20–50 mm long. Flower heads radiate, solitary at branch tips, yellow or orange, sometimes with a dark ring and darker on reverse, 15–60 mm diam.; pappus scales 5, uniseriate. Aug.–Oct. Sandy and gravel slopes and flats, NW, SW, KM, LB, SE (S Namibia and Karoo to Port Elizabeth).

B.' Perennials or shrublets

abrotanifolia (R.Br.) Spreng. FYNKRUIE, LAMMETJIESKRUIE Thinly grey-woolly, densely leafy shrub to 60 cm. Leaves bi- to tripinnatisect, 20–50 mm long. Flower heads radiate, solitary on

elongate, naked peduncles, yellow, ± 20–35 mm diam.; pappus scales 5, uniseriate. Nov.–Jan. Sandstone slopes in damp places, SW (Bain's Kloof to Hottentots Holland Mtns).•

anethoides (DC.) N.E.Br. Like **U. paleacea** but leaves smaller, 5–20 mm long, stems densely leafy. Flower heads on wiry peduncles, yellow. Nov.–Apr. Sandstone slopes in fynbos and grasslands, SW, LB, SE (Caledon to Grahamstown).

caledonica (E.Phillips) Prassler Slender, densely leafy shrub to 1.2 m. Leaves ascending, oblanceolate, 3-lobed above, 6–35 mm long. Flower heads radiate, solitary on short peduncles nested in leaves, yellow, 15–30 mm diam.; pappus scales 5, uniseriate. Feb.–July. Damp sandstone slopes above 600 m, often seeps and marshes, SW (Groot Drakenstein to Hottentots Holland Mtns).•

coronopifolia (Less.) N.E.Br. Thinly woolly shrublet to 50 cm. Leaves oblanceolate, toothed, 20–100 mm long. Flower heads radiate, solitary on elongate, naked peduncles, yellow, 20–40 mm diam.; pappus scales 5, uniseriate. Jan.–Mar. Sandstone slopes above 600 m, near streams, NW (Grootwinterhoek Mtns).•

dentata (L.) Poir. Like **U. heterodonta** but leaves shortly bipinnatisect, lobes aristate and flower heads ± 40 mm diam. Sept.–Feb. Sandstone or limestone slopes and flats, NW, SW, AP, LB, SE (Bokkeveld Mtns to Albertinia).•

discolor (Less.) N.E.Br. Like **U. heterodonta** but grey-cobwebby, especially on young parts, leaves mostly smaller, ± 10 mm long and outer bracts also papery above. Aug.–Jan. Sandstone slopes, NW, SW, KM, LB, SE (Tulbagh to Humansdorp).•

dregeana (DC.) N.E.Br. Like **U. nudicaulis** but stems white-woolly and leaves thinly woolly with lobes pungent. Oct.–Dec. Sandstone pavements, NW (Bokkeveld Mtns to Hex River Mtns).•

eckloniana (Sond.) N.E.Br. Slender, densely leafy shrub to 1.2 m. Leaves ascending, narrowly oblong, sometimes shortly 3-toothed above, 20–80 mm long. Flower heads radiate, several, densely crowded at branch tips, yellow, 30–50 mm diam.; pappus scales 5, uniseriate. July–Apr. Marshes on sandstone, SW (Groot Drakenstein to Hermanus).•

filipes (E.Mey. ex DC.) N.E.Br. Softly woody shrublet to 40 cm. Leaves spreading, oblanceolate and pinnatifid, 10–40 mm long, lobes acute, sometimes toothed. Flower heads shortly radiate, solitary in upper axils on elongate, wiry peduncles, yellow, 6–14 mm diam.; pappus 5-lobed, uniseriate. Oct.–Mar. Sandstone slopes along streams above 600 m, NW, SW (Hex River Mtns to Franschhoek).•

heterodonta (DC.) N.E.Br. Shrublet to 50 cm. Leaves ascending, pinnatisect, 5–35 mm long, lobes linear. Flower heads radiate, solitary on elongate, wiry peduncles, yellow with dark reverse, 15–30 mm diam.; pappus scales 5, uniseriate. Mainly Aug. Sandstone slopes, NW, SW, KM, LB, SE (Hex River Mtns and Caledon to Uitenhage).•

hispida (DC.) N.E.Br. Softly hairy, slender shrublet to 40 cm. Leaves ascending, pinnatisect, 10–20 mm long, lobes linear. Flower heads radiate, solitary on short peduncles nested in leaves, yellow, ± 10–15 mm diam.; bracts narrow; pappus scales 5, uniseriate. Sept.–Dec. Sandstone slopes, LB (Langeberg: Swellendam to Riversdale).•

macropoda (DC.) N.E.Br. Like **U. nudicaulis** but leaves silvery silky and bract tips brown. Oct.–Mar. Rocky sandstone slopes, NW (Gifberg to Witzenberg).•

merxmuelleri Prassler Sprawling, densely leafy shrublet to 60 cm. Leaves bipinnatisect, 20–40 mm long, lobes linear. Flower heads radiate, in lax corymbs on elongate peduncles, yellow, 15–30 mm diam.; pappus scales 5 plus 1–3 bristles, uniseriate. Feb.–Apr. Sandstone slopes above 1 200 m, NW (Hex River Mtns).•

nudicaulis (Thunb.) N.E.Br. (incl. **U. saxatilis** N.E.Br.) Tufted shrublet to 50 cm. Leaves crowded below, pinnatisect, 15–70 mm long, lobes linear. Flower heads radiate, solitary on elongate, naked peduncles, yellow, 15–30 mm diam., outer bracts often papery above; pappus scales 5, uniseriate. Sept.–Mar. Sandstone slopes, sometimes wet places, NW, SW, ?AP, KM, LB, SE (Cedarberg to Witteberg, Cape Peninsula to Humansdorp).•

oreogena Schltr. ex Prassler Like **U. paleacea** but leaves more delicate and flower heads 20–30 mm diam. Oct.–Dec. Sandstone slopes, SW (Bain's Kloof to Hottentots Holland Mtns).•

paleacea (L.) Moench GEELMAGRIET Shrub to 90 cm. Leaves pinnatisect, 20–60 mm long, lobes linear to filiform. Flower heads radiate, solitary on elongate peduncles, yellow, sometimes with greenish ring, dark on reverse, 20–50 mm diam.; pappus scales 5, uniseriate. Mainly Aug.–Dec. Sandstone slopes, NW, SW, LB, SE (Tulbagh and Cape Peninsula to Humansdorp).•

pilifera (P.J.Bergius) Poir. GROOTBERGMARGRIET Low, thinly woolly shrublet to 35 cm, woody below. Leaves bipinnatisect, 15–25 mm long. Flower heads radiate, large, solitary on long, terminal peduncles, blackish with white or yellow rays dark on reverse, ± 30–60 mm diam.; bracts

all rounded and silvery papery above; pappus scales 5, uniseriate. July–Nov. Gravel slopes in renosterveld, NW, KM, SE (Namaqualand and W Karoo to Worcester and Willowmore). **gce**

pinnata (Thunb.) Prassler Willowy, densely leafy shrub to 1.5 m. Leaves ascending, pinnatisect, 10–20 mm long, lobes filiform. Flower heads radiate, many in lax panicles, yellow, ± 10 mm diam.; pappus scales 5, uniseriate. Mainly Nov.–May. Marshes and streams on sandstone slopes, NW, SW (Bokkeveld Mtns to Riviersonderend).•

punctata (Thunb.) N.E.Br. Thinly hairy, erect or sprawling shrublet to 50 cm. Leaves pinnatisect, 10–20 mm long, lobes oblong. Flower heads radiate, solitary on long, wiry peduncles, yellow, ± 7–15 mm diam.; bracts 3- or 4-seriate; pappus scales 5, uniseriate. Sept.–Mar. Sandstone slopes, NW, KM (Bokkeveld Mtns to Worcester, and Swartberg).•

quinquepartita (DC.) N.E.Br. Densely leafy shrublet to 40 cm. Leaves ascending, adpressed below, pinnatisect above, 10–20 mm long, lobes filiform. Flower heads radiate, solitary on short peduncles, sometimes nested in leaves, yellow, 10–25 mm diam.; pappus scales 10, uniseriate. Nov.–Apr. Sandstone slopes, often near water, SW (Hottentots Holland Mtns to Hermanus).•

rigidula (DC.) N.E.Br. Like **U. heterodonta** but upper leaf lobes longer and toothed and flower heads ± 45 mm diam. Sept.–Dec. Damp mountain slopes, NW, KM, LB, SE (Piketberg and Cold Bokkeveld to Riversdale and Kammanassie Mtns).•

scariosa (Aiton) Poir. Shrub to 1.5 m. Leaves pinnatisect, 20–120 mm long, lobes linear. Flower heads radiate, solitary on elongate peduncles, yellow, 20–50 mm diam.; outer bracts narrow, rounded with brown papery tips. Mainly Sept.–Feb. Forest margins and fynbos slopes, SW, KM, LB, SE (Paarl to Port Elizabeth.).•

sericea (Thunb.) N.E.Br. Like **U. paleacea** but stems short, leaves silvery silky, 20–80 mm long, peduncles extremely long and bract tips brown. Sept.–Feb. Sandstone slopes, NW, KM (Cedarberg to Swartberg).•

serrata (L.f.) Poir. Slender, often thinly woolly, densely leafy, erect shrublet to 1.5 m. Leaves ascending, narrowly oblong, sharply toothed, 15–60 mm long. Flower heads radiate, solitary on short to long, axillary peduncles crowded at branch tips, yellow, ± 15–35 mm diam.; bracts all broad, golden papery; pappus scales 5, uniseriate. Aug.–Jan. Mostly marshy, sandstone slopes, SW, LB, SE (Riviersonderend to Tsitsikamma Mtns).•

subfloscculosa (DC.) Prassler Densely leafy shrublet to 60 cm. Leaves ascending, pinnatisect, 10–15 mm long, lobes filiform. Flower heads radiate, solitary on wiry peduncles clustered at branch tips, yellow, ± 15 mm diam.; bracts very narrow; pappus scales 5, uniseriate. Oct.–Dec. Sandstone slopes, NW (Gifberg to Cedarberg).•

tenuifolia (L.) Poir. Like **U. nudicaulis** but leaves linear to filiform, undivided. Sept.–Mar. Sandy flats and slopes, usually seasonally wet, SW, LB (Cape Peninsula to Albertinia).•

trifida (Thunb.) N.E.Br. Densely leafy shrublet to 60 cm. Leaves ascending, 3-toothed above, ± 10 mm long. Flower heads radiate, solitary on wiry peduncles, yellow, ± 15 mm diam.; pappus scales 5, uniseriate or lacking. Mainly Nov.–Apr. Sandstone and limestone slopes, AP, LB, SE (Agulhas Plain and Langeberg to Tsitsikamma Mtns).•

VELLEREOPHYTON Hilliard & B.L.Burtt 7 spp., W to E Cape

dealbatum (Thunb.) Hilliard & B.L.Burtt Sprawling, white-woolly annual or ?perennial to 20 cm. Leaves oblanceolate. Flower heads discoid, crowded in dense, woolly, terminal corymbs, white, female flowers exceeding hermaphrodite ones; bracts reddish in centre. July–Mar. Damp sandstone slopes, to 750 m, NW, SW, AP, LB, SE (Namaqualand and W Karoo to Alexandria).

felinum Hilliard Similar to **V. niveum** but grey-woolly and female flowers 1 or 2. Sept. Deep sands, NW (Cold Bokkeveld).•

gracillimum Hilliard Sprawling, white-woolly annual to 10 cm. Leaves spathulate. Flower heads discoid, crowded in dense, woolly, terminal glomerules, white, flowers < 20 per head; pappus tipped with white cilia. Sept.–Oct. Sandstone slopes in fynbos, NW (Bokkeveld Mtns to Cold Bokkeveld).•

lasianthum (Schltr. & Moeser) Hilliard Like **V. niveum** but heads homogamous. Jan. Sandstone flats, NW (Cold Bokkeveld).•

niveum Hilliard Rounded, white-woolly annual to 20 cm. Leaves oblanceolate. Flower heads discoid, in glomerules arranged in corymbs. Sept.–Jan. Damp sand in streambeds or pans, AP, LB (Potberg to Albertinia and S Karoo).

vellereum (R.A.Dyer) Hilliard Softly woody, white-felted perennial to 40 cm. Leaves oblanceolate. Flower heads discoid, in cymose clusters, white; pappus subplumose above. Nov.–Jan. Dune slacks, SE (Humansdorp to East London).

VERNONIA see **DISTEPHANUS, GYMNANTHEMUM** and **HILLIARDIELLA**

ZYRPHELIS Cass. PLUIMASTERTJIE 13 spp., W Cape to tropical Africa

A. Flower heads on almost leafless peduncles

decumbens (Schltr.) G.L.Nesom Sprawling or erect, shortly hairy perennial to 20 cm. Leaves oblanceolate, roughly hairy. Flower heads radiate, solitary, yellow with white to mauve rays. Oct.–Dec. Rocky sandstone slopes, SW (Bain's Kloof Mtns).•

lasiocarpa (DC.) Kuntze Sprawling, sparsely hairy shrublet with slender, erect branches, 5–25 cm. Leaves linear, spreading, sometimes toothed. Flower heads radiate, solitary, yellow with blue, pink or white rays. Sept.–Apr. Sandstone slopes, NW, SW, KM (Grootwinterhoek to Hottentots Holland and Swartberg).•

microcephala (Less.) Nees Roughly hairy, sprawling shrublet to 30 cm. Leaves linear with recurved, apiculate tips. Flower heads radiate, solitary, yellow with white or mauve rays. Mainly Sept.–Apr. Sandstone slopes, NW, KM (Ceres to Ladismith).•

montana (Schltr.) G.L.Nesom Roughly hairy, straggling subshrub, 5–25 cm. Leaves oblanceolate, sometimes with a few teeth. Flower heads radiate, solitary, yellow with mauve rays. July–Nov. Sandstone slopes, SW (Bain's Kloof to Wemmershoek Mtns).•

monticola (Compton) Z.-Wiegand Sparsely hairy, sprawling subshrub to 20 cm. Leaves linear, channelled. Flower heads radiate, solitary, yellow with blue rays. Sept.–Oct. Rocky sandstone slopes, KM (Witteberg).•

sp. 1 (*Zyrphelis glabra* Z.-Wiegand *ms.*) Prostrate, subglabrous perennial to 10 cm. Leaves reflexed, oblanceolate, ± glabrous. Flower heads radiate, solitary, yellow with mauve rays. Nov.–Dec. Damp, shaded, sandstone cliffs, NW (Cold Bokkeveld and Hex River Mtns).•

*A.' Flower heads on leafy peduncles (see also **Z. microcephala**)*

ecklonis (DC.) Kuntze Roughly hairy shrublet to 20 cm. Leaves linear, keeled. Flower heads radiate, solitary, yellow with white or yellow rays. Sept.–Dec. Rocky sandstone slopes, NW, SW (Cedarberg).•

foliosa (Harv.) Kuntze Sparsely hairy shrublet to 15 cm. Leaves linear. Flower heads radiate, 1-few in corymbs, yellow with white or mauve rays. Oct.–Feb. Sandstone slopes, SW (Cape Peninsula to Stanford).•

outeniquae (Fourc.) Z.-Wiegand Straggling shrublet to 25 cm, thinly woolly on young parts. Leaves oblanceolate and apiculate with revolute margins. Flower heads radiate, solitary, yellow with white or mauve rays. Sept.–Jan. Sandstone slopes, SE (Outeniqua Mtns).•

pilosella (Thunb.) Kuntze (= *Zyrphelis perezioides* (Nees) G.O.Nesom) Tufted, roughly hairy perennial to 20 cm, with woody rootstock. Leaves narrowly oblanceolate to linear with revolute margins. Flower heads radiate, solitary, subscapose, yellow with white or pale pink rays. July–Oct. Sandstone flats and slopes, NW (Bokkeveld Mtns to Porterville and Hex River Mtns).•

spathulata Z.-Wiegand Roughly hairy subshrub to 20 cm, base woody. Leaves oblanceolate, tips curved down. Flower heads radiate, solitary, yellow with mauve rays. Nov.–Dec. Sandstone slopes, SW (Bredasdorp District).•

taxifolia (L.) Nees Slender, sparsely hairy, sprawling subshrub to 40 cm. Leaves linear, apiculate, margins minutely toothed. Flower heads radiate, solitary on long peduncles, yellow with blue or mauve rays. Mainly Sept.–Dec. Damp sandstone slopes, SW (Cape Peninsula to Cape Hangklip).•

BALANOPHORACEAE

MYSTROPETALON Harv.• KAAPSEWOLWEKOS 1 sp., SW Cape

thomii Harv. (= *Mystropetalon polemannii* Harv.) Monoecious, achlorophyllous root parasite to 25 cm. Leaves scale-like, imbricate, linear-oblanceolate, ciliate. Flowers in a congested, cylindrical spike, lower female, upper male, orange or red to purple. Feb.–July. Parasitic on *Protea* and *Leucadendron,* NW, SW, LB (Hex River Mtns to Cape Peninsula to Riversdale).•

BALSAMINACEAE

IMPATIENS L. BALSAM 600–700 spp., worldwide

hochstetteri Warb. Soft, brittle perennial to 60 cm. Leaves elliptic, toothed. Flowers 1–3 in axils, pink, lower sepal spurred and lower petals lobed. Oct.–Apr. Forest margins, SE (George to tropical Africa).

BIGNONIACEAE

1. Spinescent shrubs with simple leaves; perianth ± actinomorphic with tube shorter than petals; fertile stamens 5, anthers oblong ..... **Rhigozum**
1.' Unarmed shrubs with compound leaves; flowers 2-lipped with tube much longer than petals; fertile stamens 4 + 1 staminode, anthers V-shaped:
2. Corolla curved, narrowly funnel-shaped; stamens well exserted, anther thecae connate in upper third ..... **Tecomaria**
2.' Corolla straight, broadly funnel-shaped; stamens included, anther thecae not connate above ... **Tecoma**

RHIGOZUM Burch. WILDEGRANAAT 7 spp., Africa and Madagascar

obovatum Burch. Rigid, spiny shrub to 4.5 m. Leaves fascicled, obovate, margins revolute. Flowers 1–3 on short shoots, funnel-shaped, yellow. Seeds papery-winged. July–Dec. Dry shale slopes, NW, KM, SE (Worcester to Uitenhage and Karoo to Zimbabwe).

***TECOMA** Juss. 14 spp., tropical America

***stans** (L.) Kunth YELLOW BELLS Shrub or small tree to 10 m. Leaves opposite, imparipinnate, leaflets toothed. Flowers in short, terminal racemes, funnel-shaped, yellow; stamens included. Seeds papery-winged. Aug.–Mar. Garden escape, SW, SE (American ornamental, naturalising in parts of the country).

TECOMARIA (Endl.) Spach CAPE HONEYSUCKLE, ICAKATHA 1 sp., tropical and subtropical Africa

capensis (Thunb.) Spach (= *Tecoma capensis* (Thunb.) Lindl.) Scrambling shrub or small tree to 6 m. Leaves opposite, imparipinnate, leaflets toothed. Flowers in short, terminal racemes, trumpet-shaped and 2-lipped, orange; stamens exserted. Seeds papery-winged. Sept.–May. Bush and scrub, SE (Uitenhage to subtropical Africa; widely cultivated).

[Recent molecular evidence places *Tecomaria capensis* as sister to the African genus *Podranea* and not to the American *Tecoma* (Olmstead *et al.* 2009). It should therefore be retained as a separate genus.]

BORAGINACEAE

by E. Retief & M.H. Buys, **Lobostemon** by M.H. Buys

1. Petals and stamens 10–12; ovules many in each locule; robust, white-prickly annuals (subfamily CODONOIDEAE) ..... **Codon**
1.' Petals and stamens 5; ovules solitary in each locule:
2. Ovary entire or shallowly 4-lobed; style terminal:
3. Style entire or bifid; fruit becoming dry, of 2–4 nutlets (subfamily HELIOTROPIODEAE) ..... **Heliotropium**
3.' Style deeply divided; stigmas 2 or 4; fruit a drupe:
4. Style divided into 2 (subfamily EHRETIOIDEAE) ..... **Ehretia**
4.' Style divided into 4 (subfamily CORDIOIDEAE) ..... **Cordia**
2.' Ovary deeply 4-lobed; style gynobasic; fruit dry, of 2–4 nutlets (subfamily BORAGINOIDEAE):
5. Fornices* present in corolla throat:
6. Nutlets spiny or glochidiate:
7. Nutlets flattened or rounded above, not or scarcely projecting above calyx ..... **Cynoglossum**
7.' Nutlets pointed above, projecting considerably above calyx ..... **Lappula**
6.' Nutlets smooth to tuberculate, sometimes winged:
8. Nutlets rugose with marginal wing ..... **Anchusa**
8.' Nutlets smooth or rugose but without marginal wing:
9. Corolla contorted; anthers apiculate ..... **Myosotis**
9.' Corolla imbricate; anthers not apiculate:
10. Corolla tube without vertical lines of hairs above and between anther insertion ..... **Lithospermum**
10.' Corolla tube with vertical bands of hairs extending from base of lobes to between tips of anthers ..... **Buglossoides**
5.' Fornices lacking, corolla throat naked:
11. Calyx accrescent in fruit; androecium cone-like, connectives prolonged into long, twisted appendages ..... **Trichodesma**
11.' Calyx not accrescent; androecium not as above:
12. Filaments hairy at point of attachment to corolla:
13. Stigma bilobed; leaves cauline ..... **Lobostemon**
13.' Stigma slightly bifid; leaves radical ..... **Echiostachys**
12.' Filaments not hairy at point of attachment to corolla:
14. Stigma bilobed; corolla actinomorphic, glabrous outside ..... **Amsinckia**
14.' Stigma bifid; corolla 2-lipped, hairy outside ..... **Echium**

*AMSINCKIA Lehm. YSTERGRAS 50 spp., New World

***retrorsa** Suksd. (= *Amsinckia angustifolia* auct., *A. menziesii* (Lehm.) A.Nelson & J.F.Macbr.) Roughly hairy annual to 50 cm. Leaves ovate-lanceolate. Flowers in tightly rolled, helicoid cymes, yellow to orange. July–Nov. Weed in sandy soil, disturbed areas, NW, SW, KM (American weed).

ANCHUSA L. CAPE FORGET-ME-NOT ± 35 spp., mainly European

capensis Thunb. Softly or roughly hairy annual to 1 m. Leaves oblanceolate. Flowers in helicoid cymes lengthening in fruit, blue or dark blue. Nutlets ovoid, rugose with marginal wing. Sept.–Nov. Sandy flats, often disturbed places and roadsides, NW, SW, AP, KM, LB, SE (Namibia, Lesotho and drier parts of S Africa to Mpumalanga).

*BUGLOSSOIDES Moench CORN GROMWELL ± 7 spp., Mediterranean and Asia

***arvensis** (L.) I.M.Johnst. SHEEPWEED, WHITE IRONWEED Roughly hairy annual to 60 cm. Leaves oblanceolate. Flowers in helicoid cymes, small, white. Nutlets ovoid, rugose-tuberculate. Aug.–Dec. Weed of waste places and fields, SW (Eurasian weed).

* Fornices are epipetalous folds or scales opposite the corolla lobes above the level of filament insertion, not to be confused with the staminal scales positioned at the base of the filaments.

CODON L. SUIKERKELK 2 spp., Namibia and S Africa

royenii L. Roughly hairy, softly woody, short-lived shrublet with white prickles, to 1.5 m. Leaves ovate-cuneate, distinctly petioled, white-prickly. Flowers axillary or in terminal, helicoid cymes, large, cream-coloured to yellow with purple stripes. Fruit a sparsely tubercled capsule. Aug.–Apr. Dry stony slopes, NW (Namibia and W Karoo to Biedouw Mtns).

CORDIA L. SEPTEE TREE, UMHLOVU-HLOVU 250 spp., tropics

caffra Sond. Shrub or small tree to 7 m. Leaves long-petioled, lanceolate to ovate, margins irregularly serrated. Flowers creamy white. Fruits fleshy, ovoid, in a cup-like calyx, orange or red. Sept.–Oct. Dune bush, forests, woodlands, SE (Baviaanskloof Mtns to S Mozambique).

CYNOGLOSSUM L. HOUND'S TONGUE, KNOPPIESKLITS 55 spp., temperate and warm regions

hispidum Thunb. (incl. **C. enerve** Turcz.) Roughly hairy annual or perennial to 90 cm. Basal leaves long-petioled, veins not prominent beneath. Flowers in scorpioid cymes, blue, pedicels deflexed in fruit, to 15 mm long, calyx lobes acute. Nutlets densely covered with short glochidia. Oct.–Nov. Disturbed areas, often along streams, NW, SE (Cold Bokkeveld and Outeniqua Mtns to Zimbabwe).

lanceolatum Forssk. White-hairy annual or biennial to 1 m, mostly well-branched above. Leaves with midrib and 2 lateral veins usually prominent beneath. Flowers usually in divaricately bifid inflorescences, white or pale blue, pedicels to 3 mm long in fruit. Nutlets covered with slender glochidia. Dec.–May. SE (Humansdorp to tropical Africa and Asia).

obtusicalyx Retief & A.E.van Wyk Softly hairy perennial or biennial. Basal leaves long-petioled, winged, secondary veins not prominent. Flowers in terminal, scorpioid cymes, white or blue, pedicels slightly curved, 15 mm long, calyx lobes obtuse. Nutlets densely covered with slender glochidia. Sept.–Jan. NW (Upper Karoo and Bokkeveld Plateau to Ceres).

ECHIOSTACHYS Levyns• BOTTELBORSEL 3 spp., SW Cape

ecklonianus (H.Buek) Levyns Like **E. spicatus** but flowers pink, red, blue or purple, hairy on central veins, < 10 mm, nutlets almost smooth. July–Sept. Gravelly or sandy slopes, SW, AP (Somerset West to Bredasdorp).•

incanus (Thunb.) Levyns Like **E. spicatus** but leaves narrowly lanceolate and attenuate, flowers white or blue, hairy on central veins and hairs at base of filaments tufted. Aug.–Oct. Clay flats, NW, SW, LB (Clanwilliam to Swellendam).•

spicatus (Burm.f.) Levyns White-hairy, tufted perennial from a woody caudex, to 40 cm. Leaves oblanceolate. Flowers in a pseudospike, white, > 10 mm long, glabrous or with a few, scattered hairs, hairs at base of filaments not tufted. Nutlets tuberculate. Sept.–Oct. Sandy flats, SW (St Helena Bay to Cape Flats).•

*__ECHIUM__ L. BLOUDISSEL 40 spp., Macronesia, Europe and W Asia

*__plantagineum__ L. (= *Echium lycopsis* auct.) Hairy annual or biennial to 65 cm. Basal leaves ovate to oblanceolate, lateral veins prominent. Flowers blue fading to pink, oblique and unequally lobed, sparsely hairy on veins and margins. Nutlets rugose. Sept.–Mar. Disturbed sites, NW, SW, AP, KM, LB, SE (European weed, widespread in Africa).

EHRETIA P.Browne CAPE LILAC, DEURMEKAARBOS, UMHLELI 50 spp., tropical and warm regions

rigida (Thunb.) Druce Many-stemmed shrub or small tree to 6 m, branches drooping and tangled. Leaves usually clustered on short shoots, obovate, margins densely ciliate. Flowers mauve to pale blue fading whitish. Fruits subglobose, orange-red. Aug.–Sept. Stony slopes, SE (Humansdorp to tropical Africa).

*HELIOTROPIUM L. HELIOTROPE ± 250 spp., tropical and warm regions

***curassavicum** L. Erect or prostrate, annual or perennial halophyte. Leaves spathulate, bluish green, succulent. Flowers in a helicoid cyme, white. Nutlets rugose. Sept.–Apr. Disturbed places, damp soil, NW, SW, KM, LB (naturalized halophyte from the Americas, drier parts of southern Africa).

***supinum** L. Prostrate annual. Leaves broadly ovate to broadly obovate, densely adpressed-hairy, veins usually sunken above and prominent beneath. Flowers in a helicoid cyme, white. Nutlets smooth. Nov.–Apr. Disturbed places in damp soil, SW, SE (European weed, Old World).

LAPPULA Moench 50 spp., mainly temperate Eurasia

capensis (A.DC.) Gürke Erect or sprawling annual to 30 cm. Leaves softly hairy, narrowly obovate with a tendency to fold. Flowers in terminal, leafy cymes elongating in fruit, pedicels very short. Nutlets ovoid-trigonous with glochidiate margins. Sept.–Oct. Disturbed places, NW, KM, LB (Namaqualand to E Cape).

LITHOSPERMUM L. GROMWELL 59 spp., temperate regions, excluding Australia

papillosum Thunb. Closely leafy perennial to 25 cm. Leaves adpressed, lanceolate, undersurface with hairs on midrib only. Flowers in terminal and axillary, leafy cymes, white, with annulus at base and 5 glandular invaginations in throat. Nutlets smooth. Nov.–Jan. Mountain slopes, KM, SE (Little Karoo to E southern Africa).

LOBOSTEMON Lehm. AGTDAEGENEESBOS 29 spp., S Africa, mostly W Cape

A. Flowers < 15 mm long, rotate

capitatus (L.) H.Buek (= *Lobostemon bolusii* Levyns, *L. inconspicuus* Levyns) Shrublet, 30–60 cm. Leaves sessile, hairy, linear-lanceolate. Flowers in capitate cymes, rotate, cream-coloured with purple markings, glabrous outside, staminal scales triangular with lateral lobes, stamens exserted, style glabrous. Sept.–Oct. Shale slopes and flats, NW, SW (Porterville to Bredasdorp).•

echioides Lehm. Shrublet, 20–80 cm. Leaves sessile, hairy (often soft, silvery), oblong-lanceolate. Flowers in cymes, rotate, blue, hairy outside, staminal scales triangular with lateral lobes, stamens exserted, style glabrous. Aug.–Oct. Stony slopes and flats, NW, SW, KM, LB, SE (Namaqualand and Karoo to E Cape).

gracilis Levyns Shrublet, 40–70 cm. Leaves sessile, adpressed-hairy, linear. Flowers in cymes, rotate, white or pale blue, sparsely hairy outside, staminal scales large and triangular with lateral lobes, stamens exserted, style glabrous. July–Oct. Sandstone outcrops, NW (Worcester to Bonnievale).•

paniculatus (Thunb.) H.Buek (= *Lobostemon horridus* Levyns) Shrublet, 50–80 cm. Leaves sessile, hairy, midrib and margins bristly, oblong-lanceolate. Flowers in cymes, rotate, blue, hairy outside, staminal scales triangular with lateral lobes, stamens exserted, style glabrous. Aug.–Oct. Stony slopes, NW, SW, KM, LB, SE (Namaqualand and Karoo to E Cape).

A.' Flowers > 15 mm long, funnel-shaped or tubular
B. Flowers red or cream-coloured with red markings

belliformis M.H.Buys Shrub, 1–1.5 m. Leaves sessile, hairy, margins revolute, oblanceolate. Flowers in cymes, tubular, red, hairy outside, staminal scales reduced to swellings without lateral lobes, style hairy. July–Oct. Coastal limestones, AP (Gourits River: Gouriqua).•

muirii Levyns Shrublet, 40–90 cm. Leaves sessile, hairy, linear-oblong. Flowers in cymes, cream-coloured with red markings, glabrous outside, staminal scales ridge-like without lateral lobes, style hairy. June–Aug. Sandy, northern slopes, LB (Langeberg).•

regulareflorus (Ker Gawl.) M.H.Buys (= *Lobostemon grandiflorus* (Andrews) Levyns) Shrub, 1–1.5 m, young branches glabrous. Leaves sessile, hairy above only, linear-lanceolate. Flowers in cymes, tubular, red, hairy outside, staminal scales reduced to swellings without lateral lobes, style hairy. Sept.–Oct. Granite slopes, SW (Stellenbosch and Du Toitskloof Mtns).•

sanguineus Schltr. Shrub, 0.5–1.2 m. Leaves sessile, sparsely hairy, leathery, ovate-elliptic. Flowers in cymes, tubular, red, hairy outside, staminal scales reduced to ridges without lateral lobes, style hairy. Feb.–Apr. Sandstone slopes, SW, AP (Bredasdorp to Potberg).•

B.' Flowers white, pink to blue
*C. Flowers glabrous outside (see also **L. trichotomus**)*

argenteus (P.J.Bergius) H.Buek Like **L. stachydeus** but flowers 1 per bract. July–Feb. Shale slopes, NW, SW, AP, SE (Clanwilliam to Grahamstown).

cinereus DC. & A.DC. Like **L. trichotomus** but leaves with ash-coloured hairs on both surfaces and bulbous-based hairs on lower surface, flowers white, sometimes pale pink, style glabrous. Aug.–Nov. Sandy slopes or flats, NW (Port Nolloth to Heerenlogement and Cedarberg). **gce**

glaber (Vahl) H.Buek (= *Lobostemon hispidum* (Thunb.) DC. & A.DC.) Shrublet, 30–60 cm. Leaves sessile, hairy, linear-lanceolate. Flowers in cymes, white sometimes pale pink, glabrous outside, staminal scales triangular with lateral lobes, style glabrescent. Aug.–Nov. Stony slopes, NW, SW, KM (Cold Bokkeveld to Cape Peninsula and Witteberg).•

glaucophyllus (Jacq.) H.Buek Shrublet, 30–80 cm, young branches glabrous. Leaves sessile, hairy on midrib and apex, linear-lanceolate. Flowers in cymes, blue sometimes pink, glabrous outside, staminal scales rounded without lateral lobes, style hairy. July–Oct. Sandstone lower slopes or sandy flats, NW, SW, KM (Clanwilliam to Cape Peninsula, Worcester to Swartberg).•

hottentoticus Levyns Like **L. glaucophyllus** but leaves hairy and flowers white or pink. Aug.–Nov. Stony lower slopes, SW (Somerset West to Gordon's Bay).•

laevigatus (L.) H.Buek (= *Lobostemon dorotheae* M.H.Buys *ms.*) Like **L. glaucophyllus** but sepals unequal in width and stamens much exserted and recurved. Aug.–Nov. Rocky sandstone slopes, NW, SW (Bokkeveld Mtns to Robertson).•

paniculiformis DC. & A.DC. Shrublet, 60–90 cm. Leaves sessile, hairy but appearing glabrous above, oblong-lanceolate. Flowers in cymes, blue, glabrous outside, staminal scales triangular with lateral lobes, style sparsely hairy. Aug.–Nov. Shale slopes, NW, SW (Gifberg to Cape Peninsula).•

pearsonii Levyns Shrublet, 60–90 cm, young branches glabrous. Leaves sessile, hairy but appearing glabrous above, oblong-lanceolate. Flowers in lax cymes, cream-coloured to blue, glabrous outside, staminal scales triangular with lateral lobes, style hairy. July–Oct. Rocky slopes, NW, KM (Namaqualand to Little Karoo). **gce**

stachydeus DC. & A.DC. Shrublet, 30–60 cm. Leaves sessile, hairy (hairs both long and short), margins revolute, linear-lanceolate. Flowers in a pseudospike with 2 flowers per bract, blue, glabrous outside except for midvein and margins, staminal scales reduced to ridges without lateral lobes, style hairy. July–Feb. Sandy slopes, KM, SE (Little Karoo to Graaff-Reinet and Beaufort West).

C.' Flowers hairy outside

collinus Schltr. ex C.H.Wright Shrublet, 20–40 cm. Leaves sessile, hairy or glabrescent, leathery, oblong. Flowers in cymes, pale blue, hairy outside, staminal scales ridge-like without lateral lobes, style hairy. Sept.–Apr. Stony coastal flats, AP (Bredasdorp).•

curvifolius H.Buek Shrub, 30–60 cm. Leaves sessile, silvery hairy, linear to lanceolate, apex often recurved. Flowers in cymes, pink, hairy outside, staminal scales ridge-like without lateral lobes, style hairy. Aug.–Nov. Sandstone, limestone or sandy flats, SW, AP (Caledon, Stanford to Cape Infanta).•

daltonii M.H.Buys Shrublet, 30–60 cm. Leaves sessile, sparsely hairy, leathery, ovate-obovate. Flowers in cymes, blue, hairy outside, sepals tipped with conspicuous brown hairs when young, staminal scales ridge-like, style hairy. Aug.–Nov. Limestone flats, AP (Potberg to Cape Infanta).•

decorus Levyns Shrublet, 50–100 cm. Leaves sessile, hairy near apex, linear. Flowers in cymes, blue, hairy outside, staminal scales ridge-like without lateral lobes, style hairy. Aug.–Oct. Sandstone slopes, KM (Touwsberg and Rooiberg).•

fruticosus (L.) H.Buek DOUWURMBOS, LUIBOS Shrublet, 50–80 cm. Leaves sessile, hairy (hairs both long and short), oblanceolate-obovate. Flowers in cymes, blue to pink, hairy outside, staminal scales ridge-like without lateral lobes, style hairy. May–Dec. Sandstone slopes or sandy or shale flats, NW, SW (Namaqualand to Cape Peninsula and Worcester). **gce**

lucidus (Lehm.) H.Buek Shrublet, 20–30 cm. Leaves sessile, hairy, linear-oblanceolate with persistent woody bases. Flowers in cymes, pink, hairy outside, staminal scales ridge-like without lateral lobes, style hairy. Aug.–Oct. Sandy flats and lower sandstone slopes, AP (Agulhas to Potberg).•

marlothii Levyns Shrublet, 40–70 cm. Leaves sessile, hairy, oblong-lanceolate. Flowers in cymes, blue, hairy outside, staminal scales ridge-like without lateral lobes, style hairy. Aug.–Oct. Sandstone slopes, KM, LB, SE (Witteberg and Swartberg to Humansdorp).•

montanus H.Buek Shrub, 0.8–1.2 m. Leaves sessile, silvery hairy, obovate-oblanceolate. Flowers in cymes, subtubular, blue or turquoise, hairy outside, staminal scales ridge-like without lateral lobes, stamens exserted, style hairy. July–Sept. Coastal sandstone, SW (Cape Peninsula to Onrus).•

oederiaefolius DC. & A.DC. Like **L. fruticosus** but calyx hairs confined to margins and midribs. Sept.–Oct. Sandstone slopes, NW, KM (De Doorns to Montagu).•

strigosus (Lehm.) H.Buek. Like **L. fruticosus** but leaves with hairs of one length, flowers blue with white markings. Aug.–Oct. Mostly sandy slopes and flats, NW, SW, KM, LB (N of Riviersonderend Mtns and Langeberg, Robertson to Anysberg and Van Wyksdorp).•

trichotomus (Thunb.) DC. & A.DC. Shrublet, 30–100 cm. Leaves sessile, hairy, somewhat leathery, linear-lanceolate. Flowers in cymes, white or blue, glabrous or hairy outside, staminal scales slightly triangular with lateral lobes, style glabrous or hairy. Aug.–Nov. Sandy slopes and flats, NW, SW (Bokkeveld Mtns and W Karoo to Stellenbosch). **gce**

trigonus (Thunb.) H.Buek (= *Lobostemon lindae* M.H.Buys *ms*.) Shrublet, 40–60 cm. Leaves sessile, hairy, oblong, obtuse. Flowers in markedly one-sided cymes, blue, hairy outside, staminal scales ridge-like without lateral lobes, style hairy. Aug.–Oct. Stony shale flats, AP, LB (Swellendam to Port Elizabeth).•

MYOSOTIS L. FORGET-ME-NOT 50 spp., mainly Europe

***arvensis** (L.) Hill (= *Myosotis intermedia* Link) Softly hairy annual to 25 cm. Leaves lanceolate, to 30 × 4 mm. Flowers in helicoid cymes elongating in fruit, blue fading white, calyx closed in fruit. Nutlets ovoid, smooth, shining black. Oct. Disturbed places, SW (European weed)

graminifolia A.DC. (= *Myosotis sylvatica* auct.) Softly hairy, often trailing annual to 40 cm, hairs adpressed, long, white. Leaves lanceolate or obovate, sessile or petiolate. Flowers in lax, helicoid cymes elongating in fruit, light blue with yellow centre, fading white, calyx open in fruit. Nutlets compressed-ovoid with a rim, dull brown. Sept.–Jan. Coastal bush, SE (Port Elizabeth to Mpumalanga).

sp. 1 Straggling, softly hairy annual to 25 cm, with long internodes. Leaves obovate to elliptic, sessile or basal ones shortly petiolate. Flowers in helicoid cymes elongating in fruit, blue, pedicels long, thin, slightly deflexed, calyx open in fruit. Nutlets light brown. Sept.–Nov. Wet places, often under shrubs in shade, NW, SW, SE (Ceres to E Cape).

TRICHODESMA R.Br. 35 spp., tropical and warm regions of the Old World

africanum (L.) Lehm. Coarsely white-hairy annual to 50 cm. Leaves ovate to lanceolate, petiolate or sessile, alternate or opposite, coarsely white-hairy. Flowers in helicoid cymes, pale pink or white, calyx as long as corolla, lobes with dark tips, margins and midrib hairy. Nutlets with glochidiate margins. July–Oct. Stony slopes and dry riverbeds, NW, KM (drier parts of S Africa to W Africa).

BRASSICACEAE

1. Lowermost pair of 'leaves' (cotyledons) opposite, sessile, amplexicaul, broader than long; upper leaves alternate or subopposite, petiolate, cordate ..... **Chamira**
1.' Lower leaves alternate or opposite but then not as above:
2. Hairs stellate, branched or a mixture of simple and branched hairs:
3. Plants glandular; stigma deeply 2-lobed, each lobe with dorsal swelling or horn; leaves entire, sinuate or pinnatifid; petals pink, white or brownish ..... **Matthiola**
3.' Plants not glandular; leaves pinnatisect or pinnately angular-dentate; petals mostly yellow ..... **Sisymbrium**
2.' Hairs simple or absent:
4. Fruit < 3.5 times as long as broad, angustiseptate (flattened at right angles to septum), valves falling away empty and seeds falling free; flowers small, white or yellow .... **Lepidium**
4.' Fruit not as above; flowers white, mauve, purple or blue:
5. Valves of fruit apparently nerveless; cotyledons accumbent; flowers white ..... **Cardamine**
5.' Valves of fruit strongly 1–7-nerved; cotyledons twice transversely folded; flowers white, pink or blue ..... **Heliophila**

BRACHYCARPAEA DC. = **HELIOPHILA**

CARDAMINE L. ± 160 spp., cosmopolitan, mainly temperate

africana L. Soft perennial to 30 cm, sometimes coarsely hairy, rooting at lower nodes. Leaves trifoliolate, toothed. Flowers white. Fruits erect, linear. Oct.–Nov. Damp rocky places, SW, LB, SE (Cape Peninsula to Mpumalanga).

CHAMIRA Thunb.• 1 sp., SW Cape

circaeoides (L.f.) Zahlbr. Brittle, sprawling annual to 60 cm, cotyledons persistent, opposite, depressed-ovate. Leaves rounded or cordate, coarsely toothed. Flowers few, white. Fruits compressed-lanceolate. Aug.–Oct. Sheltered sandstone slopes, NW, SW (Bokkeveld Mtns to Botrivier).•

CYCLOPTYCHIS E.Mey. ex Sond. = **HELIOPHILA**

HELIOPHILA L. (= *BRACHYCARPAEA, CYCLOPTYCHIS, SCHLECHTERIA, SILICULARIA, THLASPEOCARPA)* SPORRIE ± 75 spp., Namibia and S Africa, mostly winter-rainfall areas

A. Perennials and shrublets

brachycarpa Meisn. Brittle shrublet with striate branches to 2 m. Leaves stipulate, linear-oblanceolate. Flowers corymbose on side-branches, white or cream-coloured tinged mauve, petals with a long, papillate claw, ovules 4. Fruits elliptic-lanceolate, 20–30 mm long. Mainly July–Aug. Sandstone slopes, SE (Humansdorp to Karoo and E Cape).

callosa (L.f.) DC. Shrublet to 1 m. Leaves stipulate, lanceolate. Flowers mauve, ovules 12–18. Fruits linear-oblong, 60–80 mm long. June–Dec. Sandy slopes, NW, SW (Tulbagh and Cape Peninsula).•

carnosa (Thunb.) Steud. Tussock-forming shrublets to 60 cm with annual stems from a woody base. Leaves stipulate, filiform or lobed above. Flowers white, pink to violet, ovules 14–30. Fruits broadly linear, 25–80 mm long. Aug.–Oct. Dry, grassy hillsides, NW, KM, SE (Namibia to Montagu to E Cape and Gauteng).

cedarbergensis Marais Trailing shrublet, sometimes with striate branches. Leaves stipulate, lanceolate. Flowers white or pink, ovules 10–12. Fruits erect, lanceolate, 20–40 mm long. Oct. Sandstone ledges, 1 200–1 650 m, NW (Cedarberg).•

cinerea Marais Densely hairy perennial to 60 cm. Leaves exstipulate, oblanceolate. Flowers blue or mauve, petals with basal appendages, ovules 32–40. Fruits linear, thinly hairy, 60–80 mm long. Oct.–Nov. Sandy coastal slopes, SW (Cape Peninsula).•

cornuta Sond. Shrublet to 1.5 m, sometimes minutely hairy below. Leaves exstipulate, filiform to linear-oblanceolate, fleshy and subterete. Flowers white, mauve or blue, petals with basal appendages, ovules 14–38. Fruits moniliform, 30–100 mm long. July–Nov. Stony flats and slopes, NW, SW, KM, SE (S Namibia and W Karoo to Riviersonderend and Uniondale). **gce**

cuneata Marais Thinly hairy, spindly, straggling shrub to 1.3 m. Leaves exstipulate, cuneate, toothed above, sometimes densely hairy above. Flowers blue with white centre, petals with basal appendages, ovules 6–8. Fruits linear-oblong, 60–80 mm long. Aug.–Sept. Forest fringes, SW (Jonkershoek).•

dregeana Sond. Shrublet with rough, often striate branches to 35 cm. Leaves stipulate, elliptic-lanceolate, fleshy. Flowers white, pink or mauve, ovules 2–6. Fruits moniliform, 15–25 mm long. Aug.–Oct. Sandstone slopes, NW (Pakhuis Mtns to Ceres).•

elata Sond. Slender shrublet to 1 m, minutely hairy below. Leaves stipulate, filiform or lobed. Flowers blue to mauve, petals sometimes with a basal appendage, ovules 18–40. Fruits submoniliform, 20–80 mm long. July–Dec. Sandy flats, NW (Bokkeveld Mtns to Worcester).•

elongata (Thunb.) DC. Slender shrublet with grooved branches to 60 cm, sometimes with annual stems from a woody crown. Leaves stipulate, linear-lanceolate, sometimes toothed. Flowers white or yellowish, often tinged mauve, ovules 20–36. Fruits pendulous, linear, 50–80 mm long. Mainly May–July and Nov.–Dec. Rocky hillsides, KM, LB, SE (Langeberg and Klein Swartberg to KwaZulu-Natal).

esterhuyseniae Marais Dense shrublet with angled or narrowly winged branches to 1 m. Leaves stipulate, linear-lanceolate. Flowers white, mauve or blue, ovules 4–8. Fruits erect, pod-like, rough, 8–28 mm long. Aug.–Sept. Sandstone slopes, NW, SW (Ceres to Franschhoek Mtns).•

filicaulis Marais Slender shrublet with wiry, minutely striate branches. Leaves stipulate, linear-filiform. Flowers blue to mauve, ovules 4–8. Fruits moniliform, 15–30 mm long. Oct. Sandstone slopes, NW (Hex River Mtns).•

glauca Burch. ex DC. Willowy shrub to 2 m, sometimes with annual stems from a woody crown. Leaves exstipulate, oblanceolate, fleshy. Flowers white or mauve, ovules 4–10. Fruits oblong, 20–30 mm long. Aug.–Apr. Rocky slopes, KM, SE (Langeberg and Rooiberg to Uitenhage).•

hurkana Al-Shehbaz & Mummenhof (= *Cycloptychis marlothii* O.E.Schulz) Willowy shrub to 2 m. Leaves sparse, linear. Flowers white, pink to mauve, sepals 2–3 mm long. Fruits erect, elliptic, 8–12 mm long. Sept.–Oct. Sandstone slopes, NW (Cedarberg to Swartruggens).•

juncea (P.J.Bergius) Druce (= *Brachycarpaea juncea* (P.J.Bergius) Marais) WILD STOCK, BERGVIOOL Willowy shrublet to 1 m. Leaves linear to narrowly oblong. Flowers white to pink to purple. Fruits subglobose, papillose. Aug.–Dec. Rocky slopes, NW, SW, AP, KM, LB, SE (Namaqualand to Langkloof Mtns). **gce**

linearis (Thunb.) DC. Perennial to 90 cm, sometimes hairy below. Leaves exstipulate, filiform to obovate, sometimes toothed, fleshy. Flowers white, mauve or purple, petals with basal appendages, ovules 20–50. Fruits linear, 25–110 mm long. Aug.–Feb. Sandy coastal flats, NW, SW, AP, LB, SE (Langebaan to E Cape).

macra Schltr. Slender shrub to 1.3 m, often with annual stems from a woody crown. Leaves stipulate, linear. Flowers white or pinkish, ovules 18–24. Fruits linear, 25–50 mm long. Dec.–Apr. Shale slopes, SW, AP (Onrus to De Hoop).•

maraisiana Al-Shehbaz & Mummenhof (= *Cycloptychis virgata* (Thunb.) E.Mey. ex Sond.) Willowy shrub to 1 m. Leaves linear-lanceolate. Flowers white, pink to mauve, sepals 4–5 mm long. Fruits erect, subcircular, 5–6 mm long. Sept.–Dec. Sandstone slopes, NW (Gifberg to Pakhuis Mtns).•

monosperma Al-Shehbaz & Mummenhof (= *Schlechteria capensis* Bolus) Sprawling subshrub to 30 cm. Leaves linear, striate. Flowers few-many, white or pink. Fruits pendulous, compressed-ovate, indehiscent. Sept.–Oct. Shaded sandstone slopes, 900–1 800 m, NW (Cedarberg).•

nubigena Schltr. Straggling, woolly perennial to 45 cm. Leaves exstipulate, elliptic. Flowers subcorymbose, mauve to violet, ovules 2–6. Fruits elliptic, hairy, 5–13 mm long. Sept.–Oct. Sandstone crevices, 1 500–2 000 m, NW, SW, KM (Cold Bokkeveld to Slanghoek Mtns and Swartberg).•

polygaloides Schltr. (= *Silicularia polygaloides* (Schltr.) Marais) Shrublet with annual branches from a woody base. Leaves linear. Flowers white or pink. Fruits pendulous, compressed-ovate, indehiscent. Sept.–Oct. Sandstone slopes, NW (Cold Bokkeveld to Swartruggens).•

ramosissima O.E.Schulz Shrublet to 25 cm. Leaves exstipulate, linear-oblanceolate, succulent. Flowers white tinged mauve, ovules 9–16. Fruits submoniliform, 25–35 mm long. Oct. Sandstone slopes, SW (Houwhoek Mtns).•

rimicola Marais Stiff shrublet with young branches striate. Leaves stipulate, linear-oblanceolate, fleshy. Flowers white to purple, sepals not saccate, ovules 4–8. Fruits lanceolate, 15–30 mm long. Dec. Moist crevices in sandstone, KM (Swartberg and ?Rooiberg).•

scoparia Burch. ex DC. Leafy shrublet with striate branches to 1 m. Leaves stipulate, linear-lanceolate. Flowers white, pink to purple, few on short shoots, ovules 10–36. Fruits erect, linear, 30–120 mm long. Apr.–Feb. Sandstone slopes, NW, SW, KM (Gifberg to Genadendal).•

suavissima Burch. ex DC. RUIKPEPERBOSSIE Lax shrublet to 60 cm with annual stems from a woody crown. Leaves stipulate, linear to lanceolate, fleshy. Flowers blue or purple, scented, ovules 18–26. Fruits submoniliform, 45–65 mm long. Mainly May–July. Shale slopes, KM (Montagu to Kammanassie Mtns, Karoo to KwaZulu-Natal).

tricuspidata Schltr. Slender shrublet with slightly rough stems. Leaves stipulate, cuneate and 3 lobed. Flowers mauve, ovules 2–5. Fruits ovate, 5–8 mm long. Oct. Damp sandstone crevices, SW (Hottentots Holland to Riviersonderend Mtns).•

tulbaghensis Schinz Sprawling shrublet with striate branches to 25 cm. Leaves stipulate, linear, fleshy. Flowers mauve, ovules 4–9. Fruits strongly moniliform, 15–30 mm long. Oct. Sandstone slopes, NW, SW (Skurweberg to Franschhoek Mtns).•

A.' Annuals

acuminata (Eckl. & Zeyh.) Steud. Annual, 15–45 cm, usually hairy below. Leaves exstipulate, linear to oblanceolate or lobed. Flowers blue or white, petals with or without basal appendages,

ovules 6–14. Fruits moniliform, 10–30 mm. Aug.–Sept. Sandy flats, NW, SW (Bokkeveld Mtns to Peninsula).•

adpressa O.E.Schulz Like **H. bulbostyla** but buds narrow and pointed. Flowers pink to blue and fruiting pedicels adpressed-erect. Sept.–Oct. Coastal sand-dunes, SW, AP (Cape Peninsula to Still Bay).•

africana (L.) Marais Glabrescent or hairy annual to 1.35 m. Leaves exstipulate, lanceolate, sometimes toothed. Flowers blue or mauve, petals with basal appendages, ovules 20–52. Fruits linear, 13–100 mm long. Mainly Aug.–Oct. Sandy flats, NW, SW, KM, LB (Namaqualand to Swellendam). **gce**

amplexicaulis L.f. Annual to 45 cm, sometimes thinly hairy. Leaves exstipulate, lanceolate, clasping below. Flowers white, pink or mauve, petals with basal appendages, ovules 6–16. Fruits strongly moniliform, 25–35 mm long. Aug.–Oct. Sandy slopes, NW, SW, KM (Namaqualand and W Karoo to Saldanha and Montagu). **gce**

arenaria Sond. Glabrescent to hairy annual to 50 cm. Leaves exstipulate, linear or lobed. Flowers blue, petals with basal appendages, ovules 16–36. Fruits moniliform, 15–55 mm long. July–Sept. Sandstone slopes, NW (Bokkeveld Mtns to Piketberg).•

arenosa Schltr. Like **H. arenaria** but flowers smaller with very narrow petals, 5–8 × 2–3 mm. Sept.–Oct. Sandstone slopes, NW (Cedarberg to Swartruggens).•

bulbostyla P.E.Barnes Annual to 35 cm, usually minutely hairy below. Leaves stipulate, divided. Flowers blue, petals with basal appendages, ovules 20–44. Fruits submoniliform, 35–55 mm long. Sept.–Oct. Rocky slopes, KM, LB (W Karoo to Swellendam). **gce**

collina O.E.Schulz Softly hairy, sprawling annual to 20 cm. Leaves stipulate, pinnatisect, fleshy. Flowers white, sepals hairy, petals appendaged basally, ovules 4–12. Fruits moniliform, 10–20 × 2–3 mm. Aug.–Sept. Stony flats, NW (Bokkeveld Mtns).•

concatenata Sond. A complex of pubescent annuals to 45 cm. Leaves stipulate, pinnatisect. Flowers white, pink or mauve, sepals hairy, ovules 10–16. Fruits submoniliform, 10–25 mm long. Aug.–Oct. Stony slopes, NW, SW (Kleinwinterhoek Mtns to Cape Peninsula to Genadendal).•

coronopifolia L. Annual to 60 cm, lower parts roughly hairy. Leaves sometimes stipulate, linear or variously pinnatisect. Flowers blue with white or greenish centre, petals with basal appendages, ovules 16–50. Fruits moniliform, 30–90 mm long. Aug.–Oct. Flats and slopes, NW, SW (S Namaqualand to Caledon). **gce**

crithmifolia Willd. Thinly hairy annual to 60 cm. Leaves stipulate, pinnatifid, fleshy. Flowers white or pink to violet, petals sometimes with basal appendages, ovules 20–42. Fruits linear-oblong, 15–60 mm long seeds broadly winged. July–Oct. Usually sandy slopes, NW, SW (S Namibia and W Karoo to Riviersonderend). **gce**

descurva Schltr. Thinly hairy annual to 60 cm. Leaves stipulate, linear or few-lobed. Flowers blue or mauve, petals with basal appendages, ovules 22–30. Fruits on deflexed pedicels, linear, 30–75 mm long. Aug.–Sept. Sandstone slopes, NW, KM (Bokkeveld Mtns to Barrydale).•

deserticola Schltr. Annual to 30 cm. Leaves exstipulate, pinnatisect. Flowers white, mauve or blue, scented, petals sometimes with basal appendages, ovules 36–66. Fruits linear, 19–26 mm long. May–Sept. Sandy flats, NW (Namaqualand and W Karoo to Gydouw Pass). **gce**

diffusa (Thunb.) DC. Like **H. meyeri** but ovules 1–8 and fruits narrowly oblong to elliptic, 3–14 mm long. Aug.–Nov. Sandy slopes, NW, SW (Cedarberg to Caledon Swartberg).•

digitata L.f. Glabrescent annual to 50 cm. Leaves exstipulate, pinnatisect, lobes filiform. Flowers pink or blue, petals with basal appendages, ovules 26–40. Fruits linear, 25–60 mm long. Aug.–Oct. Sandy flats and slopes, NW, SW (Clanwilliam to Caledon).•

ephemera P.A.Bean Prostrate, cushion-like annual with papillate stems to 10 cm. Leaves oblanceolate, fleshy. Flowers mauve, ovules 4–7. Fruits ellipsoid, inflated, tuberculate, ± 2.5 mm long. Aug.–Sept. Sandstone slopes, 1 750 m, KM (Swartberg).•

linoides Schltr. Usually unbranched annual to 50 cm, roughly hairy on lower nodes. Leaves stipulate, usually linear. Flowers mauve, petals with basal appendages, ovules 32–48. Fruits linear, 45–85 mm long. Aug.–Oct. Sandy slopes, NW, SW (Clanwilliam to Stellenbosch).•

macowaniana Schltr. Thinly hairy annual to 50 cm. Leaves stipulate, mostly pinnatisect. Flowers white or blue, sepals hairy, ovules 10–24. Fruits moniliform, 10–35 mm long. Aug.–Oct. Sandy slopes, NW, SW (Olifants River Mtns to Cape Peninsula).•

meyeri Sond. Annual to 45 cm. Leaves stipulate, pinnatisect. Flowers white, petals and filaments papillate below, ovules 10–16. Fruits submoniliform, 10–25 mm long. June–Nov. Damp sandstone slopes, NW, SW, LB (Ceres to Bonnievale).•

namaquana Bolus Glabrous or hairy annual to 30 cm. Leaves sometimes stipulate, linear or filiform. Flowers white to blue, ovules 10–24. Fruits linear, 15–37 mm long. Aug.–Oct. Sandy soils, NW (Namaqualand to Swartruggens). **gce**

patens Oliv. Annual to 20 cm. Leaves exstipulate, filiform or linear. Flowers white, petals with basal appendages, ovules 2–4. Fruits oblong or subcircular, papillate, 3–7 mm long. July. Sandy soils, NW (Vredendal to Piketberg).•

pectinata Burch. ex DC. Delicate, finely hairy annual. Leaves stipulate, pinnatisect. Flowers small, white, ovules 10–16. Fruits submoniliform, 8–25 mm long. Aug.–Sept. Damp, sheltered slopes, NW, KM (Namaqualand and W Karoo to Clanwilliam and Montagu). **gce**

pendula Willd. Like **H. meyeri** but fruits larger, 15–50 × 2–3 mm with narrowly winged seeds, 2 mm diam. Aug.–Sept. Sandy flats and slopes, NW, SW, KM, LB, SE (Tulbagh to E Cape).

pinnata L.f. Minutely hairy annual with dark, wiry stems to 20 cm. Leaves stipulate, filiform to 5-lobed. Flowers blue to mauve, ovules 4–8. Fruits moniliform, 7–30 mm long. Aug.–Oct. Sandstone slopes, NW (Bokkeveld Mtns to Hex River and W Karoo). **gce**

promontorii Marais Like **H. pinnata** but glabrous above, flowers often with a white centre and ovules 16–25. Sept.–Nov. Sandy flats, SW (Cape Peninsula).•

pubescens Burch. ex Sond. Densely pubescent annual to 20 cm. Leaves stipulate, pinnatisect. Flowers whitish, sepals hairy, ovules 4–8. Fruits moniliform, ± 20 mm long. July–Aug. Stony slopes, NW, SW (Gifberg to Franschhoek and W Karoo). **gce**

pusilla L.f. Slender annual to 30 cm. Leaves exstipulate, filiform to oblanceolate. Flowers white to mauve, petals sometimes with basal appendages, ovules 3–12. Fruits submoniliform, 5–18 mm long. Aug.–Oct. Clay soils, NW, SW, AP, LB (Cold Bokkeveld to De Hoop).•

refracta Sond. Like **H. digitata** but ovules 42–60. Fruiting pedicels longer, 10–20 mm and sharply reflexed and fruiting style shorter than 2 mm. Aug.–Sept. Sandy coastal flats, NW, SW, AP (Elands Bay to Still Bay).•

seselifolia Burch. ex DC. Annual to 35 cm. Leaves exstipulate, pinnatisect. Flowers white, petals usually with basal appendages, ovules 12–27. Fruits linear, 13–35 mm long. July–Sept. Clay soils, NW (Namaqualand and W Karoo to Swartruggens). **gce**

suborbicularis Al-Shehbaz & Mummenhof (= *Thlaspeocarpa capensis* (Sond.) C.A.Sm.) Glabrous or pubescent annual to 35 cm. Leaves pinnatifid, somewhat fleshy. Flowers subumbellate, pinkish. Fruits pendulous, compressed-orbicular, indehiscent. Aug.–Sept. Shale slopes, NW (Hex River Pass and W Karoo). **gce**

subulata Burch. ex DC. Minutely hairy, annual or perennial to 50 cm. Leaves stipulate with stipules like resinous granules, filiform to lanceolate, fleshy. Flowers blue, mauve or pink, ovules 24–42. Fruits linear, 20–60 mm long. Aug.–Sept. Mostly coastal flats and slopes, NW, SW, LB, SE (Cold Bokkeveld to Cape Peninsula to E Cape).

tabularis Wolley-Dod (possibly not distinct from **H. concatenata**) Annual to 12 cm. Leaves stipulate, linear or lobed. Flowers whitish, ovules 12–14. Fruits linear. Oct. Sandstone slopes, SW (Cape Peninsula).•

thunbergii (Eckl. & Zeyh.) Steud. (= *Heliophila latisiliqua* E.Mey. ex Sond.) Hairy annual to 90 cm. Leaves stipulate, pinnatisect. Flowers blue to white, petals usually with basal appendages, ovules 8–18. Fruits oblong. July–Aug. Sandstone slopes, NW (Namaqualand to Ceres). **gce**

variabilis Burch. ex DC. Bright green, finely hairy, spreading annual to 35 cm. Leaves stipulate, pinnatisect. Flowers white, ovules 16–26. Fruits linear-submoniliform, 20–40 mm long. July–Sept. Dry sandy slopes, NW (Namaqualand and W Karoo to Pakhuis Mtns). **gce**

LEPIDIUM L. BIRD-SEED, PEPPER WEED ± 150 spp., cosmopolitan

africanum (Burm.f.) DC. Pale or yellowish green biennial or short-lived perennial to 75 cm, branched only above. Leaves oblanceolate, toothed. Flowers white. Fruits ovate, emarginate, 1.8–2.7 mm long. Sept.–Mar. Often in disturbed ground, NW, SW, KM, LB, SE (widespread indigenous weed).

capense Thunb. Shortly hairy perennial to 60 cm. Leaves crowded below, lyrate-pinnatisect. Flowers crowded, white. Fruits elliptic, obtuse, 2.3–3 mm long. Apr.–Aug. Sandy flats, SW (Cape Peninsula).•

desertorum Eckl. & Zeyh. Sprawling, shortly hairy perennial to 25 cm. Leaves pinnatifid or laciniate. Flowers subcorymbose, petals 0, nectaries filiform. Fruits ovate, emarginate, 1.6–2.1 mm long. Aug.–Sept. Drier flats, NW (Namaqualand and W Karoo to Free State, Wuppertal and Hex River Valley).

ecklonii Schrad. Shortly hairy perennial to 60 cm. Leaves pinnatifid. Flowers apparently in leaf-opposed racemes through elongation of lateral shoots, white. Fruits oblong-ovate, emarginate, 2.4–3.4 mm long. Apr.–Nov. Sandy flats, SW, LB, SE (Cape Peninsula to E Cape and W Karoo). **gce**

flexuosum Thunb. Sprawling perennial with annual stems to 20 cm from a woody crown. Leaves oblanceolate or pinnatifid. Flowers subcorymbose, white, stamens 6, nectaries rounded. Fruits ovate, acute, 4.5–5 mm long. Oct. Sandy soils, SW (St Helena Bay to Hopefield).•

pinnatum Thunb. Like **L. capense** but fruits ovate and broadly rounded below with style scarcely projecting above, and petals larger, 0.5–0.7 mm. Aug.–Nov. Shady rock ledges, SW (Cape Peninsula to Du Toitskloof Mtns).•

MATTHIOLA R.Br. ± 50 spp. Mediterranean to central Asia, 1 in southern Africa

torulosa (Thunb.) DC. Tufted perennial or dwarf shrublet to 45 cm, densely grey-felted and with scattered glandular hairs. Leaves mostly basal, oblanceolate (rarely sinuate-pinnatifid). Flowers subsessile in lax, ± ebracteate spikes, greenish yellow to brownish. Fruits terete-submoniliform, densely grey-felted. Mainly Sept.–Dec., depending on rain. Stony, mostly calcareous and sandy flats, KM (Namibia through central S Africa to Little Karoo).

SCHLECHTERIA Bolus = **HELIOPHILA**

SILICULARIA Compton = **HELIOPHILA**

SISYMBRIUM L. ± 80spp, worldwide temperate

capense Thunb. Grey-hairy perennial with annual stems to 1 m from a woody base. Leaves crowded below, pinnatifid. Flowers subcorymbose, yellow. Fruits erect, subterete. Oct.–Apr. Flats and slopes, SW, KM, LB, SE (Cape Peninsula to KwaZulu-Natal and Free State).

THLASPEOCARPA C.A.Sm. = **HELIOPHILA**

BRUNIACEAE

by E.G.H. Oliver & R. Classen-Bockhoff

1. Anther apex ending in conspicuous sterile tip ..... **Linconia**
1.' Anther without sterile tip:
  2. Thecae fused with connective along their entire length:
    3. Flowers arranged in spike-like clusters, each terminal on bracteate short shoot ..... **Audouinia**
    3.' Flowers solitary, each either terminal and/or lateral on leafy shoot or (*Thamnea teres*) on bracteate short shoot ..... **Thamnea**
  2.' Thecae free, versatile:
    4. Styles 2, united ..... **Staavia**
    4.' Styles 1 or 2, free:
      5. Pollen 3-colporate; stamens exserted; inflorescences always laterally arranged (except rarely in *B. albiflora*) ..... **Berzelia**
      5.' Pollen 5- to 10-colporate; stamens usually shorter than corolla; terminal inflorescence usually present ..... **Brunia**

AUDOUINIA Brongn.• (= *TITTMANNIA*) FALSE HEATH 5 spp., SW Cape

capitata (L.) Brongn. Closely leafy, laxly branched, coppicing shrub to 1.5 m. Leaves ericoid, imbricate, adpressed, margins minutely ciliate. Flowers on bracteates short shoots, densely crowded in cylindrical, spike-like clusters, red, ± 8 mm long. May–Oct. Rocky flats and slopes, SW (Cape Peninsula and Babilonstoring Mtns).•

esterhuyseniae (Powrie) A.V.Hall (= *Tittmannia esterhuyseniae* Powrie) Closely leafy, erect, willowy shrub to 60 cm, coppicing from a woody caudex. Leaves linear, imbricate. Flowers as in **A. capitata**, but white, petals ± 4 mm long, calyx warty. Feb.–Mar. Rocky sandstone slopes, NW, SW (Hex River Mtns to Stettynsberg).•

hispida (Pillans) Class.-Bockh. & E.G.H.Oliv. (= *Tittmannia hispida* Pillans) Like **A. laxa** but leaves stiffly hairy and petals ovate. Apr.–May. Rocky upper slopes, NW (Worcester).•

laevis (Pillans) A.V.Hall (= *Tittmannia laevis* Pillans) Like **A. laxa** but calyx longitudinally furrowed and glabrous, floral receptacle without fleshy warts. Mainly Sept.–Feb. High rocky slopes, NW, SW (Cold Bokkeveld Mtns to Jonkershoek).•

laxa (Thunb.) A.V.Hall (= *Tittmannia laxa* (Thunb.) C.Presl.) Closely leafy, erect and much-branched shrub to 60 cm. Leaves scale-like, linear, imbricate, subterete. Flowers loosely aggregated in spike-like clusters, white, with petals ± 2 mm long, floral receptacle with fleshy warts. Sept.–Nov. High sandstone slopes, NW, SW, KM (Cedarberg and Du Toitskloof Mtns to Klein Swartberg and Langeberg at Montagu).•

BERZELIA Brongn. 15 spp., W to E Cape

A. Flower heads 3–8 mm diam.

alopecuroides (Thunb.) Sond. (= *Brunia alopecuroides* Thunb.) Finely and densely leafy shrub mostly to 1 m. Leaves spreading-ascending, linear-lanceolate. Flowers crowded in small heads 3–4 mm diam., arranged in short racemes and clustered terminally in loose corymbs, cream-coloured; fruiting heads with fleshy red sepals. Sept.–Dec. Sandstone slopes, SW (Hottentots Holland to Kleinrivier Mtns).•

arachnoidea (J.C.Wendl.) Eckl. & Zeyh. (= *Berzelia squarrosa sensu auct.)* Densely leafy shrub to 1 m. Leaves spreading-ascending, linear-lanceolate. Flowers crowded in small heads 6–8 mm diam., on small almost leafless branches arrange like a raceme, cream-coloured. Sept.–Nov. Sandstone slopes, NW, SW (Cedarberg to Hottentots Holland Mtns).•

dregeana Colozza Like **B. squarrosa** but flower heads smaller, < 5 mm diam., stamens short and petals spathulate. Aug.–Sept. Sandstone slopes, SW (Kogelberg to Betty's Bay).•

ecklonii Pillans Closely leafy, willowy shrub to 1.5 m. Leaves ascending, incurved in upper half. Flowers crowded in ovoid, heads aggregated into small corymbs, white. Sept.–Nov. Marshy, sandstone slopes, SW (Kogelberg to Kleinmond).•

incurva Pillans Densely leafy, twiggy shrub to 1.3 m, coppicing from a woody caudex. Leaves ascending, imbricate, linear-oblanceolate. Flowers crowded in small heads in whorls near branch tips, white, peduncles densely leafy. Jan.–Feb. Sandstone rocks, SW (Babilonstoring to Stanford).•

lanuginosa (L.) Brongn. Finely and densely leafy shrub, 1.5–2 m. Leaves spreading ascending, linear-filiform. Flowers crowded in heads ± 5 mm diam., arranged in short racemes and clustered terminally in loose corymbs, cream-coloured. Sept.–Dec. Damp sandstone slopes seeps and stream banks, NW, SW (Gifberg to Bredasdorp Mtns).•

squarrosa (Thunb.) Sond. [incl. **Berzelia rubra** (Willd.) Schltdl. (= *Brunia rubra* Willd.)] Densely leafy shrub to 1.5 m, coppicing from a woody caudex. Leaves spreading, linear-oblanceolate, furrowed beneath in lower half. Flowers crowded in small heads arranged in short racemes at branch tips and aggregated in loose corymbs, white. Aug.–Oct. Rocky sandstone slopes, NW, SW (Cold Bokkeveld to Kleinrivier Mtns).•

A.' Flower heads ± 10 mm diam.

abrotanoides (L.) Brongn. Densely leafy shrub to 1.5 m, coppicing from a woody caudex. Leaves ascending, oblanceolate. Flowers crowded in rounded heads, ± 1 cm diam., aggregated in corymbs, white, peduncles red, often swollen and fleshy. Aug.–Oct. Rocky sandstone slopes, NW, SW, AP (Elands Bay to Potberg).•

albiflora (E.Phillips) Class.-Bockh. & E.G.H.Oliv. (= *Brunia albiflora* E.Phillips) Densely leafy, single-stemmed shrub, 2–3 m. Leaves spreading-ascending, petiolate, linear-lanceolate, pilose, furrowed beneath. Flowers crowded in dense, rounded heads crowded at branch tips in tight corymbs, white. Feb.–Apr. Marshes on peaty sandstone, SW (Hottentots Holland Mtns to Hermanus).•

burchellii Dümmer Like **B. abrotanoides** but leaves persistently pilose. Oct.–Nov. Sandstone slopes, LB (Langeberg: Riversdale).•

commutata Sond. Like **B. abrotanoides** but flower heads < 1 cm diam. Oct.–Jan. Sandstone slopes, SE (Langkloof to Grahamstown).

cordifolia Schltdl. Like **B. abrotanoides** but leaves spreading, cordate, very broad below. Sept.–Nov. Sandstone and limestone slopes, AP (De Hoop to Breede River Mouth).•

galpinii Pillans Like **B. abrotanoides** but leaves acuminate, incurved in upper half. Sept.–Oct. Sandstone slopes, LB (Langeberg: Riversdale).•

intermedia Schltdl. Like **B. abrotanoides** but pilose on young parts, leaves spreading, incurved above middle. Mainly Nov.–Feb. Sandstone slopes, NW, SW, KM, LB, SE (Cedarberg to E Cape).

stokoei (E.Phillips) A.V.Hall (= *Brunia stokoei* E.Phillips) Like **B. albiflora** but leaves broader, glabrous, with prominent midvein beneath, flowers red and ovary hairy above. Feb.–Mar. Rocky sandstone slopes, SW (Hottentots Holland Mtns to Kleinmond).•

BRUNIA Lam. (= *LONCHOSTOMA*, *MNIOTHAMNEA*, *NEBELIA*, *PSEUDOBAECKEA*, *RASPALIA*) 36 spp., W to E Cape and KwaZulu-Natal

A. Stamens exserted
B. Filaments unequal (adaxial shorter than others)

laevis Thunb. Closely leafy, rounded shrub to 1.5 m, coppicing from a woody caudex. Leaves oblong, ascending, incurved above, puberulous above. Flowers in dense, globose heads 1.5–2 cm diam., loosely clustered in corymbs, cream-coloured, adaxial filaments shorter. Dec.–Feb. Rocky sandstone and limestone slopes, SW, AP, LB (Hottentots Holland Mtns to Agulhas).•

macrocephala Willd. Like **B. laevis** but leaves conspicuously villous, flower heads 1–few per shoot system, 2.5–3 cm diam. Mainly Dec.–Feb. Rocky sandstone slopes, NW, SW (Du Toitskloof to Hex River Mtns and Kwadouwsberg).•

neglecta Schltr. Shrub to 0.6 m, with finely hairy branches. Leaves oblanceolate-linear, 3–5 mm long, imbricate, glabrous, ciliate. Flowers in dense, globose heads 15 mm wide with densely villous, long involucral bracts, adaxial filaments shorter. Dec.–Feb. rocky middle slopes, SW (Stellenbosch, Caledon, Worcester).•

noduliflora Goldblatt & J.C.Manning (= *Brunia nodiflora* auct.) FONTEINBOS, STOMPIE Closely leafy, rounded shrub to 1.5 m, coppicing from a woody caudex, with minutely pubescent branches. Leaves lanceolate, adpressed, 2–3 mm long, imbricate, cuneate. Flowers in dense, globose heads loosely clustered in corymbs, white, with white villous bracts, adaxial filaments shorter. Mainly Mar.–June. Rocky sandstone slopes, NW, SW, KM, LB, SE (Olifants River Mtns to Van Staden's Mtns).•

B.' Filaments equal

dregeana (Sond.) Class.-Bockh. & E.G.H.Oliv. (= *Raspalia dregeana* (Sond.) Nied.) Silky pubescent, closely leafy, suberect shrub to 1 m. Leaves ascending, lanceolate. Flowers crowded in rounded heads to 6 mm diam., white, villous, with far-exserted stamens. Dec–Jan. Upper sandstone slopes, NW (Cedarberg to Hex River Mtns).•

fragarioides Willd. (= *Nebelia fragarioides* (Willd.) Kuntze) Thinly hairy shrub to 1.5 m, coppicing from a woody caudex. Leaves linear-deltoid, ascending-incurved, imbricate. Flowers in small heads crowded in dense, globose clusters, cream-coloured. Mainly Mar.–Sept. Sandstone slopes, NW, SW (Cold Bokkeveld to Kleinrivier Mtns).•

latebracteata A.V.Hall (= *Nebelia laevis* (E.Mey. ex Sond.) Kuntze) Like **B. paleacea** but plants glabrescent, no coppicing, flowers in larger, top-shaped heads, white, involucral bracts shorter than flowers. Jan.–Feb. Rocky sandstone slopes, SW (Riviersonderend Mtns).•

paleacea P.J.Bergius (= *Nebelia paleacea* (P.J.Bergius) Sweet) Thinly hairy shrub to 1.5 m, resprouting from woody caudex. Leaves linear-deltoid, ascending-incurved, imbricate. Flowers in small, conspicuously involucrate heads grouped in loose, corymbose clusters, cream-coloured; bracts attenuate, white, longer than flowers. Oct.–Apr. Sandstone slopes, NW, SW, LB (Cedarberg to Langeberg).•

powrieae Class.-Bockh. & E.G.H.Oliv. (= *Nebelia stokoei* Pillans) Like **B. fragarioides** but calyx lobes smaller, ± 2 mm, hairy, petals ± 3 mm, and ovary minutely hairy above. Dec.–Jan. Sandstone slopes, NW (Cold Bokkeveld and Hex River Mtns).•

sphaerocephala (Sond.) A.V.Hall (= *Nebelia sphaerocephala* (Sond.) Kuntze) Softly hairy, densely leafy shrub to 2 m. Leaves linear-deltate, ascending-incurved, imbricate. Flowers in large,

rounded heads sometimes loosely grouped in corymbs, whitish. Dec.–Apr. Sandstone slopes, SW (Bain's Kloof to Hottentots Holland Mtns).•

tulbaghensis (Schltr. ex Dümmer) Class.-Bockh. & E.G.H.Oliv. (= *Nebelia tulbaghensis* Schltr. ex Dümmer) Shrub to 0.5 m tall. Leaves lanceolate, 2.5–3.5 mm long, ascending slightly incurved, when young tipped with hairs and minutely ciliate. Flower heads ovoid or globose, 5–7 mm wide, petals 2.5 mm long. Feb. Stony middle slopes, NW, SW (Tulbagh, Worcester).•

A.' Stamens included
C. Petals fused with filaments > 5 mm

esterhuyseniae (Strid) Class.-Bockh. & E.G.H.Oliv. (= *Lonchostoma esterhuyseniae* Strid) Like **B. pentandra** but spikes 4–7-flowered, and flowers deep pink and petals larger. Nov. Wet sandstone rocks, SW (Riviersonderend Mtns).•

monogyna (Vahl) Class.-Bockh. & E.G.H.Oliv. (= *Lonchostoma monogynum* (Vahl) Pillans) Like **B. pentandra** but flowers in terminal and lateral spikes, white, and styles entirely united. Mainly Sept.–Mar. Sandstone slopes in seeps and marshes, NW, SW (Cedarberg to Kleinrivier Mtns).•

myrtoides (Vahl) Class.-Bockh. & E.G.H.Oliv. (= *Lonchostoma myrtoides* (Vahl) Pillans) Like **B. pentandra** but leaves broadly ovate-elliptic, flowers pink, petals fused for two-thirds their length, styles 10–14 mm, longer than petal tube. Sept.–Oct. Marshes and seeps on sandstone slopes, NW (Witzenberg Vlakte to Waaihoek).•

pentandra (Thunb.) Class.-Bockh. & E.G.H.Oliv. (= *Lonchostoma pentandrum* (Thunb.) Druce) Densely leafy, erect, willowy shrub to 60 cm. Leaves ascending, elliptic and concave, imbricate, shortly hairy beneath. Flowers axillary, many in terminal spikes, white to pink, petals fused for up to half their length, styles free, shorter than petal tube. Sept.–Nov. Montane marshes, NW (Cedarberg to Witzenberg Vlakte).•

purpurea (Pillans) Class.-Bockh. & E.G.H.Oliv. (= *Lonchostoma purpureum* Pillans) Like **B. pentandra** but leaves leathery, flowers pink to purple, petals fused for up to one-quarter their length, style ± 6 mm, longer than petal tube. Aug.–Apr. Marshy montane slopes, SW (Bain's Kloof to Kogelberg).•

C.' Petals free
D. Leaves erect-spreading

africana (Burm.f.) Class.-Bockh. & E.G.H.Oliv. (= *Pseudobaeckea africana* (Burm.f.) Pillans) Erect, closely leafy shrub to 3 m. Leaves linear, ascending-spreading, imbricate, Flowers in slender spikes grouped in panicles, white; bracteoles ovate or rotund. Sept.–Nov. Stream banks on sandstone slopes, NW, SW (Gifberg to Kleinrivier Mtns).•

cordata (Burm.f.) Class.-Bockh. & E.G.H.Oliv. (= *Pseudobaeckea cordata* (Burm.f.) Nied.) Erect, closely leafy shrub to 2 m. Leaves ovate to lanceolate, often cordate at base, imbricate, erect to spreading, glabrous or thinly hairy. Flowers in small, rounded spikes grouped in panicles, white; bracteoles ovate to oblong. Nov.–Jan. Montane marshes seeps and streams, NW, SW, KM, LB, SE (Olifants River Mtns to Van Staden's Mtns).•

monostyla (Pillans) Class.-Bockh. & E.G.H.Oliv. (= *Pseudobaeckea cordata* var. *monostyla* Pillans) Like **B. cordata** but ovary 1-locular and 1-ovulate, style 1. Sept.–Dec. Mountain slopes, NW, SW (Clanwilliam to Ceres and Paarl).•

oblongifolia (Pillans) Class.-Bockh. & E.G.H.Oliv. (= *Raspalia oblongifolia* Pillans) Like **B. thomae** but leaves glabrous, calyx tube glabrous and styles longer (as long as or just longer than petals). Upper rocky mountain slopes. Dec. NW (Hex River Mtns).•

pillansii Class.-Bockh. & E.G.H.Oliv. (= *Pseudobaeckea stokoei* Pillans) Like **B. cordata** but conspicuously hairy, bracteoles obovate and sepals fused for half their length. Sept. Oct. Sandstone slopes near streams, SW (Kleinrivier Mtns).•

thomae Class.-Bockh. & E.G.H.Oliv. (= *Raspalia stokoei* Pillans) Shrub to 30 cm tall. Leaves closely set, 3–5 mm long, lanceolate to elliptic obtuse. Flower heads solitary, 4–5 mm wide, hemispherical. Calyx lobes villous, ciliate. Petals glabrous, white. Dec. Upper rocky slopes, NW (Grootwinterhoek to Hex River Mtns).•

villosa (C.Presl) E.Mey. ex Sond. (= *Raspalia villosa* C.Presl) Closely leafy shrub to 1.5 m, villous on young parts. Leaves spreading to suberect, linear-lanceolate. Flowers few in rounded heads, white, sepals glabrous. Oct.–Mar. Rocky damp to marshy sandstone slopes, NW, SW (Cedarberg to Du Toitskloof).•

D.' Leaves adpressed to partly imbricate
E. Flowers solitary

bullata (Schltr.) Class.-Bockh. & E.G.H.Oliv. (= *Mniothamnea bullata* Schltr.) Like **B. callunoides** but a sprawling, mat-forming undershrub to 10 cm, leaves with spreading hairs. Sept.–Oct. Damp sandstone rocks, LB (Langeberg: Swellendam).•

callunoides (Oliv.) Class.-Bockh. & E.G.H.Oliv. (= *Mniothamnea callunoides* (Oliv.) Nied.) Thinly velvety, twiggy shrub to 1 m. Leaves minute, ovate, adpressed, imbricate, adpressed-hairy. Flowers minute, solitary in upper axils, white or pink. Mainly Dec.–Mar. Damp sandstone slopes, LB (Langeberg: Swellendam to Riversdale).•

E.' Flower heads usually 2–4 mm diam.

compacta A.V.Hall Shrub to 50 cm tall. Leaves lanceolate, villous. Flower heads with 6–10 flowers, 3–4 mm wide, flowers white villous. Jan.–Oct. Upper rocky slopes, NW (Cedarberg to Cold Bokkeveld).•

schlechteri (Dümmer) Class.-Bockh. & E.G.H.Oliv. (= *Raspalia schlechteri* Dümmer) Shrub to 1.5 m tall with hairy branches. Leaves 1.75–2.25 mm long, ovate-lanceolate, appressed, hairy on midvein of lower surface. Flower heads 4 mm wide. Calyx lobes glabrous, ciliate. Petals glabrous white. Nov.–Dec. Rocky upper slopes, sometimes by streams, LB (Swellendam to Riversdale). •

virgata Brongn. (= *Raspalia virgata* (Brongn.) Pillans) Erect, willowy shrub to 1 m. Leaves linear-lanceolate, adpressed, often shortly imbricate. Flowers few in small, terminal heads, white. Aug.–Oct. Moist, rocky slopes and stream banks, SW, LB (Hottentots Holland to Langeberg).•

E." Flower heads usually > 5 mm diam.

angulata (E.Mey. ex Sond.) Class.-Bockh. & E.G.H.Oliv. (= *Raspalia angulata* (E.Mey. ex Sond.) Nied.) Shrub 75–90 cm tall. Leaves adpressed, sessile, 2, rarely 7 mm long, ovate, hairy at base, ciliate. Flower heads mostly 4 mm wide, rounded. Calyx tube glabrous, lobes villous. Petals 1.5 mm long, obovate, glabrous. Sept.–Jan. Sandstone slopes, NW, SW (Paarl to Villiersdorp and Worcester).•

barnardii (Pillans) Class.-Bockh. & E.G.H. Oliv. (= *Raspalia barnardii* Pillans) Like **B. sacculata** but leaves and branchlets with bent hairs and flowers white with petals 2.75 mm long, obtuse. Oct. Sandstone slopes, LB (Langeberg: Swellendam).•

microphylla Thunb. (= *Raspalia microphylla* (Thunb.) Brongn.) Sprawling softly hairy, often cushion-forming shrublet mostly to 50 cm, coppicing from a woody caudex. Leaves scale-like, closely adpressed, rotund to ovate, 2–3 mm long, hairy above, partly imbricate at first. Flowers few in small heads, white, petals often pubescent. Mainly Oct.–Jan. Sandstone rocks, SW, KM, LB (Hottentots Holland to Bredasdorp and Langeberg).•

palustris (Schltr. ex Dümmer) Class.-Bockh. & E.G.H.Oliv. (= *Raspalia palustris* (Kirchn. ex Dümmer) Pillans) Like **B. villosa** but sepals villous and slightly larger anthers. Nov.–Apr. Rocky upper slopes, NW, SW (Cedarberg to Riviersonderend Mtns).•

phylicoides Thunb. (= *Raspalia phylicoides* (Thunb.) Arn.) Like **B. squalida** but leaves linear-elliptic, ± 2 mm long, hairy on upper surface and flowers few in small heads, white. Feb.–Aug. Sandstone slopes, SW (Hottentots Holland Mtns to Caledon Swartberg).•

sacculata (Bolus ex Pillans) Class.-Bockh. & E.G.H.Oliv. (= *Raspalia sacculata* Kirchn. ex Pillans) Pilose, closely leafy, twiggy shrub to 1.5 m, coppicing from a woody caudex. Leaves elliptic, ascending and imbricate. Flowers few, in compact heads, white or pink. Mainly Nov.–Jan. Damp sandstone and clay slopes, NW, SW (Cold Bokkeveld to Du Toitskloof Mtns).•

squalida E.Mey. ex Sond. (= *Raspalia globosa* (Lam.) Pillans) Erect, willowy shrub to 1.2 m, white-tomentose on young parts. Leaves erect to adpressed, elliptic-ovate, 4–6 mm long. Flowers few, crowded in heads, pink to magenta. Mainly Mar.–June. Sandstone slopes, SW (Hottentots Holland Mtns).•

variabilis (Pillans) Class.-Bockh. & E.G.H.Oliv. (= *Raspalia variabilis* Pillans) Shrub, 30–40 cm tall, branches hairy. Leaves 2–3 mm long ovate-lanceolate to lanceolate, imbricate, sparsely hairy or glabrous. Flower heads terminal with 3–9 flowers, rarely only 1. Calyx lobes hairy. Petals glabrous or with a few hairs on upper half. Sept.–Jan. Rocky upper slopes, SW, LB (Stellenbosch to Uniondale).•

LINCONIA L.• 3 spp., SW Cape

alopecuroidea L. Densely leafy, sparsely branched, coppicing shrub to 1 m. Leaves linear-lanceolate, mostly 15–20 mm long, margins shortly ciliate. Flowers axillary, in subterminal whorls, urceolate, pink, ± 10 mm long. Sept.–Nov. Rocky sandstone slopes, LB, SE (Langeberg: Swellendam to Tsitsikamma Mtns).•

cuspidata (Thunb.) Sw. (= *Linconia deusta* (Thunb.) Pillans) Densely leafy, coppicing shrublet to 50 cm. Leaves oblong-elliptic, mostly 5–10 mm long. Flowers axillary, in subterminal whorls, cupulate, cream-coloured, 3–5 mm long. Sept.–Jan. Rocky sandstone slopes, NW, SW (Ceres to Kleinrivier Mtns).•

ericoides E.G.H.Oliv. Densely leafy, coppicing dwarf shrublet to 10 cm. Leaves oblong-elliptic to obovate, mostly 5–8 mm long. Flowers axillary, in subterminal whorls, urceolate, pink, ± 10 mm long. Oct.–Nov. Sandstone ledges, SW (Riviersonderend Mtns).•

LONCHOSTOMA Wikstr. = **BRUNIA**

MNIOTHAMNEA Nied. = **BRUNIA**

NEBELIA Neck. ex Sweet = **BRUNIA**

PSEUDOBAECKEA Nied. = **BRUNIA**

RASPALIA Brongn. = **BRUNIA**

STAAVIA Dahl• 11 spp., SW Cape

A. Flowers glutinous, in heads (excluding involucre) mostly 8–12 mm diam.

dodii Bolus DIAMOND-EYES Densely leafy, willowy shrub to 1 m. Leaves elliptic, imbricate, ascending, ± 10–12 mm. Flowers in large heads, pink, sticky, surrounded by white, elliptic-lanceolate bracts. Mainly Feb.–May. Rocky sandstone flats, SW (Cape Peninsula).•

glutinosa (P.J.Bergius) Dahl FLY-CATCHER BUSH, VLIEËBOS Finely leafy, willowy shrub to 1.5 m. Leaves linear, spreading, curving upward in upper half, thinly hairy to glabrous, mostly 10–15 mm long. Flowers in large heads, pink, sticky, surrounded by spreading, white, linear bracts. Mainly July–Sept. Cool, rocky slopes, SW (Cape Peninsula).•

A.' Flowers not glutinous, in heads (excluding involucre) mostly < 10 mm diam.

brownii Dümmer Like **S. zeyheri** but flower heads 1–few at branch tips, surrounded by oblanceolate bracts with broad, white, papery margins. Feb.–May. Lower sandstone slopes, SW (Kogelberg).•

capitella (Thunb.) Sond. Finely leafy, erect shrublet to 80 cm. Leaves lanceolate, 5–8 mm long. Flowers in small, terminal heads, pink, woolly. May–Nov. Rocky sandstone slopes, SW (Hottentots Holland Mtns to Bredasdorp).•

phylicoides Pillans Erect, single-stemmed, closely leafy shrub to 1 m. Leaves linear-oblanceolate, spreading-ascending. Flowers in small heads borne in upper axils and loosely clustered in corymbs, pink, petals hairy below. Sept. Rocky sandstone flats, NW (Bokkeveld Mtns).•

pinifolia Willd. (= *Staavia dregeana* C.Presl ex Dümmer) Like **S. capitella** but leaves spreading-recurved, narrowly oblong, and flower heads somewhat larger. June–Oct. Rocky sandstone slopes, SW (Cape Peninsula to Riviersonderend Mtns).•

radiata (L.) Dahl ALTYDBOS Finely leafy, twiggy shrublet to 60 cm, coppicing from a woody caudex. Leaves linear-lanceolate, 4–10 mm long. Flowers in small heads surrounded by small, white, recurving bracts, pink. Mainly Sept.–Dec. Sandy flats and plateaus, SW, AP, LB (Yzerfontein to Gouritsmond).•

staavioides (Sond.) A.V.Hall (= *Raspalia staavioides* (Sond.) Pillans) Finely leafy shrub to 70 m. Leaves linear, spreading to recurved. Flowers in small, rounded heads loosely clustered in upper axils. Mainly Jan.–Mar. Sandstone slopes, NW (Cedarberg).•

trichotoma (Thunb.) Pillans Like **S. capitella** but leaves of involucre widest above the middle. Oct. Rocky sandstone slopes, SW (Worcester, Genadendal).•

verticillata (L.f.) Pillans Like **S. capitella** but leaves oblong, 3–4 mm long. Oct.–Nov. Rocky sandstone slopes, SW (Bain's Kloof to Riviersonderend Mtns).•

zeyheri Sond. Densely leafy, willowy shrub to 2 m. Leaves linear-lanceolate, 13–15 mm long, long-hairy becoming glabrescent. Flowers in small heads crowded in ovoid clusters, surrounded by short, white bracts, pink, woolly. June–July. Rocky sandstone slopes, SW (Riviersonderend Mtns).•

THAMNEA Sol. ex Brongn.• 9 spp., SW Cape

A. Petals > 10 mm long

ustulata (Thunb.) A.V.Hall (= *Thamnea diosmoides* Oliv.) Closely leafy, rounded shrublet to 50 cm, coppicing from a rootstock. Leaves minute, scale-like, linear, wider and adpressed below. Flowers solitary at branch tips, sessile, petals ± 16 mm long, white to pink with red claw. Sept.–Nov. Mainly sandstone outcrops, also shale, NW (Pakhuis Mtns to Waaihoek).•

A.' Petals < 10 mm long.

depressa Oliv. Like **T. uniflora** but leaves ovate-deltate and ovary hispid. Feb. Upper slopes, SW (Genadendal).• EXTINCT

gracilis Oliv. Like **T. uniflora** but ovary containing 4 ovules. Jan. Rocky summits, LB (Craggy Peak, Swellendam).•

hirtella Oliv. Like **T. ustulata** but intricately branched shrublet to 30 cm, uppermost leaves pilose-ciliate, flowers to 7 mm long. Apr.–June. Sandstone rocks, NW (Witzenberg).•

massoniana Dümmer Like **T. uniflora** but leaves and petals blunt, ovary hairy above. Dec.–Apr. High sandstone slopes, SW (Du Toitskloof to Hottentots Holland Mtns).•

matroosbergensis A.V.Hall Shrub to 30 cm tall, sprawling. Branches glabrous. Leaves elliptic glabrous. Flowers solitary at ends of main branches, white. Nov.–Apr. Upper rocky slopes, NW (Matroosberg).•

teres (Oliv.) Class.-Bockh. & E.G.H.Oliv. (= *Pseudobaeckea teres* (Oliv.) Dümmer) Sprawling, mat-forming shrublet to 10 cm, with slender, erect branchlets. Leaves granular, adpressed, with membranous, fimbriate margins. Flowers solitary on bracteate, short shoots, white, petals ± 4 mm long, calyx rugose. Dec.–Feb. Rocky peaks, SW, KM (Riviersonderend Mtns and Klein Swartberg).•

thesioides Dümmer Like **T. uniflora** but flowers with ovary glabrous, capped with conical style base, styles up to half as long as petals. Dec.–Mar. Rocky summits, NW (Michell's Pass and Mostertshoek Twins).•

uniflora (L.) Sol. ex Brongn. Twiggy shrublet with slender branches, to 20 cm. Leaves, scale-like, lanceolate, adpressed. Flowers solitary at branch tips, white, petals ± 2 mm long, ovary glabrous with 8 ovules. Dec.–Mar. Rocky summits, NW, SW (Michell's Pass and Hex River Mtns to Sir Lowry's Pass).•

TITTMANNIA Brongn. = **AUDOUINIA**

BUDDLEJACEAE = **SCROPHULARIACEAE**

CAMPANULACEAE

1. Stamens epipetalous, inserted midway or in upper half of corolla tube, subsessile; stigmatic lobes 3:
   2. Leaves densely imbricate, broadly ovate; flowers in terminal heads, hypocrateriform; capsule operculate with base of style swollen and forming a solid plug ..... **Rhigiophyllum**
   2.' Leaves scattered, scale-like; flowers in open cymes, narrowly campanulate; capsule circumscissile ..... **Siphocodon**
1.' Stamens free, inserted at base of corolla; stigmatic lobes 2–5:

3. Capsule opening regularly by terminal valves; ovary ± half-inferior:
4. Stigmas and locules 5, opposite petals; annuals with flowers subsessile or on short, stout pedicels; capsules subglobose ..... **Microcodon**
4.' Stigmas and locules 3–5, when 5 then opposite sepals; annuals, perennials or shrublets; capsules various ..... **Wahlenbergia**
a. Petals narrowly lanceolate, > twice as long as broad; corolla either divided to near base or hypocrateriform ..... ***Lightfootia* group**
a.' Petals ovate, < twice as long as broad; corolla bell- or bowl-shaped ..... ***Wahlenbergia* group**
3.' Capsule bursting irregularly at apex or operculate, rarely indehiscent; ovary inferior:
5. Capsule cylindrical, at length splitting longitudinally into 5 strips; flowers often in diffuse, wiry cymes ..... **Prismatocarpus**
5.' Capsule obovoid, indehiscent or operculate with base of style swollen and forming a solid plug; leaves often with stout, white, marginal hairs; flowers amongst leaves:
6. Annual; flowers in terminal glomerules ..... **Treichelia**
6.' Perennials or shrubs:
7. Ovary 1-locular (or incompletely 2-locular) with 4 basal ovules; flowers tubular, elongate, in dense cylindrical inflorescences ..... **Merciera**
7.' Ovary 2-locular with many ovules; flowers bell-shaped, solitary or in rounded heads ... **Roella**

LIGHTFOOTIA L'Hér. = **WAHLENBERGIA**

MERCIERA A.DC.• 6 spp., SW Cape

A. Flowers white, tube slender throughout, 3–6 mm long

brevifolia A.DC. Like **M. leptoloba** but leaves shorter, < 8 mm long and petals ovate. Nov.–Feb. Shale or granite slopes, SW (Houwhoek to Caledon Swartberg).•

leptoloba A.DC. Rigid, closely leafy shrublet to 30 cm. Leaves imbricate, stiffly linear, pungent, shortly hairy, margins slightly revolute and harshly ciliate but axillary leaves glabrous. Flowers subsessile in upper axils, white, tube slender, 3–6 mm long, petals linear-lanceolate. Nov.–Mar. Sandy flats and lower slopes, SW, AP (Kogelberg to Bredasdorp).•

tetraloba Cupido Like **M. leptoloba** but floral parts in 4s, petals tipped mauve. Nov.–Feb. Clay and granite flats, SW (Tulbagh: Elandskloof Nature Reserve to Gordon's Bay).•

A.' Flowers blue to purple, tube cylindrical or narrowly funnel-shaped, 10–25 mm long

azurea Schltr. Rigid, closely leafy shrublet to 30 cm. Leaves imbricate, stiffly linear, pungent, shortly hairy, margins lightly revolute and roughly ciliate. Flowers subsessile in upper axils, blue to purple, tube narrowly funnel-shaped, 10–25 mm long, petals elliptic-lanceolate. Nov.–Feb. Sandstone slopes, SW (Sir Lowry's Pass to Bredasdorp).•

eckloniana H.Buek. Like **M. azurea** but plants slender and leaves scattered. Oct.–Feb. Rocky slopes, NW, SW (Tulbagh to Groenland Mtns).•

tenuifolia (L.f.) A.DC. Like **M. azurea** but axillary leaf tufts present and corolla tube cylindrical. Dec.–Jan. Rocky slopes, SW (Houwhoek to Kogelberg).•

MICROCODON A.DC.• 3 spp., SW Cape

glomeratus A.DC. Sparsely hairy annual, 5–15 cm, branching from base. Leaves linear-lanceolate, margins thickened, ciliate below. Flowers tightly clustered at branch tips, subtended by leaves, narrowly bell-shaped, pale blue with purple centre, 5–8 mm diam., calyx lobes to as long as corolla. Capsule strongly beaked. Oct.–Dec. Clay or sandy flats, NW, SW, AP (Tulbagh to De Hoop).•

hispidulus (Thunb.) Sond. Coarsely hairy, procumbent annual, 5–8 cm. Leaves triangular-lanceolate, margins thickened, ciliate below. Flowers few at branch tips, narrowly bell-shaped, pale blue with purple centre, 6–10 mm diam., calyx lobes often longer than corolla. Capsule flat or depressed above. Sept.–Nov. Sandy flats, NW, SW, LB (Lambert's Bay to Swellendam).•

linearis (L.f.) H.Buek Subglabrous annual, 5–15 cm, branching above. Leaves linear-lanceolate, margins thickened, ciliate below. Flowers 1 or 2 at branch tips, not subtended by leaves, narrowly bell-shaped, white to blue, 5–8 mm diam., calyx lobes to as long as corolla. Capsule strongly beaked. Sept.–Oct. Sandy slopes, NW, SW (Bokkeveld to Bain's Kloof Mtns).•

[**Species excluded** No authentic material found and probably conspecific with one of the above: **M. sparsiflorus** A.DC.]

PRISMATOCARPUS L'Hér. 30 spp., Africa, mainly S Africa

A. Flowers in a leafless, terminal inflorescence; bracts smaller than leaves
B. Sepals fused below; flowers hypocrateriform with slender tube; style much longer than corolla

diffusus (L.f.) A.DC. Sprawling or rounded shrublet to 45 cm, shortly hairy on young stems. Leaves needle-like, sparsely ciliate below. Flowers in leafless, divaricate, terminal cymes, blue sometimes white, hypocrateriform, ± 10 mm diam., lobes linear, anthers partially or just exserted, bracts 2–3 mm long. Fruits 10–20 mm long. Nov.–Feb. Sandstone slopes, NW, SW (Kamiesberg to Riviersonderend Mtns). **gce**

fastigiatus C.Presl ex A.DC. Like **P. diffusus** but ovary hairy and bracts slightly longer, 4–6 mm long. ? Sandstone slopes, SW (Bredasdorp).•

pauciflorus Adamson Like **P. diffusus** but leaves shorter and mostly in axillary tufts, often finely hairy, to 10 mm long and flowers with anthers well included. Jan.–Feb. Sandstone slopes, NW (N Cedarberg).•

pilosus Adamson Like **P. diffusus** but ovary and calyx finely hairy and bracts ± as long as ovary, ± 5–10 mm long. Jan. Sandstone slopes, NW (Cold Bokkeveld Mtns).•

B.' Sepals almost free; flowers cup- or funnel-shaped; style shorter than corolla

alpinus (Bond) Adamson Like **P. brevilobus** but mostly prostrate or mat-forming, leaves softer and broader and inflorescence few-branched or sessile. Dec.–Jan. Sandstone ledges at high alt., NW, SW (Cedarberg to Hottentots Holland Mtns).•

altiflorus L'Hér. Erect or sprawling, shortly hairy shrublet to 1 m. Leaves awl-like, coarsely ciliate below, often in axillary tufts. Flowers mostly congested in subumbellate, pedunculate, terminal cymes, white to blue, cup-shaped, 15–20 mm diam., ovary densely, coarsely hairy. Fruits 30–45 mm long, coarsely hairy. Nov.–Dec. Sandstone slopes, NW (Cedarberg and Cold Bokkeveld Mtns).•

brevilobus A.DC. Like **P. fruticosus** and **P. pedunculatus** but sepals short and broad, ovate-oblong. Dec.–May. Rocky slopes, NW, SW, AP, KM (Cedarberg to Bredasdorp and Swartberg).•

crispus L'Hér. Robust, shortly hairy annual to 50 cm. Leaves few, scattered, linear, margins slightly thickened and sparsely undulate-toothed. Flowers in leafless, terminal cymes, blue or lilac, cup-shaped, (15–)20–30 mm diam., ovary glabrous or hairy. Fruits 40–60 mm long. Oct.–Dec. Dry, often sandy flats and slopes, NW, SW (Bokkeveld to Riviersonderend Mtns and E Cape).

decurrens Adamson Like **P. pedunculatus** but leaves decurrent, lanceolate and sparsely, prickly toothed as well as ciliate below. Dec.–Mar. Sandstone slopes above 1 000 m, NW (Cedarberg).•

fruticosus L'Hér. Like **P. pedunculatus** but flowers deeply cup- or funnel-shaped, white with brown or purple reverse, sepals shorter than corolla tube. Nov.–Apr. Sandy flats and slopes, NW, SW, KM, SE (Cedarberg to Riviersonderend Mtns and Langkloof).•

lycopodioides A.DC. Sprawling, closely leafy, shortly hairy shrublet to 30 cm. Leaves imbricate, spreading-incurved or reflexed, small, oblong, coarsely ciliate. Flowers 1–5 in subracemose, terminal cymes on wiry peduncles, cup-shaped, white to pinkish, ± 10 mm diam. Fruits 15–20 mm long. Nov.–Jan. Sandstone slopes in sheltered places, SW (Bain's Kloof to Stellenbosch Mtns).•

pedunculatus (P.J.Bergius) A.DC. Erect or sprawling, shortly hairy shrublet to 50 cm. Leaves awl-like, coarsely ciliate below, often in axillary tufts. Flowers in leafless, terminal cymes, white to blue, dish- or bowl-shaped, 15–20 mm diam. Fruits 15–30 mm long. Sept.–Jan. Stony or shale flats and slopes, NW, SW, LB (Bokkeveld Mtns to Riversdale).•

A.' Flowers mostly axillary, sometimes in pseudoracemes or crowded at branch tips; bracts like leaves or larger
C. Stiff shrublets

campanuloides (L.f.) Sond. Slender, glabrescent shrublet to 80 cm. Leaves linear-lanceolate, sometimes weakly prickly toothed, coarsely ciliate below; bracts lanceolate, ciliate. Flowers sessile, ±

crowded at branch tips and upper axils, white to lilac, bowl-shaped, 20–30 mm diam. Fruits ± 20 mm long. Dec.–Apr. Sandy or limestone flats and slopes, NW, SW, AP, SE (Elandskloof to E Cape).

candolleanus Cham. (incl. **P. virgatus** Fourc.) Stiffly erect, shortly hairy shrublet to 50 cm with rod-like branches. Leaves linear-lanceolate, margins revolute, entire or weakly prickly toothed; bracts broad and pinnatisect below, slightly revolute. Flowers sessile, few in upper axils, white to lilac, bell-shaped, 15–20 mm diam. Fruits ± 10 mm long. Dec.–Jan. Sandstone slopes, KM, LB, SE (Swartberg and Langeberg to Outeniqua Mtns).•

cliffortioides Adamson Stiffly erect, shortly hairy shrublet to 1 m. Leaves linear-lanceolate, margins revolute and prickly toothed, often twisted and pungent; bracts broad and pinnatisect below, margins revolute. Flowers sessile, crowded in axillary glomerules, white to lilac, funnel-shaped with short lobes, 15–20 mm diam. Fruits ± 10 mm long. Dec.–Apr. Stony, often shale slopes, LB (Langeberg: Cloete's Pass).•

hispidus Adamson Sprawling, sparsely leafy, roughly hairy shrublet to 60 cm. Leaves ovate, margins slightly revolute and prickly toothed, coarsely hairy; bracts pinnatisect below, coarsely hairy. Flowers in small, terminal heads, white, narrowly funnel-shaped or tubular, ± 5 mm diam., ovary and calyx coarsely hairy. Fruits ± 5 mm long. Jan. Sandstone slopes, LB, SE (Langeberg: Cloete's Pass to Outeniqua Mtns).•

lycioides Adamson Thorny, stiffly branched, shortly hairy shrublet to 40 cm. Leaves oblong, margins revolute, sometimes prickly toothed below, twisted, ciliate beneath. Flowers axillary on divaricate, thorny branchlets, white, bell-shaped, ± 8 mm diam. Fruits ± 5 mm long. Dec.–Apr. Dry, N-facing, sandstone slopes, SW (Riviersonderend Mtns: Jonaskop and Hammansberg).•

rogersii Fourc. Slender, erect or sprawling, shortly hairy shrublet to 50 cm. Leaves linear-lanceolate, margins slightly revolute, entire or weakly prickly toothed, coarsely ciliate below and on midrib beneath; bracts broad, pinnatisect below, ciliate. Flowers sessile, few in upper axils, white to lilac, bell-shaped, ± 10 mm diam. Fruits ± 10 mm long. Dec.–Apr. Sheltered sandstone slopes, SE (Outeniqua Mtns: Outeniqua Pass).•

schlechteri Adamson Slender, shortly hairy shrublet to 40 cm. Leaves ovate-lanceolate, spreading, margins slightly revolute, weakly prickly toothed, coarsely ciliate below and on midrib beneath; bracts lanceolate, ciliate. Flowers sessile, few in upper axils, white, bell-shaped, ± 10 mm diam. Fruits ± 8 mm long. Dec.–Apr. Sandstone slopes, SW (Wemmershoek to Bredasdorp Mtns).•

spinosus Adamson Stiffly erect, closely leafy, coarsely hairy shrublet to 1 m. Leaves ovate, margins revolute and prickly toothed, coarsely hairy; bracts pinnatisect below, coarsely hairy. Flowers terminal and axillary, white, narrowly funnel-shaped or tubular, ± 5 mm diam., ovary and calyx coarsely hairy. Fruits ± 8 mm long. Jan. Sandstone slopes, SW (Potberg).•

C.' Small or prostrate, more delicate perennials

cordifolius Adamson Like **P. nitidus** but leaves thinly hairy and bracts distinctly toothed. Fruits ± 10 mm long. Jan. Sheltered, sandstone crevices, SW (Kogelberg and Betty's Bay Mtns).•

debilis Adamson (= *Prismatocarpus nitidus* var. *ovatus* Adamson) Like **P. nitidus** but leaves often opposite, sometimes thinly hairy and upper internodes slender, wiry and peduncle-like. Fruits 10–15 mm long. Jan.–Mar. Sheltered, sandstone crevices, NW, SW, LB, SE (Olifants River to Outeniqua Mtns).•

implicatus Adamson Like **P. tenellus** but flowers cup-shaped with lobes longer than tube and fruits ovoid, 5–6 mm long, not spirally twisted. Jan.–Mar. Sheltered, sandstone slopes, NW (Grootwinterhoek Mtns).•

lasiophyllus Adamson Like **P. cordifolius** but sepals hairy. Jan. Sheltered, sandstone crevices, LB (Langeberg: Swellendam).•

nitidus L'Hér. Prostrate, softly woody subshrub or perennial to 35 cm. Leaves alternate or subopposite, ovate to lanceolate, margins slightly revolute and toothed. Flowers 1–5 at branch tips, white to pale blue, bell-shaped, ± 8 mm diam.; bracts like leaves. Fruits 15–25 mm long. Jan.–Mar. Sheltered, sandstone crevices, SW (Cape Peninsula).•

sessilis Eckl. ex A.DC. Sprawling subshrub or shrublet to 60 cm. Leaves linear-lanceolate, margins slightly revolute and ciliate below. Flowers 1–3 in axils, sessile or pedicellate and sometimes in pseudoracemes, white or pale blue, bell-shaped, ± 5 mm diam. Fruits 4–15 mm long. Dec.–Mar. Sheltered, sandstone slopes, SW, LB (Cape Peninsula to Kleinrivier Mtns).•

tenellus Oliv. Delicate, sprawling perennial with wiry stems to 50 cm. Leaves opposite, linear. Flowers on slender, divaricately spreading peduncles in upper axils, white, bell-shaped, ± 5 mm diam. Fruits 5–15 mm long, spirally twisted. Jan.–Mar. Sheltered, sandstone slopes, NW (Hex River Mtns).•

tenerrimus H.Buek Sprawling, minutely hairy subshrub to 30 cm. Leaves ovate-lanceolate, margins thickened and minutely prickly toothed. Flowers 1–3 in axils and in pseudoracemes, white to lilac, bell-shaped, ± 5 mm diam. Fruits 6–10 mm long. Jan.–Mar. Sandstone slopes, SW, KM, LB (Wemmershoek to Langeberg and Swartberg).•

RHIGIOPHYLLUM Hochst.• 1 sp., SW Cape

squarrosum Hochst. Densely leafy shrublet with erect branches to 50 cm. Leaves imbricate, 4-ranked, subrotund, leathery, shining. Flowers clustered at branch tips in bracteate heads, narrowly tubular below, deep blue. Nov.–Jan. Damp sandstone slopes, SW (Akkedisberg and Bredasdorp Mtns).•

ROELLA L. ± 21 spp., S Africa, mostly SW Cape, 1 sp. to KwaZulu-Natal

A. Leaves ovate to elliptic

amplexicaulis Wolley-Dod Erect, closely leafy shrublet to 50 cm. Leaves imbricate, recurved, rotund-ovate, prickly toothed, apiculate; bracts orbicular. Flowers 3–8 in terminal heads, white or pale blue, ± 10 mm diam., ovary glabrous. Nov.–Apr. Sandstone slopes, SW (Cape Peninsula).•

decurrens L'Hér. Annual or short-lived perennial to 70 cm. Leaves scattered, spreading or recurved, ovate-lanceolate, prickly toothed, apiculate, ciliate below and decurrent; bracts broadly lanceolate. Flowers 1–5 in terminal heads, white or pale blue, ± 10–15 mm diam., ovary glabrous. Feb.–Apr. Sandy slopes, SW (Cape Peninsula).•

goodiana Adamson Like **R. recurvata** but softer with bracts 3-toothed above and not recurved and flowers smaller. Feb.–Apr. Sandy flats, SW (Cape Peninsula: Klaver Valley).•

muscosa L.f. Prostrate, mat-forming perennial to 5 cm. Leaves ovate-elliptic, softly prickly toothed, ciliate below; bracts lacking. Flowers solitary at branch tips, white to pale blue, ± 10 mm diam., ovary glabrous. Nov.–Feb. Sandstone rocks, SW (Cape Peninsula to Kleinrivier Mtns).•

recurvata A.DC. Closely leafy shrublet to 25 cm. Leaves imbricate, spreading or recurved, elliptic and keeled, apiculate, ciliate, slightly decurrent; bracts leaf-like, hooked. Flowers solitary at branch tips, white or blue, ± 10 mm diam., ovary minutely hairy. Jan.–Feb. Sandy flats, SW (Cape Peninsula).•

squarrosa P.J.Bergius Straggling shrublet to 50 cm. Leaves spreading-recurved, ovate, prickly toothed, apiculate, ciliate below and decurrent; bracts rotund-ovate. Flowers 1–3 in terminal heads, white or tinged blue, ± 10 mm diam., ovary glabrous. Dec.–Mar. Sandstone slopes, SW (Cape Peninsula).•

A.' Leaves linear or awl-shaped
B. Bracts like leaves but often more crowded

arenaria Schltr. Like **R. prostrata** but leaves spreading and sepals strongly recurved or hooked and always hairy. Dec.–Mar. Sandy flats, SW (Malmesbury to Bredasdorp).•

bryoides H.Buek Like **R. prostrata** but leaves spreading and short, to 6 mm long and bracts always prickly toothed. Dec.–Feb. Sandy slopes, NW, SW (Kamiesberg, Clanwilliam to Caledon Swartberg). **gce**

latiloba A.DC. Like **R. prostrata** and **R. bryoides** but sepals broadly triangular, shortly hairy. Dec.–Feb. Sandy slopes, NW, SW (Clanwilliam, Bredasdorp).•

prostrata E.Mey. ex A.DC. (= *Roella incurva* var. *rigida* Adamson) Erect or sprawling shrublet to 50 cm. Leaves often with axillary tufts, linear-pungent, ciliate, midrib prominent beneath; bracts leaf-like, crowded, ciliate below sometimes prickly toothed, glabrous or sparsely hairy. Flowers solitary at branch tips, white or pale blue, 10–15 mm diam., ovary hairy. Dec.–Mar. Sandy flats, SW (Hopefield to Potberg).•

uncinata Cupido Tufted perennial to 10 cm. Leaves linear, uncinate, ciliate with 1 or 2 pairs of teeth near apex; bracts leaf-like. Flowers 1–4, terminal, white or pale blue; ovary glabrescent. Nov.–Feb. Sandstone slopes, SW (Hermanus).•

B.' Bracts differing from leaves in size or form
C. Bracts broadened and clasping below; flowers usually in heads

compacta Schltr. (= *Roella cuspidata* Adamson) Sprawling or decumbent shrublet to 30 cm. Leaves with axillary tufts, linear-pungent, coarsely ciliate, sometimes prickly toothed or roughly

hairy, margins revolute; bracts ovate-acuminate, toothed above, ciliate below, sometimes roughly hairy. Flowers in terminal heads, white or pale blue, 8–10 mm diam., ovary glabrous or minutely hairy. Dec.–Feb. Rocky, coastal limestones, SW, AP (Cape Peninsula to De Hoop).•

secunda H.Buek Tangled or trailing shrublet with numerous short, often secund branchlets. Leaves with axillary tufts, small, oblong-mucronate, sometimes slightly toothed; bracts suborbicular, ± truncate and equally 5–7-recurved-toothed above, finely hairy. Flowers 1–3 at branch tips, mauve to white, ± 8 mm diam., calyx and ovary hairy. Dec.–Mar. Sandy flats and lower slopes, NW, AP, KM, SE (Potberg and Worcester to Uitenhage).•

spicata L.f. (= *Roella lightfootioides* Schltr.) Erect or sprawling shrublet to 40 cm. Leaves with axillary tufts, linear-pungent, coarsely ciliate below, outer bracts leaf-like but broad and clasping below, inner bracts shorter, ovate, toothed above. Flowers in terminal and lateral heads, white, tubular-campanulate, ± 10 mm diam., ovary hairy, sometimes glabrous. Jan.–Mar. Sandstone slopes, SW, KM, LB, SE (Houwhoek to Port Elizabeth).•

C.' Bracts narrow throughout; flowers not in heads, sometimes with dark markings
D. Ovary glabrous

ciliata L. Erect or sprawling shrublet to 50 cm. Leaves with axillary tufts, linear-pungent, ciliate, midrib prominent beneath; bracts larger, conspicuously white-ciliate. Flowers solitary, white or blue with a dark ring or spots on lobes, 20–25 mm diam. Aug.–Mar. Stony slopes, SW (Tulbagh: Elandskloof Mtns to Caledon Swartberg).•

incurva A.DC. (= *Roella rhodantha* Adamson) Shrublet to 40 cm. Leaves often with axillary tufts, linear-pungent, ciliate and often prickly toothed above, midrib prominent beneath; bracts longer, ciliate and prickly toothed, glabrous or sparsely hairy. Flowers 1–3 at branch tips, white or blue, sometimes pink or red (only Potberg), mostly with dark spots on petals, 20–30 mm diam. Oct.–Jan. Sandy lower slopes, SW, AP (Tulbagh: Elandskloof Mtns to Potberg).•

D.' Ovary hairy

dregeana A.DC. (= *Roella psammophila* Schltr.) Erect shrublet with ascending branches to 30 cm. Leaves usually with axillary tufts, small, linear-pungent, ciliate below and usually with stiff hair-like prickles above; bracts larger, glabrous or finely hairy, margins with few to many, stiff, wire-like hairs. Flowers 1–few at branch tips, pale blue or white, 10–15 mm diam., calyx and ovary hairy. Jan.–Mar. Sandstone slopes, SW (Tulbagh: Elandskloof Mtns to Kleinrivier Mtns).•

dunantii A.DC. Sprawling shrublet to 30 cm. Leaves with axillary tufts, linear-pungent, conspicuously white-ciliate, midrib prominent beneath; bracts larger. Flowers solitary, white or blue, sometimes with small spots on petals, 10–15 mm diam., ovary finely hairy. Nov.–Jan. Sandy lower slopes, SW (Mamre to Caledon Swartberg).•

maculata Adamson Shrublet to 30 cm. Leaves with axillary tufts, linear-pungent, finely ciliate, sparsely prickly toothed above; bracts larger, finely hairy. Flowers 1–4 at branch tips, blue with large spots between petals, 20–30 mm diam., calyx and ovary finely hairy. Dec.–Feb. Sandy coastal slopes, SW, AP (Kleinmond to De Hoop).•

triflora (R.D.Good) Adamson Erect shrublet with ascending branches to 20 cm. Leaves usually with axillary tufts, linear-pungent, ciliate below and prickly toothed above; bracts larger, finely hairy, margins with stiff, wire-like hairs. Flowers 1–3 at branch tips, pale blue with dark eye, 15–20 mm diam., calyx and ovary hairy. Dec.–May. Sandy lower slopes, SW (Cape Peninsula).•

SIPHOCODON Turcz.• 2 spp., SW Cape

debilis Schltr. Like **S. spartioides** but flowers narrowly campanulate, violet to white, and filaments longer than anthers and inserted in lower half of tube. Jan.–Apr. Sandstone slopes, SW (Hottentots Holland to Kleinrivier Mtns).•

spartioides Turcz. Flexuose subshrub with slender, wand-like branches to 30 cm. Leaves minute, triangular, adpressed. Flowers in short, sometimes branched racemes, tubular, blue to purple, filaments shorter than anthers and inserted in upper part of tube. Dec.–Apr. Sandstone slopes, SW, LB (Franschhoek Mtns to Langeberg).•

THEILERA E.Phillips = **WAHLENBERGIA**

TREICHELIA Vatke• 2 sp., SW Cape

dodii Cupido *ined.* Coarsely hairy, tufted annual to 10 cm. Leaves linear-elliptic, denticulate, coarsely ciliate. Flowers in dense heads among leaf-like bracts, white or cream-coloured, ovary hispid, 3-locular. Oct.–Nov. Open or partially distributed loamy flats and lower mountain slopes, SW, LB (Malmesbury, Cape Peninsula, Riversdale).•

longebracteata (H.Buek ex Eckl. & Zeyh.) Vatke Coarsely hairy annual branching from base, 5–20 cm. Leaves linear-oblanceolate, slightly toothed, coarsely ciliate below. Flowers in terminal heads among long bracts, narrowly bell-shaped, pale blue to white, ± 8 mm diam., petals sparsely hairy, ovary 2-locular. Oct.–Dec. Disturbed sandy ground, SW (Cape Peninsula to Hermanus).•

WAHLENBERGIA Schrad. ex Roth. (= *LIGHTFOOTIA, THEILERA*)

AFRICAN BLUE-BELL, BLOUKLOKKIE ± 250 spp., chiefly S temperate

Lightfootia group

A. Flowers hypocrateriform

guthriei L.Bolus (= *Theilera guthriei* (L.Bolus) E.Phillips) Shortly hairy shrublet with erect or straggling branches to 30 cm. Leaves mostly in axillary tufts, narrowly triangular, rigid, margins slightly revolute. Flowers sessile in upper axils, often in pseudoracemes, hypocrateriform, tube elongate, blue to purple. Jan.–July. Sandstone slopes, KM, SE (Witteberg and Swartberg to Tsitsikamma Mtns).•

robusta (A.DC.) Sond. (= *Theilera capensis* D.-Y.Hong, *T. robusta* (A.DC.) Cupido) Diffuse, twiggy shrublet to 30 cm. Leaves in axillary tufts, elliptical, margins revolute. Flowers solitary on short shoots, hypocrateriform, tube ± 7 mm long, pale blue-mauve. Jan.–July. Sandstone slopes, KM, SE (Witteberg and Great Winterhoek Mtns).•

A.' Flowers campanulate
B. Leaves channelled or concave above, ovate to lanceolate

adamsonii Lammers (= *Lightfootia multicaulis* Adamson) Like **W. brachyphylla** but sepals strongly keeled, flowers blue. Nov.–Jan. High sandstone slopes, NW (Pakhuis Mtns and Cedarberg).•

adpressa (Thunb.) Sond. (= *Lightfootia adpressa* (Thunb.) A.DC.) Erect or sprawling, rigid shrublet to 80 cm. Leaves spreading or recurved, lanceolate, concave, toothed. Flowers in panicles, white or cream-coloured, ± 6 mm diam., tube 2–3 mm long, ovary glabrous. Dec.–Apr. Coastal sands, NW, SW (Rocher Pan to Cape Peninsula).•

asparagoides (Adamson) Lammers (= *Lightfootia asparagoides* Adamson) Like **W. adpressa** but stems much branched, to 1 m and inflorescence divaricately branched and becoming spinescent. Sept. Coastal sands, NW (Namaqualand to Lambert's Bay). **gce**

brachyphylla (Adamson) Lammers (= *Lightfootia brachyphylla* Adamson) Sprawling shrublet to 30 cm. Leaves opposite, recurved, small, lanceolate, channelled, margins thickened, toothed. Flowers few in upper axils, white, ± 5 mm diam., tube ± 2 mm long, ± as long as lobes, ovary half-inferior, hairy. Nov.–Dec. Sandstone slopes, NW (Cold Bokkeveld).•

cordata (Adamson) Lammers (= *Lightfootia cordata* Adamson) Mat-forming, closely leafy shrublet to 5 cm. Leaves opposite, imbricate, spreading or recurved, ovate, concave, keeled below. Flowers 1–3 in upper axils, white, ± 5 mm diam., tube to 1 mm long, ovary subglabrous. Jan.–Mar. Sheltered rock ledges at high alt., KM (Swartberg and Kammanassie Mtns).•

desmantha Lammers (= *Lightfootia fasciculata* (L.f.) A.DC.) Erect shrublet to 80 cm. Leaves recurved, ovate, margins thickened, slightly toothed below. Flowers crowded in terminal heads, white with darker reverse, 5–8 mm diam., tube ± 1 mm long, ovary hairy. Jan.–Apr. Stony and clay slopes, KM, LB, SE (Riversdale and Swartberg to Uniondale).•

macrostachys (A.DC.) Lammers (= *Lightfootia spicata* H.Buek) Slender shrublet to 50 cm. Leaves recurved, lanceolate, channelled, margins thickened, slightly toothed below. Flowers subsessile in upper axils, white, ± 5 mm diam., tube ± 1 mm long, ovary half-inferior, roughly hairy, sometimes glabrous. Sept.–Jan. Rocky sandstone slopes, NW, SW (Gifberg to Drakenstein Mtns).•

microphylla (Adamson) Lammers (= *Lightfootia microphylla* Adamson) Like **W. neorigida** but plants more delicate and leaves smaller, 1–2 mm long. Feb. Coastal sands, AP (Bredasdorp).•

neorigida Lammers (= *Lightfootia rigida* Adamson) Erect, rigid shrublet to 60 cm. Leaves recurved, ovate-lanceolate, concave, margins thickened. Flowers terminal, solitary or subumbellate, white, 5–7 mm diam., tube ± 1 mm long, ovary half-inferior, shortly hairy. Nov.–Apr. Dry rocky slopes, NW, SW, KM, LB, SE (Cold Bokkeveld to Uitenhage).•

nodosa (H.Buek) Lammers (= *Lightfootia nodosa* H.Buek) Rigid, much-branched, somewhat spiny shrublet to 45 cm. Leaves recurved, ovate-lanceolate, concave, margins thickened. Flowers in divaricately branched panicles, white, 5–7 mm diam., tube ± 1 mm long, ovary half-inferior, shortly hairy. Oct.–May. Dry rocky slopes, NW, SW, KM, LB, SE (widespread in southern Africa).

oligantha Lammers (= *Lightfootia pauciflora* Adamson) Slender, wiry shrublet to 45 cm. Leaves suberect or spreading, scale-like, channelled. Flowers few in terminal axils on slender pedicels, white, ± 5 mm diam., tube obsolete, ovary half-inferior, puberulous. Dec.–Jan. N-facing, sandstone slopes, LB (Langeberg: Garcia's Pass).•

rubioides (Banks ex A.DC.) Lammers (= *Lightfootia rubioides* Banks ex A.DC.) Sprawling to prostrate, often diffuse shrublet to 30 cm. Leaves alternate or opposite, reflexed, lanceolate, channelled, sometimes flat, slightly toothed below. Flowers in upper axils on slender pedicels, white, ± 5 mm diam., tube ± 1 mm long, ovary half-inferior, roughly hairy. Dec.–Mar. High rocky slopes, NW, SW, LB, SE (Gifberg to Tsitsikamma Mtns).•

tenella (L.f.) Lammers (= *Lightfootia diffusa* H.Buek, *L. tenella* (L.f.) A.DC.) Erect or sprawling shrublet to 80 cm. Leaves strongly recurved, ovate, margins thickened, sometimes minutely toothed below. Flowers clustered in upper axils or paniculate, white or blue, 5–8 mm diam., tube ± 1 mm long, ovary sometimes hairy. Nov.–May. Sandy flats and slopes, often coastal, SW, AP, KM, LB, SE (Mamre to E Cape).

tenerrima (H.Buek) Lammers (= *Lightfootia tenella* Lodd.) Sprawling, diffuse shrublet to 50 cm. Leaves recurved, ovate-lanceolate, concave, margins thickened. Flowers in slender pseudoracemes, blue or white, 5–7 mm diam., tube ± 1 mm long, ovary half-inferior, shortly hairy. Oct.–May. Sandstone slopes, NW, SW, AP, KM, LB, SE (Cold Bokkeveld to E Cape).

umbellata (Adamson) Lammers (= *Lightfootia umbellata* Adamson) Erect or sprawling shrublet to 50 cm. Leaves opposite, reflexed, linear-lanceolate, concave above. Flowers in umbellate cymes, white with darker reverse, ± 8 mm diam., tube ± 1 mm long, ovary half-inferior, roughly hairy. ? Coastal sands, NW (Lambert's Bay).•

sp. 1 Like **W. cordata** but sepals triangular and leaf and sepal margins roughly hairy below. Jan.–Mar. Sandstone slopes at high alt., NW (Cedarberg).•

B.' Leaves flat, linear to lanceolate
C. Leaf margins revolute

albens (Spreng. ex A.DC.) Lammers (= *Lightfootia albens* Spreng. ex A.DC.) Twiggy shrublet to 50 cm. Leaves linear-ericoid, margins strongly revolute, greyish. Flowers in divaricate clusters, yellow or white, ± 5 mm diam., tube to 1 mm long, ovary shortly hairy. Oct.–Jan. Dry stony slopes, SW, LB, SE (Caledon and Karoo to Lesotho).

axillaris (Sond.) Lammers (= *Lightfootia axillaris* Sond.) Like **W. unidentata** but leaves broader, oblong-lanceolate and flowers larger, 6–10 mm diam. Dec.–Apr. Sandstone slopes, SW (Kogelberg to Bredasdorp Mtns).•

calcarea (Adamson) Lammers (= *Lightfootia calcarea* Adamson) Sprawling, often densely leafy shrublet to 30 cm. Leaves often tufted, linear-ericoid, margins strongly revolute. Flowers in tight, terminal clusters, white with darker reverse, ± 8 mm diam., tube 2–3 mm long, ovary glabrous or shortly hairy. Oct.–Apr. Coastal limestones, AP (Pearly Beach to Still Bay).•

cinerea (L.f.) Lammers (= *Lightfootia cinerea* (L.f.) Sond.) Like **W. rubens** but plants distinctly cobwebby or woolly-hairy. Nov.–May. Stony slopes, SW, KM, LB, SE (Potberg and Swartberg to E Cape).

levynsiae Lammers (= *Lightfootia squarrosa* Adamson) Like **W. calcarea** but more erect with corolla tube longer than calyx, ± 3 mm long. Apr. Limestone flats, AP (Agulhas to Still Bay).•

rubens (H.Buek) Lammers (= *Lightfootia rubens* H.Buek) Erect shrublet to 50 cm. Leaves often tufted, spreading or suberect, linear-lanceolate, margins revolute, slightly toothed below. Flowers grouped in upper axils, white with darker reverse, ± 5 mm diam., tube to 1 mm long, ovary glabrous. Sept.–Mar. Dry, lower mountain slopes, SW, AP, KM, LB, SE (Bredasdorp to E Cape).

uitenhagensis (H.Buek) Lammers (= *Lightfootia divaricata* H.Buek) Sprawling or straggling shrublet to 50 cm. Leaves recurved, linear to lanceolate, margins slightly revolute, slightly toothed below. Flowers in upper axils, white or blue with darker reverse, 5–8 mm diam., tube 1–2 mm long, ovary glabrous. Mainly Sept.–May. Coastal sands, SW, AP, SE (De Hoop to KwaZulu-Natal).

unidentata (L.f.) Lammers (= *Lightfootia unidentata* (L.f.) A.DC) Erect, wand-like shrublet, 15–40 cm. Leaves adpressed-ascending, linear-lanceolate, margins revolute, slightly toothed. Flowers in a contracted, racemose panicle, white or blue, ± 6 mm diam., tube obsolete, ovary glabrous. Dec.–Apr. Stony, often clay slopes, SW, LB, SE (Caledon Swartberg to Humansdorp).•

C.' Leaf margins not revolute, sometimes thickened

capillaris (H.Buek) Lammers (= *Lightfootia oppositifolia* A.DC.) Diffuse, tangled shrublet, 10–30 cm. Leaves opposite below, spreading or reflexed, linear-lanceolate, margins slightly thickened. Flowers in upper axils on wiry pedicels, white with darker reverse, ± 5 mm diam., tube ± 2 mm long, ovary glabrous. Jan.–Mar. Sheltered sandstone slopes, NW, SW (Lambert's Bay to Riviersonderend Mtns).•

effusa (Adamson) Lammers (= *Lightfootia effusa* Adamson) Slender, erect or sprawling shrublet to 30 cm. Leaves reflexed, linear, margins thickened, minutely toothed. Flowers in diffuse, wiry panicles, white, ± 5 mm diam., ovary glabrous. Mar.–Apr. Stony slopes, LB (Swellendam).•

longifolia (A.DC.) Lammers (= *Lightfootia longifolia* A.DC.) Erect shrublet to 40 cm. Leaves often tufted, alternate or opposite, sometimes recurved, linear, slightly toothed below. Flowers in narrow, raceme-like panicles, white or cream-coloured, 5–8 mm diam., tube ± 1 mm long, ovary hairy. Dec.–Apr. Coastal sands and limestone, SW, AP (Hopefield to De Hoop).•

neostricta Lammers (= *Lightfootia stricta* Adamson) Shrublet, 15–40 cm. Leaves often tufted, mostly opposite, spreading or reflexed, linear, margins thickened and minutely toothed. Flowers clustered in upper axils, blue, ± 5 mm diam., tube obsolete, ovary half-inferior, hairy. ?. Sandy coastal plains, AP, SE (Gouritsmond to Knysna).•

parvifolia (P.J.Bergius) Lammers (= *Lightfootia parvifolia* (P.J.Bergius) Adamson) Sprawling, tangled shrublet to 45 cm with thin, wiry branches. Leaves sparse, reflexed, ovate-oblong, margins thickened, sometimes slightly toothed. Flowers in lax, terminal cymes, white, ± 5 mm diam., tube ± 1 mm long, ovary half-inferior, glabrous. Nov.–Mar. Sheltered rocks and stream banks, SW, KM, LB (Cape Peninsula to Langeberg and Swartberg).•

polyantha Lammers (= *Lightfootia multiflora* Adamson) Sprawling shrublet to 30 cm. Leaves often tufted, spreading or reflexed, linear, margins thickened, minutely toothed. Flowers in racemes or narrow panicles, blue, ± 5 mm diam., tube obsolete, ovary half-inferior, papillate. Dec.–Jan. Coastal sands, SW, AP, SE (Kleinmond to Knysna).•

pyrophila Lammers (= *Lightfootia tenuis* Adamson) Like **W. capillaris** but ovary hairy. Dec.–Apr. Streamsides and marshes, SW (Cape Peninsula).•

riversdalensis Lammers (= *Lightfootia planifolia* Adamson) Sprawling perennial to 40 cm. Leaves spreading or reflexed, ovate-oblong, margins thickened. Flowers in delicate panicles, white with darker reverse, ± 5 mm diam. Jan. Sheltered, sandstone slopes, LB (Langeberg: Garcia's Pass).•

subulata (L'Hér.) Lammers (= *Lightfootia subulata* L'Hér.) Erect or sprawling shrublet to 30 cm. Leaves opposite or alternate, often tufted, spreading, linear, rigid, slightly toothed. Flowers in upper axils, white to blue fading yellow, ± 6 mm diam., tube to obsolete or to 1 mm long, sepals bulbous below, ovary half-inferior, hairy, sometimes glabrous. Oct.–Feb. Stony or gravel, lower slopes, NW, SW, AP (Gifberg to Potberg).•

suffruticosa Cupido *ined.* Tufted, rhizomatous perennial to 20 cm tall. Leaves spreading, subulate, margins sparsely ciliate or ciliate-dentate. Flowers racemose synflorescences, white or mauve, ovary hispidulous. Nov.–Jan. Sandy flats, SW (Malmesbury: Chatsworth).•

thunbergiana (H.Buek) Lammers (= *Lightfootia thunbergiana* H.Buek) Erect or sprawling shrublet, 15–60 cm. Leaves reflexed, lanceolate, margins thickened, sometimes minutely toothed below. Flowers in divaricate panicles becoming spinescent, white or cream-coloured with darker reverse, 6–8 mm diam., ovary half-inferior, hairy. Aug.–Nov. Stony slopes and flats in karroid scrub, NW, KM (Namaqualand and Karoo to Little Karoo).

Wahlenbergia group

A. Leaves broad, oblong to ovate
B. Leaves in a basal tuft or opposite on leafy stems

androsacea A.DC. (= *Wahlenbergia arenaria* A.DC., *W. glandulosa* Brehmer) HARE-BELL Tufted annual to 40 cm. Leaves mostly basal, oblanceolate, roughly hairy, margins undulate-crenate.

Flowers in cymose panicles, cup-shaped, white to pale blue, 5–15 mm diam., filaments broad at base, style with 3 glands, sometimes in a continuous band below stigma, ovary glabrous. Sept.–Nov. Sandy flats, NW, SW, AP, SE (S Namibia to E Cape and tropical Africa).

annularis A.DC. PRONKBLOUKLOKKIE Like **W. androsacea** but flowers bowl-shaped, 15–20 mm diam., style < half as long as corolla. Mostly Sept.–Nov. Sandy flats and lower slopes, NW (Namaqualand to Clanwilliam). **gce**

procumbens (Thunb.) A.DC. (incl. **W. saxifragoides** Brehmer) Trailing, shortly hairy perennial forming mats and rooting at nodes. Leaves opposite, elliptic, slightly crenulate. Flowers solitary in axils, white, blue or mauve, 8–10 mm diam., ovary hairy, sometimes glabrous. Nov.–Apr. Damp sheltered slopes, NW, SW, LB, SE (Cold Bokkeveld and Cape Peninsula to E Cape).

B.' Leaves alternate and not in a basal tuft

capensis (L.) A.DC. Pubescent annual to 50 cm. Leaves oblanceolate-elliptic, sometimes clustered towards base, undulate-toothed. Flowers on elongate peduncles, bowl-shaped, blue with darker centre, ovary 5-locular, densely hairy. Sept.–Dec. Sandstone slopes and flats, NW, SW, AP, LB, SE (Clanwilliam to Knysna).•

cernua (Thunb.) A.DC. (= *Wahlenbergia ciliolata* A.DC.; incl. **W. clavatula** Brehmer, **W. maculata** Brehmer) Roughly hairy annual to 60 cm. Leaves elliptic-obovate to ovate, incised-toothed. Flowers mostly solitary, or few on elongate peduncles, bowl-shaped, blue with dark centre or whitish, 8–15 mm diam., ovary glabrous, stigmas large and rounded. Nov.–Dec. Damp sandstone slopes, NW, SW (Witzenberg to Kleinrivier Mtns).•

meyeri A.DC. Delicate, tufted annual to 20 cm, branching from base. Leaves oblanceolate, roughly hairy, undulate-crisped. Flowers in dichotomously-branched, paniculate cymes, bell-shaped, 5–8 mm diam., white or pale blue, style very short, ovary 3(2)-locular, glabrous. Capsules globose. Sept.–Dec. Sandstone slopes, NW (Namaqualand to Cedarberg). **gce**

obovata Brehmer Roughly hairy annual to 50 cm. Leaves ovate to elliptic, crenulate-toothed. Flower few on elongate peduncles, cup-shaped, white or blue, 12–18 mm diam., ovary glabrous, style with 3 (sometimes 6) glands below stigmas. Sept.–Feb. Moist sandstone slopes, NW, SW (Witzenberg to Kleinrivier Mtns).•

undulata (L.f.) A.DC. (= *Wahlenbergia polychotoma* Brehmer) Subglabrous perennial to 90 cm. Leaves narrowly elliptic to lanceolate, undulate-toothed, margins slightly revolute. Flowers 1–few on slender pedicels, bowl-shaped, 10–20 mm diam., blue, sometimes white or mauve, filaments broad at base, ovary 2- or 3-locular, glabrous. Oct.–Dec. Sandy slopes and flats, SE (George to tropical Africa, Madagascar).

A.' Leaves narrow, linear to narrowly lanceolate
C. Ovary (4)5-locular; stigmas (4)5

decipiens A.DC. (incl. **W. longisepala** Brehmer) Intricately branched shrublet to 15 cm. Leaves opposite below, linear-acicular, margins slightly thickened, toothed. Flowers in rigid, divaricate cymes, narrowly bell-shaped, ± 5 mm diam., white or blue, calyx lobes spreading-recurved, pungent, ovary 5-locular, scabrid. Capsules depressed, 5-lobed. Sept.–Oct. Rocky pavements and crevices near streams, NW (Gifberg to Citrusdal).•

ecklonii H.Buek (= *Wahlenbergia macra* Schltr. & Brehmer, *W. swellendamensis* H.Buek) BOSBLOUKLOKKIE Erect or sprawling perennial to 30 cm. Leaves opposite below, linear-lanceolate, slightly hairy, margins slightly thickened, toothed. Flowers in lax, cymose panicles, narrowly bell-shaped, blue, 8–10 mm diam., calyx lobes elongate, ovary 5-locular, papillose to scabrid. Capsules hemispherical. Mainly Oct.–Dec. Rocky slopes, NW, SW, KM, LB, SE (Bokkeveld Mtns to Uitenhage).•

pilosa H.Buek Roughly hairy annual to 15 cm, branching from base. Leaves lanceolate, recurved, margins thickened and slightly toothed. Flowers in paniculate cymes, narrowly bell-shaped, blue, ± 8 mm diam., ovary 5-locular, scabrid. Sept.–Oct. Sandy flats and slopes, NW (Olifants River Valley).•

sphaerica Brehmer Subglabrous annual to 30 cm, branching above. Leaves linear, margins thickened, slightly toothed. Flowers in paniculate cymes, narrowly bell-shaped, ± 10 mm diam., blue, calyx lobes elongate, ovary 5-locular, scabrid. Capsules subglobose. Oct.–Dec. Sandstone slopes, NW (Gifberg to Olifants River Mtns).•

sp. 3 Minutely hairy, rounded annual to 10 cm, branching from base and above. Leaves narrowly lanceolate, margins thickened and slightly toothed. Flowers in dense cymes, shortly pedicellate,

large, narrowly bell-shaped, blue, 10–15 mm diam., calyx lobes long, ovary 5-locular, velvety. Oct. Sandy slopes, NW (Biedouw Valley).•

sp. 4 Subglabrous annual to 8 cm, shortly dichotomously branching above. Leaves opposite, linear, margins thickened and minutely toothed, coarsely ciliate below. Flowers solitary at branch tips, sessile, bell-shaped, blue, ± 10 mm diam., ovary 5-locular, scabrid. Oct. Stony slopes, NW (Botterkloof to Pakhuis Pass).•

C.' Ovary 2- or 3-locular
D. Shrublets with leaf margins revolute

capillacea (L.f.) A.DC. Subshrub to 50 cm, with wand-like branches. Leaves linear to filiform, often in axillary tufts, margins revolute. Flowers in lax panicles, narrowly bell-shaped, 5–10 mm diam., blue or purple, ovary glabrous. Jan.–July. Grassy slopes, SE (Langkloof and Knysna to tropical Africa).

fruticosa Brehmer Slender shrublet to 50 cm. Leaves ascending, linear, margins revolute, slightly toothed. Flowers shortly pedicellate in upper axils, bell-shaped, 5–10 mm diam., white or pale mauve, ovary glabrous, style with 3 small glands at base of stigmas. Feb.–May. Rocky, N-facing slopes (Langeberg: Garcia's Pass).•

sp. 5 Sprawling shrublet, stems to 30 cm. Leaves with axillary tufts, linear-acicular, margins strongly revolute, lower margins ciliate-toothed. Flowers subsessile in upper axils, bell-shaped, blue, ± 8 mm diam., ovary glabrous. Capsules hemispherical. Apr.–June. Sandstone slopes, SE (Plettenberg Bay).•

D.' Perennials or annuals with leaves plane or margins involute

brachycarpa Schltr. Intricately branched, shortly hairy annual to 15 cm. Leaves scale-like, lanceolate, margins thickened, slightly toothed. Flowers in divaricately branched, wiry cymes, blue, bell-shaped, 5–8 mm diam., sepals stiffly spreading in fruit, ovary subglabrous. Capsules depressed. Sept.–Nov. Stony flats and slopes, NW (Pakhuis Mtns and Cedarberg).•

?constricta Brehmer Minutely hairy perennial to 20 cm, with slender stems arising from base. Leaves filiform-involute, slightly toothed. Flowers in sparse cymes, bell-shaped, blue with a pale cup and dark rings in throat and in tube, ± 8 mm diam., ovary velvety. Capsule globose. Sept.–Oct. Sandy flats, NW (Olifants River Valley and Graafwater to Redelinghuys).•

debilis H.Buek (incl. **W. lobata** Brehmer, **W. ramulosa** E.Mey. ex DC.) Minutely hairy, delicate annual to 10 cm, branching above. Leaves linear-lanceolate, margins slightly thickened, toothed. Flowers in wiry cymes, bell-shaped, pale blue, ± 2 mm diam., ovary glabrous. Capsules hemispherical, with a short beak. Sept.–Nov. Stony flats and slopes, NW, SW, KM (Darling to Witteberg and Riviersonderend Mtns).•

exilis A.DC. Delicate, much-branched annual to 20 cm. Leaves linear, scabrid, margins thickened, slightly toothed. Flowers in panicles on wiry pedicels, minute, ± 2 mm diam., white, ovary glabrous or scabrid. Capsules cylindrical. Oct.–Jan. Sandy and gravel slopes, NW, SW, LB, SE (Cape Peninsula and Ceres to Knysna).•

?massonii A.DC. Slender, roughly hairy annual to 20 cm, branching from base. Leaves small, lanceolate, margins thickened. Flowers in rounded cymes, narrowly funnel-shaped and tubular below, hairy, white or blue with purple centre, 5–8 mm diam., ovary densely hairy, capsule with beak longer than wide. Sept.–Nov. Sandy and stony flats, NW (Klawer to Het Kruis).•

paniculata (Thunb.) A.DC. (incl. **W. hispidula** (Thunb.) A.DC.) Roughly hairy annual to 15 cm, branching mainly from base. Leaves small, lanceolate, margins thickened, minutely toothed. Flowers in lax, corymbose cymes, bell-shaped, white or blue with white cup and dark ring in throat, 6–8 mm diam., ovary sparsely hairy or velvety in bands. Capsules obovoid to hemispherical Sept.–Nov. Sandy flats, mainly coastal, NW, SW, AP (Olifants River Valley to Albertinia) .•

?polyclada A.DC. Roughly hairy, rounded annual to 15 cm, branching from base. Leaves lanceolate, ± cordate at base, margins thickened, slightly toothed. Flower in lax cymes, narrowly bell-shaped, blue with a dark ring in throat and a dark centre, 10–12 mm diam., calyx lobes large, toothed, ovary hispid. Capsules hemispherical. Sept.–Oct. Coastal sands, NW (S Namaqualand to Klawer). **gce**

sp. 6 Sprawling perennial to 15 cm. Leaves linear-lanceolate, margins thickened, minutely toothed. Flower 1–few at branch tips, subsessile, narrowly bell-shaped, ± 5 mm diam., white, calyx lobes leaf-like, ovary glabrous. Feb.–Mar. Rocky slopes at high alt., SE (Great Winterhoek Mtns).•

[**Species excluded** Incompletely known and possibly conspecific with one of the above: **W. annuliformis** Brehmer, **W. bolusiana** Schltr. & Brehmer, **W. compacta** Brehmer, **W. dichotoma** A.DC., **W. distincta** Brehmer, **W. divergens** A.DC., **W. dunantii** A.DC., **W. gracilis** E.Mey., **W. mollis**

Brehmer, **W. oligotricha** Schltr. & Brehmer, **W. pseudoandrosacea** Brehmer, **W. ramifera** Brehmer, **W. schistacea** Brehmer, **W. serpentina** Brehmer, **W. sessiliflora** Brehmer, **W. sparsiflorum** A.DC., **W. subpilosa** Brehmer, **W. subrosulata** Brehmer, **W. subtilis** Brehmer. Not from our area: **W. costata** A.DC.]

CAPPARACEAE

1. Androphore elongated and longer than sepals; upper and lower sepals enclosing lateral ones; fruit cylindrical ..... **Cadaba**
1.' Androphore shorter than sepals; fruit globose:
2. Receptacle or calyx tubular; stipules not spinescent ..... **Maerua**
2.' Receptacle or calyx not tubular; stipules spinescent ..... **Capparis**

CADABA Forssk. ± 30 spp., palaeotropical and subtropical

aphylla (Thunb.) Wild BOBBEJAANARM, SWARTSTORMBOS Leafless often tangled shrub with purplish branches to 2 m. Flowers in corymbs or racemes on side shoots, greenish to red. Aug.–Apr. Dry bushveld or semi desert, KM, LB, SE (Montagu to Zimbabwe).

CAPPARIS L. CAPER ± 30 spp., widespread in the tropics and subtropics

sepiaria L. CAPER, KAAPSE-KAPPERTJIE, INTSHILO Thorny shrub or scrambler to 5 m. Leaves elliptic, margins often revolute. Flowers in terminal corymbs, hairy, white. Aug.–Jan. Coastal scrub, LB, SE (Riversdale through E Africa to Malaysia).

MAERUA Forssk. BUSH-CHERRY ± 100 spp., Africa to Asia

cafra (DC.) Pax WILDEBOSHOUT, UMPHUNZISA Shrub or tree with mottled bark, to 9 m. Leaves digitately 3(–5)-foliolate. Flowers in terminal corymbs, greenish. Aug.–Oct. Dune bush and forests, SE (Humansdorp to Zimbabwe).

racemulosa (A.DC.) Gilg & Gilg-Ben. FOREST BUSH-CHERRY, WITBOSHOUT Scrambling shrub or tree to 3 m. Leaves usually simple, elliptic. Flowers in short, axillary racemes, whitish. May–July. Dune forests, SE (Wilderness to Swaziland).

CARYOPHYLLACEAE

1. Stipules absent; petals usually well developed; styles free:
2. Sepals ± free or connate basally; stamens free from petals (subfamily CARYOPHYLLOIDEAE):
3. Petals 0; sepals becoming crustaceous with age, pungent; ovule 1; fruit a nutlet ..... **Scleranthus**
3.' Petals deeply 2-fid; sepals herbaceous; ovules many; fruit a capsule:
4. Stamens 5; styles (2)3 ..... **Stellaria**
4.' Stamens 10; styles (4)5 ..... **Cerastium**
2.' Sepals united into a short or long tube; stamens adnate to base of petals (subfamily SILENOIDEAE):
5. Calyx without bracts at base; calyx tube with commissural alternating with midveins of sepals; styles 3(–5); leaves various, usually pubescent; petals usually with coronal scales ..... **Silene**
5.' Calyx with 1–12 bracts at base; calyx tube without commissural veins; styles 2; leaves linear, glabrous; petals without coronal scales:
6. Flowers in terminal heads subtended by shining, papery bracts; calyx tube with scarious or papery commissures ..... **Petrorhagia**
6.' Flowers not in heads, subtended by green bracts; calyx tube green and herbaceous throughout ..... **Dianthus**
1.' Stipules present, usually scarious; petals 0 or small; styles partially fused (subfamily PARONYCHIOIDEAE):
7. Ovary with 3 or more ovules; fruit a dehiscent capsule:
8. Leaves obovate; sepals winged up back and sharply prominent in fruit ..... **Polycarpon**
8.' Leaves linear; sepals not winged up back:
9. Leaves descussate; stipules 2, connate and sheathing; styles 3(–5) ..... **Spergularia**

9.' Leaves pseudoverticillate; stipules 4 per node; styles (3–)5 ..... **Spergula**
7.' Ovary with 1 or 2 ovules; fruit an indehiscent nutlet:
10. Stigma trifid; leaves mostly alternate ..... **Corrigiola**
10.' Stigma simple or bifid; leaves opposite:
11. Perianth subsucculent, urceolate, mouth closed by a thickened, lobed disc; hairy, branched shrublet with pseudoverticillate leaves ..... **Pollichia**
11.' Perianth not as above; sprawling annual or perennial herbs:
12. Leaves aristate, with conspicuous stipules; sepals dorsally awned ..... **Paronychia**
12.' Leaves acute, with inconspicuous stipules; sepals not awned ..... **Herniaria**

CERASTIUM L. MOUSE-EAR ± 60 spp., cosmopolitan

capense Sond. HORINGBLOM Glandular-hairy annual to 40 cm. Leaves opposite, obovate or oblong. Flowers in open cymes, white, petals shorter than sepals, emarginate. Fruits elongating to twice as long as sepals. Sept.–Dec. Sheltered flats and slopes and waste places, NW, SW, AP, KM, LB, SE (widespread in southern Africa).

CORRIGIOLA L. STRAPWORT 11 spp., cosmopolitan

capensis Willd. Prostrate biennial or perennial to 3 cm from a woody taproot. Leaves oblanceolate, stipules 3–3.5 mm long, streaked brown. Flowers in compact, terminal clusters, 2–2.5 mm long, greenish. Aug.–Sept. Sandy flats, NW (Namaqualand, Clanwilliam, Tulbagh and tropical Africa).

litoralis L. Prostrate annual or perennial to 3 cm. Leaves oblanceolate, stipules ± 2.5 mm long, usually white. Flowers in terminal and axillary clusters, 1.25–1.75 mm long, greenish. Feb.–Sept. Ruderal, SW, LB, SE (Cape Peninsula to Port Elizabeth and throughout Africa to Eurasia and the Americas).

DIANTHUS L. PINK ± 300 spp., Old World

albens Aiton (incl. **D. holopetalus** Turcz.) Loosely tufted or sprawling perennial to 40 cm. Leaves linear. Flowers several on axillary scapes, white to purple, calyx 12–18 mm long, petal limb oblanceolate, entire or toothed. Sept.–Feb. Sandy flats and slopes, often coastal, NW, SW, AP, KM, LB, SE (Cedarberg to E Cape).

basuticus Burtt Davy Densely tufted perennial to 15 cm. Leaves linear. Flowers 1–4 on axillary scapes, pink to purple, calyx 15–20 mm long, petal limbs obovate, finely toothed. Nov.–Apr. Rocky slopes, SE (Avontuur to KwaZulu-Natal).

bolusii Burtt Davy Tufted perennial to 40 cm. Leaves linear, long. Flowers several on axillary scapes, white to purple, calyx 23–27 mm long, petal limb oblanceolate, deeply fringed. Sept.–Feb. Sandstone slopes, NW, SW, KM, LB (Cedarberg to Du Toitskloof Mtns to Swartberg).•

caespitosus Thunb. Like **D. albens** but calyx 40–70 mm long and petals always toothed or fringed. Sept.–Jan. Sandstone slopes, NW, KM, SE (Botterkloof to Worcester to Uitenhage).•

thunbergii Hooper Like **D. albens** but calyx 20–30 mm long and petals always toothed. Sept.–Feb. Sandstone slopes, AP, LB, SE (Swellendam to E Cape).

HERNIARIA L. RUPTURE-WORT 47 spp., Africa, Europe and Asia

capensis Bartl. Prostrate, mat-forming perennial with long creeping stems, and runners rooting at the nodes, shortly and retrorsely hairy. Leaves opposite, elliptic, puberulous, stipules papery. Flowers in axillary clusters, greenish, anthers ± 0.3 mm long. Nov.–Feb. Sandy coastal flats, SW, AP, LB, SE (Cape Peninsula to George).•

pearsonii Chaudri Prostrate perennial with woody crown and taproot, shortly and retrorsely hairy. Leaves opposite, elliptic, puberulous, stipules papery. Flowers in axillary clusters, greenish, anthers ± 0.4 mm long. Sept.–Nov. Sandy plateaus, NW (Cold Bokkeveld).•

schlechteri Herm. Prostrate annual with slender taproot, shortly and retrorsely hairy. Leaves opposite, elliptic, puberulous, stipules papery. Flowers in axillary clusters, greenish, anthers ± 0.2 mm long. Aug.–Nov. Coastal limestone, AP, LB, SE (De Hoop to Port Elizabeth).•

***PARONYCHIA** Mill. 50 spp., cosmopolitan

***brasiliana** DC. Prostrate, mat-forming annual to 3 cm. Leaves opposite, hairy, elliptic, apiculate, stipules membranous. Flowers in axillary clusters, greenish, sepals dorsally awned. Sept.–Dec. Weed of lawns and disturbed places, NW, SW, LB, SE (S American weed).

*PETRORHAGIA (Ser.) Link 28 spp., N Temperate Old World

***prolifera** (L.) Ball & Heywood Erect or sprawling annual to 50 cm. Leaves opposite, linear-oblanceolate, sometimes roughly hairy. Flowers in terminal heads subtended by large papery bracts, pink or purple, calyx papery, ± 10 mm long, petals bifid. Sept.–Nov. Disturbed sites, NW, SW (European weed).

POLLICHIA Aiton WAXBERRY, AARBOSSIE 1 sp., Africa and Arabia

campestris Aiton Silky hairy shrublet to 60 cm. Leaves opposite or apparently verticillate, oblanceolate, apiculate. Flowers in axillary clusters, greenish, enclosed by fleshy, waxy white bracts in fruit. Throughout the year. Dry, sandy soils, KM, LB, SE (Namaqualand through Little Karoo to Arabia).

*POLYCARPON L. ALLSEED ± 16 spp., cosmopolitan

***tetraphyllum** (L.) L. FOUR-LEAVED ALLSEED Prostrate annual or perennial to 20 cm. Leaves in whorls of 4, obovate. Flowers congested in branched cymes, white, petals emarginate. Sept.–Dec. Weed of waste places, NW, SW, KM, LB, SE (cosmopolitan weed).

*SCLERANTHUS L. 10 spp., Old World

***annuus** L. Sprawling, thinly hairy annual to 20 cm. Leaves opposite, linear. Flowers 1–few in axillary clusters, green. Aug.–Nov. Weed of disturbed places, NW, SW, AP, KM, LB, SE (European weed, widespread throughout Africa).

SILENE L. CAMPION, CATCHFLY ± 500 spp., worldwide

A. Annuals

aethiopica Burm. (= *Silene cretica sensu* Cape plants 2000; *S. clandestina* Jacq., *S. dewinteri* Bocquet) Erect or sprawling, shortly hairy annual to 45 cm. Leaves linear-oblanceolate. Flowers in raceme-like, monochasial cymes, white or pinkish with darker reverse, scented at night, petals bifid, calyx 9–16 mm long, carpophore 1–5 mm long. Seeds discoid, peripherally winged. Aug.–Jan. Sandy and limestone flats, NW, SW, AP, KM (Namaqualand and W Karoo to Port Elizabeth). **gce**

***gallica** L. SMALL CATCHFLY Glandular-hairy annual to 45 cm. Leaves oblanceolate, ciliate. Flowers in subsecund, spike-like, monochasial cymes, white or pink, calyx bristly, 7–10 mm long, petals entire, carpophore ± 1 mm long. Sept.–Feb. Weed of disturbed places, NW, SW, AP, KM, LB, SE (European weed).

***nocturna** L. Shortly hairy annual to 45 cm. Leaves oblanceolate, ciliate. Flowers in subsecund, spike-like, monochasial cymes, white to pink, sometimes ± cleistogamous, calyx shortly hairy, 7–10 mm long, petals bifid, carpophore ± 1 mm long. Sept.–Feb. Weed of disturbed places, SW, LB, SE (European weed).

A.' Perennials
B. Plants glabrous; flowers in cymes; calyx papery and inflated

***vulgaris** (Moench) Garcke BLADDER CAMPION Glaucous, rhizomatous perennial to 60 cm. Leaves lanceolate or oblanceolate. Flowers in cymes, white to purple, calyx inflated, 12–15 mm long, petals deeply bifid, carpophore ± 2 mm long. Oct.–Dec. Weed of disturbed lands, SW, KM, SE (European weed).

B.' Plants variously hairy; calyx not papery
C. Plants not glandular; flowers in raceme-like monochasia; calyx 10–20 mm long with ovate lobes

burchellii Otth (= *Silene pilosellifolia* Cham. & Schltdl.; incl. **S. thunbergiana** Eckl. & Zeyh.) Erect or sprawling, shortly hairy, tuberous-rooted perennial to 70 cm. Leaves linear-oblanceolate to oblanceolate. Flowers in subsecund, raceme-like, monochasial cymes, white to purple, calyx 10–

20 mm long, petals bifid, carpophore 6–9 mm long. Seeds discoid, peripherally winged. Aug.–Jan. Flats and slopes, NW, SW, KM, LB, SE (throughout Africa).

crassifolia L. (= *Silene primuliflora* Eckl. & Zeyh., *Silene vlokii* Masson) Sprawling, shortly to densely hairy perennial to 50 cm. Leaves fleshy, obovate to oblanceolate. Flowers in subsecund, raceme-like, monochasial cymes, white to yellowish or pink, calyx pleated, 12–15 mm long, petals bifid, carpophore 4–7 mm long. Seeds discoid, peripherally winged. Aug.–Mar. Coastal sand dunes, SW, AP, SE (Saldanha Bay to KwaZulu-Natal).

mundiana Eckl. & Zeyh. Delicate, mound-forming, shortly hairy perennial to 30 cm. Leaves small, linear-oblanceolate. Flowers 1 or 2 in subsecund cymes, white, calyx 10–11 mm long, petals bifid, carpophore 3 mm long. Seeds discoid, peripherally winged. Oct. Coastal and limestone flats, AP, SE (De Hoop and Plettenberg Bay).•

C.' Stems viscid-glandular; flowers in cymes; calyx 18–35 mm long with triangular to awl-shaped lobes

ornata Aiton Sprawling, glandular-hairy perennial, branching mostly 1-sided. Leaves lanceolate. Flowers in 1-sided cymes, dark red, unscented, petals bifid, calyx 18–22 mm long, stamens and style included, carpophore 2–3 mm long. Aug.–Oct. Rocky, limestone slopes, SW (Saldanha Bay).•

rigens J.C.Manning & Goldblatt Stiffly erect, glandular-hairy perennial with rod-like flowering stem to 1.5 m. Basal leaves spathulate. Flowers in trifurcate cymes, fairly small, pale dusty pink, faintly scented at night, calyx 18–22 mm long, stamens and style included, carpophore 2–3 mm long. Sept.–Oct. Sandy flats in bush and thickets, SW (Langebaan to Cape Flats, Hermanus).•

saldanhensis J.C.Manning & Goldblatt Tufted or cushion-forming, glandular-hairy perennial to 50 cm with erect or sprawling stems. Leaves lanceolate. Flowers in bifurcate cymes, pale mauve, petals broad, overlapping, bifid, often with small tooth at base, half closing during the day, rose-scented at night, stigmas exserted, calyx heavily ribbed. Sept.–Oct. Coastal headlands on stabilized dunes, SW (Saldanha Bay).•

undulata Aiton (= *Silene bellidioides* Sond., *S. capensis* Otth, *S. eckloniana* Sond.) WILD TOBACCO Erect or sprawling, much branched, glandular-hairy perennial to 60 cm. Leaves lanceolate. Flowers in cymes, white or pale pink, strongly scented at night, petals bifid, calyx 18–35 mm long, stamens and style exserted, carpophore 2–6 mm long. Aug.–Apr. Damper slopes and flats, NW, SW, AP, KM, LB, SE (southern and tropical Africa).

*SPERGULA L. SPURREY ± 5 spp., temperate parts of the world

***arvensis** L. CORN SPURREY Annual to 60 cm. Leaves apparently whorled, linear. Flowers in open, glandular-hairy cymes, white. June–Oct. Weed of waste places, NW, SW (cosmopolitan weed).

SPERGULARIA (Pers.) J.Presl. & C.Presl. ± 40 spp., cosmopolitan

media (L.) C.Presl PERENNIAL SEA SPURREY Glabrescent, sprawling perennial from a thick, woody rootstock, to 50 cm. Leaves opposite and in axillary tufts, linear. Flowers in open, glandular-hairy cymes, white or pink, sepals usually longer than 4 mm. Seeds winged. Oct.–Jan. Coastal or inland marshes, NW, SW, AP, LB, SE (cosmopolitan).

***rubra** (L.) J.Presl & C.Presl SAND SPURREY Sprawling annual or perennial from slender taproot, to 20 cm. Leaves opposite, linear. Flowers in open cymes, pink or lilac, sepals < 4 mm. Seeds not winged. Sept.–Dec. Weed of sandy places, NW, SW (cosmopolitan weed).

*STELLARIA L. CHICKWEED ± 100 spp., cosmopolitan

***media** (L.) Vill. STARWORT Diffuse annual to 30 cm with a line of hairs down each internode. Leaves opposite, ovate. Flowers in terminal cymes, white, sepals 4.5–5 mm long, petals bilobed, stamens mostly 5–10. June–Nov. Weed of waste places, NW, SW, AP, KM, LB, SE (cosmopolitan weed).

***pallida** (Dumort.) Piré LESSER CHICKWEED Like **S. media** but sepals 2–3.5 mm long, petals absent or vestigial and stamens 1–3. July–Aug. Weed of waste places, SW, LB, SE (cosmopolitan weed).

CELASTRACEAE

by R.H. Archer & M. Jordaan

1. Fruit a drupe or berry, indehiscent; seeds without aril:
 2. Fruit a drupe (1-seeded); leaves alternate or opposite:
  3. Leaves opposite; endocarp thick and woody (stone) ..... **Elaeodendron**
  3.' Leaves alternate; endocarp thin and crustaceous:
   4. Leaves glabrous, elastic threads present in leaves and bark (conspicuous) when pieces of leaves are pulled apart ..... **Robsonodendron**
   4.' Leaves pubescent; elastic threads absent ..... **Mystroxylon**
 2.' Fruit a berry (several-seeded); leaves opposite or subopposite, rarely alternate:
  5. Leaves leathery with margin revolute; ovules pendulous ..... **Maurocenia**
  5.' Leaves variously textured with margin plane or occasionally revolute; ovules erect:
   6. Shrubs or trees; inflorescence a cyme; mature fruit pale to dark brown or purplish, succulent or fleshy ..... **Cassine**
   6.' Lianas, scrambling shrubs or small trees; inflorescence thyrsoid with simple or compound cymules arranged along axis; mature fruit red or purple, fleshy ..... **Lauridia**
1.' Fruit a capsule or follicle-like, dehiscent when dry and mature; seeds with or without aril:
 7. Plants without spines; leaves alternate or scattered, never clustered in groups:
  8. Ericoid shrublet; leaves scattered, needle-like; capsule follicle-like, dehiscing entirely along one suture ..... **Empleuridium**
  8.' Trees or shrubs; leaves alternate, not needle-like; capsule dehiscing along 2 or 3 sutures:
   9. Capsules with horns or wing-like emergences ..... **Pterocelastrus**
   9.' Capsules smooth or verruculose, without horns or wing-like emergences ..... **Maytenus**
 7.' Plants with spines; leaves clustered in groups on short shoots, at least on older branches:
  10. Suffrutices, shrubs or small trees; flowers always functionally unisexual with staminodes in female and pistillodes in male flowers; ovules 2 per locule; ovary (2)3(4)-locular; seeds covered completely or incompletely by aril ..... **Gymnosporia**
  10.' Shrubs or woody climbers; flowers always bisexual; ovules 3–12 per locule; ovary always 3-locular; seeds covered completely by aril:
   11. Shrubs with spines always leafy and floriferous, with > 1 node per spine; leaves with venation obsolete, margin entire; ovules usually fewer than 6 per locule ..... **Gloveria**
   11.' Shrubs or woody climbers with occasionally leafy and floriferous spines, when leafy not > 1 node per spine; leaves with venation conspicuous, margin with few teeth in upper half, occasionally subentire; ovules usually 6 or more per locule ..... **Putterlickia**

CASSINE L. (= *HARTOGIELLA*) CAPE SAFFRON 3 spp., western and eastern S Africa

parvifolia Sond. MOUNTAIN SAFFRON Shrub or small tree. Leaves opposite or subopposite, narrowly elliptic, venation inconspicuous beneath, margins revolute. Flowers cream-coloured, sepals red. Berries brown to purplish. Sept.–Oct. Fynbos or forest margins, NW, SE (Porterville Mountains, Ceres and George to Clarkson).•

peragua L. CAPE SAFFRON, IKHUKHUZI Shrublet or tree to 15 m, bark often with yellow pigments. Leaves opposite, elliptic to orbicular, venation conspicuous beneath. Flowers cream-coloured. Berries brown to purple. Feb.–July. Coastal scrub, woodlands or forest margins, NW, SW, LB, SE (Bokkeveld Mountains to Cape Peninsula to Mpumalanga).

schinoides (Spreng.) R.H.Archer (= *Hartogiella schinoides* (Spreng.) Codd) Shrub or small tree, bark occasionally with yellow pigments. Leaves opposite, narrowly elliptic to obovate, venation inconspicuous beneath. Flowers cream-coloured. Berries brown, hard. Oct.–Dec. Fynbos, woodlands and forests, NW, SW, LB, SE (Cedarberg to Cape Peninsula to Clarkson).•

ELAEODENDRON Jacq. SAFFRON ± 30 spp., cosmopolitan

croceum (Thunb.) DC. (= *Cassine crocea* (Thunb.) Kuntze) SAFFRON Tall tree, often with yellow pigments on exposed bark. Leaves opposite, elliptic, bright green, finely toothed with prominent spines on young shoots. Flowers few, cream-coloured, ovary 2-locular. Drupe ellipsoid, cream-coloured. Aug.–Mar. Coastal and montane forest margins, LB, SE (Ladismith to E Zimbabwe).

zeyheri Spreng. ex Turcz. SMALL-LEAVED SAFFRON, RED SAFFRONWOOD Tree, often with yellow pigments on exposed bark. Leaves opposite or subopposite, elliptic, greyish green. Flowers

greenish, ovary 4-locular. Drupe spheroidal, yellow. Oct.–Apr. Woodlands, SE (Baviaanskloof Mtns to Mpumalanga).

EMPLEURIDIUM Sond.• 1 sp., SW Cape

juniperinum Sond. Finely leafy shrublet. Leaves ascending, needle-like. Flowers solitary in axils, whitish. Capsule with 1 fusiform seed with a long white aril. Dec.–Apr. Sandstone slopes, SW (Wemmershoek Mtns to Houwhoek).•

GLOVERIA M.Jordaan SPALKPENDORING 1 sp., N and W Cape **gce**

integrifolia (L.f.) M.Jordaan Spiny shrub to 2 m. Leaves fasciculate on short shoots, cuneate, greyish, leathery. Flowers few in axillary cymes, white, sometimes tinged pink. Capsules yellow, 3-locular seed aril pinkish. Dec.–Apr. Rocky slopes, SW, KM, LB (Namaqualand and MacGregor to Oudtshoorn). **gce**

GYMNOSPORIA (Wight & Arn.) Hook.f. (= *MAYTENUS* in part) PENDORING ± 45 spp., mainly Africa, also Madagascar, S Europe to Australasia

buxifolia (L.) Szyszyl. (= *Maytenus heterophylla* auct.) STINKPENDORING, MNQUQOBA Monoecious, spiny shrub or small tree to 7 m. Leaves in tufts, obovate, toothed above. Flowers many in axillary cymes, white, foetid. Capsules globose, warty, brown. July–Apr. Forest margins and disturbed areas, NW, SW, AP, KM, LB, SE (widespread in southern and tropical Africa).

capitata (E.Mey. ex Sond.) Loes. (= *Maytenus capitata* (E.Mey. ex Sond.) Marais) VAALPENDORING Monoecious, rigid, spiny shrub to 1.5 m. Leaves in tufts, obovate, discolorous, leathery, sessile. Flowers in axillary glomerules, cream-coloured. Capsules yellow to bright orange-red, 3-lobed. Oct.–June. Dry scrub, AP, SE (Still Bay to Port Alfred).

elliptica (Thunb.) Schönland SPIKKELVRUG-DWERGPENDORING Monoecious, spiny, rhizomatous shrublet to 80 cm. Leaves in tufts, subsessile, linear-obovate, sparsely toothed above, leathery, greyish green. Flowers few in axillary cymes, whitish. Capsules globose, warty, red and brown. Mar.–May. Coastal plains, SE (Humansdorp to Port Elizabeth).•

nemorosa (Eckl. & Zeyh.) Szyszyl. (= *Maytenus nemorosa* (Eckl. & Zeyh.) Marais) WITBOSPENDORING Monoecious, spiny shrub or small tree to 5 m. Leaves in tufts, obovate to elliptic, toothed, dull green above, paler beneath, venation distinct. Flowers in lax, axillary cymes, white. Capsules pear-shaped, brown. Dec.–June. Coastal forest margins, SE (Knysna to Mpumalanga).

szyszylowiczii (Kuntze) M.Jordaan LEMOENDORING Monoecious, heavily-spined shrub to 2.5 m. Leaves in tufts, subsessile, obovate, leathery, glaucous. Flowers in somewhat lax, axillary cymes, white, honey-scented. Capsules globose, pale yellow. Mar.–Aug. Stony slopes, KM (Oudtshoorn to Great Karoo).

LAURIDIA Eckl. & Zeyh. 2 spp., eastern southern Africa

reticulata Eckl. & Zeyh. Shrub to small tree. Leaves opposite, elliptic. Flowers in axillary cymes, cream-coloured. Berries green, red, purple to black on same branch. Sporadic throughout the year. Scrub, SE (Humansdorp to E Cape).

tetragona (L.f.) R.H.Archer (= *Cassine tetragona* (L.f.) Loes.) CLIMBING SAFFRON Scrambling shrub or liana with branchlets often bent back, conspicuously 4-lined. Leaves opposite, subsessile, elliptic-ovate, toothed. Flowers in axillary cymes, cream-coloured. Berries red to purple. Sept.–Jan. Scrub, SW, AP, SE (Hermanus to Limpopo).

MAUROCENIA Mill.• HOTTENTOT CHERRY 1 sp., SW Cape

frangula Mill. (= *Maurocenia frangularia*, sphalm.) Often monoecious shrub to spreading tree. Leaves opposite, broadly elliptic to orbicular, leathery and rigid, margins revolute. Flowers in axillary cymes, cream-coloured, honey-scented. Berries red. Apr.–June. Coastal bush or forests, SW (Saldanha Bay to Cape Peninsula).•

MAYTENUS Molina ± 150 spp., cosmopolitan, mainly tropical

acuminata (L.f.) Loes. SYBAS, UMNAMA Shrub or small tree to 10 m. Leaves alternate, dark green and glossy above, paler beneath, ovate to lanceolate, toothed, with silky threads when broken. Flowers in axillary fascicles, white. Capsules yellow. May–Jan. Forest margins or rocky slopes, NW, SW, KM, LB, SE (Nieuwoudtville to Cape Peninsula to tropical Africa).

lucida (L.) Loes. CAPE MAYTENUS Much-branched shrub to 1.5 m. Leaves ovate to suborbicular, leathery, margins revolute. Flowers in axillary fascicles, greenish. Capsules light brown. June–Jan. Coastal bush, SW, AP (Saldanha Bay to Agulhas).•

oleoides (Lam.) Loes. KLIPKERSHOUT Shrub or tree to 4 m. Leaves leathery, obovate to lanceolate, venation obsolete, glaucescent, margins revolute. Flowers in axillary cymes, whitish. Capsules brown to orange. Apr.–Sept. Rocky slopes, NW, SW, KM, LB, SE (Richtersveld to Cape Peninsula to Great Winterhoek Mtns). **gce**

peduncularis (Sond.) Loes. KAAPSE SWARTHOUT, UMNQAYI Tree to 8 m, hairy on young parts. Leaves ovate to lanceolate, toothed. Flowers in axillary cymes, yellowish, hairy. Capsules pendulous, green to brown. Sept.–Nov. Forest streams, SE (George to Limpopo).

procumbens (L.f.) Loes. DUINEKOKOBOOM, UMPHONO-PHONO Low, scrambling shrub or small tree to 6 m. Leaves elliptic to obovate, leathery, margins revolute, coarsely toothed. Flowers in axillary, sessile fascicles, greenish. Capsules bright yellow to orange. Aug.–Jan. Coastal dune forests, AP, SE (De Hoop to tropical Africa).

undata (Thunb.) Blakelock KOKOBOOM, UMKOKANE Shrub or tree to 10 m. Leaves ovate, toothed. Flowers in axillary fascicles, yellowish. Capsules yellow. Nov.–Mar. Coastal bush, KM, SE (Gamka and Van Staden's Mtns to tropical Africa).

MYSTROXYLON Eckl. & Zeyh. (= *CASSINE* in part) CAPE CHERRY, KUBUSBESSIE 1 sp., S Cape to eastern Africa

aethiopicum (Thunb.) Loes. (= *Cassine aethiopica* Thunb.) Scrambling shrub or tree. Leaves elliptic to circular, often densely pubescent. Flowers in axillary glomerules, yellow. Drupe light brown. Sept.–Apr. Forest margins or scrub, AP, SE (Heidelberg to tropical Africa).

PTEROCELASTRUS Meisn. CHERRYWOOD, KERSHOUT 3 spp., SW Cape to SE Africa

rostratus (Thunb.) Walp. RED CHERRYWOOD, ROOIKERSHOUT Tree to 10 m. Leaves leathery, oblong-lanceolate, shining above, paler beneath, midrib raised above, petiolate. Flowers in axillary cymes, yellowish. Capsules brown with yellow decurrent horns. Apr.–June. Forests, SW, KM, LB, SE (Betty's Bay to Mpumalanga).

tricuspidatus (Lam.) Walp. UTWINA Shrub or small tree to 7 m. Leaves leathery, obovate, slightly emarginate, cuneate at base, margins revolute. Flowers in dense, axillary cymes, whitish. Capsules orange with 3 entire or toothed wings. May–Nov. Dune scrub or forests, NW, SW, AP, SE (Velddrif to Cape Peninsula to Port Edward).

PUTTERLICKIA Endl. BASTERPENDORING 4 spp., southern Africa

pyracantha (L.) Szyszyl. Rigid, straggling, spiny shrub to 3 m. Leaves fasciculate, subsessile, leathery, obovate, margins slightly revolute, sometimes toothed. Flowers in axillary cymes, white. Capsules red seed aril orange. Feb.–Aug. River banks or coastal scrub, SW, AP, SE (Velddrif to E Cape).

ROBSONODENDRON R.H.Archer (= *CASSINE* in part) SYBAS 2 spp., eastern southern Africa

eucleiforme (Eckl. & Zeyh.) R.H.Archer (= *Cassine eucleiformis* (Eckl. & Zeyh.) Kuntze) WIT-SYBAS Tree to 12 m. Leaves elliptic-oblanceolate, obtuse, margins at most slightly revolute. Flowers cream-coloured. Drupe light brown. Sporadic throughout the year. Forest margins, SW, LB, SE (Cape Peninsula, Grootvadersbos to Mpumalanga).

maritimum (Bolus) R.H.Archer (= *Cassine maritima* (Bolus) L.Bolus) DUINE-SYBAS Shrub to 2 m, rough on young parts. Leaves thick and leathery, margins conspicuously revolute, acute. Flowers cream-coloured. Drupe white. June–Oct. Coastal scrub, SW, AP, SE (Cape Peninsula to E Cape).

CERATOPHYLLACEAE

CERATOPHYLLUM L. HORNWORT ± 10 spp., cosmopolitan

demersum L. Monoecious, submerged, aquatic perennial to 3 m. Leaves in whorls of 7–11, twice-forked, margins with small spines. Flowers 1–few in axils, green. Flowering irregularly. Estuaries, SE (George northwards and almost cosmopolitan).

muricatum Cham. Monoecious, free-floating, aquatic herb to 3 m. Leaves whorled, aristate and mostly 3- or 4-branched, margins sparsely cuspidate. Flowers unisexual, usually solitary at nodes. Fruit warty with 3 slender spines. ? Sluggish and stagnant fresh water, LB, SE (George to Old World Tropics).

CLUSIACEAE = HYPERICACEAE

CONVOLVULACEAE

1. Leaves minute, scale-like or absent; yellowish, twining parasites; flowers small, usually in clusters, often numerous ..... **Cuscuta**
1.' Leaves well developed, green:
2. Ovary 2- or 4-lobed or -cleft; styles 2, inserted between lobes of ovary; prostrate perennials:
3. Ovary 2-cleft, with 2 ovules in each locule ..... **Dichondra**
3.' Ovary 4-cleft, with 1 ovule in each locule ..... **Falkia**
2.' Ovary not deeply lobed; style simple or terminal if 2; erect or twining annuals or perennials:
4. Pollen spinose; stigma biglobose or 3-lobed ..... **Ipomoea**
4.' Pollen smooth; stigmas 2, linear or subclavate:
5. Bracteoles small or narrow, usually ± remote from calyx ..... **Convolvulus**
5.' Bracteoles large, ± enclosing calyx as an involucre ..... **Calystegia**

CALYSTEGIA R.Br. ± 25 spp., cosmopolitan

***sepium** (L.) R.Br. Glabrous climber to 3 m. Leaves hastate-sagittate. Flowers white or pink, 50–55 mm long, sepals broadly lanceolate; bracts ovate-cordate, longer than calyx. Dec.–Jan. Bush, SW (Cape Peninsula, northern hemisphere native now naturalized along the Atlantic coasts of both hemispheres).

soldanella (L.) R.Br. ex Roem. & Schult. Glabrous, creeping perennial to 50 cm, forming large mats. Leaves reniform and emarginate, subsucculent. Flowers pink to pale purple, 25–40 mm long, sepals ovate; bracts ovate-suborbicular, shorter than calyx. Nov.–Dec. Coastal sands, AP (Still Bay, nearly pantemperate).

CONVOLVULUS L. BINDWEED ± 250 spp., cosmopolitan

***arvensis** L. LESSER BINDWEED Thinly hairy, prostrate or climbing perennial with annual stems to 2 m. Leaves hastate. Flowers pink, sepals obtuse, 3.5–5 mm long, corolla 15–25 mm long. Dec.–Feb. Weed of disturbed places, SW, KM (European weed).

bidentatus Bernh. ex C.Krauss Like **C. sagittatus** but basal leaf lobes often bifid and sepals large, papery, obtuse, with membranous margins, 6–8 mm long, corolla 15–22 mm long. Oct.–Dec. Coastal scrub, AP, LB, SE (Bredasdorp to E Cape).

capensis Burm.f. CAPE BINDWEED Thinly hairy, perennial climber to 2 m. Leaves hastate to palmatisect, often toothed. Flowers white to pink, sepals 6–10 mm long, usually silky and obtuse, corolla 15–35 mm long. Sept.–Oct. Stony slopes, NW, SW, AP, KM, LB, SE (Namaqualand and W Karoo to E Cape).

farinosus L. Thinly hairy, often silvery, perennial climber to 3 m. Leaves deltoid or sagittate, often toothed. Flowers white to mauve, sepals 6–8 mm long, acute, corolla 12–15 mm long. Nov.–June. Stony slopes, NW, SW, LB, SE (Ceres to Cape Peninsula to Port Elizabeth and throughout Africa to the Mediterranean).

multifidus Thunb. Densely silky, trailing perennial to 75 cm. Leaves palmatisect with linear segments. Flowers white or pink, sepals 6–7 mm long, apiculate, corolla 10–12 mm long. Nov.–Mar. Stony flats, SE (Uitenhage and Karoo to Free State).

sagittatus Thunb. (= *Convolvulus ulosepalus* Hallier f.) Glabrescent, perennial climber to 2 m. Leaves narrowly hastate. Flowers white or pink, sepals 5–6 mm long, acute, corolla 7–10 mm long. Nov.–May. Stony flats and slopes, NW, SW, KM, LB, SE (Namaqualand and W Karoo to Worcester and throughout Africa).

CUSCUTA L. DODDER ± 140 spp., cosmopolitan, mainly America

africana Willd. Leafless, parasitic, annual vine, stems medium. Flowers in cymes, cream-coloured, calyx shorter than corolla tube with obtuse lobes, stigmas oblong. Oct.–Dec. Stem parasite on shrubs, SW, LB, SE (Riviersonderend to Port Elizabeth).•

angulata Engelm. Leafless, parasitic, annual vine, stems thread-like. Flowers in cymes, white, calyx as long as corolla tube, angled and sharply protruding at sinuses, stigmas oblong. July–Dec. Stem parasite on ericoid shrubs, SW, AP (Du Toitskloof to Still Bay).•

appendiculata Engelm. Leafless, parasitic, annual vine, stems thread-like. Flowers in loose, paniculate cymes, white, calyx loose, warty, shorter than corolla tube, stigmas globose. Oct.–June. Stem parasite on shrubs, SW, KM, LB, SE (Cape Peninsula to Mpumalanga).

bifurcata Yunck. Leafless, parasitic, annual vine, stems thread-like. Flowers in umbellate cymes, greenish, 4-lobed, calyx as long as corolla tube, corolla scales bifid, stigmas globose. Jan. Stem parasite on perennials, NW, SE (Cold Bokkeveld and Port Elizabeth).•

cassytoides Nees ex Engelm. Leafless, parasitic, annual vine, stems ± 2 mm diam. Flowers subsessile in racemes or panicles, greenish, styles fused. Apr.–June. Stem parasite on trees and shrubs, LB, SE (Swellendam to tropical Africa and Asia; a recent record from the Cape Peninsula is evidently an introduction).

nitida Choisy Like **C. africana** but calyx often > corolla tube with acute lobes and stigmas > styles. Aug.–Dec. Stem parasite on shrubs, NW, SW (Cedarberg to Hottentots Holland Mtns).•

DICHONDRA J.R.Forst. & G.Forst. DAISY GRASS ± 5 spp., worldwide

micrantha Urb. (= *Dichondra repens* auct.) Hairy, creeping, rhizomatous perennial to 5 cm. Leaves reniform. Flowers white. Aug.–Nov. Rock sheets or grassy flats, SW, AP, LB, SE (Cape Peninsula to tropical Africa and worldwide).

FALKIA Thunb. OORTJIES 3 spp., Africa

repens Thunb. Thinly hairy, mat-forming, rhizomatous perennial with short, erect branches to 5 cm. Leaves cordate to reniform. Flowers white or pink to mauve. Oct.–Dec. Damp coastal flats and seeps, SW, AP, LB, SE (Darling to E Cape).

IPOMOEA L. MORNING GLORY ± 500 spp., cosmopolitan but mainly tropical

cairica (L.) Sweet MESSINA CREEPER Perennial climber to 3 m. Leaves palmatisect with 5–7, lanceolate segments. Flowers mauve, sepals glabrous, obtuse. Oct.–Feb. *SW, SE (Uitenhage to tropical Africa and Asia but weedy on the Cape Peninsula).

ficifolia Lindl. Thinly hairy, perennial climber to 2 m. Leaves 3-lobed, cobwebby beneath. Flowers pink to purple, sepals thickly hairy, acuminate. Apr.–June. Coastal bush, SE (Humansdorp to tropical Africa).

pes-caprae (L.) R.Br. STRANDPATAT Trailing perennial to 30 m with milky sap. Leaves leathery, suborbicular and emarginate or bilobed. Flowers pink to purple, sepals glabrous, obtuse-mucronate. Dec.–Feb. Sandy beaches, SE (Mossel Bay to tropical Africa, pantropical).

***purpurea** (L.) Roth Thinly hairy, vigorous, annual climber to 5 m. Leaves cordate. Flowers purple, sepals thickly hairy beneath, acute. Oct.–Dec. Weed of forest margins, SW (tropical American weed on the Cape Peninsula).

CORNACEAE = CURTISIACEAE

CRASSULACEAE

with P.V. Bruyns

1. Leaves spirally arranged, often clustered:
 2. Leaves soft, herbaceous, seasonal; inflorescence a single-flowered or branched thyrse .... **Tylecodon**
 2.' Leaves usually tough, perennial; inflorescence a spike-like thyrse (rarely branched) **Andromischus**
1.' Leaves opposite or whorled, at least on vegetative branches:
 3. Petals free or shortly united at base; stamens as many as sepals; leaves opposite and ± connate below ..... **Crassula**
 3.' Perianth tubular; stamens twice as many as sepals; leaves free:
  4. Flowers 5-merous; filaments fused to corolla tube in lower third ..... **Cotyledon**
  4.' Flowers 4-merous; filaments fused to corolla tube at or above the middle ..... **Kalanchoe**

ADROMISCHUS Lem. ± 26 spp., southern Africa

A. Anthers exserted

filicaulis (Eckl. & Zeyh.) C.A.Sm. Succulent perennial to 35 cm. Leaves ovoid. Flowers in a spicate cyme, greenish and red, cylindric, not grooved, lobes short and cuspidate, forming a frill, anthers shortly exserted. Nov.–Jan. Stony slopes or loamy flats under bushes, NW, SW, KM (S Namibia through Worcester to Klaarstroom and Willowmore).

hemisphaericus (L.) Lem. Succulent perennial to 35 cm. Leaves obovate to circular. Flowers in a spicate cyme, greenish and red, cylindric, not grooved, lobes short and cuspidate, forming a frill, anthers shortly exserted. Nov.–Dec. Rocky, granitic to sandstone slopes, NW, SW, AP, KM (Nieuwoudtville and E of Calvinia to Cape Peninsula to Mossel Bay).

roaneanus Uitewaal Succulent Like **A. hemisphaericus** but leaves with a small apical point and with sharply edged margin. Nov.–Dec. Stony slopes, NW (Vanrhyns Pass to Citrusdal and E of Calvinia and Karoopoort). **gce**

A.' Anthers included

caryophyllaceus (Burm.f.) Lem. NENTABOS Succulent perennial to 35 cm. Leaves oblanceolate. Flowers in a spicate cyme, greenish white and red, funnel-shaped, grooved above, lobes ovate, anthers included. Jan.–Apr. Sandstone slopes among bushes, SW, AP, KM, LB, SE (Hermanus and Robertson to Meiringspoort and Uitenhage).•

cristatus (Haw.) Lem. Succulent perennial to 40 cm, with tufts of fine, reddish, aerial roots. Leaves obovoid-cuneate, undulate at end, glandular-hairy. Flowers in a spicate cyme, white, cylindric, grooved, lobes ovate, anthers included. Dec.–Mar. Crevices in stony sandstone to shale slopes, KM, SE (Willowmore and Uniondale to E Cape).

inamoenus Toelken Like **A. triflorus** but buds straight. Oct.–Jan. Sandstone slopes, KM, LB, SE (Gourits River Gorge to E Cape).

leucophyllus Uitewaal Succulent perennial to 35 cm. Leaves suborbicular, covered with white, waxy bloom. Flowers in a spicate cyme, white, cylindric, grooved, lobes ovate, anthers included. Jan.–Feb. Sandstone slopes in crevices, KM, LB (Montagu to Klein Swartberg).•

maculatus (Salm-Dyck) Lem. Like **A. triflorus** but marginal ridge of leaf continuing to base. Dec.–Jan. Sandstone slopes, NW, SW, KM, LB, SE (Hex River to Georgida and Joubertina).•

mammillaris (L.f.) Lem. Like **A. triflorus** but leaves ovoid. Dec. Sandstone slopes, KM (Gamka Poort to Calitzdorp).•

marianiae (Marloth) A.Berger Succulent perennial to 35 cm. Leaves obovoid-fusiform with apical ridge. Flowers in a spicate cyme, white, cylindric, grooved, lobes ovate, anthers included. Dec.–Jan. Gravelly, lower slopes and loamy flats, NW (S Namibia to Clanwilliam and Roggeveld).

maximus Hutchison Robust, succulent perennial to 50 cm. Leaves oblanceolate. Flowers in a spicate cyme, greenish white and pinkish, crowded in fascicles, cylindric, not grooved, lobes elliptic, anthers included. Nov.–Dec. Sandstone and shale slopes, NW (Gifberg and Nardouw Mtns).•

sphenophyllus C.A.Sm. Like **A. maculatus** but leaves tapering gradually below and almost auriculate and rarely spotted. Dec.–Jan. Rocky slopes, SE (Klaarstroom to E Cape).

subdistichus Makin ex Bruyns Succulent perennial to 30 cm. Leaves suborbicular, brownish green without waxy bloom with marginal ridge all way round. Flowers in a spicate cyme, greenish with purple stripes, petals grooved, ovate, fused basally, anthers just exserted. Jan.–Feb. N-facing sandstone slopes in crevices, KM, SE (Prince Albert and Willowmore to Uniondale).

triflorus (L.f.) A.Berger Succulent perennial to 35 cm. Leaves obovate-cuneate with marginal ridge around apex only. Flowers in a spicate cyme, pinkish and red, cylindric, not grooved, flexed outwards at tip in bud, lobes elliptic, anthers included. Nov.–Jan. N-facing sandstone and shale slopes, NW, KM, LB, SE (Skittery Kloof to Great Karoo and Little Karoo).

COTYLEDON L. 9 spp., Africa to Arabia

A. Filaments conspicuously hairy at base

orbiculata L. KOUTERIE, VARKOOR Succulent shrub to 1 m. Leaves obovate to narrowly ovoid, sometimes velvety, with a grey bloom. Flowers several in a stout, pedunculate cyme, nodding, reddish, filaments hairy below. Sept.–Dec. Sandy or stony soils in scrub, NW, SW, AP, KM, LB, SE (SW Angola to Namibia to S Africa and Mozambique).

tomentosa Harv. Hairy, succulent shrublet to 1 m. Leaves cuneate to ovoid, toothed above, grey-velvety. Flowers several in a short, pedunculate cyme, erect, corolla sometimes bulging between calyx lobes, reddish, filaments hairy below. Feb.–Aug. Sandstone and shale slopes, KM, LB, SE (Barrydale to Baviaanskloof Mtns).•

woodii Schönland & Baker f. Much-branched, succulent shrublet to 1 m. Leaves obovate, with flaking wax. Flowers 1 or 2 on short peduncles to 50 mm long, tubular, spreading, reddish, filaments hairy below. Mainly Dec.–Apr. Stony sandstone slopes mainly in kloofs, KM, SE (Swartberg to E Cape).

A.' Filaments glabrous

adscendens R.A.Dyer Scrambling, succulent shrublet to 2 m. Leaves obovate, with flaking wax. Flowers several in a stout, pedunculate cyme, nodding, reddish, filaments glabrous. Oct.–Dec. Coastal dunes in scrub, SE (Port Elizabeth).•

cuneata Thunb. VARKOOR Succulent shrub to 70 cm. Leaves obovate-cuneate, often viscid. Flowers several in a stout, pedunculate cyme, nodding, glandular-hairy, corolla lobes ± twice as long as tube, yellowish, filaments ± glabrous. Sept.–Dec. Lower slopes among bushes, NW, KM, SE (Namaqualand to Victoria West, Little Karoo to Baviaanskloof).

muirii Schönland (incl. **C. elisiae** Van Jaarsv.) Small shrublet to 60 cm. Leaves obovate, green. Flowers several in a pedunculate cyme, nodding, reddish, usually glandular, lobes twice as long as tube, filaments glabrous. Mainly Oct.–Dec. Stony slopes, LB (Gourits River Valley).•

papillaris L.f. Delicate, sprawling shrublet with decumbent branches to 25 cm long, rooting at nodes. Leaves linear-oblanceolate to fusiform, green. Flowers several in a pedunculate cyme, nodding, reddish, usually glandular, lobes twice as long as tube, filaments glabrous. Mainly Oct.–Dec. Gravelly slopes and flats, inside other bushes, KM (S Namibia to E Cape and Great Karoo).

velutina Hook.f. Succulent shrublet to 1 m. Leaves obovate to narrowly ovoid, lower leaves often auriculate, sometimes velvety, with a grey bloom. Flowers several in a stout, pedunculate cyme, nodding, corolla bulging or pouched between calyx lobes, reddish, filaments glabrous. Oct.–Dec. Stony soils in scrub, KM, SE (Willowmore to S KwaZulu-Natal).

CRASSULA L. STONECROP ± 200 spp., predominantly S hemisphere, mainly southern Africa

A. Annuals or perennials with anthers 0.1–0.2(–0.3) mm long
B. Flowers cup-shaped, petals recurved and spreading above, 2–15 mm long

depressa (Eckl. & Zeyh.) Toelken Annual with wiry stems to 5 cm. Leaves opposite, oblanceolate to obovate. Flowers in a terminal thyrse, cup-shaped, white to pinkish, petals 3–4 mm long, stigmas terminal. Sept.–Oct. Sandy coastal flats, AP, SE (Bredasdorp to Knysna).•

dichotoma L. Annual with wiry stems to 20 cm. Leaves opposite, subterete to obovate. Flowers in a terminal thyrse, cup-shaped, yellow to orange, often marked red in throat, petals 8–15 mm long, stigmas terminal on slender styles. Sept.–Oct. Sandy flats, NW, SW, AP (Namaqualand to Agulhas).

filiformis (Eckl. & Zeyh.) D.Dietr. Like **C. grammanthoides** but flowers smaller, petals 2–3 mm long and ± contorted and stylar horn very short, ± a quarter as long as ovary. Aug.–Nov. Sandy flats, NW, SW, AP, SE (Pakhuis Mtns to Port Elizabeth).•

grammanthoides (Schönland) Toelken Annual with wiry stems to 10 cm. Leaves opposite, oblanceolate to obovate. Flowers in a terminal thyrse, cup-shaped, white or yellow, petals 4–5 mm long, stigmas subterminal at base of sterile, horn-like styles. Sept.–Oct. Calcareous coastal sands, AP (De Hoop).•

sebaeoides (Eckl. & Zeyh.) Toelken Annual with wiry stems to 8 cm. Leaves opposite, oblanceolate to obovate. Flowers in a terminal thyrse, cup-shaped, yellow, petals 4–10 mm long, stigmas subterminal, sterile style with a bilobed apical flap. Sept.–Nov. Clay flats in karroid scrub, NW, SW, KM, LB, SE (Kamiesberg and W Karoo to E Cape).

B.' Flowers star- or cup-shaped, petals spreading from below or incurved but then 1–2 mm long

*C. Flowers in sessile, axillary cymes forming an elongate, spike-like thyrse (see also **C. decumbens**)*

bergioides Harv. Erect, subglabrous or minutely hairy annual to 6 cm. Leaves opposite, ovate-triangular, margins papillate-ciliolate. Flowers in sessile, axillary cymes, star-shaped, white or pinkish, petals 1–1.5 mm long, papillose, sepals 2–3 mm long, carpels tuberculate. Sept.–Oct. Gravelly slopes, NW, SW, AP (Ceres to De Hoop).•

campestris (Eckl. & Zeyh.) Endl. ex Walp. Erect, sometimes sprawling annual to 10 cm. Leaves opposite, imbricate, ovate-triangular. Flowers in sessile, axillary cymes, star-shaped, whitish, perianth 0.5–1 mm long, carpels smooth. Sept.–Oct. Gravelly slopes, NW, SW, AP, KM, LB, SE (S Namibia to E Cape and Lesotho).

hirsuta Schönland & Baker f. Erect, roughly hairy annual to 6 cm. Leaves opposite, linear-triangular. Flowers in sessile, axillary cymes, star-shaped, whitish, perianth 1–1.5 mm long, carpels echinate. July–Sept. Sandy or gravelly slopes, NW, SW, KM (Namaqualand to Malmesbury and Little Karoo).

lanceolata (Eckl. & Zeyh.) Endl. ex Walp. (= *Crassula schimperi* Fisch. & C.A.Mey.) Perennial, 5–15 cm, with wiry or fleshy stems, sometimes mat-forming. Leaves opposite, often imbricate, triangular-lanceolate. Flowers in sessile, axillary cymes, star-shaped, yellowish green, sepals and petals ± 1 mm long. Dec.–July. Sheltered slopes, NW, SW, KM, LB (Cedarberg to Riversdale and E Cape to tropical Africa).

muscosa L. LIZARD'S TAIL, VETERBOS Sprawling, closely leafy perennial with woody stems, 10–50 cm. Leaves opposite, imbricate, ovate-triangular, fleshy. Flowers in sessile, axillary cymes, star-shaped, yellowish green, petals 1–2 mm long, sepals to two-thirds as long. Mainly Oct.–Feb. Rocky flats and slopes, NW, SW, AP, KM, LB, SE (S Namibia to E Cape and Free State).

thunbergiana Schult. Sprawling annual with stems often rooting at nodes, to 8 cm long. Leaves opposite, semiterete-lanceolate, papillate. Flowers in sessile or subsessile, axillary cymes, cup-shaped, white, perianth ± 1 mm long. Aug.–Nov. Sandy flats and slopes, often coastal, NW, SW, AP (S Namibia to Agulhas).

C.' Flowers in terminal panicles or restricted to uppermost axils

aphylla Schönland & Baker f. Apparently leafless annual, 0.6–3 cm, with a larger, single-noded, clavate stem terminated by smaller, clavate branches. Leaves fused into a fleshy ring indistinguishable from stems. Flowers terminal, star-shaped, white or pinkish, petals 1–2 mm long, ovules 1(2) per carpel. Aug.–Oct. Rock pools on sandstone, NW (Kamiesberg, Bokkeveld to Hex River Mtns).

decumbens Thunb. Erect or sprawling annual to 12 cm. Leaves opposite, linear-lanceolate to oblanceolate. Flowers in terminal and axillary cymes, cup-shaped, white, perianth 1.5–3 mm long. Sept.–Nov. Moist slopes, NW, SW, AP (Kamiesberg to Still Bay).

dodii Schönland & Baker f. Like **C. oblanceolata** but lower leaves in clusters of 4. Sept.–Oct. Moist depressions, NW, KM (S Namaqualand and W Karoo to Montagu and Matjiesfontein).

glomerata P.J.Bergius Stiffly erect annual to 15 cm. Leaves opposite, triangular-lanceolate, papillate. Flowers sessile in glomerules in a flat-topped thyrse, cup-shaped or tubular, white, petals

1–1.5 mm, papillose, carpels tuberculate. Aug.–Nov. Sandy, often coastal flats and limestones, NW, SW, AP, LB, SE (Kamiesberg, Clanwilliam to Port Elizabeth). **gce**

inanis Thunb. Like **C. natans** but leaves broadest below, lanceolate to ovate, and flowers mostly 5–10(–20) per axil. Nov.–Mar. River margins, SE (Roggeveld, Knysna to KwaZulu-Natal).

minuta Toelken Like **C. decumbens** but flowers solitary in axils. Sept.–Oct. Rock flushes, NW (Hantamsberg and N Cedarberg).

natans Thunb. (incl. **C. elatinoides** (Eckl. & Zeyh.) Friedrich) Erect or floating annual, sometimes rhizomatous perennial, 2–25 cm. Leaves opposite, linear to obovate, upper floating leaves sometimes broader. Flowers 1–3 in upper axils, star-shaped, white or pinkish, petals 1.5–2 mm long, ovules 1 per carpel. May–Oct. Moist depressions or pools, NW, SW, AP, KM, SE (widespread in S Africa and Lesotho).

oblanceolata Schönland & Baker f. Erect, sometimes sprawling annual to 12 cm. Leaves opposite, oblanceolate to elliptic. Flowers in branched cymes on slender pedicels, cup-shaped, white to reddish, petals 2–3 mm long. Aug.–Oct. Sheltered slopes, NW, SW, KM (S Namibia and W Karoo to Cape Peninsula and Little Karoo).

pageae Toelken Dwarf, disciform, crustose annual. Leaves partially fused to stem and rosulate, oblanceolate. Flowers sessile in centre, cup-shaped, brownish, petals 0.5–1 mm long. July–Oct. Sheltered, clay flats, NW, KM (Namaqualand and W Karoo to Worcester and Montagu).

strigosa L. Like **C. oblanceolata** but leaves and sepals hairy or at least aristate. Aug.–Oct. Sheltered or moist places, NW, SW, KM (Namaqualand to Riviersonderend).

tenuipedicellata Schönland & Baker f. Like **C. oblanceolata** but flowers smaller, petals ± 1 mm long, and ovary tuberculate. Aug.–Oct. Sheltered slopes, NW (S Namibia and W Karoo to Hex River Mtns).

umbellata Thunb. Sprawling, dwarf annual to 4 cm . Leaves opposite, ± petiolate, rhombic or triangular. Flowers sessile in a terminal thyrse but pedicels elongating in fruit, cup-shaped, cream-coloured or pinkish, petals ± 1 mm long. July–Oct. Sandy or gravelly slopes, NW, SW, KM, SE (Richtersveld, W Karoo, Clanwilliam to Cape Peninsula, Little and Great Karoo).

vaillantii (Willd.) Roth Like **C. natans** but usually more freely branching and ovules (2–)4–8 per carpel. Mainly Sept.–Jan. Moist places, often around pools, NW, SW, KM, SE (widespread in S Africa).

A.' Perennials with anthers (0.4–)0.5–5 mm long
D. Plants with (1)2 or 3(4) pairs of flattened, thin-textured leaves; soft, deciduous geophytes with stem tubers covered with root hairs

alcicornis Schönland Tuberous geophyte, 6–12 cm. Leaves opposite, in 1(2) pairs, palmatisect. Flowers in a rounded thyrse, tubular, white or pinkish, petals 2.5–3.5 mm long. May–June. Rocky slopes, NW (Olifants River Mtns: Dasklip Pass).•

capensis (L.) Baill. CAPE SNOWDROP Tuberous geophyte, 5–20 cm. Leaves opposite, in 2 or 3(4) pairs, the lower subpetiolate, thin-textured, obovate to cuneate-suborbicular, crenate. Flowers in a pedunculate, subumbellate thyrse, star-shaped, white to pinkish, petals 3–8 mm long, squamae at least as broad as long. May–Nov. Damp slopes, NW, SW, AP, LB (Clanwilliam to Riversdale).•

dentata Thunb. Erect or sprawling, tuberous geophyte, 5–15 cm. Leaves opposite but lowest in a whorl of 4, thin-textured, sometimes hairy, spathulate or petiolate, suborbicular-reniform, sometimes toothed. Flowers in terminal and axillary thyrses, star-shaped, white to cream-coloured, petals 2.5–3.5 mm long. Sept.–Nov. Sheltered and moist, rocky slopes or crevices, NW, SW (Bokkeveld to Elandskloof Mtns and Kasteelberg).•

nemorosa (Eckl. & Zeyh.) Endl. ex Walp. Erect or sprawling tuberous geophyte, 6–15 cm. Leaves opposite, in 3(4) pairs, thin-textured, usually petiolate, suborbicular-reniform. Flowers in a racemose thyrse, cup-shaped, yellowish green to brown, petals 2–3.5 mm long. Mainly June–Aug. Sheltered, rocky slopes or crevices, KM, SE (S. Namibia and W and Little Karoo to E Cape).

saxifraga Harv. Tuberous geophyte, 5–25 cm. Leaves often emergent, opposite, in 1(2) pairs, suborbicular, thin-textured, crenate. Flowers in a pedunculate, subumbellate thyrse, tubular, white to pinkish, petals 3.5–7.5 mm long, squamae broader than long. Apr.–June. Stony slopes or crevices, NW, SW, KM, LB, SE (Richtersveld to E Cape).

simulans Schönland Tuberous geophyte, 6–20 cm. Leaves opposite, in 3(4) pairs, thin-textured, obovate-cuneate, toothed. Flowers in a pedunculate thyrse, star-shaped, yellowish green, petals 2.5–3.5 mm long. Sept.–Oct. Sheltered, rocky, S-facing slopes, NW, SW (Namaqualand, Worcester to Montagu).

umbella Jacq. Tuberous geophyte, 6–20 cm. Leaves opposite, in 1(2) pairs, thin-textured, cordate-reniform or fused and amplexicaul, crenate. Flowers in a pedunculate thyrse, star-shaped, white to yellowish green, petals 2–4.5 mm long. July–Sept. Sheltered, rocky slopes, NW, KM, SE (Richtersveld and W Karoo through Little Karoo to Humansdorp).

D.' Plants not as above
E. Flowers star- or cup-shaped with petals spreading from near base

arborescens (Mill.) Willd. JADE PLANT Shrub sometimes to 2 m. Leaves opposite, mostly sessile, obovate to orbicular, sometimes with horny, purplish margin. Flowers in rounded, terminal clusters, stellate, cream-coloured tinged red, petals 7–10 mm long. Oct.–Dec. Rocky sandstone slopes, NW, KM, SE (S Namaqualand, Montagu to E Cape).

cordata Thunb. Perennial to 30 cm, with erect to spreading branches. Leaves opposite, broadly ovate, often speckled with red and margin reddish. Flowers in lax, rounded clusters, stellate, cream-coloured tinged pink, petals ± 4 mm long, often with leafy shoots on old flower clusters. July–Oct. Dry scrub, SE (Humansdorp to S KwaZulu-Natal).

crenulata Thunb. Tuberous perennial to 40 cm. Leaves opposite, sessile, oblong to oblanceolate, margins entire or crenate. Flowers in flat-topped clusters, stellate, white to cream-coloured tinged pink, petals 5–8 mm long. Jan.–Apr. Sheltered, grassy slopes, SE (George to KwaZulu-Natal).

expansa Dryand. Weak, sprawling perennial with herbaceous stems to 40 cm, often rooting at nodes. Leaves opposite, obovate to ellipsoid. Flowers 1–few in upper axils, cup-shaped, white tinged red, petals 2.5–4 mm long. Mainly July–Dec. Mainly coastal sands and limestone, NW, SW, AP, KM, LB, SE (S Namibia to Mozambique, E Africa and Madagascar).

lactea Sol. Perennial with spreading or scrambling branches. Leaves opposite, sessile, elliptic to oblanceolate, margin yellowish, horny. Flowers many in terminal clusters, stellate, white, tinged red at tips, petals 5–8 mm long. May–July. Rock outcrops, SE (Mossel Bay to E Cape).

ovata (Mill.) Druce Shrub to 2 m. Leaves opposite, mostly sessile, elliptic-oblanceolate, sometimes with reddish, horny margin. Flowers in rounded, terminal clusters, stellate, white, sometimes tinged pink, petals 6–10 mm long. June–Aug. Rocky slopes, KM, SE (Swartberg to KwaZulu-Natal).

papillosa Schönland & Baker f. Delicate, prostrate, cushion-forming perennial to 20 cm diam., with wiry stems Leaves opposite, small, elliptic-oblanceolate. Flowers 1–few in upper axils, cup-shaped, white to pinkish, petals 2–3 mm long. Dec.–Apr. Sheltered slopes, NW, SW, AP, KM, SE (Cedarberg to E Cape).

peculiaris (Toelken) Toelken & Wickens Slender, prostrate, mat-forming perennial to 30 cm long. Leaves opposite, petiolate, ovate-elliptic, finely hairy. Flowers solitary in axils, bowl-shaped, white, petals 3.5–4 mm long. Seeds papillose. Nov.–Mar. Sheltered slopes, KM (Groot Swartberg: Swartberg Pass).•

pellucida L. Sprawling perennial, sometimes annual. Leaves opposite, mostly sessile, elliptic to oblanceolate, margin colourless or red. Flowers in terminal clusters, sometimes solitary, stellate, white, often tinged pink, petals 3–5 mm long. Sept.–Feb. Sheltered, rocky slopes, NW, SW, AP, KM, LB, SE (Bokkeveld Mtns to Ethiopia).

spathulata Thunb. Sprawling to prostrate perennial, branches often quadrangular. Leaves opposite, petiole 3–18 mm long, ovate-elliptic, serrate to crenate, margins tinged red. Flowers in terminal clusters, stellate, white often tinged red, petals 3–5 mm long. Mar.–May. Rock outcrops along forest margins, SE (Knysna to E Cape).

E.' Flowers ± tubular or urceolate with petals erect or recurved only in upper half
F. Sepals hairy (sometimes glabrous) and ciliate

ammophila Toelken Perennial to 80 cm, with brittle branches. Leaves opposite, oblanceolate, densely recurved-adpressed-hairy. Flowers in globular clusters forming elongate to rounded panicles, tubular, cream-coloured, ± 3 mm long. Oct.–Nov. Coastal sandveld, NW, SW (Namaqualand to Saldanha Bay).

atropurpurea (Haw.) D.Dietr. Shrublet to 60 cm, branches fleshy to woody. Leaves opposite, oblanceolate to obovate, usually hairy and papillate, margins horny. Flowers in globular clusters forming elongate panicles, tubular, cream-coloured, ± 4 mm long. Oct.–Dec. Rocky slopes, NW, SW, KM, LB, SE (S Namibia and Karoo to Port Elizabeth).

cotyledonis Thunb. BERGPLAKKIE Tufted perennial to 20 cm, stems woody, few-branched. Leaves opposite, oblanceolate to rounded, densely recurved-hairy, margins with a band of cilia. Flowers in globular clusters forming elongate panicles, tubular, cream-coloured to yellow, petals ± 4 mm long. Nov.–Jan. Gravelly slopes and outcrops, NW, KM, LB, SE (S Namibia to Little Karoo and E Cape).

cultrata L. Shrub to 80 cm. Leaves opposite, oblanceolate to lorate, with sharp, horny margins. Flowers in elongate clusters on short peduncles, tubular, cream-coloured, ± 4 mm long. Dec.–Jan. Dry scrub, AP, KM, LB, SE (Mossel Bay and Little Karoo to KwaZulu-Natal).

deceptor Schönland & Baker f. Perennial branched from base, to 8 cm. Leaves opposite, broadly ovate, closely imbricate, forming a 4-angled column. Flowers in lax, rounded, pedunculate clusters, tubular, cream-coloured, petals ± 2.5 mm long. Jan.–Mar. Gravelly, quartz outcrops, NW (S Namibia and Bushmanland to Elands Bay).

fragarioides Van Jaarsv. & Helme Tufted perennial with short, slightly woody branches. Leaves opposite, obovate, mostly spreading, densely whitish papillate-puberulous. Flowers in 1 or more globular clusters forming a narrow panicle, tubular, white, ± 3 mm long, petals with subglobose dorsal appendage. May–Aug. Sandstone pavements, NW (Bokkeveld Mtns)•.

hirtipes Harv. Perennial with stems spreading to prostrate. Leaves opposite, lanceolate to ovate, bent upward from base, recurved-hairy sometimes glabrous. Flowers in elongate clusters on hairy peduncles, tubular, cream-coloured to yellow, petals ± 4 mm long. Aug.–Sept. Sheltered, rocky outcrops, NW (Namaqualand to Olifants River Mouth).

mollis Thunb. Shrublet to 50 cm. Leaves opposite, linear-elliptic, flat above, rounded beneath, shortly velvety. Flowers in rounded clusters on hairy peduncles, tubular, cream-coloured, petals ± 3 mm long. Dec.–Feb. Karroid scrub, KM, LB, SE (Matjiesfontein to Prince Albert, Mossel Bay to E Cape).

namaquensis Schönland & Baker f. Tufted perennial. Leaves opposite, oblong to elliptic, densely adpressed-hairy, grey- to blue-green. Flowers in dense, rounded clusters on hairy peduncles, tubular, white to yellow, 3–8 mm long. Oct.–Nov. Stony slopes, NW (S Namibia and Namaqualand to Bushmanland to Karoopoort).

nudicaulis L. Tufted perennial with fleshy branches. Leaves oblong-elliptic, to orbicular, glabrous or pubescent, margins often ciliate. Flowers in small clusters forming elongate panicles, white to cream-coloured, ± 4 mm long. Sept.–Dec. Dry stony slopes, NW, SW, AP, KM, LB, SE (Namaqualand to Cape Peninsula, Little Karoo to Drakensberg).

perfoliata L. Densely papillate, few-branched perennial to 1.5 m. Leaves opposite, lanceolate to triangular, green to grey sometimes with purple blotches. Flowers in flat-topped, pedunculate clusters, tubular, white, pink or red, petals 3–6 mm long. Oct.–Jan. Dry lower slopes, SE (Willowmore and Uitenhage to Limpopo Province and Swaziland).

pubescens Thunb. Shrublet to 30 cm. Leaves opposite, oblanceolate to obovate, hairy or smooth, margins ciliate. Flowers in rounded to elongate clusters on puberulous to smooth peduncles, tubular, cream-coloured, petals ± 2.5 mm long, petals with subglobose dorsal appendage. Sept.–Nov. Sheltered, rock crevices, NW, SW, AP, KM, LB, SE (Bokkeveld Mtns to Verlatekloof to E Cape).

rogersii Schönland Shrublet to 30 cm, branches erect, later spreading. Leaves opposite, oblanceolate to club-shaped, densely hairy, margins often red. Flowers in globular clusters forming elongated panicles, tubular, pale yellow, petals ± 3.5 mm long. Dec.–Mar. Dry scrub, KM, SE (Great Karoo, Matjiesfontein and Prince Albert to E Cape).

subacaulis Schönland & Baker f. (= *Crassula erosula* N.E.Br.) Perennial or shrublet to 60 cm, branching mostly from base. Leaves opposite, oblong-elliptic, often pubescent. Flowers in small clusters forming elongated panicles on shortly hairy peduncles, tubular, cream-coloured to yellow, ± 3 mm long. Sept.–Oct. Gravelly slopes, NW (Namibia to Pakhuis Mtns).

subaphylla (Eckl. & Zeyh.) Harv. Shrublet to 80 cm, with wiry-woody branches. Leaves opposite, linear-elliptic to lanceolate, adpressed-hairy or papillate to glabrous. Flowers in globular clusters forming elongate panicles, tubular, cream-coloured, ± 4 mm long. Oct.–Nov. Dry slopes, NW, SW, KM, LB, SE (Central Namibia to Little and Great Karoo).

tecta Thunb. Tufted perennial, often much branched. Leaves opposite, oblanceolate, covered with hard papillae. Flowers in rounded clusters on papillate peduncles, tubular, whitish, petals 3–4 mm long. Apr.–June. Gravel slopes, KM (Little Karoo to Steytlerville).

F.' Sepals glabrous or hairy but not ciliate
G. Flowers 20–60 mm long

coccinea L. RED CRASSULA Like **C. fascicularis** but leaves ovate-elliptic, flowers usually scarlet-red and petals 30–45 mm long. Dec.–Mar. Sandstone outcrops, SW, AP (Cape Peninsula to Still Bay).•

fascicularis Lam. Erect shrublet to 40 cm. Leaves opposite, linear-lanceolate, ascending, usually with recurved cilia. Flowers in subsessile, flat-topped clusters, tubular, sessile, cream-coloured to yellow-green, petals 20–32 mm long. Sept.–Nov. Sandstone slopes, NW, SW, LB (Gifberg to Langeberg).•

obtusa Haw. Sprawling shrublet to 15 cm, branches often rooting at nodes. Leaves opposite, oblong to oblanceolate, margins ciliate. Flowers 1–5 in terminal clusters, tubular, white tinged pinkish, petals 30–40 mm long. Nov.–Jan. Sandstone ledges, NW, SW, KM, LB, SE (Bokkeveld Mtns to Great Winterhoek Mtns).•

G.' Flowers 2–15 mm long

alpestris Thunb. Mostly unbranched, perennial, sometimes biennial to 12 cm. Leaves opposite, triangular, closely imbricate, rough and often with sand attached. Flowers in dense, terminal or axillary, head-like clusters, tubular, white, petals 6–9 mm long. Aug.–Nov. Rocky pavements, NW, KM (Bokkeveld to Matjiesfontein).

barbata Thunb. Tufted biennial or annual to 30 cm. Leaves obovate to orbicular, margins ciliate. Flowers in subsessile, elongate, spike-like clusters, tubular, sessile, white often tinged pink, petals 4–5.5 mm long. Sept.–Nov. Rocky slopes, NW, KM (Karoo and Cedarberg to Victoria West and Little Karoo).

barklyi N.E.Br. Like **C. columnaris** but much branched at base and leaf margins broadly membranous, with a dense fringe of cilia. June–Aug. Quartzite gravel or rock outcrops, NW (Namaqualand to Strandfontein and Botterkloof).

biplanata Haw. Perennial to 30 cm with erect to spreading, papillate branches. Leaves opposite, lanceolate, sometimes rounded in section. Flowers in dense, flat-topped clusters, tubular, whitish, petals ± 2 mm long. Feb.–Apr. Rock ledges, SW, KM, LB, SE (Franschhoek to Great Winterhoek Mtns).•

brachystachya Toelken Tufted perennial to 20 cm, with brittle branches. Leaves oblanceolate-oblong, often red on margins. Flowers in pedunculate, spike-like clusters, tubular, subsessile, white, petals ± 4.5 mm long. Nov.–Jan. Sheltered rocks, KM (Witteberg and Swartberg).

brevifolia Harv. Much-branched shrublet to 50 cm. Leaves opposite, leaves linear-elliptic, margins horny distally, often with a thick, waxy bloom. Flowers in pedunculate, rounded clusters, tubular, yellowish green or whitish tinged pink, petals 3–5 mm long. Mar.–Apr. Rocky slopes, NW (S Namibia to Pakhuis Mtns).

capitella Thunb. Tufted perennial or biennial to 40 cm. Leaves linear-lanceolate to ovate, sometimes hairy and usually with marginal cilia. Flowers in elongate, subsessile, spike-like clusters, tubular, white to pink. Nov.–Mar. Dry slopes, NW, KM, LB, SE (widespread throughout southern Africa).

ciliata L. Perennial to 20 cm. Leaves opposite, oblong-elliptic, with recurved marginal cilia in a dense row. Flowers in rounded clusters, cream-coloured to yellow, tubular, ± 4 mm long. Nov.–Jan. Gravelly lower slopes, SW, AP, LB, SE (Cape Peninsula to Port Elizabeth).•

clavata N.E.Br. Tufted perennial with fleshy to slightly woody branches. Leaves opposite, obovate to elliptic, mostly spreading, sometimes shortly hairy and/or margins ciliate. Flowers in globular clusters forming elongate panicles, tubular, cream-coloured to yellow, ± 3 mm long. Sept.–Oct. Sandstone pavements, NW, KM (Namaqualand to Little Karoo).

columnaris Thunb. KHAKIBUTTON, BERGKOESNAATJIE Perennial or biennial to 10 cm, sometimes branched at base. Leaves opposite, depressed-ovate, closely imbricate, recurved-ciliate, margins sometimes membranous. Flowers in a terminal head, tubular, white to yellow, petals 7–13 mm long. May–Aug. Quartzite gravel and rocky pavements, NW, SW, KM (S Namibia to Bushmanland to Little Karoo).

congesta N.E.Br. Biennial to 20 cm. Leaves opposite, closely imbricate, lanceolate. Flowers in a dense, terminal head, tubular, cream-coloured tinged red, petals 9–13 mm long. June–July. Quartzite gravel, KM (Witteberg and Little Karoo).

cremnophila Van Jaarsv. & A.E.van Wyk Like **C. hemisphaerica** but leaves broadly obovate, flowers in a rounded thyrse, petals 7 mm long and anthers black. Aug.–Feb. Sandstone cliff faces, SE (Baviaanskloof and Kouga).•

cymosa P.J.Bergius Shrublet to 25 cm, branching mainly from base. Leaves opposite, linear to lanceolate, margins with swollen, marginal cilia. Flowers in flat-topped to rounded clusters, tubular, white to yellow, petals ± 4 mm long. Oct.–Jan. Sandy or gravelly slopes, NW, SW (S Namaqualand to Riviersonderend Mtns).

dejecta Jacq. Much-branched shrublet to 40 cm, branches recurved-hairy when young. Leaves opposite, oblong-elliptic to ovate, with rounded cilia. Flowers in subsessile, flat to rounded clusters, tubular, white tinged pinkish, petals ± 8 mm long. Nov.–Feb. Rock outcrops, NW, SW (Namaqualand to Riviersonderend Mtns).

deltoidea Thunb. KATA-KISO Perennial with erect to spreading branches. Leaves opposite, oblanceolate to rhombic, strongly convex to keeled beneath, covered with grey, flaking layers of wax. Flowers in rounded clusters on short peduncles, urn-shaped, cream-coloured, sometimes white, petals to 5 mm long. Oct.–Nov. Gravelly flats, NW, KM (Keetmanshoop, Bushmanland to Matjiesfontein and Touws River, Prince Albert and Cradock).

elsieae Toelken Sprawling to prostrate, few-branched perennial. Leaves opposite, angular-obovate to rhombic, rough when young. Flowers 1–5 in subsessile, terminal clusters, urn-shaped, petals ± 3 mm long. Nov.–Dec. Sheltered rock outcrops, NW (N Cedarberg).•

ericoides Haw. MALMEIDBOSSIE Erect to spreading perennial to 40 cm. Leaves opposite, lanceolate to ovate. Flowers in sessile, rounded clusters, tubular, white to cream-coloured, shortly pedicellate, petals 2–4 mm long. Dec.–Mar. Dry rocky slopes, SW, KM, LB, SE (Cape Hangklip to KwaZulu-Natal).

fallax Friedrich Shrublet to 40 cm, few-branched from base. Leaves opposite, oblong-elliptic, margins with recurved cilia. Flowers in flat-topped clusters, tubular, whitish, petals ± 8 mm long. Nov.–Mar. Sandy, lower slopes and flats, NW, SW, AP (Olifants River Mtns to Bredasdorp).•

flava L. Shrublet to 40 cm, branches occasionally scabrid below flower clusters. Leaves opposite, lanceolate-triangular, with rounded marginal cilia. Flowers in rounded, subsessile clusters, white to yellow, tubular, petals ± 8 mm long. Dec.–Feb. Sandy, lower slopes, NW, SW (Tulbagh to Bredasdorp Mtns).•

hemisphaerica Thunb. Tufted perennial to 15 cm. Leaves ovate, sometimes elliptic, margins ciliate. Flowers in elongate, pedunculate, spike-like clusters, tubular, subsessile, white to cream-coloured, petals 2–3 mm long. Sept.–Nov. Pebbly slopes, NW, KM, SE (Kliprand to near Williston, Little Karoo to Prince Albert).

lasiantha Drège ex Harv. Perennial with wiry, prostrate, recurved-hairy branches, rooting at nodes. Leaves opposite, obovate-elliptic, margins with recurved cilia. Flowers in subsessile, rounded clusters, whitish, tubular, petals ± 3 mm long. Dec.–Apr. Sheltered, rock ledges, NW (Cedarberg to Grootwinterhoek Mtns).•

macowaniana Schönland & Baker f. Perennial or shrub to 1.2 m. Leaves opposite, linear-lanceolate, thick and fleshy. Flowers in pedunculate, rounded clusters, tubular, white, often tinged pink, petals 30, 5.5 mm long. Oct.–Dec. Rocky slopes, NW (S Namibia to near Clanwilliam).

mesembryanthoides (Haw.) D.Dietr. Shrublet to 40 cm, with spreading, woody branches. Leaves opposite, linear-elliptic to triangular, densely adpressed-hairy. Flowers in rounded to flat-topped clusters on densely hairy peduncles, tubular, whitish, petals ± 4 mm long. Mar.–June. Karroid slopes, SE (Uitenhage to E Cape).

montana Thunb. Tufted perennial to 12 cm. Leaves obovate to elliptic, margins with a dense row of cilia. Flowers in flat-topped to spike-like, pedunculate clusters, tubular, mostly sessile, white tinged pink, petals 3–5 mm long. Aug.–Oct. Sheltered, sandstone outcrops, NW (Bokkeveld Mtns to Worcester, Laingsburg to Somerset East).

multiflora Schönland & Baker f. Shrublet to 80 cm, branching mainly above. Leaves opposite, oblong-elliptic, margins with rounded cilia. Flowers many in flat-topped to rounded clusters on short peduncles, cream-coloured, sessile, tubular, petals ± 4 mm long. Dec.–Feb. Rocky slopes, NW, SW, KM, LB (Keeromsberg to Langeberg and Swartberg).•

muricata Thunb. Much-branched shrublet to 25 cm, branches recurved-adpressed-hairy when young. Leaves opposite, lanceolate-elliptic, minutely papillate. Flowers in branched, terminal clusters, sessile, white to yellow, urn-shaped, petals ± 3 mm long. Oct.–Dec. Dry sandstone slopes, NW, KM (Swartruggens to Little Karoo).

orbicularis L. Perennial to 25 cm. Leaves opposite, oblanceolate to elliptic, margins with a dense row of spreading cilia. Flowers in elongate, sometimes spike-like, pedunculate clusters, tubular, white to yellow tinged pink to brown. June–Nov. Sheltered, rocky slopes, NW, SW, KM, LB, SE (Montagu and Laingsburg to KwaZulu-Natal).

perforata Thunb. (incl. **C. badspoortensis** Van Jaarsv. [*C. badspoortense*, sphalm.]) Shrublet to 60 cm. Leaves opposite, ovate to lanceolate, fused at base to opposite leaf, margins horny, red or yellow. Flowers in subsessile, elongate, rounded clusters, tubular, sessile, cream-coloured to yellow, petals ± 2.5 mm long. Nov.–Apr. Sheltered, rocky slopes, SW, LB, SE (Riviersonderend Mtns to KwaZulu-Natal).

pruinosa L. Shrublet to 20 cm, branches recurved-adpressed-hairy when young. Leaves opposite, linear-lanceolate, densely adpressed-hairy. Flowers in flat-topped clusters, mostly sessile, tubular, ± 6 mm long. Nov.–Dec. Rock outcrops, SW (Cape Peninsula to Grabouw).•

pustulata Toelken Shrublet to 20 cm, branches recurved-adpressed-hairy when young. Leaves opposite, linear-lanceolate, densely hairy. Flowers in flat-topped clusters, whitish, tubular, petals ± 9 mm long. Nov.–Dec. Shallow, sandy soils, NW (Bokkeveld to Olifants River Mtns).•

pyramidalis Thunb. RYGBOSSIE Erect or sprawling perennial to 25 cm. Leaves opposite, angular-ovate, closely imbricate, forming 4-angled columns. Flowers in crowded, terminal heads, tubular, white or cream-coloured, petals 8–11 mm long. Aug.–Oct. Rock pavements, KM (Swartruggens to Matjiesfontein to E Cape).

rubricaulis Eckl. & Zeyh. Much-branched shrublet to 30 cm. Leaves opposite, oblanceolate-lorate, margins often red, with recurved cilia. Flowers in rounded clusters, white, often tinged red, tubular, petals ± 5 mm long. Jan.–May. Rock outcrops, LB, SE (Langeberg to Port Elizabeth).•

rupestris Thunb. CONCERTINA PLANT, SOSATIES Much-branched shrublet to 50 cm. Leaves opposite, ovate to lanceolate, margins horny, red or yellow. Flowers in pedunculate, rounded clusters, tubular, whitish tinged pink, petals 4–6 mm long. June–Oct. Dry stony slopes, NW, SW, KM, LB, SE (S Namibia to E Cape).

scabra L. Shrublet to 40 cm, branching mainly from base, branches recurved-adpressed-hairy when young. Leaves opposite, narrowly triangular to lanceolate, with recurved adpressed hairs. Flowers in flat-topped clusters, whitish, tubular, petals ± 9 mm long. Dec.–Feb. Dry lower slopes, NW, SW (Clanwilliam to Cape Peninsula).•

subulata L. Shrublet sometimes to 1 m. Leaves opposite, linear-lanceolate, mostly round in section, with stout marginal cilia or papillae. Flowers in rounded, head-like clusters, cream-coloured, tubular, ± 4 mm long. Oct.–Dec. Dry rocky slopes, NW, SW, AP, KM, LB, SE (Bokkeveld Mtns to Port Alfred).

tetragona L. KARKAI Perennial to 1 m, with erect to spreading, sometimes papillate branches. Leaves opposite, lanceolate, sometimes rounded in section. Flowers in flat-topped clusters, tubular, cream-coloured, sometimes white, petals ± 3 mm long. Dec.–Mar. Dry slopes, NW, SW, KM, LB, SE (Namaqualand, Worcester to E Cape).

tomentosa Thunb. Tufted perennial or biennial to 60 cm. Leaves oblong to orbicular, tomentose to rugose, margins ciliate. Flowers in elongate, subsessile, spike-like clusters, tubular, subsessile, whitish to yellow, petals 3–4.5 mm long. Aug.–Dec. Stony slopes, NW, SW, KM, LB (S Namibia and Bushmanland to Cape Peninsula and to Laingsburg).

KALANCHOE Adans. ± 200 spp., Africa, Asia and Australasia

rotundifolia (Haw.) Haw. NENTABOS Succulent shrublet to 1 m. Leaves opposite, elliptic. Flowers in a rounded cyme, orange to red. Mar.–June. Bushveld, SE (Uitenhage to N Africa and Arabia).

TYLECODON Toelken 27 spp., S Africa and Namibia

A. Leaves withering but not abscising cleanly

albiflorus Bruyns Succulent shrublet to 20 cm. Leaves dry at flowering but not abscising, oblanceolate. Flowers in a narrow cyme, funnel-shaped with spreading lobes, green but white with reddish stripes in throat, tube 12–15 mm. Nov.–Feb. Renosterveld, S-facing, shale slopes, KM (Montagu to Barrydale).•

grandiflorus (Burm.f.) Toelken ROOISUIKERBLOM Succulent shrublet to 50 cm, often sprawling. Leaves dry at flowering, withering but not abscising, oblanceolate, margins often rolled upwards. Flowers in a narrow cyme, tubular, slightly zygomorphic, reddish, tube 30–40 mm. Jan.–Feb. Rocky outcrops, often granite or sand, near the coast, NW, SW (Komaggas to Cape Peninsula to Bonnievale).

striatus (Hutchison) Toelken Like **T. ventricosus** but stems streaked grey and brown and flowers smaller, tube 12–15 mm. Sept.–Jan. Stony, shale slopes, NW (Riethuis to Clanwilliam to Verlatekloof).

ventricosus (Burm.f.) Toelken KLIPNENTA Succulent shrublet to 30 cm. Leaves dry at flowering, withering but not abscising, oblanceolate. Flowers in a narrow cyme, tubular, yellowish green,

tube 16–19 mm. Sept.–Mar. Rocky slopes, NW, KM, LB, SE (Richtersveld to Piketberg and Little Karoo to De Aar and Jansenville).

A.' Leaves abscising cleanly

cacalioides (L.f.) Toelken NENTA, KARKAY COTYLEDON Like **T. wallichii** but flowers tubular, erect and sulphur-yellow, tube 17–25 mm. Dec.–Feb. Rocky sandstone slopes, KM, LB (Ladismith to Willowmore).•

leucothrix (C.A.Sm.) Toelken DOUBOSSIE Succulent shrublet with peeling stems to 20 cm. Leaves dry at flowering, abscising, oblanceolate, hairy. Flowers in a narrow cyme, tubular, white or pinkish. Nov.–Feb. Rocky, shale slopes, KM, LB (Montagu to Joubertina).•

paniculatus (L.f.) Toelken BOTTERBOOM Succulent shrublet with stout, peeling stems to 1.5 m. Leaves dry at flowering, abscising, obovate. Flowers in a branched cyme, urn-shaped, nodding, yellowish to red, tube 12–16 mm. Nov.–Jan. Rocky slopes, NW, SW, AP, KM, LB, SE (Namibia to Cape Peninsula through Little Karoo to De Rust).

reticulatus (L.f.) Toelken OUKOE Succulent shrublet with thick, peeling stems to 30 cm. Leaves dry at flowering, abscising, oblanceolate. Flowers in a twiggy, divaricately branched cyme, urn-shaped, yellowish, tube 6–8 mm. Nov.–Dec. Stony slopes, NW, KM, LB, SE (S Namibia to Little Karoo to Klipplaat).

wallichii (Harv.) Toelken KOKERBOS, KANDELAARBOS, NENTA Succulent shrublet with warty stems to 1 m, covered with protruding phyllopodia. Leaves dry at flowering, abscising, oblanceolate. Flowers in a spreading cyme, urn-shaped, nodding, greenish yellow, tube 7–12 mm. Dec.–Feb. Stony flats and slopes, NW, SW, KM, LB (S Namibia through W Karoo to Saldanha, Worcester to Willowmore and Great Karoo).

CUCURBITACEAE

1. Anthers straight or curved; flowers small, < 10 mm diam., greenish:
 2. Stamens inserted in mouth of tube; seeds pyriform or globose ..... **Kedrostis**
 2.' Stamens inserted in throat or base of receptacle tube; seeds compressed ..... **Zehneria**
1.' Anthers folded or sigmoid; flowers larger, > 10 mm diam., cream-coloured or yellow:
 3. Filaments cohering or connate to form a tube; fruit scarlet, ellipsoid ..... **Coccinea**
 3.' Filaments free; fruit mottled green:
  4. Male flowers solitary ..... **Citrullus**
  4.' Male flowers in racemes ..... **Lagenaria**

CITRULLUS Eckl. & Zeyh. WILD MELON 4 spp., Africa and Asia

lanatus (Thunb.) Matsum. & Nakai TSAMMA Monoecious, hairy, trailing annual to 3 m long. Leaves pinnatisect with rounded, slightly toothed lobes. Flowers solitary in axils, greenish yellow. Fruits globose, mottled green. mainly Sept.–Dec. Sandy soils, NW (Cold Bokkeveld to tropical Asia, occurrences further S to Cape Town are evidently adventive).

COCCINIA Wight & Arn. ± 30 spp., Old World tropics

quinqueloba (Thunb.) Cogn. BOBBEJAANKOMKOMMER Dioecious, glabrescent, perennial climber to 10 m. Leaves palmate with slightly toothed lobes. Flowers solitary in axils, yellowish. Fruits ellipsoid, scarlet. Nov.–Apr. Coastal bush, SE (Humansdorp to S KwaZulu-Natal).

KEDROSTIS Medik. ± 23 spp., worldwide in tropics, mostly African

africana (L.) Cogn. CAPE BRYONY, KLEINBOBBEJAANKOMKOMMER Like **K. capensis** but male and female flowers minute and borne in the same axils. Nov.–Apr. Rocky slopes, NW, KM, SE (Namibia, Worcester and Karoo to Port Elizabeth and Mpumalanga).

capensis (Sond.) A.Meeuse Monoecious, tuberous perennial climber to 50 cm. Leaves palmatisect. Flowers often before leaves, axillary, male fascicled, female solitary, greenish. Fruits berry-like. Oct.–Apr. Rocky slopes, NW, KM (S Namibia to Lambert's Bay to Swartberg and Karoo).

nana (Lam.) Cogn. YSTERVARKPATAT Like **K. capensis** but dioecious and leaves sometimes scarcely lobed. Feb.–Mar. Coastal scrub, SW, AP, LB, SE (Saldanha to KwaZulu-Natal).

psammophila Bruyns Monoecious, tuberous perennial, prostrate with stems to 1 m long, without tendrils. Leaves palmate. Flowers borne at ground level on subterranean peduncles, male fascicled, female solitary, greenish. Fruits berry-like, subterranean. Apr.–June. Reddish sands, NW, SW (Namaqualand to Vredenburg). **gce**

LAGENARIA Ser. 6 spp., originally African

sphaerica (Sond.) Naudin (= *Lagenaria mascarena* Naudin) WILDEKALABAS Dioecious, glabrescent, perennial climber to 10 m. Leaves palmate with coarsely toothed lobes. Flowers axillary, female solitary, male racemose. Fruits subglobose, mottled green. Dec.–May. Coastal bush, SE (Knysna to tropical Africa).

ZEHNERIA Endl. ± 35 spp., Old World tropics

scabra (L.f.) Sond. Dioecious, glabrescent, perennial climber to 6 m. Leaves cordate, toothed, rough above and softly hairy below. Flowers in axillary umbels, cream-coloured. Fruits fleshy, scarlet. Aug.–Apr. Forest margins, SW, LB, SE (Cape Peninsula to tropical Africa).

CUNONIACEAE

1. Flowers in long-peduncled, axillary panicles; petals shorter than calyx; ovules 2 in each locule ..... **Platylophus**
1.' Flowers in dense, spike-like racemes; petals longer than calyx; ovules numerous in each locule ..... **Cunonia**

CUNONIA L. ROOIELS ± 17 spp., New Caledonia and 1 in southern Africa

capensis L. BUTTERSPOON TREE Tree to 30 m. Leaves opposite, imparipinnate, glossy, leaflets elliptic, serrate, enclosed in bud by conspicuous paddle-shaped stipules. Flowers in dense, spike-like, axillary racemes, whitish, scented. Mar.–June. Stream banks and forests, NW, SW, LB, SE (Grootwinterhoek Mtns to Mpumalanga).

PLATYLOPHUS D.Don• WITELS 1 sp., SW Cape

trifoliatus (L.f.) D.Don Tree to 30 m. Leaves opposite, 3-foliolate, leaflets narrowly elliptic, serrate. Flowers in axillary panicles, cream-coloured or yellowish, scented. Dec.–Feb. Stream banks or forests, NW, SW, LB, SE (Piketberg to Humansdorp).•

CURTISIACEAE

CURTISIA Aiton ASSEGAAIBOS 1 sp., Africa

dentata (Burm.f.) C.A.Sm. Shrub or small tree to 13 m, rusty velvety when young. Leaves opposite, ovate, toothed, glossy above. Flowers in terminal panicles, cream-coloured. Jan.–Feb. Forests, SW, LB, SE (Cape Peninsula to Zimbabwe).

CYTINACEAE

CYTINUS L. AARDROOS ± 10 spp., Africa, Mediterranean, Mexico

capensis Marloth Like **C. sanguineus** but tepals 4(5), always dark purplish and shaggy. July–Aug. Sandy and stony flats and slopes, parasitic on shrubby Asteraceae and Rutaceae, SW (Cape Peninsula).•

sanguineus (Thunb.) Fourc. Dioecious root parasite to 5(–10) cm. Leaves scale-like, obovate. Flowers in sessile clusters, orange to red or dark purplish, tepals (5)6, glabrous to shaggy. July–Dec. Sandy and stony flats and slopes, parasitic mostly on shrubby Asteraceae, NW, SW, AP, KM, LB, SE (Namaqualand and W Karoo to Mossel Bay and S Karoo; absent from Cape Peninsula).

DIDIEREACEAE

PORTULACARIA Jacq. SPEKBOOM 3 spp., S Africa and Namibia

afra Jacq. Succulent shrub or small tree to 3 m. Leaves opposite, fleshy, obovate. Flowers in fascicles on terminal branches, pink. Oct.–Nov. Dry rocky slopes, KM, SE (Little Karoo to northern provinces).

DIPSACACEAE

1. Calyx small, shallowly lobed and ciliate, pappus-like; involucral bracts in several rows ... **Cephalaria**
1.' Calyx of 5 long awns; involucral bracts in 1 or 2 rows ..... **Scabiosa**

CEPHALARIA Schrad. ± 65 spp., Africa and Asia

A. Leaves cauline

attenuata (L.f.) Roem. & Schult. Sprawling, thinly hairy perennial to 60 cm. Leaves cauline, linear or pinnatisect below, margins revolute. Flowers in pedunculate heads, white. Dec.–Jan. Sandstone slopes, SW, LB, SE (Hottentots Holland Mtns to E Cape).

rigida (L.) Roem. & Schult. Erect, roughly hairy perennial to 1 m. Leaves cauline, elliptic, toothed, often lobed below, margins slightly revolute. Flowers in pedunculate heads, white. Dec.–Mar. Sandstone slopes, SW (Du Toitskloof to Jonkershoek and Cape Peninsula).•

scabra (L.f.) Roem. & Schult. Erect, glabrescent or roughly hairy perennial to 1 m. Leaves cauline, bipinnatisect, margins revolute. Flowers in pedunculate heads, white. Dec.–Feb. Sandstone slopes, NW, SW (Grootwinterhoek Mtns to Palmiet River and Riviersonderend Mtns).•

A.' Leaves mostly basal

decurrens (Thunb.) Roem. & Schult. Tufted, thinly hairy perennial to 80 cm. Leaves mostly basal, soft, oblanceolate or lyrate-pinnatifid, toothed. Flowers in pedunculate heads, white. Oct. Rocky slopes, NW (Bokkeveld and Kobee Mtns).•

humilis (Thunb.) Roem. & Schult. Tufted, glabrescent or roughly hairy perennial to 1 m. Leaves mostly basal, linear-oblanceolate or pinnatisect, margins revolute. Flowers in pedunculate heads. Dec.–Jan. Grassy slopes, SE (George to KwaZulu-Natal).

oblongifolia (Kuntze) Szabó Like **C. humilis** but basal leaves obovate. Jan.–May. Rocky slopes, SE (Humansdorp to KwaZulu-Natal).

SCABIOSA L. SCABIOUS ± 100 spp., Africa to Asia

africana L. CAPE SCABIOUS Velvety hairy, straggling shrublet to 1 m. Leaves oblanceolate, toothed or incised. Flowers in pedunculate heads, mauve. July–Nov. Sheltered sandstone and granite slopes, SW (Cape Peninsula, Paardeberg).•

columbaria L. JONGMANSKNOOP Shortly hairy, tufted perennial to 80 cm. Leaves mostly basal, markedly dimorphic, lower oblanceolate to lyrate-pinnatifid, toothed or incised, upper pinnatisect. Flowers in pedunculate heads, white to mauve. Aug.–Feb. Rocky slopes, NW, SW, KM, LB, SE (widespread through Africa, Europe and Asia).

incisa Mill. (incl. **S. albanensis** R.A.Dyer) Like **S. columbaria** but stems straggling. Leaves usually not markedly dimorphic, lyrate-pinnatisect to bipinnatisect. Sept.–Nov. Coastal sands, often on limestone, SW, AP, SE (Bokbaai to Grahamstown).

DROSERACEAE

DROSERA L. SUNDEW, DOUBLOM ± 130 spp., widespread but mainly Australia

A. Plants caulescent and woody below, with axillary scapes

capensis L. Rhizomatous perennial to 30 cm, woody below. Leaves petiolate, linear to elliptic, stipules ovate-lacerate, brown. Flowers several, secund in an axillary, helicoid cyme, scape curved outwards below, pink to magenta, stigmas swollen. Dec.–Jan. Marshy sandstone, NW, SW, KM, LB, SE (Elands Bay and Cedarberg to Langkloof).•

ericgreenii A.Fleischm., R.Gibson & F.Rivadavia Like **D. hilaris** but scape curved outwards below, stipules well developed, and flowers smaller, ± 20 mm diam. Oct.–Nov. Damp sandstone slopes, SW (Franschhoek).•

glabripes (Harv.) Stein Like **D. capensis** but with long, sprawling stems, leaf blades shortly obovoid and stipules long-lacerate and stigmas shortly multifid. Dec.–Jan. Peaty sandstone slopes, SW, AP (Cape Peninsula to Potberg).•

hilaris Cham. & Schltdl. Sprawling perennial to 40 cm. Leaves oblanceolate, densely rusty hairy beneath, stipules fringed, reduced to inconspicuous setae. Flowers in an axillary, helicoid cyme, scape erect from base, magenta or purple, stigmas simple or weakly divided. Sept.–Nov. Damp sandstone slopes, SW, AP (Cape Peninsula to Gansbaai).•

ramentacea Burch. ex DC. Like **D. capensis** but with long, sprawling stems, petioles with long, russet hairs and scapes often forked. Dec. Damp, sandy flats and slopes, SW, LB (Cape Peninsula to Langeberg).•

regia Stephens Stout, rhizomatous perennial to 40 cm, woody below. Leaves linear-attenuate, circinnate, exstipulate. Flowers in forked, subcorymbose cymes, magenta, styles 3, undivided, stigmas narrowly funnel-shaped. Jan. Wet, peaty sandstone at high alt., SW (Bain's Kloof Mtns).•

A.' Plants acaulescent or stems leafy but not woody, mostly with terminal scapes
B. Petals > 8 mm long

cistiflora L. (incl. **D. rubripetala** Debbert) SNOTROSIE Slender perennial to 40 cm. Leaves dimorphic, sometimes uniform, lower radical or lacking, oblanceolate, cauline leaves linear, exstipulate. Flowers l–few in subcorymbose cymes, large, white, yellow, mauve to purple or red, with dark centre, stigmas multifid. Aug.–Sept. Damp sandy flats, NW, SW, AP, KM, LB, SE (Namaqualand to Port Elizabeth). **gce**

cuneifolia L.f. Tufted perennial to 20 cm. Leaves radical, cuneate, stipules lacerate. Flowers several in helicoid cymes, moderately large, pink to purple, stigmas spathulate. Nov.–Jan. Peaty sandstone slopes, SW (Cape Peninsula).•

pauciflora Banks ex DC. (incl. **D. atrostyla** Debbert) Tufted perennial to 20 cm. Leaves radical, obovate, exstipulate. Flowers few in a subcorymbose cyme, large, pink or mauve with dark centre, stigmas multifid. Aug.–Nov. Damp loamy or sandy flats, NW, SW (Piketberg to Caledon).•

B.' Petals < 8 mm long

acaulis L.f. Dwarf, tufted perennial to 6 cm. Leaves radical, spathulate, exstipulate. Flowers 1–few on a short scape, white to purple, stigmas multifid. Oct.–Dec. Damp sandstone slopes, NW (Cedarberg to Hex River Mtns).•

alba E.Phillips Tufted perennial to 13 cm. Leaves radical, dimorphic, lower oblanceolate and upper linear, exstipulate. Flowers few in a subcorymbose cyme, white or mauve, stigmas multifid. Aug.–Oct. Damp, sandy flats and slopes, NW (Namaqualand to Cedarberg). **gce**

aliciae Raym.-Hamet (incl. **D. admirabilis** Debbert, **D. venusta** Debbert) Tufted perennial to 40 cm. Leaves radical, spathulate, hairy beneath, stipules lacerate. Flowers several on wiry scape curved below then erect, pink, stigmas 2- or 3-fid. Nov.–Jan. Peaty sandstone, SW, KM, LB, SE (Cape Peninsula to E Cape).

esterhuyseniae (Salter) Debbert Like **D. aliciae** but leaves glabrous above in lower half and thickly woolly beneath. Dec.–Jan. Sandstone slopes, SW (Hottentots Holland Mtns to Kleinmond).•

slackii Cheek Like **D. aliciae** but leaves glabrous above in lower half and with only a few, fleshy hairs below. Nov.–Dec. Damp sandstone soils, SW (Kleinrivier Mtns).•

trinervia Spreng. Tufted perennial to 10 cm. Leaves radical, oblanceolate-cuneate, exstipulate at maturity. Flowers few in subcorymbose cymes, white to mauve or red, stigmas multifid. Aug.–Nov. Peaty sandstone slopes, NW, SW, AP, KM, LB (Namaqualand to Agulhas). **gce**

EBENACEAE

1. Calyx not accrescent; ovary on a fringed disc; fruits usually 1-seeded ..... **Euclea**
1.' Calyx usually accrescent; ovary on a glabrous disc; fruits usually 2- or more seeded ..... **Diospyros**

DIOSPYROS L. PERSIMMON, TOLBOS ± 500 spp., pantropical and subtropical

austro-africana De Winter FIRE-STICKS, KRITIKOM Dioecious shrub to 3 m. Leaves subsessile, oblanceolate, velvety, felted beneath. Flowers solitary, axillary, cream-coloured, pink or red. Fruits shortly hairy. Aug.–Oct. Rocky flats and slopes, NW, SW, KM, LB, SE (Bokkeveld Mtns to Cape Peninsula to Mpumalanga).

dichrophylla (Gand.) De Winter POISON PEACH Dioecious shrub or tree to 13 m. Leaves petiolate, oblanceolate, leathery, thinly hairy, margins revolute. Flowers solitary, axillary, whitish. Fruits large, velvety, calyx strongly accrescent, usually reflexed. Nov.–Mar. Coastal scrub and forest margins, AP, KM, LB, SE (Potberg and Montagu to Limpopo).

glabra (L.) De Winter BLOUBESSIEBOS, KRAAIBOSSIE Dioecious shrub to 2 m. Leaves sessile, elliptic. Flowers 1–few in axillary racemes, cream-coloured. Fruits finely glandular when young, purple or reddish, calyx not accrescent. Oct.–Dec. Sandy flats and slopes, NW, SW, KM, LB, SE (Bokkeveld Mtns to Worcester, Cape Peninsula to Uniondale).•

lycioides Desf. STAR-APPLE, SWARTBAS Dioecious shrub or small tree to 7 m. Leaves shortly petiolate, oblanceolate, leathery, hairy when young. Flowers solitary, axillary, white to yellow, fragrant. Fruits thinly hairy, yellow or red to brown. Sept.–Jan. Rocky slopes, KM (Ladismith and drier parts of southern and tropical Africa).

pallens (Thunb.) F.White BLOUTOLBOS Diffuse, dioecious shrub to 2.5 m. Leaves petiolate, elliptic, glossy, margins revolute. Flowers solitary, axillary, white. Fruits thinly hairy. Aug.–Nov. Coastal scrub and dunes, SE (Knysna to E Cape).

ramulosa (E.Mey. ex A.DC.) De Winter NAMAQUA FIRE-STICKS, NAMAKWA KRITIKOM Rigid, dioecious shrub to 5 m. Leaves subsessile, small, elliptic, shortly hairy. Flowers solitary, axillary, whitish. Fruits shortly hairy. Dec.–May. Rocky slopes, NW (S Namibia to Clanwilliam and Karoo).

whyteana (Hiern) F.White BLADDER-NUT, BOSTOLBOS Dioecious shrub or small tree to 6 m. Leaves shortly petiolate, elliptic, glossy above, hairy beneath, margins fimbriate. Flowers few in racemes developing into shoots, creamy. Fruits red, enclosed in inflated calyx. Aug.–Nov. Sandstone slopes, NW, SW, LB, SE (Tulbagh to Cape Peninsula to Mpumalanga).

EUCLEA Murray GUARRI ± 20 spp., Africa and Arabia

A. Corolla shallowly lobed

acutifolia E.Mey. ex A.DC. Dioecious shrublet to 1 m. Leaves elliptic, glabrescent, leathery. Flowers in hairy, axillary racemes, densely grey-hairy, shallowly lobed, cream-coloured, ovary bristly. Aug.–Sept. Sandstone slopes, NW, SW, LB (Bokkeveld Mtns to Riversdale).•

lancea Thunb. Like **E. acutifolia** but leaves narrowly elliptic. Flowers in glabrous racemes, only hairy above, with glabrous anthers and long-exserted styles. Sept. Rocky slopes, NW (Namaqualand to Gifberg). **gce**

polyandra (L.f.) E.Mey. ex Hiern BAVIAANSKERS, KERSBOS Dioecious shrub to 2.5 m, rusty velvety on young parts. Leaves elliptic to ovate, leathery, usually grey-hairy. Flowers in rusty velvety, axillary racemes, hairy, shallowly lobed, white, fragrant, ovary hairy. Oct.–Nov. Coastal bush and rocky slopes, SW, KM, LB, SE (Rooiels to E Cape).

tomentosa E.Mey. ex A.DC. KLIPKERS, HEUNINGGWARRIE Dioecious shrub to 1.5 m, grey-velvety on young parts. Leaves obovate, leathery, usually grey-hairy. Flowers in grey-hairy, axillary racemes, sometimes solitary, shallowly lobed, white, fragrant, ovary woolly. Sept.–Oct. Dry rocky slopes, NW, SW (Richtersveld to Cape Peninsula). **gce**

A.' Corolla lobed halfway or more

crispa (Thunb.) Gürke BLOUGWARRIE Dioecious shrub or tree to 8 m, rusty granular on young parts. Leaves sometimes hairy, obovate to lanceolate. Flowers in rusty granular, axillary racemes, hairy, deeply cleft, cream-coloured, fragrant, ovary bristly. Sept.–Feb. Forest margins and kloofs, LB, SE (Riversdale eastward throughout southern Africa).

linearis Zeyh. ex Hiern SMALBLAAR Dioecious shrub or tree to 5 m, rusty granular on young parts. Leaves linear-oblanceolate. Flowers in rusty granular, axillary racemes, glabrescent, deeply cleft, cream-coloured, ovary hairy. Aug.–Dec. Rocky slopes, NW (Bokkeveld Mtns to Clanwilliam and Limpopo to Zimbabwe).

natalensis A.DC. BERGGWARRIE, SWARTBASBOOM Dioecious shrub or tree to 12 m, red-velvety on young parts. Leaves elliptic, leathery, rusty velvety. Flowers in velvety, axillary panicles, thinly hairy, deeply cleft, cream-coloured, ovary hairy. May–Jan. Bush and scrub, NW, SW, SE (Pakhuis Mtns to Langebaan and Humansdorp to tropical Africa).

racemosa Murray SEEGWARRIE Dioecious shrub or small tree to 6 m. Leaves leathery, obovate. Flowers in glabrous, axillary racemes, deeply cleft, cream-coloured, fragrant, ovary shortly bristly. Dec.–June. Coastal scrub, NW, SW, AP, LB, SE (Namaqualand to E Cape).

schimperi (A.DC.) Dandy WITSTAM Dioecious, small tree to 8 m. Leaves leathery, obovate. Flowers in glabrous axillary racemes, deeply cleft, cream-coloured, fragrant, ovary glabrous. Dec.–May. Coastal scrub and forests, SE (Humansdorp to tropical Africa).

undulata Thunb. Dioecious shrub or tree to 7 m, rusty granular on young parts. Leaves oblanceolate, rusty granular, leathery, often undulate. Flowers in rusty granular, axillary racemes, glabrescent, deeply cleft, cream-coloured, fragrant, ovary scaly. Dec.–Apr. Rocky slopes, NW, KM, SE (Worcester to Uitenhage and throughout southern Africa).

ELATINACEAE

BERGIA L. ± 25 spp., cosmopolitan

glomerata L.f. Prostrate, mat-forming, densely leafy, woody perennial to 1 m diam. Leaves small, obovate, sometimes coarsely toothed above. Flowers sessile, few in axillary glomerules, white. Nov.–Feb. Damp places or temporary pools, often coastal, NW, SW, AP, KM, LB, SE (Vredendal to Grahamstown).

ERICACEAE

by E.G.H. Oliver

ERICA L. (= *ACROSTEMON, ANISERICA, ANOMALANTHUS, ARACHNOCALYX, BLAERIA, COCCOSPERMA, COILOSTIGMA, EREMIA, EREMIELLA, GRISEBACHIA, NAGELOCARPUS, PHILIPPIA, PLATYCALYX, SALAXIS, SCYPHOGYNE, SIMOCHEILUS, STOKOEANTHUS, SYMPIEZA, SYNDESMANTHUS, THAMNUS, THORACOSPERMA*) HEATHER, HEIDE ± 860 spp., Africa, Europe and Middle East, mostly southern Africa

Flowers are described in the following size classes: tiny, shorter than 1 mm; small, 1–5 mm long; medium, 5–10 mm long and large, longer than 10 mm.

A. Calyx lobes unequal (outer lobe usually larger than 2 side lobes); with no visible bract and bracteoles
B. Fruit dehiscent, capsular, 4-locular with many ovules per locule

altiphila E.G.H.Oliv. (= *Philippia alticola* E.G.H.Oliv.) Erect, bushy shrublet to 40 cm. Flowers tiny/small, cup-shaped, dull white, tinged red. Oct.–Jan. S-facing upper slopes, NW, SW (Ceres to Caledon Swartberg).•

elsieana (E.G.H.Oliv.) E.G.H.Oliv. (= *Philippia elsieana* E.G.H.Oliv.) Erect shrublet. Flowers small, ellipsoid, cream-coloured. Sept. Moist upper slopes, LB (Langeberg: Swellendam).•

esteriana E.G.H.Oliv. (= *Philippia esterhuyseniae* E.G.H.Oliv.) Erect, compact, woody shrublet to 40 cm. Flowers tiny/small, cup-shaped, dull cream-coloured. Oct.–Jan. Upper rocky slopes, NW, KM (Ceres and Swartberg).•

exleeana E.G.H.Oliv. (= *Philippia leeana* Klotzsch) Low, wiry shrublet to 30 cm. Flowers small, cup-shaped, dull cream-coloured to reddish. Aug.–Apr. Dry slopes, SW (Paarl, Stellenbosch, Cape Peninsula to Bredasdorp).•

madida E.G.H.Oliv. (= *Philippia irrorata* E.G.H.Oliv.) Erect, sticky shrub to 2.5 m. Flowers tiny/small, cup-shaped, pale green tinged red. Nov.–Dec. Upper S slopes, KM, LB (Ladismith, Heidelberg).•

notholeeana (E.G.H.Oliv.) E.G.H.Oliv. (= *Philippia notholeeana* E.G.H.Oliv.) Erect shrublet to 30 cm. Flowers small, cup-shaped, cream-coloured, tinged red. Nov.–Aug. Rocky slopes, SW (Franschhoek Mtns to Kogelberg).•

petricola E.G.H.Oliv. (= *Philippia petrophila* E.G.H.Oliv.) Erect, small, compact shrublet to 10(–30) cm. Flowers tiny to small, cream-coloured tinged red. Oct.–Jan. Rock crevices or rocky slopes, SW (Riviersonderend Mtns).•

procaviana (E.G.H.Oliv.) E.G.H.Oliv. (= *Philippia procaviana* E.G.H.Oliv.) Erect, compact shrublet to 30 cm. Flowers tiny/small, urn-shaped, greenish tinged red. Sept.–Oct. Summit rocky slopes, NW (Langeberg Mtns: Robertson).•

tristis Bartl. (= *Philippia chamissonis* Klotzsch) Erect, dense shrub, 1–3 m. Flowers small, cup-shaped, dull cream-coloured. Nov.–May. Rocky slopes or sandy flats, SW, AP (Langebaan to Gansbaai).•

B.' Fruit indehiscent, usually 1–3-locular with 1 or 2 ovules per locule

areolata (N.E.Br). E.G.H.Oliv. (= *Coccosperma areolatum* N.E.Br.) Erect shrublet to 50 cm. Flowers tiny/small, greenish white, with very large stigma, Aug.–Nov. Stony slopes or sandy plateaus, NW, KM (Cedarberg to Laingsburg).•

artemisioides (Klotzsch) E.G.H.Oliv.(= *Coccosperma micrantha* (Benth.) N.E.Br.) Dense, erect shrublet to 1 m. Flowers tiny/small, dull white, with very large stigma. Oct.–Jan. Rocky upper slopes, NW, SW (Hex River to Hottentots Holland Mtns).•

axillaris Thunb.(= *Salaxis axillaris* (Thunb.) Salisb. ex G.Don, *S. calyciflora* (Tausch) Druce, *S. flexuosa* Klotzsch, *S. major* N.E.Br., *S. octandra* Klotzsch, *S. puberula* Klotzsch) Erect shrublet to 80 cm. Flowers small, obovoid to cup-shaped, pale greenish, with very large stigma. May–Dec. Mountain slopes and flats SW, AP, SE (Cape Peninsula to Knysna).•

binaria E.G.H.Oliv. Compact, dense shrublet to 60 cm. Flowers small, obovoid, yellow-green tinged red, with very large stigma. Feb.–May at Stellenbosch or Oct.–Dec. Rocky upper slopes, NW, SW (Stellenbosch and Riviersonderend Mtns).•

boucheri E.G.H.Oliv. Compact shrublet to 50 cm. Flowers tiny/small, obovoid to cup-shaped, cream-coloured tinged red, with very large stigma. Mar.–May. Sandy slopes, SW (Riviersonderend Mtns: Jonaskop).•

bredasiana E.G.H.Oliv. Low, rounded shrublet to 30 cm. Flowers small, cup-shaped, creamy green tinged red, with very large stigma. Sandy calcareous flats, AP (Bredasdorp).•

burchelliana E.G.H.Oliv. (= *Coilostigma glabrum* Benth.) Compact, many-stemmed, resprouting shrublet to 50 cm. Flowers small, tubular to bell-shaped, white to dark pink, with 4 exserted anthers. Dec. Silcrete hills, LB (Riversdale).•

calcicola (E.G.H.Oliv.) E.G.H.Oliv. (= *Scyphogyne calcicola* E.G.H.Oliv.) Compact shrublet to 30 cm. Flowers small, cup-shaped, pale green tinged red, with very large stigma. Apr.–June. Calcareous hills AP (Gansbaai and Still Bay).•

eglandulosa (Klotzsch) E.G.H.Oliv. (= *Scyphogyne eglandulosa* (Klotzsch) Benth.) Dense, finely branched, erect shrublet to 30 cm. Flowers tiny, cup-shaped, dirty white, with very large stigma. Feb.–July. Mountain slopes, SW (Riviersonderend Mtns and Caledon Swartberg).•

melanomontana E.G.H.Oliv. (= *Scyphogyne orientalis* E.G.H.Oliv.) Erect, compact shrublet to 50 cm. Flowers tiny/small, obovoid, greenish, tinged red, with very large stigma. Sept.–Jan. Rocky upper slopes, KM, SE (Swartberg to Uniondale).•

miniscula E.G.H.Oliv. (= *Scyphogyne tenuis* (Benth.) E.G.H.Oliv.) Erect shrublet to 50 cm. Flowers minute, obovoid, with very large stigma. Dec. Mountain slopes, LB (Langeberg: Riversdale).•

muscosa (Aiton) E.G.H.Oliv. (= *Scyphogyne muscosa* (Aiton) Druce) Erect, sticky shrublet to 1 m. Flowers tiny, obconic, dirty white, with very large stigma. Jan.–Dec. Abundant on mountain slopes and flats NW, SW, AP, LB, SE (Gifberg to George).•

parviporandra E.G.H.Oliv. Erect shrublet to 1.5 m. Flowers small, cup-shaped, green tinged red, with very large stigma. Aug.–Dec. Sandy, rocky, lower slopes, LB (Langeberg: Swellendam to Riversdale).•

perplexa E.G.H.Oliv. Erect shrub to 1.5 m. Flowers tiny/small, white, with very large stigma. Apr.–May. Moist slopes, SW (Caledon Swartberg).•

phacelanthera E.G.H.Oliv. (= *Scyphogyne capitata* (Klotzsch) Benth.) Erect, sticky shrublet to 1 m. Flowers small, pear-shaped, cream-coloured, tinged red, with very large stigma. Oct.–Jan. Mountain slopes, NW, SW (Montagu and Riviersonderend Mtns).•

remota (N.E.Br.) E.G.H.Oliv. (= *Scyphogyne remota* N.E.Br.) Sparse, erect shrublet to 50 cm. Flowers small, cream-coloured, with very large stigma. Dec.–Jan. Sandy lower slopes, SW (Riviersonderend).•

rigidula (N.E.Br.) E.G.H.Oliv. (= *Scyphogyne brownii* Compton, *S. divaricata* (Klotzsch) Benth., *S. longistyla* N.E.Br., S. *rigidula* N.E.Br.) Erect shrublet to 50 cm. Flowers tiny/small, cup-shaped, cream-coloured tinged red, with very large stigma. July–Jan. Sandy or rocky slopes or flats, NW, SW, KM (Kamiesberg to Bredasdorp and Witteberg). **gce**

rugata E.G.H.Oliv. (= *Coccosperma rugosum* Klotzsch) Erect shrub to 1.2 m. Flowers tiny/small, cup-shaped, greenish, with very large stigma. Sept.–Feb. in west, Mar.–June in east. Sandy flats, SW, AP (Cape Flats to Duivenhoks River Mouth).•

serrata Thunb. (= *Nagelocarpus serratus* (Thunb.) Bullock) Erect, hard-leaved shrublet to 1 m. Flowers small, cup-shaped, greenish, with very large stigma. Jan.–Dec. Mountain slopes, SW (Paarl, Worcester, Caledon, Bredasdorp).•

subcapitata (N.E.Br.) E.G.H.Oliv. (= *Coccosperma forbesianum* Klotzsch, *C. hexandrum* (Klotzsch) Druce) Erect shrublet to 80 cm. Flowers small, urn-shaped greenish, with very large stigma. Sept.–Apr. Mountain slopes, SW (Cape Peninsula).•

terniflora E.G.H.Oliv. (= *Salaxis triflora* Compton) Erect shrublet to 50 cm. Flowers small, cup-shaped, green to reddish, with very large stigma. Jan.–May. Rocky upper slopes, NW, KM (Cedarberg to Montagu and Witteberg).•

urceolata (Klotzsch) E.G.H.Oliv. (= *Scyphogyne puberula* Klotzsch, *S. urceolata* (Klotzsch) Benth.) Erect, soft shrub to 2.5 m. Flowers tiny/small, ellipsoid to urn-shaped, pale greenish, with very large stigma. Jan.–Dec., mostly Sept.–Dec. S-facing, rocky, upper slopes, NW, SW, LB (Cedarberg to Langeberg).•

zeyheriana (Klotzsch) E.G.H.Oliv. (= *Coilostigma zeyherianum* Klotzsch) Erect shrublet to 1 m. Flowers small, tubular to ovoid, dirty white to greenish, with 4 exserted anthers. Jan.–Dec. Sandy coastal flats, SE (Humansdorp to Alexandria).

A.' Calyx ± equally lobed; usually with 2 bracteoles on stalk
C. Fruit indehiscent or partially dehiscent, mostly
1- or 2-locular; stamens mostly 4

agglutinans E.G.H.Oliv. (= *Syndesmanthus schlechteri* N.E.Br.) Low, small, sparse spreading shrublet to 10 cm. Flowers in pendulous heads, small, obovoid, pink, very sticky, with 4 exserted anthers. Mar.–May. Sandy hills, SW (Elim and Napier).•

albertyniae E.G.H.Oliv. Semispreading shrublet to 25 cm. Flowers in terminal heads, small, tubular, pink with 4 exserted anthers. Feb.–June. Sandy flats, AP (Bredasdorp).•

anguliger (N.E.Br.) E.G.H.Oliv. (= all species formerly in *Anomalanthus*) Much-branched, low spreading shrublet to 20 cm. Flowers small, tubular to bell-shaped, pink, with 4 exserted anthers, fruiting calyx enlarging and turning red or black. Apr.–Sept. Very common on lower slopes, NW, SW, AP, KM, LB (Worcester to Mossel Bay).•

angulosa E.G.H.Oliv. (= *Acrostemon fourcadei* L.Guthrie) Erect shrublet to 50 cm. Flowers small, tubular, cup-shaped, cream-coloured to pale pink, with 4 exserted anthers. Mar.–Apr. Dry slopes, SE (Kouga and Baviaanskloof Mtns).•

arachnocalyx E.G.H.Oliv. (= *Arachnocalyx viscidus* (N.E.Br.) E.G.H.Oliv.) Small, rounded shrublet to 20 cm. Flowers in terminal heads, small, tubular, cream-coloured with exserted anthers and sticky hairy calyx. Oct.–Jan. Sandy flats and lower slopes, NW (Cold Bokkeveld).•

atromontana E.G.H.Oliv. Sprawling to erect shrublet to 50 cm. Flowers small, bell-shaped to ovoid, pink, with 4 exserted anthers. Aug.–Dec. Rocky upper slopes, KM (Swartberg).•

benthamiana E.G.H.Oliv. (= *Aniserica gracilis* (Bartl.) N.E.Br., *A macrocalyx* Salter) Erect shrublet to 40 cm. Flowers small, tubular, dull white to pale pink, with 4 exserted anthers, corolla 2-lipped. Aug.–Dec. Moist slopes, NW, SW, LB, SE (Piketberg to George).•

bokkeveldia E.G.H.Oliv. (= *Eremia calycina* Compton) Low, compact shrublet to 30 cm. Flowers small, broadly cup-shaped, pink. Sept.–Nov. Sandy flats, NW (Cold Bokkeveld).•

bolusanthus E.G.H.Oliv. (= *Thoracosperma nanum* N.E.Br.) Erect shrublet to 25 cm. Flowers small, cup-shaped, pink, with 4 exserted anthers. Nov.–Apr. Rocky slopes, KM, SE (Uniondale to Humansdorp).•

brownii E.G.H.Oliv. (= *Syndesmanthus breviflorus* N.E.Br.) Erect, low, compact shrublet to 15 cm. Flowers in terminal heads, small, tubular, dark red or pink, with 4 exserted anthers. Aug.–Dec. Gravelly flats, SW, AP (Elim to Bredasdorp).•

caprina E.G.H.Oliv. (= *Grisebachia minutiflora* N.E.Br.) Low, compact to spreading shrublet to 20 cm. Flowers in terminal, many-flowered heads, small, broadly funnel-shaped, white. Oct.–Jan. Sandy flats, NW (Ceres).•

cereris (Compton) E.G.H.Oliv. (= *Arachnocalyx cereris* Compton) Erect shrublet to 40 cm. Flowers in terminal heads, small, ovoid, pale pink with exserted anthers and woolly calyx. Sept.–Dec. Sandy lower slopes, NW (Ceres).•

cetrata E.G.H.Oliv. (= *Eremia peltata* Compton) Erect, resprouting shrublet to 50 cm. Flowers small, broadly obconic, cream-coloured to pink. Aug.–Nov. Sandy, lower slopes, NW, KM (Cold Bokkeveld to Bonteberg).•

curvistyla (N.E.Br.) E.G.H.Oliv. (= *Eremia curvistyla* (N.E.Br.) E.G.H.Oliv.) Low, spreading shrublet to 20 cm. Flowers small, obconic, white. Sept.–Dec. Rocky sandstone slopes, NW, SW (Piketberg to Ceres and Bain's Kloof).•

dispar (N.E.Br.) E.G.H.Oliv. (= *Simocheilus dispar* N.E.Br.) Erect to spreading shrublet to 30 cm. Flowers in terminal heads, small, tubular, pink, with 4 exserted anthers. Mar.–Sept. Sandy flats, AP, LB (Potberg to Albertinia).•

dregei E.G.H.Oliv. (= *Simocheilus oblongus* Benth.) Erect to spreading shrublet to 30 cm. Flowers in terminal heads, small, tubular, pink, with 4 exserted anthers. June–Sept. Lower slopes, NW (Piketberg).•

ecklonii E.G.H.Oliv. (= *Sympieza eckloniana* Klotzsch) Erect shrublet to 75 cm. Flowers in terminal heads, small, tubular, white, with 4 exserted anthers, corolla 2-lipped. July–Nov. Moist slopes, SW (Hermanus).•

eremioides (MacOwan) E.G.H.Oliv. (= *Grisebachia parviflora* (Klotzsch) Druce) Sparse, sprawling shrublet to 20 cm. Flowers small, obconic to funnel-shaped, white, slightly hairy. July–Jan. Rocky slopes, NW, SW, LB (Cedarberg to Langeberg).•

erina (Klotzsch ex Benth.) E.G.H.Oliv. (= *Syndesmanthus erinus* (Klotzsch ex Benth.) N.E.Br.) Erect, low, wiry shrublet to 30 cm. Flowers in terminal heads, small, obovoid, pale pink, with 4 exserted anthers. Aug.–Apr. Lower slopes, SW (Hermanus to Bredasdorp).•

eriocephala Lam. (= *Acrostemon hirsutus* (Thunb.) Klotzsch, *A. stokoei* L.Guthrie) Erect shrublet to 40 cm. Flowers in terminal heads, small, tubular to narrowly ovoid, bright pink, with 4 exserted anthers. Aug.–Oct. Mountain slopes, SW (Tulbagh: Elandskloof Mtns to Caledon).•

glabella Thunb. (= *Simocheilus glabellus* (Thunb.) Benth., *S. purpureus* (P.J.Bergius) Druce) Erect to sprawling shrublet to 50 cm. Flowers small, tubular-ovoid, pink, with 4 exserted anthers, slightly honey-scented. Jan.–Dec. Sandy flats and lower to middle slopes, SW, AP (Cape Peninsula to Breede River Mouth).•

globiceps (N.E.Br.) E.G.H.Oliv. (= *Syndesmanthus elimensis* N.E.Br., *S. globiceps* N.E.Br., *S. gracilis* N.E.Br., *S. sympeizoides* N.E.Br., *S. zeyheri* Bolus) Low, sprawling shrublet to 30 cm. Flowers in terminal heads, small, tubular, pink, with 4 exserted anthers. Aug.–Dec. Flats to upper slopes, SW, AP (Riviersonderend Mtns, Hermanus to Agulhas).•

inaequalis (Klotzsch) E.G.H.Oliv. (= *Simocheilus albirameus* N.E.Br., *S. bicolor* (Klotzsch) Benth., *S. glaber* (Thunb.) Benth., *S. puberulus* (Klotzsch) E.G.H.Oliv.) Low, spreading shrublet to 20 cm. Flowers small, tubular-ovoid, pink, with 4 exserted anthers. Sept.–Feb. Dry slopes, NW, SW (Bokkeveld Mtns to Breede River Valley: Worcester).•

inflaticalyx E.G.H.Oliv. Erect shrublet to 60 cm. Flowers small, obovoid, pink with 4 exserted anthers. June–Sept. Rocky middle slopes, LB (Outeniqua Mtns, N side).•

innovans E.G.H.Oliv. (= *Syndesmanthus pumilus* N.E.Br.) Erect, compact shrublet to 30 cm. Flowers in terminal heads, small, tubular, pink, with 4 exserted anthers. Feb.–Apr. Sandy hills, SW (Elim).•

interrupta (N.E.Br.) E.G.H.Oliv. (= *Thoracosperma interruptum* N.E.Br.) Low, spreading shrublet to 20 cm. Flowers in terminal heads, small, narrowly ovoid, pale pink turning hard, shiny and brown in fruit, with 4 exserted anthers. Aug.–Oct. Sandy hills and flats, SW, AP (Pearly Beach to Elim).•

jonasiana E.G.H.Oliv. Low, prostrate, spreading shrublet to 10 cm. Flowers small, bell-shaped, fluted, bright pink. Sept.–Nov. Sandy places, SW (Jonaskop to Villiersdorp).•

kammanassiae E.G.H.Oliv. Erect shrublet to 80 cm. Flowers small, obovoid, dark pink, with 4 exserted anthers. July–Sept. Rocky, middle northern slopes, KM (Kammanassie Mtns).•

karwyderi E.G.H.Oliv. Compact shrublet to 50 cm. Flowers small, tubular-ovoid, pink, with exserted anthers. May–Sept. Sandy hill slopes, SW (Botrivier, Grabouw).•

labialis Salisb. (= *Sympieza breviflora* N.E.Br., *S. capitellata* Licht. ex Roem. & Schult., *S. labialis* (Salisb.) Druce, *S. pallescens* N.E.Br., *S. vestita* N.E.Br.) Erect, compact shrublet to 50 cm. Flowers in terminal heads, small to medium, tubular to funnel-shaped, pink, with 4 exserted anthers, corolla 2-lipped. Jan.–Dec. Rocky, sandy slopes and flats, SW (Paarl to Bredasdorp).•

lateriflora E.G.H.Oliv. (= *Grisebachia secundiflora* E.G.H.Oliv.) Low, compact to sprawling shrublet to 50 cm. Flowers small, tubular, bell-shaped, pale pink to white. Sept.–Nov. Sands, NW (Cold Bokkeveld).•

malmesburiensis E.G.H.Oliv. Erect shrublet to 30 cm. Flowers in terminal heads, small, tubular, bell-shaped, pink, with 4 exserted anthers. Nov.–Mar. Sandy flats, SW (Malmesbury).•

montis-hominis E.G.H.Oliv. Low, semisprawling shrublet to 25 cm. Flowers small, obconic, pink, with 4 exserted anthers. Sept.–Nov. Rocky upper slopes, KM (Mannetjiesberg).•

niveniana E.G.H.Oliv. (= *Syndesmanthus nivenii* N.E.Br.) Compact shrublet to 25 cm. Flowers in terminal, fluffy heads, small, slightly inflated-tubular, pink, with 4 exserted anthers. Aug.–Nov. Sandy, stony slopes, SW (Houwhoek, Villiersdorp).•

outeniquae (Compton) E.G.H.Oliv. (= *Eremiella outeniquae* Compton) Low, compact shrublet to 15 cm. Flowers small, cup-shaped, dull red. Oct.–Jan. Upper slopes, SE (Outeniqua Mtns).•

paucifolia (J.C.Wendl.) E.G.H.Oliv. (= *Syndesmanthus ciliatus* (Klotzsch) Benth., *S. paucifolius* (J.C.Wendl.) Benth., *S. squarrosus* Benth.) Erect to spreading shrublet to 20 cm. Flowers small, narrowly obovoid, pink, with 4 exserted anthers, calyx sometimes fluffy. July–Oct. Lower slopes, SW (Houwhoek, Kleinmond, Caledon).•

phaeocarpa E.G.H.Oliv. (= *Simocheilus quadrisulcus* N.E.Br.) Low, sprawling shrublet to 30 cm. Flowers small, tubular-ovoid, pink, with 4 exserted anthers. Mar.–Dec. Rocky slopes, KM (Swartberg).•

pilosiflora E.G.H.Oliv. (= *Acrostemon eriocephalus* (Klotzsch) N.E.Br.) Erect, compact, greyish shrublet to 30 cm. Flowers in terminal, fluffy heads, small, slightly inflated-tubular, white to pink, hairy, with 4 exserted anthers. Aug.–Nov. Sandy places, SW (Sir Lowry's Pass to Genadendal and Robertson).•

piquetbergensis (N.E.Br.) E.G.H.Oliv. (= *Simocheilus piquetbergensis* N.E.Br.) Erect shrublet to 30 cm. Flowers in terminal heads, small, tubular, pink, with 4 exserted anthers. Aug.–Oct. Upper slopes, NW (Piketberg).•

platycalyx E.G.H.Oliv. (= *Platycalyx pumila* N.E.Br.) Low, compact shrublet to 20 cm. Flowers small, globosely urn-shaped, pink, with 6–8 exserted anthers. Aug.–Oct. Sand on calcareous hills, AP (Riversdale, Albertinia).•

plumosa Thunb. (= *Grisebachia ciliaris* (L.f.) Klotzsch, *G. incana* (Bartl.) Klotzsch, *G. nivenii* N.E.Br., *G. plumosa* (Thunb.) Klotzsch, *G. rigida* N.E.Br.) Erect shrublet to 50 cm. Flowers in terminal heads, small to medium, rounded at base with cup-shaped top, pink with hairy calyx and mostly 4 exserted anthers. June–Sept. Sandy flats and lower slopes, NW, SW (Bokkeveld to Langeberg).•

puberuliflora E.G.H.Oliv. (= *Thoracosperma puberulum* (Klotzsch) N.E.Br.) Erect shrublet to 50 cm. Flowers small, broadly tubular, pale to deep maroon, mostly hairy. July–Oct. Dry lower slopes, SW, LB (Hermanus to Riversdale).•

pulchelliflora E.G.H.Oliv. (= *Syndesmanthus pulchellus* N.E.Br.) Low, compact shrublet to 15 cm. Flowers in terminal heads, small, tubular, pink, with 4 exserted anthers. Dec. Lower slopes, SW (Napier).•

quadrifida (Benth.) E.G.H.Oliv. (= *Thoracosperma paniculatum* (Thunb.) Klotzsch) Erect shrublet to 1 m. Flowers small, tubular to ovoid, cream-coloured to pale pink, with 4 exserted anthers. Apr.–Nov. Lower slopes and flats, LB, SE (Langeberg to George).•

radicans (L.Guthrie) E.G.H.Oliv. (= *Acrostemon schlechteri* N.E.Br., *Thoracosperma radicans* L.Guthrie) Prostrate, sparse shrublet rooting at nodes. Flowers small, narrowly ovoid to bell-shaped, pale pink, with 4 exserted anthers. Apr.–May. Sand on calcareous hills, SW, AP (Hermanus to Gouritsmond).•

recurvifolia E.G.H.Oliv. (= *Eremia recurvata* Klotzsch) Low, spreading, grey shrublet to 30 cm. Flowers small, bell-shaped, white. Nov.–Jan. Rocky sandstone flats and slopes, NW (Clanwilliam, Ceres).•

rosacea (L.Guthrie) E.G.H.Oliv. (= *Thoracosperma bondiae* Compton, *T. fourcadei* Compton, *T. galpinii* N.E.Br., *T. marlothii* N.E.Br., *T. rosacea* L.Guthrie) Erect shrublet, sometimes low and compact, to 50 cm. Flowers small, tubular to ellipsoid, pale to deep pink, with 4 exserted anthers. Mar.–Oct. Rocky slopes, KM, LB, SE (Witteberg and Little Karoo Mtns to Hankey).•

similis (N.E.Br.) E.G.H.Oliv. (= *Erica articulata* (L.) Thunb., *Syndesmanthus articulatus* (L.) Klotzsch, *S. scaber* Klotzsch and *S. similis* N.E.Br.) Erect, compact shrublet to 30 cm. Flowers in terminal heads, small, tubular to narrowly funnel-shaped, pink, with 4 exserted anthers. Feb.–July. Lower slopes and flats, SW, AP, LB, SE (Cape Peninsula to George).•

stokoeanthus E.G.H.Oliv. (= *Stokoeanthus chionophilus* E.G.H.Oliv.) Erect shrub to 1.2 m. Flowers small, urn-shaped, dull white. Oct.–Dec. Moist upper slopes, SW (Hottentots Holland Mtns).•

thamnoides E.G.H.Oliv. (= *Thamnus multiflorus* Klotzsch) Erect shrub to 1.5 m. Flowers small, ovoid-urn-shaped, pink, with 4 exserted anthers. Jan.–Dec. Flats and lower slopes, SE (Uniondale to Uitenhage).•

totta Thunb. (= *Eremia totta* (Thunb.) D.Don) Low, spreading, grey shrublet to 30 cm. Flowers small, urn-shaped, white. Sept.–Dec. Common on rocky slopes, NW, SW (Cedarberg to Stellenbosch Mtns).•

uberiflora E.G.H.Oliv. (= *Simocheilus barbiger* Klotzsch, *S. carneus* Klotzsch, *S. multiflorus* Klotzsch, *S. pubescens* Klotzsch) Erect shrublet to 1 m. Flowers small, tubular, pale to deep pink, with 4 exserted anthers. Nov.–May. Slopes and flats, SE (George to Humansdorp).•

vallisfluminis E.G.H.Oliv. Compact, erect shrublet to 50 cm. Flowers small, bell-shaped to obconic, hairy, pink. Aug.–Nov. Sandy slopes, LB (Heidelberg to Riversdale).•

velatiflora E.G.H.Oliv. (= *Eremia brevifolia* Benth.) Sparse, erect shrublet to 30 cm. Flowers small, cup-shaped, white tinged red. Oct.–Nov. Upper slopes, LB, SE (Attaquas Kloof and Outeniqua Mtns).•

venustiflora E.G.H.Oliv. (= *Syndesmanthus venustus* N.E.Br.) Low, compact shrublet to 20 cm. Flowers in terminal heads, small, tubular, pink, with 4 exserted anthers. May–Aug. Hills, SW (Bredasdorp area).•

vernicosa E.G.H.Oliv. Prostrate, mat-forming shrublet to 10 cm. Flowers small, narrowly ovoid, purple-pink, shiny/sticky, with 4 exserted stamens. Mar.–Sept. Sand over calcareous rock, AP (De Hoop to Duivenhoks River Mouth).•

viscosissima E.G.H.Oliv. (= *Syndesmanthus viscosus* (H.Bolus) N.E.Br.) Erect, compact shrublet to 40 cm. Flowers in terminal, sticky heads, small, tubular-ovoid, pink, with 4 exserted anthers. Nov.–Feb. Sandy flats, AP, LB (Duivenhoks River to Albertinia).•

vlokii E.G.H.Oliv. Erect, woody shrub to 1.5 m. Flowers small, ellipsoid, white to pale pink, with exserted anthers. July–Oct. Rocky slopes, KM, SE (Swartberg, Kammanassie and Outeniqua Mtns).•

williamsiorum E.G.H.Oliv. Erect shrublet to 50 cm. Flowers small, tubular, deep pink with 4 exserted anthers. Jan.–May. Rocky upper slopes, SW (Kleinrivier Mtns to Napier).•

xeranthemifolia Salisb. (= *Acrostemon xeranthemifolius* (Salisb.) E.G.H.Oliv., *Hexastemon lanatus* Klotzsch) Low, semispreading, grey shrublet to 15 cm. Flowers in terminal heads, small/medium, elongate-ovoid, white, with fluffy calyx and 4 exserted anthers. Aug.–Oct. Sand flats, SW (Caledon: Shaw's Mtn).•

C.' Fruit dehiscent, capsular, 4(–8)-locular
D. Stamens 4

barbigeroides E.G.H.Oliv. (= *Blaeria barbigera* (Salisb.) G.Don) Erect, soft shrublet to 30 cm. Flowers in many-flowered heads, small, tubular, pink, with 4 exserted anthers. Sept.–Feb. Lower coastal slopes and sandy flats, SW (Betty's Bay to Hermanus).•

chiroptera E.G.H.Oliv. Erect shrublet to 50 cm. Flowers small, narrowly cup-shaped, pale pink, with 4 exserted anthers. Dec.–Mar. Sandy lower slopes, SW (Kogelberg).•

equisetifolia Salisb. (= *Blaeria dumosa* J.C.Wendl., *B. equisetifolia* (Salisb.) G.Don) Erect compact shrublet to 20 cm. Flowers small, tubular to narrowly cup-shaped, pink, with 4 exserted anthers. Oct.–Apr. Mountain slopes, SW, AP (Bain's Kloof to Agulhas coast).•

ericoides (L.) E.G.H.Oliv. (= *Blaeria ericoides* L.) Erect, compact, woody shrublet to 80 cm. Flowers small, tubular, urn-shaped, pale pink, with 4 exserted anthers, honey-scented. Jan.–Apr. Lower slopes, SW (Cape Peninsula to Napier).•

fuscescens (Klotzsch) E.G.H.Oliv. (= *Blaeria fuscescens* Klotzsch) Erect shrublet to 1 m. Flowers small, tubular with spreading lobes, pale pink to white, with 4 exserted anthers. Apr.–Jan. Lower slopes, SE (George to Uitenhage).•

hermani E.G.H.Oliv. Erect shrublet to 50 cm. Flowers small, cup-shaped, pink, with 4 exserted anthers. Jan.–Feb. Sandy flats and lower slopes, SW (Hermanus).•

ioniana E.G.H.Oliv. Low, compact shrublet to 15 cm. Flowers small, bell-shaped, cream-coloured to pale pink, with 4 included anthers. Feb.–Mar.. Upper slopes, SW (Hermanus).•

klotzschii (Alm & T.C.E.Fr.) E.G.H.Oliv. (= *Blaeria klotzschii* Alm & T.C.E.Fr.) Erect, slender shrublet to 30 cm. Flowers small, urn-shaped, pale to dark pink, with 4 exserted anthers. June–Oct. Dry lower slopes, SW, LB, SE (Bredasdorp and Langeberg: Swellendam to Riversdale).•

longimontana E.G.H.Oliv. (= *Blaeria coccinea* Klotzsch) Erect, soft shrublet to 60 cm. Flowers small, tubular, deep pink, hairy, with 4 exserted anthers. Dec.–June. Lower to middle S-slopes, LB, SE (Langeberg and Outeniqua Mtns).•

multiflexuosa E.G.H.Oliv. (= *Blaeria flexuosa* Benth.) Erect, compact, wiry shrublet to 30 cm. Flowers small, cup-shaped, pale yellow, with 4 exserted anthers. Dec.–Apr. Lower sandy slopes, SW (Hottentots Holland Mtns).•

russakiana E.G.H.Oliv. (= *Blaeria kraussiana* Klotzsch ex Walp.) Erect shrublet to 50 cm. Flowers in terminal heads, small, narrowly urn-shaped, pink, with 4 exserted anthers. Dec.–Feb. Upper slopes, SW (Caledon Swartberg and Kleinrivier Mtns).•

sagittata Klotzsch ex Benth. (= *Blaeria sagittata* (Klotzsch ex Benth.) Alm & T.C.E.Fr.) Erect shrublet to 1 m. Flowers medium, narrowly urn-shaped, white, with 4 exserted anthers. Sept.–Oct. Lower slopes, SE (Van Staden's Mtns).•

D.' Stamens mostly 8

abelii E.G.H.Oliv. Erect, gnarled, woody shrublet to 60 cm. Flowers large, tubular, lime-green, finely hairy. Oct.–Nov. Rocky, dry, middle slopes, SE (Uitenhage).•

abietina L. RED HEATH, ROOIHEIDE (= *Erica conica* Lodd., *E. exsurgens* Andrews, *E. grandiflora* L.f., *E. hesseana* J.C.Wendl. ex Klotzsch, *E. phylicifolia* Salisb., *E. purpurea* Andrews)) Erect shrublet to 1.5 m. Flowers large, tubular, yellow, orange, red or magenta to purple, sometimes with exserted anthers. Mainly Dec.–Sept. Sandstone slopes and plateaus, NW, SW, KM (Bokkeveld Mtns to Peninsula, Witteberg to Robertson).•

accommodata Klotzsch ex Benth. Erect, compact shrublet to 30 cm. Flowers small, calycine, ovoid, white, viscid, with exserted anthers. Jan.–May. Upper slopes in rock crevices, SW (Riviersonderend Mtns).•

acuta Andrews Erect shrublet to 60 cm. Flowers small/medium, calycine, ovoid, pink. Sept.–Nov. Upper rocky slopes, NW, SW (Ceres to Wemmershoek).•

adnata L.Bolus Erect shrublet to 1 m. Flowers small, calycine, cup-shaped with spreading lobes, pink. Aug.–Nov. High alt., SW (Franschhoek to W Riviersonderend Mtns).•

aemula Guthrie & Bolus Like **E. distorta**, erect shrublet to 50 cm. Flowers small, urn-shaped, white, hairy. Jan.–Nov. Rocky, coastal slopes or inland, marshy, high mountain plateaus, SW (Bain's Kloof to Steenbras Mtns).•

affinis Benth. Erect shrub to 1(–2) m. Flowers small, bell-shaped, pink. Sept.–Dec. Middle slopes, SE (Uniondale to Uitenhage).•

aghillana Guthrie & Bolus Low shrublet to 25 cm. Flowers small, narrowly cup-shaped, dark pink, with exserted anthers. Apr. Coastal flats, AP (Agulhas).•

albens L. Erect shrub to 1.2 m. Flowers small, ovoid with spreading lobes, white or yellowish green. Apr.–Dec. Damp upper slopes, KM, LB (Langeberg, Swartberg and Outeniqua Mtns).•

albescens Klotzsch ex Benth. Erect shrublet to 30 cm. Flowers small, urn-shaped, white, hairy. Nov.–Feb. Upper slopes, LB (Langeberg: Swellendam to Heidelberg).•

alexandri Guthrie & Bolus (= *Erica acockii* Compton) Erect, compact shrublet to 15 cm. Flowers small, urn-shaped, pink, with slightly exserted anthers. Mar. Rare on sandy, moist flats, SW (Wemmershoek, Kraaifontein).•

alfredii Guthrie & Bolus Erect, semispreading, compact shrublet to 20 cm. Flowers large, calycine, urn-shaped with spreading lobes, bright pink. Jan.–Apr. Dry stony places, high alt., SW (Riviersonderend Mtns).•

alnea E.G.H.Oliv. Erect shrublet to 60 cm. Flowers small, pink. May–Oct. Damp slopes, ledges at high alt., NW, SW (Cedarberg to Hex River Mtns and Villiersdorp).•

altevivens H.A.Baker Erect, dense shrublet to 50 cm. Flowers small, urn-shaped, white with musty odour. Dec.–Jan. Rocky outcrops on higher peaks NW, SW (Du Toitskloof Mtns, Wemmershoek to W Riviersonderend Mtns).•

amalophylla E.G.H.Oliv. & I.M.Oliv. Sprawling, diffuse shrublet. Flowers small, cup-shaped, white, thinly hairy. Dec. Sandstone shelters, NW (Twenty-Four Rivers Mtns).•

amicorum E.G.H.Oliv. Sparse, prostrate shrublet. Flowers small, broadly saucer-shaped, deep pink, with exserted anthers. Sept.–Dec. Seeps on lower slopes, LB (Langeberg: Riversdale).•

amidae E.G.H.Oliv. Compact, woody shrublets to 15 cm. Flowers large, tubular, white, slightly sticky. Sept. Rock crevices. SW. (Gordon's Bay).•

amoena J.C.Wendl. Erect shrublet to 1 m. Flowers medium, bell-shaped, deep pink. Oct.–Apr. Marshy places, SW (Cape Peninsula).•

amphigena Guthrie & Bolus Like **E. spumosa**, erect shrublet to 60 cm. Flowers small, calycine, narrowly cup-shaped, pale pink, with exserted anthers. Sept.–Dec. Rare on upper slopes, SW (Houwhoek).•

ampullacea Curtis BOTTLE HEATH, BOTTELHEIDE, SISSIEHEIDE Erect shrublet to 50 cm. Flowers large, variably ampullaceous with spreading lobes, white to pink. Sept.–Jan. Slopes and hills, SW, AP (Swartberg: Caledon, Bredasdorp).•

andreaei Compton Erect shrublet to 60 cm. Flowers small, urn-shaped, white. Sept.–Oct. Upper slopes, KM (E Swartberg and Baviaanskloof Mtns).•

aneimena Dulfer (= *Erica hirsuta* Klotzsch ex Benth.) Erect, diffuse shrublet to 60 cm. Flowers small, urn-shaped, pink, with exserted anthers. July–Oct. Moist lower slopes, SE (Outeniqua Mtns: George).•

anemodes E.G.H.Oliv. Compact shrublet to 50 cm. Flowers small, campanulate, white. Nov. Sandstone slopes, NW (Hex River Mtns and Keeromsberg).•

annalis E.G.H.Oliv. & I.M.Oliv. Erect shrublet to 1 m. Flowers large, tubular, orange-red, shortly hairy. July–Oct. Quartzite rock faces, KM (Kammanassie Mtns).•

annectens Guthrie & Bolus Erect to spreading shrub, 0.6–1 m. Flowers large, tubular, orange to reddish. Jan.–Mar. Rare and local in rocky places on upper slopes, SW (Cape Peninsula).•

arcuata Compton (= *Erica ostiaria* Compton) Erect shrublet to 50 cm. Flowers small, urn- to cup-shaped, white, with exserted anthers. Jan.–Dec. Upper slopes, NW, KM (Cedarberg to Laingsburg and Klein Swartberg).•

ardens Andrews Erect shrublet to 70 cm. Flowers large, globose, red, sticky. Apr.–Oct. Middle slopes, LB (Langeberg: Swellendam to Heidelberg).•

arenaria L.Bolus Erect shrub to 2 m. Flowers small, white. May–Aug. Coastal hills, AP (Struis Bay).•

argentea Klotzsch ex Benth. Erect shrublet to 40 cm. Flowers small, subcalycine, obconic, pale pink or white. Sept.–Nov. Middle to upper alt., sandy places, NW (Cedarberg to Cold Bokkeveld Mtns).•

argyrea Guthrie & Bolus Erect, brittle shrublet to 20 cm. Flowers small, urn-shaped, white to pale pink, hairy. Sept.–Dec. Local on shady cliffs at middle to upper alt., SW (Stellenbosch).•

aristata Andrews Erect, semispreading shrublet to 50 cm. Flowers large, tubular-inflated with spreading lobes, longitudinally striped dark and light pink, very sticky. Aug.–Oct. Local on middle to upper rocky slopes, SW (Kleinrivier Mtns).•

aristifolia Benth. (= *Erica sonora* Compton) Erect, sparse shrublet to 1 m. Flowers small, inflated, urn-shaped, pink. Apr.–July. Sandy places, NW (Gifberg).•

armata Klotzsch ex Benth. (= *Erica umbrosa* H.A.Baker) Erect shrublet to 50 cm. Flowers medium, broadly urn-shaped, hairy, pink, with exserted anthers. Jan.–May. Rocky middle slopes, SW (Franschhoek Mtns to Villiersdorp).•

articularis L. Erect, resprouting shrub to 1(–2) m. Flowers in tightly packed spikes, small, calycine, urn-shaped, pink often with corolla much paler. Jan.–Dec. Coastal flats and middle to upper slopes, NW, SW, KM, LB, SE (Cedarberg to Cape Peninsula, Swartberg to Humansdorp).•

aspalathoides Guthrie & Bolus Spreading shrublet to 20 cm. Flowers small, narrowly cup-shaped, white to pink, hairy. Sept.–Dec. High summits, moist places, NW (Cedarberg to Cold Bokkeveld Mtns).•

astroites Guthrie & Bolus Erect shrublet to 50 cm. Flowers medium, narrowly urn-shaped with spreading lobes, pink. Aug.–Oct. Rocky seeps at middle alt., KM (Swartberg).•

atricha Dulfer (= *Erica carinata* Klotzsch ex Benth.) Erect shrublet to 30 cm. Flowers small, urn-shaped, pink. June–Jan. Slopes, SW (Hottentots Holland Mtns).•

atropurpurea Dulfer Erect to sprawling shrublet to 30 cm. Flowers small, urn-shaped, purple-pink. Aug.–Nov. Seeps on lower to middle slopes, LB (Langeberg).•

atrovinosa E.G.H.Oliv. Erect shrublet to 60 cm. Flowers medium, inflated, urn-shaped, dark red with darker lobes. Jan.–Apr. High alt., rare, NW (Hex River Mtns).•

autumnalis L.Bolus Erect shrublet to 50 cm. Flowers small, bell-shaped, white to pink. Jan.–Dec. Moist slopes at middle alt., SW (Hottentots Holland Mtns to Kogelberg).•

axilliflora Bartl. CRIMSON HEATH, KLOKKIESHEIDE Erect shrublet to 75 cm. Flowers medium, bell-shaped, deep pink. Feb.–Sept. Coastal flats and lower slopes, AP (Soetanysberg).•

azaleifolia Salisb. Erect shrublet to 30 cm. Flowers small, ovoid-cup-shaped, hairy, white to pink, with exserted anthers. Oct.–Feb. Middle to upper slopes, SW (Kogelberg to Potberg).•

baccans L. BERRY HEATH Erect, sturdy shrub to 3 m. Flowers small, calycine, globose, rose-pink. Apr.–Aug. Mountain slopes, SW (Cape Peninsula).•

bakeri Salter Sparse but compact shrublet to 30 cm. Flowers small, urn-shaped, pink, hairy. Aug.–Oct. Rare on marshy flats, SW (Wemmershoek Mtns).•

banksii Andrews (= *Erica comptonii* Salter) Compact or woody shrublet to 60 cm. Flowers large, tubular, white with green or dark pink reflexed lobes and well-exserted anthers. Jan.–Oct. Upper slopes, rocky places, SW, AP (Hottentots Holland to Bredasdorp Mtns).•

barrydalensis L.Bolus Erect, sparse shrub to 2 m from bushy base. Flowers medium to large, globose to conical, red. Jan.–Dec. Rocky, middle slopes, KM, LB (Warmwaterberg and Langeberg).•

baueri Andrews ALBERTINIA HEATH, WITHEIDE Erect shrublet to 1 m. Flowers large, tubular-inflated, white to pink. June–Oct. Local on sandy flats, LB (Albertinia).•

beatricis Compton Erect shrublet to 50 cm. Flowers medium, tubular, white, with exserted anthers. Jan. Upper slopes, SE (Tsitsikamma Mtns).•

bergiana L. Erect shrublet to 1 m. Flowers small, globosely urn-shaped, with reflexed sepals, pink. Sept.–Mar. Seeps and moist middle to upper slopes, NW, SW (Cold Bokkeveld to Riviersonderend Mtns).•

berzelioides Guthrie & Bolus Erect to sprawling shrublet to 50 cm. Flowers large, tubular, pink with white mouth. Apr.–May. Coastal calcareous flats and hills, AP (Bredasdorp).•

bibax Salisb. Erect shrublet to 1 m. Flowers large, tubular, yellow with white tips, finely hairy. Aug.–Nov. Middle slopes, SW (Hottentots Holland Mtns to Kogelberg).•

bicolor Thunb. Erect shrub to 1.5 m. Flowers small, urn-shaped, deep pink, with exserted anthers. Aug.–Nov. Dry middle to upper alt., NW, SW (Gifberg to Stellenbosch Mtns).•

blaerioides E.G.H.Oliv. Compact shrublet to 30 cm. Flowers small, urceolate, white, shortly hairy. Dec.–Jan. Sandstone slopes at high alt., KM (Swartberg).•

blandfordii Andrews Erect shrublet to 1 m. Flowers small, yellow, hard. Sept.–Jan. Dry, middle to upper slopes, SW (Tulbagh: Elandskloof Mtns to Paarl).•

blenna Salisb. LANTERN HEATH, RIVERSDALE HEATH, BELLETJIEHEIDE Erect shrublet to over 1 m. Flowers large, urn-shaped to conical, orange with green tips. Apr.–Nov. Lower and middle, southern slopes, LB (Langeberg: Tradouw Pass to Riversdale).•

bodkinii Guthrie & Bolus Erect shrublet to 90 cm. Flowers large, calycine, cup-shaped with long, erect lobes, very finely hairy, cream-coloured. June–July. Marshy middle slopes, SW (Bredasdorp Mtns).•

bolusiae Salter Erect shrublet to 60 cm. Flowers small, urn-shaped, white to bright pink, hairy. Mar.–July. Flats, damp sandy places, SW (Yzerfontein to Kraaifontein).•

borboniifolia Salisb. Erect, dense shrublet to 40 cm. Flowers medium, calycine, conically urn-shaped with spreading lobes, deep pink. Jan.–Feb. Moist upper slopes, NW, SW (Tulbagh to Riviersonderend Mtns).•

botryoides Dulfer Erect shrublet to 50 cm. Flowers small, ovoid, dark pink, with exserted anthers. Jan.–Mar. Middle slopes, SW (Riviersonderend Mtns).•

brachialis Salisb. Erect, very woody shrub to 2 m. Flowers large, tubular, green turning yellowish, finely hairy, slightly sticky. Dec.–Mar. Rocky places near sea level, SW (Cape Peninsula to Betty's Bay).•

brachycentra Benth. Erect shrublet to 30 cm. Flowers small, cup-shaped, pink, with exserted anthers. Jan.–May. Lower to middle slopes, SE (Outeniqua Mtns to Knysna).•

brachysepala Guthrie & Bolus Low, sprawling, compact shrublet to 20 cm. Flowers small, urn-shaped, dull cream-coloured, with far-exserted anthers. Jan.–May. Dry, gravelly flats and lower hillsides, SW, AP (Botrivier to Elim, Soetanysberg).•

bracteolaris Lam. Erect shrublet to 50 cm. Flowers small to medium, calycine, narrowly urn-shaped with spreading lobes, dark pink. July–Feb. Upper slopes, LB (Langeberg: Swellendam to Heidelberg).•

brevicaulis Guthrie & Bolus Erect shrublet to 10 cm. Flowers small, subcalycine, bell-shaped, red. Nov.–Jan. Rock crevices at high alt., NW (Hex River Mtns).•

brevifolia Sol. ex Salisb. (= *Erica chlamydiflora* Salisb.) Erect shrublet to 60 cm. Flowers small, calycine, urn-shaped, sticky, pale pink. Sept.–Dec. Middle to upper slopes, SW, LB, SE (Cape Peninsula to George).•

bruniades L. KAPOKKIE Erect shrublet to 50 cm. Flowers small, calycine, urn-shaped, woolly, with exserted anthers, corolla white hairy, calyx hairs silvery, white, pink to purple. Aug.–Dec. Sandy flats, lower slopes and plateaus, NW, SW (Piketberg to Bredasdorp).•

bruniifolia Salisb. (= *Erica incurva* J.C.Wendl.) Erect shrublet to 50 cm. Flowers in tight heads, small, narrowly urn-shaped, white, with dark, exserted anthers. July–Oct. Stony flats and lower slopes, SW, AP (Grabouw to Potberg).•

cabernetea E.G.H.Oliv. Erect, compact shrublet to 30 cm. Flowers small, urn-shaped, dark red. Oct.–Nov. Lower shale slopes in renosterveld, SW (Palmiet River Valley).•

caffra L. WATER HEATH, WATERHEIDE Erect shrub or small tree to 4 m. Flowers medium, conical, white, finely hairy. July–Dec. Streamsides, flats and mountain slopes, NW, SW, KM, LB, SE (Gifberg to KwaZulu-Natal).

calcareophila E.G.H.Oliv. Erect to prostrate shrublet to 15 cm. Flowers large, urn-shaped, waxlike, white. July–Sept. Coastal limestone, AP (Pearly Beach).•

caledonica A.Spreng. Erect shrublet to 1 m. Flowers medium, calycine, urn-shaped, pink. Feb. Rocky slopes at high alt., SW (Riviersonderend Mtns).•

calycina L. Erect, rigid shrublet to 1(–2) m. Flowers small, calycine, bell-shaped with recurved lobes, white, pink or purple. Aug.–Jan. Flats to upper slopes, NW, SW (Cedarberg to Riviersonderend Mtns).•

cameronii L.Bolus. Prostrate, woody shrublet to 20 cm. Flowers large, urn-shaped, crimson, hairy. Nov.–Jan.(–May). Rocky mountain summits, NW (Hex River Mtns).•

campanularis Salisb. BOTRIVER HEATH, BOTRIVIERHEIDE Erect, slender shrublet to 60 cm. Flowers small, bell-shaped, yellow. July–Oct. Marshes and stream banks, lower to middle slopes, SW (Hottentots Holland to Kleinmond Mtns).•

canaliculata Andrews Erect shrub to 2 m. Flowers small, calycine, cup-shaped, pink. Jan.–Dec. Moist flats and lower slopes, SE (George to Humansdorp).•

canescens J.C.Wendl. Erect, lax shrublet to 60 cm. Flowers small, cup-shaped, pink, hairy. Jan.–Dec. Coastal flats and lower slopes, SW, AP (Malmesbury to Bredasdorp).•

capensis Salter Erect shrublet to 50 cm. Flowers small, cup-shaped, deep pink or white. Dec.–Apr. Local in marshes at low alt., SW (Cape Peninsula).•

capillaris Bartl. Erect, compact shrublet to 30 cm. Flowers small, tubular bell-shaped, pale pink, with exserted anthers. Dec.–Apr. Sandy coastal flats and hills, SW (Cape Peninsula to Stanford).•

capitata L. KAPOKKIE Erect shrublet to 30 cm. Flowers small, calycine, urn-shaped, woolly, green becoming yellow. Aug.–Dec. Dry sandy flats and lower plateaus, SW, AP (Mamre to Baardskeerdersbos).•

carduifolia Salisb. Erect shrublet to 40 cm. Flowers small, urn- to bell-shaped, mauve-pink, sticky. Aug.–Nov. Moist, S-facing, upper slopes, NW, SW, KM, SE (Cold Bokkeveld to Kouga Mtns).•

caterviflora Salisb. Erect, woody shrub to 1.3 m. Flowers small, urn-shaped, pink, finely hairy. Dec.–Mar. Rocky places, upper slopes, SW (Cape Peninsula).•

cavartica E.G.H.Oliv. & I.M.Oliv. Diffuse, procumbent shrublet. Flowers small, shortly tubular, hairy. Mar. Sandstone shelters, NW (Cedarberg).•

cedarbergensis Compton Erect shrublet to 30 cm. Flowers small, cup-shaped, pale to deep pink. Dec.–Mar. Rocky higher peaks, NW (Cedarberg).•

cedromontana E.G.H.Oliv. Small, moss-like shrublet. Flowers small, white to reddish. Sept.–Dec. Rock crevices, higher peaks, NW (Cedarberg and Cold Bokkeveld Mtns).•

ceraria E.G.H.Oliv. & I.M.Oliv. (= *Erica foliacea* auct.) Erect to slightly sprawling shrublet to 90 cm. Flowers large, tubular, very hard and waxy, greenish yellow. Apr.–Nov. Rocky mountain slopes, SW (Kogelberg to Betty's Bay).•

cerinthoides L. FIRE HEATH, ROOIHAARTJIE Erect, resprouting shrub, mostly compact to 30 cm, sometimes sparse to 1.2 m. Flowers large, tubular-inflated, orange-red, hairy. Jan.–Dec., especially after fire. Sandy flats and slopes, NW, SW, AP, KM, LB, SE (Cedarberg to Gauteng and Mpumalanga).

cernua Montin Erect shrublet to 80 cm. Flowers small in heads, urn-shaped, pink. Sept.–Oct. Marshes at middle to high alt., NW (Cedarberg to Cold Bokkeveld Mtns).•

chamissonis Klotzsch ex Benth. Erect shrublet to 60 cm. Flowers small/medium, open cup-shaped, pink. Oct.–May. Flats to middle slopes, SE (Kouga Mtns to Grahamstown).

chartacea Guthrie & Bolus Erect shrublet to 50 cm. Flowers small, calycine, ovoid, white, sometimes hairy, with exserted anthers. Sept.–Dec. Middle slopes, LB (Langeberg: Swellendam).•

chionodes E.G.H.Oliv. Compact shrublet to 60 cm. Flowers small, urceolate, white, finely hairy. Sept.–Nov. Sandstone seeps, KM (Groot Swartberg).•

chionophila Guthrie & Bolus Erect shrublet to 30 cm. Flowers small, urn-shaped, pink. Mar.–Sept. Moist middle to upper slopes, SW (Bain's Kloof Mtns).•

chloroloma Lindl. Erect shrub to 2 m. Flowers large, tubular, bright red with green tips. Mar.–Sept. Coastal dunes and limestone, SE (Wilderness to Fish River Mouth).

chlorosepala Benth. Shrublet to 60 cm. Flowers medium, calycine, tubular urn-shaped, bright yellow. Sept.–Mar. Middle to upper slopes, LB (Langeberg: Swellendam).•

chonantha Dulfer Erect shrublet to 30 cm. Flowers broadly bell-shaped, pink to white, with slightly exserted anthers. Dec.–May. Slopes and flats, AP (Soetanysberg).•

chrysocodon Guthrie & Bolus Erect shrublet to 50 cm. Flowers medium, urn-shaped, hairy, golden-yellow. July–Oct. Very local but abundant in marshes at lower alt., SW (Franschhoek to Villiersdorp).•

cincta L.Bolus Erect shrublet to 30 cm. Flowers small, urn-shaped, pink to white with red ring below mouth. Dec.–Feb. Local at high alt., SW (Kogelberg).•

clavisepala Guthrie & Bolus Erect, compact shrublet to 30 cm. Flowers in terminal heads, small, urn-shaped, dull red. Feb.–Apr. Local in marshes and seeps at low alt., SW (Cape Peninsula).•

coacervata H.A.Baker Sprawling shrublet to 20 cm. Flowers small to medium, narrowly urn-shaped, pink to purple, hairy. Dec.–Mar. Higher peaks, NW (Hex River Mtns).•

coarctata J.C.Wendl. Erect to sprawling, multi-stemmed, resprouting shrublet to 30(–90) cm. Flowers tiny, reddish. Apr.–Sept. Sandy areas, flats to high alt., SW, LB (Cape Peninsula to Riversdale).•

coccinea L. Erect, rigid shrub to 1.2 m. Flowers large, tubular, yellow, orange or red, with far-exserted anthers. Jan.–Dec. Common on rocky flats and mountains, NW, SW, AP, LB (Clanwilliam to George).•

collina Guthrie & Bolus Erect shrublet to 30 cm. Flowers small, urn-shaped, pink, calycine. May–Sept. Lower slopes, SW (Hermanus).•

colorans Andrews TREGTERHEIDE Erect shrublet to 1 m. Flowers large, tubular, white to pink, sometimes finely hairy. Jan.–Dec. Wet areas at low alt., SW (Stanford to Elim).•

columnaris E.G.H.Oliv. Erect, wand-like shrublet. Flowers in column-like inflorescences, small, urn-shaped, wine-red. Sept.–Oct. Moist sandstone slopes, SW (Riviersonderend Mtns: Pilaarkop).•

comata Guthrie & Bolus Erect, pubescent shrub. Flowers small, subcalycine, obconic, red? Jan. High peaks, very rare, LB (Langeberg: Swellendam).•

condensata Benth. Erect shrublet to 50 cm. Flowers small, cup-shaped, pink. Sept.–Feb. Middle to upper slopes, LB (Swellendam to Riversdale).•

conferta Andrews Erect shrublet to 1 m. Flowers small, broadly urn-shaped, white, slightly sticky. Jan.–Apr. High alt. southern slopes, SW, LB, SE (Riviersonderend Mtns, Langeberg, Outeniqua Mtns to Kouga Mtns).•

conspicua Sol. Erect shrub to 2 m. Flowers large, tubular, hairy, orange to red. Oct.–Feb. Marshy or damp flats to middle slopes, NW, SW (Ceres to Paarl).•

constantia Nois. ex Benth. Erect, rigid, rounded shrublet to 50 cm. Flowers small, urn-shaped, hairy, white. Nov.–June. Rocky slopes, high alt., NW, KM (Hex River Mtns to Klein Swartberg).•

copiosa J.C.Wendl. Erect shrublet to 1.5 m. Flowers small, cup-shaped, pink. Jan.–Dec. Lower to upper slopes, KM, LB, SE (Langeberg to Katberg).

cordata Andrews (= *Erica arachnoidea* Klotzsch) Erect or sprawling shrublet to 1 m. Flowers small, urn-shaped, pink. May–Nov. Moist, middle to upper slopes, LB, SE (Heidelberg to Uitenhage).•

corifolia L. Erect shrublet to 1 m. Flowers small to medium, calycine, urn-shaped, pink soon turning brown at tips. Jan.–Dec. Common on sandy flats and middle to upper slopes, SW, AP (Malmesbury to De Hoop).•

coronanthera Compton Like **E. copiosa**, erect shrublet to 50 cm. Flowers small, urn-shaped, pink. Apr. Middle alt., SE (Knysna).•

corydalis Salisb. WHITE PETTICOAT HEATH, WITROKHEIDE Erect shrublet to 50 cm. Flowers small, basally spherical, upper part cup-shaped, white. Oct.–Jan. Moist, S-facing, upper slopes, SW (Houwhoek to Kleinrivier Mtns).•

costatisepala H.A.Baker Erect, low shrublet to 25(–50) cm. Flowers small, calycine, cup-shaped, white. Dec.–Mar. High summits, rocky places, NW, KM, LB (Robertson, Langeberg: Swellendam, Klein Swartberg to Kammanassie Mtns).•

crassisepala Benth. Erect shrublet to 20 cm. Flowers small, calycine, cup-shaped, hairy, white. Jan. High alt., LB (Langeberg: Swellendam).•

crateriformis Guthrie & Bolus Erect shrublet to 30 cm. Flowers small, cup-shaped, ?pink. Aug. ?, SW (Hermanus area).•

cremea Dulfer Erect shrublet to 30 cm. Flowers large, tubular, cream-coloured, finely hairy. Nov. Upper mountain slopes, moist places, SW (Wellington).•

cristata Dulfer (= *Erica pectinata* Klotzsch) Like **E. curvifolia**, erect, sparse shrublet to 60 cm. Flowers medium to large, tubular urn-shaped, pink, sticky. Dec.–June. Middle to upper slopes, SW (Hottentots Holland Mtns to Betty's Bay).•

cristiflora Salisb. Erect shrublet to 1 m. Flowers small to medium, calycine, obconic, pink. Mar.–Nov. Lower to upper slopes, NW, SW, KM, LB (Kamiesberg, Gifberg to Antoniesberg). **gce**

croceovirens E.G.H.Oliv. & I.M.Oliv. Scraggy shrub to 1.5 m. Flowers large, tubular, sticky, bright orange below and yellow-green above. Aug.–Feb. Dry, sandy flats and rocky, N-facing slopes, SE (Outeniqua Mtns).•

cruenta Sol. CRIMSON HEATH, ROOIHEIDE Erect shrublet to 1 m. Flowers large, tubular, dark red. Jan.–Dec. Lower, dry, shale hills and slopes, SW, LB (Grabouw to Mossel Bay).•

cryptanthera Guthrie & Bolus Erect, straggling shrublet to 15 cm. Flowers small, cup-shaped, pale pink, hairy. Sept.–Dec. Middle slopes, moist places, SW (Franschhoek to Riviersonderend Mtns).•

cubica L. Erect shrublet to 45 cm. Flowers small/medium, calycine, broadly obconic, pink or reddish. July–Dec. Marshy southern slopes, LB, SE (Swellendam to KwaZulu-Natal).

cubitans E.G.H.Oliv. Prostrate shrublet. Flowers small, cup-shaped, purplish pink, with long hairs and short glands. Dec.–Jan. Moist sandstone slopes, LB (Langeberg: Lemoenshoek).•

cumuliflora Salisb. Erect shrublet to 45 cm. Flowers in dense heads, small, narrowly urn-shaped, white with erect dark brown lobes. Sept.–Jan. Dry middle slopes, SW (Grabouw to Potberg).•

cunoniensis E.G.H.Oliv. Erect shrublet to 50 cm. Flowers medium, narrowly cup-shaped, deep red. Sept.–Oct. Rocky, southern upper slopes, SW (Kogelberg).•

curtophylla Guthrie & Bolus Erect shrublet to 30 cm. Flowers small, urn- to cup-shaped, pink to magenta, with slightly exserted anthers. July–Oct. Limestone flats and low hills, AP (De Hoop to Still Bay).•

curviflora L. (= *Erica sulcata* Benth.) WATER HEATH, WATERBOS Erect, soft to stout shrub to 1.6 m. Flowers large, tubular, orange, red or yellow, hairy or glabrous. Jan.–Dec. Widespread in damp or wet areas, flats to high alt., NW, SW, AP, KM, LB, SE (Bokkeveld Mtns to Grahamstown).

curvifolia Salisb. Erect, often much-branched, rounded shrublet to 45 cm. Flowers medium, tubular to urn-shaped, pink, sticky. Dec.–Mar. Sandy places on upper slopes, SW (Jonkershoek to Riviersonderend Mtns).•

curvirostris Salisb. HEUNINGHEIDE Like **E. lateralis**, erect shrublet to 60 cm. Flowers small, bell-shaped, pale to dark pink, often scented. Feb.–May. Dry stony areas, middle to upper slopes, SW (Du Toitskloof Mtns to Kogelberg).•

cuscutiformis Dulfer Slender, sprawling shrublet to 25 cm. Flowers small, narrowly urn-shaped, pink. Aug.–Oct. Upper slopes, NW (Grootwinterhoek to Cold Bokkeveld Mtns).•

cygnea Salter Erect shrublet to 30 cm. Flowers medium, tubular, in nodding heads, sticky, pink. Jan.–Feb. Middle rocky slopes, SW (Kogelberg).•

cylindrica Thunb. Erect shrub to 1.2 m. Flowers large, narrowly tubular, fragrant, pale yellow. Mar.–Oct. Dry stony slopes, SW (Tulbagh: Elandskloof Mtns).•

cymosa E.Mey. ex Benth. Sprawling, diffuse shrublet. Flowers small, campanulate, white to pale pink, sparsely hairy. Oct.–Mar. Sandstone shelters, NW, SW (Hex River and Du Toitskloof Mtns to Keeromsberg).•

cyrilliflora Salisb. Erect, diffuse shrublet to 60 cm. Flowers small, narrowly urn-shaped, pink with paler tips, hairy. Feb. Marshy areas, SW (Cape Peninsula).•

daphniflora Salisb. Erect shrublet to 1 m. Flowers medium to large, urn-shaped to tubular urn-shaped, white, yellow, pink or red. July–Mar. Sandy flats and slopes, often beside water, NW, SW, LB (Cedarberg to Heidelberg).•

deflexa Sinclair Erect to sprawling shrublet to 30 cm. Flowers small, bell-shaped to obconic, pale pink. Nov.–Apr. Middle to upper alt., SE (Outeniqua and Tsitsikamma Mtns).•

demissa Klotzsch ex Benth. Like **E. simulans**, erect shrublet to 50 cm. Flowers small, urn-shaped, white, with exserted anthers. Jan.–Dec. Lower to middle, mountain slopes, KM, SE (Swartberg to Grahamstown).

densifolia Willd. Erect shrub to 1.5 m. Flowers large, tubular, curved, pubescent, red with greenish yellow lobes. Sept.–May. Flats to middle slopes, KM, LB, SE (Langeberg to Kammanassie and Tsitsikamma Mtns).•

denticulata L. LEKKERRUIKHEIDE Erect shrublet to 50 cm. Flowers medium, urn-shaped, waxy, white to cream-coloured or pinkish, distinctly fragrant. Aug.–Jan. Flats to upper slopes, NW, SW (Piketberg to Riviersonderend Mtns).•

depressa L. Erect, dwarf shrublet to 10 cm. Flowers small, calycine, bell-shaped, white. Nov.–July. Rock crevices on upper slopes, SW (Cape Peninsula, Grabouw).•

desmantha Benth. Erect shrublet to 1 m. Flowers small to medium, ovoid-cup-shaped, calycine, white, with exserted anthers. Feb.–May. Moist upper slopes, SW (Banhoek to Kleinrivier Mtns).•

dianthifolia Salisb. Erect shrublet to 70 cm. Flowers medium, calycine, white sometimes with red stripes. Aug.–Dec. Middle to upper slopes (shale bands?), SW, LB (Riviersonderend Mtns to Heidelberg, Potberg).•

diaphana Spreng. Erect shrub to 1.5 m. Flowers large, tubular, sticky, pink to dark red with pale green lobes. Jan.–Dec. Flats and rocky slopes to high alt., KM, SE (Outeniqua Mtns: George to Uitenhage).•

diosmifolia Salisb. Erect shrublet to 40 cm. Flowers small, calycine, open cup-shaped, white. Sept.–Dec. Rock ledges at high alt., SW (Cape Peninsula).•

diotiflora Salisb. Erect shrublet to 50 cm. Flowers small, ovoid to cup-shaped, pink, with exserted anthers. Oct.–Jan. Moist places, lower slopes, SW (Riviersonderend Mtns).•

discolor Andrews (= *Erica hebecalyx* Benth., *E. speciosa* Andrews) Dense, resprouting or reseeding shrublet to 2 m. Flowers large, tubular, curved, sometimes slightly sticky, pink to dark orange-red with pale tips. Jan.–July. Flats and lower mountain slopes, SW, AP, KM, LB, SE (Betty's Bay to Humansdorp and Matjiesfontein to Swartberg).•

distorta Bartl. Erect to spreading shrublet to 50 cm. Flowers small, campanulate, white to cream-coloured, hairy. Dec.–June. Sandy seeps or rock ledges, middle slopes, NW, SW (Cedarberg to W Riviersonderend Mtns).•

dodii Guthrie & Bolus Erect to sprawling shrublet to 40 cm. Flowers small, narrowly bell-shaped, pink. Oct.–Dec. Moist, shady, upper slopes, SW, KM, LB (Cape Peninsula to Uniondale).•

dolfiana E.G.H.Oliv. & I.M.Oliv. Compact shrublet to 50 cm. Flowers small, campanulate-urceolate, white or tinged pink. Oct.–Dec. Sandstone slopes at high alt., KM (Groot Swartberg).•

doliiformis Salisb. NINEPIN HEATH Erect, bushy shrublet to 1 m. Flowers medium to large, narrowly urn-shaped, pink, finely hairy. Sept.–Apr. Lower granitic to rocky, upper slopes, SW (Tulbagh: Elandskloof Mtns to Franschhoek).•

dysantha Benth. Low, sprawling, mat-forming shrublet to 30 cm. Flowers small, pubescent, white or cream-coloured with greenish tips. Nov.–Jan. Higher peaks, LB (Langeberg: Riversdale).•

eburnea Salter Erect, compact shrublet to 60 cm. Flowers small, widely cup-shaped, white. Dec.–Jan. Sandy flats, SW (Cape Peninsula).•

elimensis L.Bolus Erect shrublet to 40 cm. Flowers small, broadly cup-shaped, red to pink. Aug.–Oct. Sandy flats and hills, AP (Elim to coast).•

embothriifolia Salisb. Sparse, erect to semispreading shrublet to 45 cm. Flowers large, tubular, very narrow to broader and laterally flattened, bright pink, pedicels very sticky, with exserted anthers. Dec.–Apr. Open slopes or ledges at middle to high alt., SW (Riviersonderend Mtns).•

empetrina L. (= *Erica empetrifolia* L.) Erect shrublet to 30 cm. Flowers small, dull red to pink. Aug.–Dec. Rocky upper slopes often on ledges, SW (Cape Peninsula).•

erasmia Dulfer Erect shrublet to 30 cm. Flowers small, calycine, urn-shaped, pink. Sept.–Oct. Upper slopes, NW (Hex River Mtns).•

eriocodon Bolus Erect shrublet to 30 cm. Flowers small, cup-shaped, pink, hairy. Oct.–Nov. Upper, rocky slopes, NW (Cedarberg to Grootwinterhoek Mtns).•

eriophoros Guthrie & Bolus Prostrate, spreading, grey shrublet to 20 cm. Flowers in pendulous heads, small, hidden, cup-shaped, white, hairy, with exserted anthers. Sept.–Nov. Very local at high alt., NW (S Cedarberg and Gydo Mtns).•

esterhuyseniae Compton Erect shrublet to 30 cm. Flowers small, bell- to urn-shaped, white, hairy. Dec.–Mar. Rocky upper slopes, KM, SE (Swartberg to Kouga Mtns).•

etheliae L.Bolus Erect shrublet to 20 cm. Flowers tubular, pink. June. Poorly known, SE (Port Elizabeth).•

eugenea Dulfer (= *Erica nobilis* Guthrie & Bolus) Erect shrublet to 70 cm. Flowers medium to large, calycine, urn-shaped, pink with darker lobes. Aug.–Dec. Middle to upper slopes, NW (Cedarberg and N Cold Bokkeveld Mtns).•

euryphylla R.C.Turner Lax, single-stemmed shrublet to 30 cm. Flowers small, cup- or urn-shaped, pink. May–Sept. Damp, sandstone crevices and ledges, LB (Langeberg: Swellendam).•

eustacei L.Bolus Erect shrub to 1.5 m. Flowers small, globosely urn-shaped, white. Sept.–Nov. Dry, middle to upper slopes, KM (Touws River to Swartberg and Gamkaberg).•

excavata L.Bolus Like **E. propinqua**, erect shrublet to 50 cm. Flowers medium, calycine, pink. July–Oct. Coastal limestone flats and hills, SW, AP (Hermanus to Pearly Beach).•

extrusa Compton Erect shrublet to 30 cm. Flowers small, urn-shaped, pink. Nov.–Jan. Sandy lower slopes, SW (Grabouw).•

fairii Bolus Erect shrublet to 60 cm. Flowers medium, tubular-conical, white, sticky. Dec.–June. Localised on middle slopes, SW (Cape Peninsula).•

fascicularis L.f. Erect, sparsely branched shrub to 1.8 m. Flowers large, tubular or tubular inflated, pink with green lobes, sticky. Apr.–Dec. Sandy, rocky slopes, SW (Helderberg to Riviersonderend to Bredasdorp Mtns).•

fastigiata L. FOUR SISTERS HEATH Erect shrublet to 50 cm. Flowers medium to large, tubular with large spreading lobes, red tube with pink or white lobes with dark, central ring. July–Dec. Damp to dry flats to middle alt. slopes, SW (Franschhoek to Kleinrivier Mtns).•

fausta Salisb. Erect shrublet to 50 cm. Flowers small, bell-shaped, pink, hairy. Oct.–Nov. Lower to middle slopes, SW (Stellenbosch to Kleinmond).•

feminarum E.G.H.Oliv. Erect shrublet to 30 cm. Flowers small, cup-shaped, dark red, finely hairy. July–Sept. Seepage areas, middle slopes, SW (Stettynsberg).•

ferrea P.J.Bergius (= *Erica crenata* E.Mey. ex Benth., *E. mucosa* L.) Erect, sparse shrublet to 1 m. Flowers small, broadly urn-shaped, magenta, sticky. Dec.–June. Sandy flats and lower slopes, SW (Malmesbury to Cape Flats).•

filamentosa Andrews Erect shrub to 1.5 m. Flowers medium to large, pink, finely hairy, long-pedicelled. June–Nov. Dry lower slopes and hills, SW, LB (Stormsvlei to Swellendam).•

filiformis Salisb. Erect, compact to diffuse shrublet to 30 cm. Flowers small, urn- to bell-shaped, pink, with exserted anthers. Oct.–Apr. Clay flats and lower slopes, SW (Paarl to Elgin).•

filipendula Benth. Erect shrublet to 1 m. Flowers variable, medium to large, inflated tubular to urn-shaped, white, pink or yellow. Apr.–July. Sandy hills and flats, SW, AP (Bredasdorp).•

fimbriata Andrews Erect shrublet to 70 cm. Flowers small, calycine, urn-shaped, white, occasionally pink. July–Dec. Middle to upper slopes, KM, SE (Swartberg and Outeniqua Mtns: George).•

flacca E.Mey. ex Benth. Erect shrublet to 30 cm. Flowers small, bell-shaped, magenta-pink, with exserted anthers. Oct.–Feb. Sandy flats and middle slopes, NW (Cedarberg and Cold Bokkeveld Mtns).•

flavicoma Bartl. Erect shrublet to 60 cm. Flowers small, narrowly urn-shaped, pale yellow, in spikes. Sept.–Oct. Sandy flats, AP (Bredasdorp).•

flexistyla E.G.H.Oliv. Erect, compact shrublet to 30 cm. Flowers small, cup-shaped with bent style, pink. Aug.–Oct. Moist areas on flats, AP (Viljoenshof to Soetanysberg).•

floccifera Zahlbr. (= *Erica floccosa* Bartl.) Erect, robust shrublet to 70 cm. Flowers small, calycine, cup-shaped, white. Aug.–Dec. Low to middle slopes, SW (Kleinrivier and Riviersonderend Mtns, Caledon: Swartberg).•

flocciflora Benth. Erect, woody shrublet to 1 m. Flowers small/medium, lime-yellow with white-hairy calyx. Sept.–Dec. Dry lower slopes and rocky foothills, SE (Kouga Mtns).•

florifera (Compton) E.G.H.Oliv. (= *Eremia florifera* Compton, *Erica cupuliflora* Dulfer) Erect, compact to semispreading shrub to 30 cm. Flowers small, cup-shaped, pink. Sept.–Nov. Sandy moist flats, NW (Tulbagh to Ceres).•

foliacea Andrews Erect to slightly sprawling shrublet to 90 cm. Flowers large, tubular, yellow to orange. Apr.–Nov. S-facing, sandstone slopes, SW (Hottentots Holland Mtns).•

fontana L.Bolus Erect shrub to 1.8 m. Flowers medium, tubular, pinkish white, hairy. Oct.–May. Marshy flats, SW (Cape Peninsula).•

formosa Thunb. WHITE HEATH, WITHEIDE Erect shrublet to 60 cm. Flowers small, globosely urn-shaped, often fluted, white. July–Nov. Lower slopes, SE (Mossel Bay to Humansdorp).•

galgebergensis H.A.Baker Erect to spreading shrublet to 15 cm. Flowers medium/large, calycine, bell-shaped with large spreading lobes, white. Oct.–Nov. Rock crevices at high alt., SW (Riviersonderend Mtns).•

galpinii Salter Erect shrublet to 90 cm. Flowers large, tubular, bright yellow. Apr.–June. S-facing, middle slopes, rare, SW (Kleinrivier Mtns).•

garciae E.G.H.Oliv. Delicate shrublet to 30 cm. Flowers in pseudospikes, small, tubular, purplish pink. Nov.–Dec. Gravelly slopes, LB (Langeberg: Garcia's Pass area).•

genistifolia Salisb. Erect delicate shrublet to 30 cm. Flowers small, narrowly urn-shaped, white with erect brown lobes. Oct.–Jan. Moist rock ledges, SW (Cape Peninsula to Napier).•

georgica Guthrie & Bolus Erect shrublet to 50 cm. Flowers small to medium, urn-shaped with spreading lobes, pink. June–Feb. Moist slopes, KM, SE (Swartberg, Outeniqua and Tsitsikamma Mtns).•

gerhardii E.G.H.Oliv. & I.M.Oliv. Erect, single-stemmed shrub to 1.5 m. Flowers large, tubular, greenish yellow. July–Oct. Steep, S-facing, sandstone slopes, SW (Kleinrivier Mtns).•

gigantea Klotzsch ex Benth. Erect shrub to 2 m. Flowers small, globose, calycine, white. Aug.–Sept. Lower N slopes, LB (Langeberg: Riversdale).•

gillii Benth. Erect shrublet to 1 m. Flowers small, calycine, open cup-shaped, pink. Aug.–Nov. Middle slopes, LB (Outeniqua Mtns: Mossel Bay).•

glandulifera Klotzsch Like **E. irrorata**, low, viscid shrublet to 30 cm. Flowers small to medium, narrowly urn-shaped, magenta. Nov.–Jan. Sandy flats and lower slopes, NW (Cedarberg to Ceres).•

glandulipila Compton (incl. **E. umbonata** Compton) Erect shrublet to 1 m. Flowers small, urn-shaped, white to pinkish. Sept.–Nov. Rocky lower slopes, KM (Witteberg to Swartberg, Montagu).•

glandulosa Thunb. (= *Erica bondiae* Compton, *E. fourcadei* L.Bolus) Erect, sticky shrub to 1.5 m. Flowers medium to large, tubular, pink to orange often with darker longitudinal stripes, occasionally white. Jan.–Dec. Flats and lower slopes, LB, SE (Mossel Bay to Port Elizabeth).•

glauca Andrews CUP-AND-SAUCER HEATH, KOMMETJIE-PIERINGHEIDE Erect shrub to 2 m. Flowers large, calycine, broadly urn-shaped, dark purple with brown tips and red calyx or pale green with pink calyx. July–Dec. Lower to middle slopes, NW, SW (Ceres to Franschhoek).•

globulifera Dulfer Erect, compact shrublet to 30 cm. Flowers small, ovoid, pink. Apr.–June. Sandy flats, SW, AP (Bredasdorp).•

glomiflora Salisb. Erect shrublet to 1 m. Flowers small to medium to large, urn-shaped to conical, white to deep pink, slightly sticky. Jan.–Dec. Coastal flats to middle slopes, KM, LB, SE (Langeberg: Gourits River, Swartberg and Kouga Mtns).•

glumiflora Klotzsch ex Benth. Erect shrublet to 60 cm. Flowers small, calycine, urn-shaped, green to white, with exserted anthers. June–Sept. Sand dunes and lower slopes, SE (George to Humansdorp).•

glutinosa P.J.Bergius Erect, compact, viscid shrublet to 30 cm. Flowers medium, urn-shaped, pink or purple. Oct.–Apr. Damp, sandy, flat areas, middle to upper slopes, NW, SW (Ceres to Cape Peninsula to Riviersonderend Mtns).•

gnaphaloides L. (= *Erica crucistigmatica* Dulfer) Erect, slender shrublet to 40 cm. Flowers small, calycine, narrowly urn-shaped, pink, with distinctly cross-shaped stigma. Aug.–Dec. Marshy flats and lower slopes, SW (Wemmershoek to Kogelberg).•

goatcheriana L.Bolus Like **E. petrensis**, erect sturdy shrub to 1.5 m. Flowers medium, calycine, pink, calyx pink or white. July–Jan. Rocky places at high alt., NW, SW (S Cold Bokkeveld to Du Toitskloof).•

gossypioides E.G.H.Oliv. Erect, grey-pubescent shrublet to 45 cm. Flowers medium, calycine, cup-shaped, pink, calyx very white woolly. Dec.–Apr. Upper slopes, KM (Swartberg).•

gracilipes Guthrie & Bolus Erect to spreading shrublet to 30 cm. Flowers small, calycine, urn-shaped, deep pink, with exserted anthers. Aug.–Dec. Limestone hills and ridges, AP (Pearly Beach to Agulhas).•

gracilis J.C.Wendl. Erect shrublet to 50 cm. Flowers small, narrowly urn-shaped, pink. Jan.–Dec. Flats and lower slopes, LB, SE (Heidelberg to Humansdorp).•

granulatifolia H.A.Baker Erect shrublet to 60 cm. Flowers small, subcalycine, narrowly cup-shaped, pink. Oct. High alt., LB (Langeberg: Riversdale).•

granulosa H.A.Baker Like **E. harveyana**, erect shrublet to 45 cm. Flowers small, ovoid-cup-shaped, white or pink, with exserted anthers. Sept.–Nov. S-facing, upper slopes, KM (Uniondale).•

grata Guthrie & Bolus Erect or scrambling shrublet to 40 cm. Flowers small, urn-shaped, purple, with slightly exserted anthers. Aug.–Oct. Lower slopes, LB (Langeberg: Heidelberg to Riversdale).•

greyi Guthrie & Bolus (= *Erica auriculata* Guthrie & Bolus) Sparse, sprawling to erect shrublet to 20 cm. Flowers small, urn-shaped, pink. Feb.–June. Middle slopes, sandy places, very rare, NW (Cold Bokkeveld).•

grisbrookii Guthrie & Bolus Erect shrublet to 80 cm. Flowers medium, calycine, ovoid, hard and waxy, white. June–Aug. Rocky slopes, SW (Napier to Bredasdorp).•

guthriei Bolus Sparse, erect shrublet to 30 cm. Flowers small, calycine, very broadly urn-shaped, sticky, pink, with exserted anthers. Sept.–Feb. Upper slopes, NW (Cedarberg and Piketberg).•

gysbertii Guthrie & Bolus Erect shrublet to 1 m. Flowers medium to large, tubular, pink, sticky. Nov.–Mar. Sandstone middle to upper slopes, SW (Kogelberg).•

haemastoma J.C.Wendl. Erect shrublet to 30 cm. Flowers medium, flask-shaped, pink. ?. Middle slopes, NW (Tulbagh, Ceres).•

haematocodon Salter Compact to spreading shrublet to 20 cm. Flowers small, dark red, hairy. Oct.–Jan. Rock crevices at middle alt., SW (Cape Peninsula).•

haematosiphon Guthrie & Bolus (= *Erica coralliflora* Compton, *E. macropus* Guthrie & Bolus) Erect, woody shrublet to 1.2 m. Flowers large, tubular, bright dark red. Nov.–Mar. Rocky slopes and outcrops at middle to high alt., NW (Clanwilliam to Ceres).•

halicacaba L. BLADDER HEATH Erect, woody shrublet to 1 m. Flowers large, inflated, calycine, greenish to cream-coloured. Sept.–Dec. Rock crevices and ledges at middle alt., SW (Cape Peninsula).•

hameriana L.Bolus Like **E. sitiens**, erect shrublet to 60 cm. Flowers medium, tubular, dark red with paler or white tips. Feb.–Mar. Flats or middle slopes, SW (Kogelberg).•

hanekomii E.G.H.Oliv. Prostrate, creeping shrublet. Flowers medium, urn-shaped, white, sepals with conspicuously long reddish hairs, anthers well exserted, with long pores. Mainly Aug.–Oct. Upper sandstone slopes, NW (Cold Bokkeveld Mtns: Middelberg).•

hansfordii E.G.H.Oliv. Delicate, straggling shrublet to 30 cm. Flowers solitary, small, cup-shaped, yellow. Mainly Nov.–Jan. Sandy seeps, SW (Slanghoek Valley).•

harveyana Guthrie & Bolus (= *Erica jeppei* L.Bolus) Like **E. granulosa**, erect shrublet to 50 cm. Flowers small, ovoid-cup-shaped, slightly sticky, white, with exserted anthers. Sept.–Nov. Upper slopes, SE (Uniondale to Uitenhage).•

hebdomadalis E.G.H.Oliv. & I.M.Oliv. Erect, low spreading shrublet to 20 cm. Flowers small, cup-shaped, white. Jan.–Mar. Rocky upper slopes, KM (Klein Swartberg).•

heleogena Salter Erect shrublet to 60 cm. Flowers medium, elongate-cup-shaped, pink, hairy. Nov.–Mar. Marshes at middle alt., SW (Cape Peninsula).•

heleophila Guthrie & Bolus Erect shrublet to 50 cm. Flowers medium, urn-shaped with spreading lobes, pale pink. Nov.–Dec. Damp slopes, LB (Langeberg).•

hendricksii H.A.Baker Erect shrublet to 45 cm. Flowers large, tubular with spreading lobes, hairy, white and pink. Sept.–Apr. Marshy lower slopes, SW (Stanford).•

hexensis E.G.H.Oliv. Erect shrublet to 1 m. Flowers small, dusky red to pink, with large stigma. Sept.–Nov. Rocky slopes at high alt., NW (Hex River Mtns).•

hibbertii Andrews Compact, woody shrublet to 30 cm. Flowers large, tubular, sticky, orange-red with greenish yellow tips. Sept.–Nov. Rock crevices and ledges at lower alt., SW (Franschhoek Pass to Villiersdorp).•

hippurus Compton Erect shrublet to 90 cm. Flowers small, urn-shaped in dense, long spike, dark pink, hairy. Apr.–July. Granite slopes, moist areas, SW (Malmesbury).•

hirta Thunb. (= *Erica sphaeroidea* Dulfer) Erect shrublet to 80 cm. Flowers small, globosely urn-shaped, white to pink, hairy, with exserted anthers. Feb.–Aug. Dry lower slopes, SW (Malmesbury to Genadendal).•

hirtiflora Curtis Erect shrublet to 1 m. Flowers small, ovoid, mauve-pink. Jan.–Dec. Flats and slopes, SW (?Cape Peninsula).•

hispidula L. (= *Erica blancheana* L.Bolus, *E. inops* Bolus) Erect shrublet to 1(–1.8) m. Flowers small, urn-shaped to bell-shaped, white, pink or red. Jan.–Dec. Widespread and common from flats to high alt., NW, SW, KM, LB, SE (Clanwilliam to Uitenhage).•

hispiduloides E.G.H.Oliv. Erect shrub to 1.2 m. Flowers small, narrowly cup-shaped, pink to creamy yellow. Sept.–Dec. Rocky slopes at higher alt., NW, SW, KM (Cedarberg to Worcester and Swartberg).•

holosericea Salisb. Erect shrublet to 90 cm. Flowers medium, campanulate, pink with darker sepals, finely hairy. Sept.–Nov. Moist southern slopes, SW (Kogelberg to Bredasdorp).•

hottentotica E.G.H.Oliv. Erect, compact shrublet to 1 m. Flowers small to medium, red-pink, finely hairy. Sept.–Nov. Moist upper slopes, SW (Hottentots Holland Mtns).•

humansdorpensis Compton Erect shrublet to 30 cm. Flowers small, narrowly urn-shaped, pink. May–July. Coastal flats, SE (Humansdorp).•

humidicola E.G.H.Oliv. Bushy or lanky shrublet to 1 m. Flowers small, broadly campanulate, shortly hairy, pink. Sept.–Oct. Sandstone seeps, SW (Kogelberg).•

humifusa Hibbert ex Salisb. Erect, compact, woody shrublet to 10 cm. Flowers small, pink. Sept.–Feb. Rocky upper slopes, NW, SW, KM, SE (Cedarberg to Riviersonderend to Kouga Mtns).•

imbricata L. Erect shrublet to 80 cm. Flowers small, calycine, ovoid-urn-shaped, white or pink, with exserted anthers. Jan.–Dec. Coastal sandy flats to middle alt., NW, SW, AP, KM, LB, SE (Gifberg to Kouga Mtns).•

inamoena Dulfer (= *Erica blesbergensis* H.A.Baker) Erect shrublet 80 cm. Flowers small, subcalycine, urn-shaped, pale pink. Sept.–Dec. Upper rocky slopes, KM (Anysberg, Rooiberg, Swartberg).•

incarnata Thunb. Erect shrublet to 40 cm. Flowers medium, tubular urn-shaped, pink. Sept.–Dec. Rocky slopes at middle to high alt., NW (Cedarberg to Cold Bokkeveld).•

inclusa H.L.Wendl. ex Benth. Erect, slender shrub to 1.2 m. Flowers medium, calycine, campanulate, pale pink with darker sepals. Aug.–Oct. Moist slopes, lower to middle slopes, LB (Langeberg: Riversdale).•

inconstans Zahlbr. Erect shrub to 2 m. Flowers small, narrowly cup- to urn-shaped, white to pink. July–Dec. Upper slopes, SE (Outeniqua Mtns: Knysna).•

inflata Thunb. Erect shrublet to 1 m. Flowers medium, urn-shaped, dark pink. Sept.–May. Sandy flats and slopes, NW (Clanwilliam to Ceres).•

infundibuliformis Andrews (= *Erica pavettiflora* Salisb.) Erect shrublet to 90 cm. Flowers large, narrowly tubular, pink to reddish. Nov.–July. Lower to middle slopes, SW, LB (Du Toitskloof Mtns to Heidelberg).•

ingeana E.G.H.Oliv. Soft shrublet to 30 cm. Flowers in heads, small, narrowly urn-shaped with relatively large lobes, purplish pink. Jan.–Dec. Upper slopes, moist places, KM, SE (Swartberg and Outeniqua to Kouga Mtns).•

inordinata H.A.Baker Erect shrub to 1.2 m. Flowers large, tubular, very sticky, orange-red. Sept.–Feb. Local at high alt., KM (Kammanassie Mtns).•

insignis E.G.H.Oliv. Erect, dwarf, woody shrublet to 40 cm. Flowers large, very calycine, cream-coloured turning red, corolla very reduced around ovary, with far-exserted anthers. Sept.–Dec. Rock crevices on N-facing, upper slopes, KM (Anysberg and Groot Swartberg).•

insolitanthera H.A.Baker Erect, sturdy shrublet to 1 m. Flowers medium, ovoid, sticky, red, with slightly exserted anthers. Jan.–Feb. Upper slopes, SW (Riviersonderend Mtns).•

intermedia Klotzsch ex Benth. Like **E. coccinea**, erect, rigid shrub to 1.2 m. Flowers medium/large, tubular, white or green to yellowish, with far-exserted anthers. Jan.–Dec. Sandstone slopes, LB, SE (Langeberg: Swellendam to Outeniqua Mtns: George).•

intervallaris Salisb. Erect to sprawling shrublet to 60 cm. Flowers small, narrowly urn-shaped, pink. July–Jan. Moist places and slopes, middle to high alt., SW (Hottentots Holland to Riviersonderend Mtns).•

intonsa L.Bolus Erect, compact shrublet to 30 cm. Flowers large, tubular-inflated, pink, sticky. Oct.–Feb. Rocky upper alt., SW (Kogelberg).•

intricata H.A.Baker Erect, slender, diffuse shrublet to 10 cm. Flowers small, broadly cup-shaped, pink. Apr.–May. High alt. seeps on shale, SW (Du Toitskloof Mtns).•

involucrata Klotzsch ex Benth. Low, spreading shrublet to 15 cm. Flowers inconspicuous, white to pink heads, small, cup-shaped, white, hairy, with exserted anthers. Sept.–Dec. High alt., NW, SW (Cedarberg to Elandskloof Mtns).•

irbyana Andrews Erect shrublet to 50 cm. Flowers large, ampullaceous, pale pink. Sept.–Jan. Lower slopes, SW (Babilonstoring to Elim).•

irregularis Benth. Erect shrub to 1.5 m. Flowers small, urn-shaped, pink. June–Oct. Coastal limestone flats and hills, SW, AP (Stanford to Gansbaai).•

irrorata Guthrie & Bolus Like **E. glandulifera**, low, sprawling, sticky shrublet to 45 cm. Flowers large, inflated-tubular, pink. Nov.–Feb. Rocky slopes, high alt., NW (Grootwinterhoek and Cold Bokkeveld Mtns).•

ixanthera Benth. Delicate, rounded shrublet to 15 cm. Flowers medium, urn-shaped, white to greenish, slightly sticky. Oct.–Dec. Shady, moist overhangs, lower slopes, LB (Riversdale).•

jacksoniana H.A.Baker Erect shrub to 1.5 m. Flowers small, cup-shaped, pink. Mar.–May. Marshes and seeps, SW (Hottentots Holland Mtns).•

jananthus E.G.H.Oliv. & I.M.Oliv. Compact or loose, single-stemmed shrublet to 15 cm. Flowers small, urceolate, viscid, white. Aug.–Nov. Rocky, S-facing, sandstone slopes, KM (Swartberg: Snyberg).•

jasminiflora Salisb. JASMINE HEATH, TROMPETHEIDE Erect, sparse shrublet to 60 cm. Flowers large, narrowly tubular with very broad, spreading lobes, white with red-striped tube, sticky. Jan.–Feb. Clay hills, SW (Caledon).•

jugicola E.G.H.Oliv. & I.M.Oliv. Compact, cushion-forming shrublet. Flowers large, pink, narrowly urn-shaped. Dec.-Jan. S-facing, rock ledges, KM (eastern Groot Swartberg).•

juniperina E.G.H.Oliv. Erect shrublet to 50 cm. Flowers small, slightly sticky, pink, with exserted anthers. Mar.–May. Upper moist slopes, SE (Outeniqua Mtns: Mossel Bay).•

junonia Bolus Low, compact, spreading shrublet to 30 cm. Flowers large, tubular-ampullaceous, with spreading lobes, bright pink. Nov.–Jan. High peaks, NW (Cedarberg to Hex River Mtns).•

karooica E.G.H.Oliv. Erect shrublet to 1.2 m. Flowers small, cup-shaped, creamy brown. Mar.–Oct. Dry, rocky, lower slopes and hills, NW, SW, KM, LB (Robertson and Bredasdorp to Willowmore).•

keeromsbergensis H.A.Baker Erect, dense, low shrub. Flowers small, calycine, cup-shaped, white. Mar. Rocks at high alt., NW (Keeromsberg).•

keetii L.Bolus Like **E. onusta**, erect shrublet to 60 cm. Flowers small, globosely urn-shaped, pale pink. Sept. Road verges, SE (Knysna).•

kirstenii E.G.H.Oliv. Compact shrublet to 25 cm. Flowers medium, urn-shaped, white. Sept.–Oct. Sandstone slopes, KM (Klein Swartberg).•

kogelbergensis E.G.H.Oliv. Erect, woody shrub to 1.5 m. Flowers large, tubular, yellow or orange with yellow tips, very finely hairy. Apr.–Sept. Moist upper slopes, SW (Kogelberg).•

kougabergensis H.A.Baker Erect shrublet to 50 cm. Flowers small, ovoid-cup-shaped, pink, with exserted anthers. Sept.–Nov. S-facing, upper slopes, SE (Kouga to Cockscomb Mtns).•

kraussiana Klotzsch Pubescent shrub, height? Flowers small, lilac. ? Middle slopes, SW (Genadendal).•

krugeri E.G.H.Oliv. Low, diffuse, creeping shrublet. Flowers small, cup-shaped white with spreading, pink sepals, with exserted anthers. Oct.–Dec. Upper moist slopes, SW (Hottentots Holland Mtns).•

lachnaeifolia Salisb. Erect, woody shrublet to 30 cm. Flowers small, calycine, obconic, white. Oct.–Nov. Rock crevices at high alt., SW (W Riviersonderend Mtns).•

laeta Bartl. Erect, slender shrublet to 40 cm. Flowers small, narrowly urn-shaped, pale to deep pink. Dec.–Apr. Coastal flats or lower slopes, SW (Cape Peninsula to Hermanus).•

lageniformis Salisb. Erect to spreading, sparsely branched shrublet to 70 cm. Flowers large, tubular-ampullaceous, white turning pinkish, shiny. Dec. Middle slopes, SW (Kleinrivier Mtns).•

lananthera L.Bolus Erect shrublet to 30 cm. Flowers medium, cup- to urn-shaped, pink, sticky. Oct.–Mar. Middle coastal slopes, SW (Betty's Bay to Kleinmond).•

lanata Andrews Erect shrublet to 1 m. Flowers small, cup-shaped, woolly, white, with exserted anthers. Jan.–Dec. Mountain slopes, KM, SE (Outeniqua Mtns: George, Uniondale to Humansdorp).•

langebergensis H.A.Baker Erect shrublet to 50 cm. Flowers small, calycine, ovoid, pink. Oct. Upper slopes, LB (Langeberg: Montagu).•

lanipes Guthrie & Bolus Erect, compact shrublet to 50 cm. Flowers medium/large, calycine, urn-shaped, lilac and white. Sept.–Oct. Rocky slopes, high alt., SW (Riviersonderend Mtns).•

lanuginosa Andrews Erect, woody shrublet to 60 cm. Flowers large and inflated, calycine, ovoid, with long, erect lobes, finely hairy, green becoming reddish. July–Aug. Rocky upper slopes, SW (Hermanus to Stanford).•

lasciva Salisb. (= *Philippia stokoei* Guthrie) Erect shrub to 90 cm. Flowers small, calycine, cup-shaped, white to dirty yellow. Feb.–Aug. Sandy flats, SW, AP, LB (Cape Peninsula to Albertinia).•

lateralis Willd. Erect to sprawling shrublet to 50 cm. Flowers small to medium, ovoid-urn-shaped, pink, sometimes with exserted anthers. Dec.–May. Lower to upper slopes, NW, SW (Tulbagh to Kogelberg).•

latiflora L.Bolus Erect shrublet to 50 cm. Flowers medium, broadly funnel-shaped, pink, hairy. Sept.–Nov. Lower slopes, SW (Grabouw).•

latituba L.Bolus Erect shrub to 1.5 m. Flowers large, tubular, purplish pink, hairy. Apr.–Sept. Upper slopes, SW (Hermanus).•

lavandulifolia Salisb. Erect shrub to 1.5(–2) m. Flowers small, calycine, open cup-shaped, lilac. Dec.–Apr. Lower to middle slopes, NW (Piketberg to Cold Bokkeveld).•

lawsonii Andrews Erect shrublet to 50 cm. Flowers large, tubular with small, spreading lobes, pink, hairy. Feb.–Apr. Middle slopes, SW (Genadendal).•

lehmannii Klotzsch ex Benth. Erect shrublet to 1 m. Flowers small, cup- to bell-shaped, white, hairy. June–Jan. Moist, lower to upper slopes, SE (George to Knysna).•

leonis R.C.Turner & E.G.H.Oliv. *ined* Compact, cushion-like shrublet. Leaves bladder-like, sticky. Flowers small, white, cup-shaped, shortly hairy and sticky. Mar.. Rock ledges and boulders on upper S slopes, LB (Langeberg: Swellendam).•

lepidota Rach Erect shrublet to 70 cm. Flowers small, calycine, cup-shaped, dirty cream-coloured to greenish, with exserted anthers. July–Oct. Dry lower slopes. NW, SW (Kamiesberg to Malmesbury). **gce**

leptantha Dulfer Erect, woody shrublet to 20 cm. Flowers small, calycine, urn-shaped, rose-pink. Jan.–Mar. High alt., rocky places, NW (Grootwinterhoek to Hex River Mtns).•

leptoclada Van Heurck & Müll.Arg. Low, sprawling shrublet. Flowers bell- to cup-shaped, pink, hairy. Oct.–Dec. Middle slopes, moist places, NW, SW (Piketberg to Greyton).•

leptopus Benth. Erect, semisprawling shrublet to 25 cm. Flowers small, cup-shaped, white. Nov.–Feb. Sandy flats and plateaus, NW (Clanwilliam to Ceres).•

lerouxiae Bolus Erect shrub to 1.8 m. Flowers small, urn-shaped, white, hairy. Aug.–Sept. Middle slopes, SW (Franschhoek and Stellenbosch).•

leucantha Link Erect shrublet to 50 cm. Flowers small, narrowly cup-shaped, white. Oct.–Feb. Lower slopes, SW (Paarl to Riviersonderend Mtns).•

leucanthera L.f. Erect shrub to 60 cm. Flowers small, calycine, yellow, with yellow exserted anthers. Sept.–Nov. Sandy flats and lower slopes, NW, SW (Cedarberg to Riviersonderend Mtns).•

leucodesmia Benth. Erect shrublet to 1 m. Flowers small, calycine, ovoid, white. Sept.–Nov. High alt., NW, KM, LB (Langeberg: Worcester to Swellendam and Waboomsberg).•

leucopelta Tausch (= *Erica maesta* Bolus) Erect shrub to over 2 m. Flowers small, urn-shaped, cream-coloured to greenish, hairy. July–Nov. Lower to upper slopes, KM, SE (Witteberg to Free State and Mossel Bay to E Cape).

leucosiphon L.Bolus Erect, compact, woody shrublet to 30 cm. Flowers large, tubular, white. Oct.–Nov. Upper slopes, rocky places, NW (Olifants River and Grootwinterhoek Mtns).•

leucotrachela H.A.Baker Erect shrub to 1.5 m. Flowers large, tubular, dark pink with white mouth, finely hairy. Apr.–Oct. Moist upper slopes, SW (Betty's Bay).•

lignosa H.A.Baker Dwarf, woody shrublet plastered against rocks. Flowers small, obconically urn-shaped, pink, finely hairy. Dec.–Feb. High peaks, KM (Groot Swartberg).•

limnophila E.G.H.Oliv. Sprawling, tangled shrublet to 15 cm. Flowers small/medium, urceolate, thinly hairy, white. Dec. Marshy soils, SW (Du Toitskloof and Wemmershoek Mtns).•

limosa L.Bolus Erect to semisprawling, diffuse shrublet to 75 cm. Flowers small, broadly cup-shaped, white tinged red, finely hairy. Oct.–Nov. Local on marshy ground, SW (Cape Peninsula).•

lithophila E.G.H.Oliv. & I.M.Oliv. Compact, brittle shrublet to 20 cm. Flowers medium, urceolate, pink. Aug.–Nov. N-facing, sandstone crevices, KM (Swartberg and Kammanassie Mtns).•

loganii Compton Like **E. articularis**, erect shrublet to 1 m. Flowers small, calycine, urn-shaped, white. Mar.–May. Upper slopes, NW, KM (Cedarberg to Witteberg).•

longipedunculata Lodd. (= *Erica dumosa* Andrews) Low, soft shrublet to 30 cm. Flowers small to medium, urn-shaped to conical, pink, with exserted anthers. Nov.–Apr. Dry, sandy, upper slopes, NW (Clanwilliam to Tulbagh).•

longistyla L.Bolus Erect shrublet to 40 cm. Flowers small, subcalycine, cup-shaped, pink, with exserted anthers. Oct.–Apr. High alt., NW (Grootwinterhoek to Hex River Mtns).•

lowryensis Bolus Erect shrublet to 1(–2) m. Flowers small/medium, cup-shaped, white. Sept.–Nov. Middle slopes, SW (Hottentots Holland Mtns to Betty's Bay).•

lucida Salisb. Erect shrublet to 1 m. Flowers small, pink to magenta. Sept.–Nov. Rocky mountain slopes and plateaus, NW, SW (Gifberg to Wemmershoek to Montagu).•

lutea P.J.Bergius GEELRYSHEIDE Erect shrublet to 90 cm. Flowers small to medium, calycine, narrowly urn-shaped with spreading lobes, yellow to white. Oct.–June. Middle to upper slopes, SW (Cape Peninsula and Riviersonderend to Kleinrivier Mtns).•

lycopodiastrum Lam. Erect, compact, woody shrublet to 50 cm. Flowers small, calycine, obovoid, white. Sept.–Nov. Rocky places often in riverbeds, SW (Elgin to Villiersdorp).•

macilenta Guthrie & Bolus Erect, slender shrub to 1.5 m. Flowers medium, urn-shaped, pink. Dec.–Jan. Moist middle slopes, LB (Langeberg).•

macowanii Cufino Sturdy, erect shrub to 1.5 m. Flowers large, tubular, yellow or red with yellow mouth, hairy. Aug.–Mar. Middle to upper slopes, SW (Kogelberg to Hermanus, Caledon: Swartberg).•

macroloma Benth. Erect, slender shrublet to 30 cm. Flowers medium, cup-shaped, pink, hairy and sticky. Aug.–Oct. Lower slopes, SW (Houwhoek to Kogelberg).•

macrophylla Klotzsch ex Benth. Erect shrublet to 1 m. Flowers small, urn-shaped, white. Jan.–Aug. High alt., LB (Langeberg: Swellendam to Riversdale).•

macrotrema Guthrie & Bolus Erect shrub to 1.5(–2) m. Flowers small, subcalycine, cup-shaped, magenta, with exserted anthers. Sept.–Nov. Flats and lower slopes, NW (Cold Bokkeveld Mtns to Witteberg).•

maderi Guthrie & Bolus Like **E. sphaerocephala**, erect shrublet to 30 cm. Flowers small to medium in heads, ovoid, white to rose. Sept.–Feb. Middle to upper alt., NW (Cedarberg to Hex River Mtns.).•

magistrati E.G.H.Oliv. Erect, woody shrub to 1.8 m. Flowers small, white. Aug.–Dec. S-facing, moist slopes, SW (Hottentots Holland Mtns).•

magnisylvae E.G.H.Oliv. Erect shrub to 3.5 m. Flowers small, white. Mar.–May. Sand over calcareous rock, AP (Gansbaai).•

mammosa L. NINEPIN HEATH, ROOIKLOSSIEHEIDE (= *Erica gilva* J.C.Wendl.) Erect shrub to 1.5 m. Flowers large, inflated tubular with closed mouth, cream-coloured, pale green, pink, orange or red. Nov.–May. Sandy flats and lower mountain slopes, NW, SW, AP (Cedarberg to Bredasdorp).•

margaritacea Sol. Erect shrublet to 50 cm. Flowers small, urn-shaped, white or pinkish. Oct.–Mar. Sandy flats, SW (Cape Peninsula).•

marifolia Sol. Straggling, slender shrublet against rocks. Leaves broad almost flat. Flowers small, urn-shaped, white, hairy, with exserted anthers. Sept.–Feb. Moist rock ledges, SW (Cape Peninsula).•

maritima Guthrie & Bolus Erect shrublet to 30 cm. Flowers tiny, cup-shaped, dull cream-coloured to brownish. Apr.–July. Coastal and inland flats, SW (Bredasdorp and Genadendal).•

marlothii Bolus Sprawling, delicate shrublet to 30 cm. Flowers small, depressed-urn-shaped, cream-coloured to reddish, hairy or not, with exserted anthers. Oct.–Nov. Shady upper slopes and rocky outcrops, NW, SW (Cedarberg to Bain's Kloof).•

massonii L.f. Erect shrublet to 1 m. Flowers large, tubular, very sticky, red with green tip. Mainly Nov.–Mar. Rocky mountain slopes, SW (Hottentots Holland to Kleinrivier Mtns).•

mauritanica L. (= *Erica viridipurpurea* L.) Like **E. quadrangularis**, erect shrublet to 1 m. Flowers small, broadly urn-shaped, pink. Aug.–Nov. Lower slopes and flats, SW (Cape Peninsula to Stellenbosch).•

maximilianii Guthrie & Bolus Erect shrub to 1.5 m. Flowers large, tubular, greenish cream-coloured to pale yellow. July–Dec. Rock crevices or rocky slopes at middle to upper alt., NW, KM (Cedarberg to Klein Swartberg, Touwsberg and Rooiberg).•

melanacme Guthrie & Bolus Erect shrublet to 45 cm. Flowers small, calycine, broadly urn-shaped, dark pink. Nov.–Dec. Coastal hills, AP (Bredasdorp).•

melanthera L. Erect shrublet to 60 cm. Flowers small, very open cup-shaped, bright pink. June–Dec. Moist lower to upper slopes, KM, LB (Swellendam to Uitenhage, Rooiberg and Gamkaberg).•

melastoma Andrews. (= *Erica vestiflua* Salisb.) Like **E. coccinea,** erect shrub 1 m. Flowers large, ovoid to tubular, yellow or greenish yellow often with dark brown apex, or yellow-orange, far exserted anthers. Jan.–Dec. Mountain slopes to coastal hills. NW, SW, AP (Cedarberg to Agulhas).•

micrandra Guthrie & Bolus Erect shrublet to 40 cm. Flowers small, cup-shaped, whitish. Dec.–Jan. Lower slopes, NW (Ceres Mtns).•

mira Klotzsch ex Benth. Erect, compact shrublet to 20 cm. Flowers small, tubular, pink. Jan.–Apr. Sandy places, KM (Witteberg).•

mitchellensis Dulfer (= *Erica saxatilis* L.Bolus) Erect, multi-stemmed, resprouting shrublet to 20 cm. Flowers medium, tubular-ovoid, slightly hairy. Jan. Upper slopes, rocky places and crevices, NW (Hex River Mtns).•

modesta Salisb. Erect shrublet to 75 cm. Flowers small, calycine, urn-shaped, pink to white, hairy. Sept.–Dec. Rock crevices, middle northern slopes, SW (Riviersonderend Mtns).•

mollis Andrews Erect shrublet to 60 cm. Flowers small, broadly urn-shaped, pink, hairy. Nov.–Dec. Marshy or moist slopes, SW (Cape Peninsula).•

monadelphia Andrews Erect, multi-stemmed, resprouting shrublet to 50 cm. Flowers large, tubular, sticky, crimson-red, with far-exserted anthers. Jan.–Apr. or after fires. Sandy lower slopes, SW, AP (Cape Peninsula to Bredasdorp).•

monantha Compton Erect shrublet to 10 cm. Flowers small, bell-shaped, pink, hairy. Dec.–Mar. Rocky slopes at high alt., NW (Olifants River Mtns).•

monsoniana L.f. BOKKEVELDSHEIDE Erect, sparsely branched shrub to 1.5 m. Flowers large, calycine, ovoid-conical, white with conspicuous white leaves below flowers. June–Oct. Middle to upper slopes, NW, SW (Cedarberg to Potberg).•

mucronata Andrews Erect shrublet to 50 cm. Flowers medium, calycine, cup-shaped, pink. Nov.–Jan. Middle to upper slopes, LB, SE (Riversdale to Uniondale).•

multumbellifera P.J.Bergius (= *Erica ramentacea* L.) Erect shrublet to 40 cm. Flowers small, broadly urn-shaped, purple to red. Nov.–June. Sandy flats and mountains, NW, SW, LB (Tulbagh to Riversdale).•

mundii Guthrie & Bolus (= *Erica microcodon* Guthrie & Bolus) Erect shrublet to 50 cm. Flowers small, cup-shaped, pink. Aug.–Nov. Lower mountain slopes, LB (Langeberg: Swellendam).•

myriocodon Guthrie & Bolus Erect, diffuse shrublet to 20 cm. Flowers small, cup-shaped, whitish, hairy. Oct.–Dec. Marshes on sandy flats and lower slopes, SW (Wemmershoek to Riviersonderend Mtns).•

nabea Guthrie & Bolus Erect shrub to 1.5 m. Flowers large, very calycine, green and white, corolla very reduced around ovary. May–Aug. Moist flats and mountain slopes, SE (George to Uitenhage and Kouga Mtns).•

nana Salisb. Procumbent, woody shrublet to 20 cm. Flowers large, tubular, bright yellow. Sept.–Oct. Cliffs and rocks at high alt., SW (Hottentots Holland Mtns to Kogelberg).•

navigatoris E.G.H.Oliv. Erect shrub to 30 cm. Flowers small, urn-shaped, white. Nov.–Jan. Middle to high alt., NW, KM (Hex River Mtns to Waboomsberg).•

nematophylla Guthrie & Bolus Erect shrublet to 50 cm. Flowers large, tubular, white. Aug.–Feb. Lower mountain slopes, LB (Langeberg: Riversdale).•

nemorosa Klotzsch ex Benth. Erect shrublet to 1(–2) m. Flowers small, cup-shaped, dark pink. Mar. Lower slopes, SE (Uitenhage to Stutterheim).

nervata Guthrie & Bolus Erect shrublet to 90 cm. Flowers small, calycine, cup-shaped, pink to red. Oct.–Dec. Rocky, upper S slopes, KM (Swartberg to Kammanassie Mtns).•

nevillei L.Bolus Semisprawling, woody shrublet to 30 cm. Flowers large, tubular, red-orange. Dec.–Mar. Upper slopes, rocky places, SW (Cape Peninsula).•

newdigateae Dulfer (= *Erica longipes* Klotzsch ex Benth.) Erect shrublet to 50 cm. Flowers small/medium, open cup-shaped, pink. June–Oct. Lower to middle slopes, SE (Kouga, Baviaanskloof and Tsitsikamma Mtns).•

nigrimontana Guthrie & Bolus Like **E. corifolia**, erect shrublet to 50 cm. Flowers small, calycine, urn-shaped, pink. Oct. Upper slopes, SW (Caledon Swartberg).•

nubigena Bolus (= *Erica macra* Guthrie & Bolus) Erect shrublet to 30 cm. Flowers small, urn-shaped, sticky, reddish purple. Oct.–Jan. Rocky, upper slopes and summits, NW, KM, SE (Cedarberg to Uniondale).•

nudiflora L. Erect, compact to sprawling shrublet to 30 cm. Flowers small, tubular to elongate-bell-shaped, pink to red, with exserted anthers. Feb.–June. Coastal flats to inland high alt., NW, SW, AP, KM (Cedarberg to Witteberg and Bredasdorp).•

nutans J.C.Wendl. (= *Erica deliciosa* H.L.Wendl. ex Benth.) Erect shrub to 1.5 m. Flowers small, ovoid, pink, with exserted anthers. June–Dec. Flats and lower mountain slopes, LB, SE (Riversdale to E Cape).

oakesiorum E.G.H.Oliv. Erect shrub to 4 m. Flowers small, urn-shaped, white. Aug.–Oct. Southern slopes, SW (Riviersonderend Mtns).•

obconica H.A.Baker Erect, sturdy shrublet to 1 m. Flowers small, subcalycine, open cup-shaped, rose. Oct.–Nov. High alt., LB (Langeberg: Riversdale).•

obliqua Thunb. Erect, slender shrublet to 50 cm. Flowers small to medium, ovoid to urn-shaped, pink to reddish purple to lilac, hairy and sticky. Nov.–May. Lower to upper slopes, SW (Cape Peninsula to Hermanus).•

oblongiflora Benth. Erect shrub to 1 m. Flowers medium, tubular-ovoid, light green to yellowish. Dec.–Aug. Limestone hills, AP (Bredasdorp area).•

obtusata Klotzsch ex Benth. Erect, spreading or prostrate shrublet to 30 cm. Flowers small, broadly urn-shaped, white, slightly sticky, with slightly exserted anthers. Aug.–Nov. Moist rock ledges and S-facing slopes, middle to high alt., SW (Cape Peninsula to Riviersonderend Mtns).•

occulta E.G.H.Oliv. Erect, compact, bonsai-like shrublet to 10 cm. Flowers small, rather hidden, calycine, ovoid with long, erect lobes, yellowish. Aug.–Oct. Cliffs on low limestone hills, AP (Pearly Beach).•

ocellata Guthrie & Bolus Erect shrublet to 50 cm. Flowers small, urn-shaped, pink. Sept.–Dec. Summits and S-facing, upper slopes, LB (Langeberg: Swellendam).•

octonaria L.Bolus Erect shrublet to 1 m. Flowers medium, campanulate, pink. Sept. Marshes, lower slopes, SW (Hermanus).•

odorata Andrews Erect shrublet to 90 cm. Flowers medium, very umbellate, bell-shaped, white, sticky. Aug.–Nov. Moist, upper southern slopes, SW (Hottentots Holland Mtns to Babilonstoring).•

oligantha Guthrie & Bolus Prostrate, spreading shrub. Flowers small, cup-shaped, white with large, dark pink sepals, hairy, slightly sticky, with exserted anthers. Sept.–Nov. Marshes at middle alt., SW (Stanford, Napier to Elim).•

oliveri H.A.Baker Erect, diffuse shrublet to 15 cm. Flowers small, broadly urn-shaped, pink, slightly sticky with partially exserted anthers. Oct.–Nov. Lower to middle, moist slopes, SW (Stanford to Napier).•

omninoglabra H.A.Baker Sprawling shrublet to 10 cm. Flowers medium, narrowly urn- to cup-shaped, white. Sept.–Dec. Middle to upper slopes, wet places, LB (Langeberg: Swellendam).•

onusta Guthrie & Bolus Erect shrublet to 40 cm. Flowers small, red. Nov.–Dec. Fynbos patches between forests, SE (George to Knysna).•

oophylla Benth. Erect, woody, resprouting shrublet to 10 cm. Flowers small, globose, pinkish, hairy, slightly sticky. Jan.–Feb. Rock crevices at high alt., SW (Langeberg: Swellendam).•

opulenta (J.C.Wendl. ex Klotzsch) Benth. Like **E. granulosa** and **E. harveyana**, erect shrublet to 1(–2) m. Flowers small, narrowly cup-shaped to urn-shaped, pink, with exserted anthers. Aug.–Nov. Lower slopes and coastal flats, SE (George to Humansdorp).•

orculiflora Dulfer Like **E. oxysepala**, erect shrublet to 35 cm. Flowers small, ovoid, white to pink. Nov.–Apr. Upper slopes, NW (Ceres to Montagu).•

oreophila Guthrie & Bolus Erect, diffuse shrublet to 15 cm. Flowers small, urn-shaped, white with red tips. Sept.–Dec. Damp ledges, middle slopes, SW (Franschhoek and Stellenbosch).•

oreotragus E.G.H.Oliv. Compact shrublet to 40 cm. Flowers small, urceolate with 4 basal bulges, densely hairy, pinkish. Dec.–Mar. Sandstone slopes, KM (Swartberg).•

oresigena Bolus Erect, woody shrub to 2 m. Flowers small, broadly urn-shaped, mauve-pink, hairy. Oct.–Jan. Rocky summits and upper slopes, NW (Cedarberg to Hex River Mtns).•

orthiocola E.G.H.Oliv. Compact shrublet. Flowers in pairs, small, calycine, shortly funnel-shaped, pink fading brown, pedicel with substellate bracts. Feb.–Mar. Moist sandstone slopes, SW (Riviersonderend Mtns: Pilaarkop).•

ovina Klotzsch ex Benth. Erect, floriferous shrublet to 9 cm. Flowers small, sometimes medium, ovoid, woolly, pink or white. July–Dec. Middle to upper rocky slopes, SW (Riviersonderend Mtns).•

oxyandra Guthrie & Bolus Erect shrublet to 50 cm. Flowers small, urn-shaped, white to pale pink, hairy. Dec.–Feb. Moist upper slopes, LB (Langeberg: Swellendam).•

oxycoccifolia Salisb. Delicate, mat-forming shrublet. Flowers small, cup-shaped, white to pink, thinly hairy. Dec.–Feb. Moist rock faces, SW (Cape Peninsula).•

oxysepala Guthrie & Bolus Erect, resprouting shrublet to 35 cm. Flowers small, cup-shaped, pale yellow. Jan.–May. Middle slopes, NW (Grootwinterhoek to Cold Bokkeveld Mtns).•

pageana L.Bolus Erect shrub to 1.5 m. Flowers medium, campanulate, yellow, very finely hairy. Sept.–Nov. Marshy upper slopes, SW (Kogelberg).•

palliiflora Salisb. (= *Erica nivea* Sinclair) Erect shrublet to 60 cm. Flowers small, calycine, campanulate, pink or white. Oct.–Apr. Middle to upper slopes, NW, SW, LB, SE (Cedarberg to George).•

paludicola L.Bolus Erect diffuse to sprawling shrublet to 1 m. Flowers medium, cup-shaped, pink, minutely hairy. Jan.–Feb. Marshy mountain slopes, SW (Cape Peninsula).•

paniculata L. Erect shrublet to 50 cm. Flowers small, bell- to urn-shaped, dark to pale pink. July–Oct. Lower slopes and hills, NW, SW, KM (Tulbagh to Caledon and Klein Swartberg).•

pannosa Salisb. (= *Erica barbata* Andrews) Erect shrublet to 1 m. Flowers small, urn-shaped, white, hairy. Feb.–July. Lower to middle slopes, SW (Riviersonderend Mtns).•

papyracea Guthrie & Bolus PAPERY HEATH, LEMOENBLOEISELS Erect shrublet to 1 m. Flowers medium, calycine, cup-shaped, white. Sept.–Oct. Mountain slopes, LB (Langeberg: Riversdale).•

parilis Salisb. (= *Erica longisepala* Guthrie & Bolus) Erect shrublet to 1(–2) m. Flowers small to large, urn-shaped, in spikes, bright yellow, with slightly exserted anthers. Jan.–May. Dry, middle to upper slopes, NW, SW (Clanwilliam to Paarl).•

parviflora L. Erect or spreading shrublet to 1 m. Flowers small, urn-shaped, white, pink to magenta, hairy. Apr.–Nov. Flats and slopes, often wet places, SW, AP (Du Toitskloof Mtns to Cape Peninsula to Bredasdorp).•

passerina Montin Erect, woody shrublet to 60 cm. Flowers small/medium, calycine, open cup-shaped, pink with white-woolly calyx. July–Oct. Dry, rocky, middle to upper slopes, KM, SE (Swartberg, Kouga and Baviaanskloof Mtns).•

patens Andrews Erect, woody shrub to 1.8 m. Flowers medium, broadly obconic, finely hairy, rosy pink; anther appendages subdecurrent, short; ovary densely villous. Sept. Steep, moist, S-facing slopes, SW (Grabouw).•

patersonii Andrews MEALIE HEATH, MIELIEHEIDE Erect, sparsely branched shrublet to 1 m. Flowers large, tubular, yellow. Apr.–Nov. Marshy coastal flats, SW (Cape Peninsula to Hermanus).•

patiana E.G.H.Oliv. *ined.* Erect, sparsely branched shrublet to 35 cm. Flowers medium, bottle-shaped, viscid, white. Oct. Stony, lower northern slopes, SW (Hermanus).•

pauciovulata H.A.Baker Diffuse, sprawling shrublet, sometimes to 30 cm. Flowers small, cup-shaped, deep pink. Sept.–Nov. Marshy ground, middle slopes, SW (Stanford to Napier).•

pectinifolia Salisb. Erect shrub, sometimes sparse, to 1.5 m. Flowers large, tubular, white, sometimes tinged with pink, hairy. Jan.–Dec. Flats to middle slopes, SE (Uniondale to Port Elizabeth).•

pellucida Sol. ex Salisb. Erect to spreading shrublet to 50 cm. Flowers medium, inflated tubular with spreading lobes, bright pink. Dec.–Feb. Upper slopes, SW (Riviersonderend Mtns).•

peltata Andrews (= *Philippia pallida* L.Guthrie) KER-KER, RAASHEIDE Erect shrub to 1.2 m. Flowers small, subcalycine, cup-shaped, pink. Jan.–Dec. Lower southern slopes, SW, LB, SE (Riviersonderend Mtns to George).•

penduliflora E.G.H.Oliv. Erect shrublet to 1 m. Flowers large, inflated, tubular to urn-shaped, white or green. Apr.–July. Sandy hills and flats, SW, AP (Pearly Beach to Viljoenshof).•

penicilliformis Salisb. (= *Erica calyculata* J.C.Wendl.) Erect shrublet to 50 cm. Flowers small, calycine, narrowly cup-shaped, white, with exserted anthers. Jan.–Dec. Lower to upper slopes, SW, LB, SE (Riviersonderend Mtns to Knysna).•

perlata Sinclair Erect shrublet to 60 cm. Flowers small, urn-shaped to bell-shaped, white, hairy with partially exserted anthers. Aug.–Dec. Middle to upper rocky slopes, SW (Riviersonderend Mtns).•

permutata Dulfer (= *Erica confusa* Guthrie & Bolus) Erect, diffuse, matted shrublet to 20 cm. Flowers small, ovoid, pink, hairy, with exserted anthers. Oct.–Apr. Lower slopes, SW (Riviersonderend Mtns).•

perspicua J.C.Wendl. PRINCE-OF-WALES HEATH, VEERHEIDE Erect shrub to 2 m. Flowers medium to large, tubular, hairy, white to pink with white tips. Sept.–Apr. Marshy slopes and flats, SW (Betty's Bay to Hermanus).•

petiolaris Lam. Erect shrublet to 50 cm. Flowers small, calycine, bell-shaped, white, hairy. May–Dec. Rocky damp places, upper mountain slopes, SW (Cape Peninsula, Kogelberg to Napier).•

petraea Benth. (= *Erica krigeae* Compton) Erect to semispreading shrublet to 40 cm. Flowers small, ovoid-cup-shaped, white or pink, with exserted anthers. Jan.–July. Dry, rocky, middle to upper slopes, KM, SE (Swartberg to Uniondale).•

petrensis (L.Bolus) E.G.H.Oliv. *ined*. Like **E. goatcheriana**, erect to sprawling shrublet to 30 cm. Flowers small, calycine, ovoid, pink turning reddish. Oct.–Dec. Rocks at high alt., SW (Riviersonderend Mtns).•

petrophila L.Bolus Small, mat-forming shrublet to 5 cm. Flowers small, cup-shaped, white, hairy, sticky. Sept.–Jan. Rock crevices and overhangs, middle to upper slopes, SW (Paarl, Riviersonderend and Kleinrivier Mtns).•

petrusiana E.G.H.Oliv. & I.M.Oliv. Low, woody shrublet. Flowers medium, funnel-shaped, sparsely hairy, slightly sticky, dull yellow. Mar. Stony, shale band and sandstone, SW (Kogelberg).•

peziza Lodd. KAPOKKIE Erect shrub to 2 m. Flowers small, urn-shaped, hairy, white. Aug.–Nov. Rocky lower slopes, NW, SW, LB (Robertson and Stormsvlei to Swellendam).•

philippioides Compton Erect shrublet to 50 cm. Flowers small, cup-shaped, dull white, hairy. June–Oct. Upper slopes and summits, NW (Kamiesberg to Cedarberg). **gce**

phillipsii L.Bolus Like **E. doliiformis**, erect shrublet to 50 cm. Flowers medium, urn-shaped, reddish, hairy. Mar.–May. Upper slopes, NW, SW (Piketberg to Bain's Kloof Mtns).•

physantha Benth. Erect, semi-spreading shrublet to 30 cm. Flowers small, urn-shaped, pink, with exserted anthers. Sept. Dry, clay hill slopes, LB (Riversdale).•

physodes L. Erect shrublet to 70 cm. Flowers medium, ovoid-urn-shaped, sticky, white. Feb.–Aug. Rocky upper slopes, SW (Cape Peninsula).•

physophylla Benth. Moss-like shrublet against rocks. Flowers small, cup-shaped, reddish. Dec.–Feb. Moist rock-ledges near summits, SW (Riviersonderend Mtns).•

pillansii Bolus (= *Erica fervida* L.Bolus, *E. pyrantha* L.Bolus) Erect shrub to 1.5 m. Flowers large, tubular to urn-shaped, bright orange-red, finely hairy. Jan.–July. Moist slopes and marshes, SW (Kogelberg).•

pilaarkopensis H.A.Baker Dense, erect, woody shrub to 2 m. Flowers small, calycine, cup-shaped, pink. Aug.–Nov. Middle to upper slopes, SW (Riviersonderend Mtns).•

pilulifera L. Erect, sparsely branched shrublet to 40 cm. Flowers small, ovoid-urn-shaped, pink. May–Aug. Marshy places, upper slopes, SW (Cape Peninsula).•

pinea Thunb. Erect shrublet to 1.5 m. Flowers large, tubular, white, yellow with white tips, or purplish pink, smooth, rarely hairy. Jan.–May. Rocky slopes and plateaus, SW (Bain's Kloof to Kleinrivier Mtns).•

placentiflora Salisb. KLOKKIESHEIDE Like **E. imbricata**, erect shrublet to 60 cm. Flowers small, calycine, broadly urn-shaped, pink, with exserted anthers. June–Dec. Flats and slopes, NW, SW, AP (Cedarberg to Bredasdorp).•

planifolia L. Erect, diffuse shrublet to 30 cm. Flowers small, cup-shaped, reddish, hairy. July–Feb. Mountain slopes, SW (Stellenbosch to Hottentots Holland Mtns).•

plena L.Bolus Erect, soft shrublet to 30 cm. Flowers medium, narrowly cup-shaped, white turning rose, hairy or glabrous. Aug.–Oct. Marshy places on hills, SW (Napier).•

plukenetii L. (= *Erica breviflora* Dulfer, *E. lineata* Benth., *E. scariosa* Thunb.) HANGERTJIE Erect shrub to 2 m. Flowers medium to large, inflated-tubular, white, pink, red, green or yellow, with exserted anthers. Jan.–Dec. Widespread, NW, SW, AP, KM, LB (Kamiesberg, Garies, Bokkeveld Mtns to Mossel Bay and Witteberg). **gce**

plumigera Bartl. Erect shrublet to 70 cm. Flowers small, calycine, pink. Sept.–Nov. Middle to upper slopes, SW (Houwhoek to Napier).•

podophylla Benth. Erect shrublet to 50 cm. Flowers small, whitish, hairy. Oct.–Dec. Rocky, moist, southern slopes at high alt., LB (Langeberg: Swellendam).•

pogonanthera Bartl. Erect, small, straggling shrublet. Flowers small, calycine, hairy, white, with exserted anthers. Sept.–Nov. Rocky slopes, SW (Caledon Swartberg).•

polifolia Salisb. ex Benth. Erect, lax, spreading shrublet to 60 cm. Flowers small, broadly urn-shaped, sticky, white. Sept.–Nov. Middle to upper slopes, LB (Langeberg: Swellendam).•

polycoma Benth. Erect, grey shrublet to 60 cm. Flowers small, lilac-pink. Jan.–May. Upper rocky slopes, SW (Riviersonderend Mtns).•

praecox Klotzsch Erect to spreading, compact shrublet to 20 cm. Flowers urn-shaped to tubular urn-shaped, pink. Dec.–Feb. Upper ridges and summits, SW (Du Toitskloof Mtns to Villiersdorp).•

praenitens Tausch Erect, compact shrublet to 50 cm. Flowers medium to large, tubular with spreading lobes, pink. Dec.–Feb. Rocky middle slopes, SW (Riviersonderend Mtns).•

priorii Guthrie & Bolus Erect shrublet to 1.2 m. Flowers small, cup-shaped, pink. Aug.–Nov. Middle slopes, SE (George).•

prolata E.G.H.Oliv. & I.M.Oliv. Sparse, erect shrub to 4 m. Flowers large, tubular, sticky, purplish pink. Sept.–Mar. Coastal lowlands, LB (Swellendam to Riversdale).•

propendens Andrews (= *Erica dulcis* L.Bolus) BELL HEATH, KLOKKIESHEIDE Erect shrublet to 1 m. Flowers medium, campanulate, pink to dark mauve-pink sometimes with white throat, hairy. Aug.–Jan. Marshy flats and lower slopes, SW (Hottentots Holland to Kleinrivier Mtns).•

propinqua Guthrie & Bolus Erect shrublet to 50 cm. Flowers small, calycine, urn-shaped, deep pink. June–Aug. Coastal limestone hills, AP (Pearly Beach to De Hoop).•

pseudocalycina Compton Like **E. calycina**, erect, multi-stemmed shrublet to 50 cm. Flowers small, calycine, bell-shaped with spreading lobes, white. Sept.–Feb. Middle to upper slopes, NW, KM, SE (Cedarberg to Grahamstown).

pubescens L. Erect shrublet to 60 cm, multi-stemmed resprouter. Flowers small, urn-shaped, white, hairy. Oct.–Apr. Dry lower to middle slopes, NW, SW (Piketberg to Cape Peninsula).•

pubigera Salisb. Erect shrublet to 80 cm. Flowers small, urn-shaped, hairy, white with distinctive brown lobes. Aug.–Oct. Rocky lower slopes, LB (Swellendam).•

pudens H.A.Baker Low, creeping shrublet to 15 cm. Flowers medium, clustered in pendulous heads, narrowly urn-shaped, white, sometimes hairy. July–Nov. Middle to upper slopes, NW (Kamiesberg to Grootwinterhoek Mtns). **gce**

pulchella Houtt. (= *Erica longiaristata* Benth.) Erect shrublet to 60 cm. Flowers small, urn- to cup-shaped, sometimes narrowly so, in spikes, pink to dark red. Dec.–May. Sandy flats and lower slopes, SW, AP (Cape Peninsula to Albertinia).•

pulvinata Guthrie & Bolus Erect shrublet to 30 cm. Flowers small, globose, white. Sept.–Oct. Limestone hills, AP (Soetanysberg).•

purgatoriensis H.A.Baker Like **E. parviflora**, diffuse shrublet. Flowers small, urn-shaped, pink, hairy. Oct. Marshy lower slopes, SW (Franschhoek).•

pycnantha Benth. Erect, slender shrublet to 30 cm. Flowers in many-flowered heads, medium, calycine, tubular-urn-shaped with spreading lobes, pink with paler tips. Oct.–Dec. Upper moist slopes, SW (Helderberg to Betty's Bay).•

pyramidalis Sol. ex Aiton Erect shrublet to 60 cm. Flowers medium, obconic-campanulate, rose. Oct. Marshy flats, SW (Cape Flats).•

pyxidiflora Salisb. Erect shrublet to 60 cm. Flowers small, in dense spikes, pale pink to whitish. May–Dec. Damp upper slopes, SW (Cape Peninsula).•

quadrangularis Salisb. (= *Erica cyathiformis* Salisb.) Like **E. mauritanica**, erect, often compact, floriferous shrublet to 50 cm. Flowers small, broadly bell-shaped, pink to white. July–Dec. Flats and lower slopes, NW, SW, LB, SE (Cedarberg to Hottentots Holland to Outeniqua Mtns, inland to Witteberg).•

quadrisulcata L.Bolus Erect, semispreading shrublet to 30 cm. Flowers large, tubular, orange-yellow. Dec.–Feb. Rocky summits, SW (Cape Peninsula).•

racemosa Thunb. Erect shrublet to 30 cm. Flowers small, urn-shaped, rose, with exserted anthers. Oct.–Feb. Lower mountain slopes, NW, LB (Langeberg: Montagu to Riversdale).•

recta Bolus (= *Erica muirii* L.Bolus) Like **E. discolor** but with shorter flowers, erect shrublet with persistent rootstock to 1 m. Flowers medium, tubular-urn-shaped, white or pink, with slightly exserted anthers. Apr.–Oct. Lower dry slopes, KM, LB (Klein Swartberg and Langeberg: Cloete's Pass).•

recurvata Andrews Erect, compact shrublet to 20cm. Flowers small/medium, tubular urn-shaped, white with dark brown lobes, style far exserted, crimson. July–Sept. Rock crevices, SW (Napier).•

regerminans L. (= *Erica ellipticiflora* Dulfer) Erect shrub to 1.5 m. Flowers small, globose to urn-shaped, bright pink, in long, dense spikes. Aug.–Dec. Middle to upper slopes, LB (Langeberg: Swellendam to Riversdale).•

regia Bartl. ELIM HEATH (= *Erica casta* Guthrie & Bolus, *E. mariae* Guthrie & Bolus) Compact, straggling or erect shrublet to 2 m. Flowers large, tubular, striking, white with purple then orange-red tips, plain orange or dark red. Mainly Aug.–Oct. Sandy or gravelly, coastal flats and limestone hills, SW, AP (Bredasdorp to Still Bay).•

rehmii Dulfer Erect shrub to 1.5 m. Flowers small/medium, urn-shaped, yellow. Sept.–Oct. Seepage areas, middle slopes, SW (Tulbagh: Elandskloof Mtns and Bain's Kloof).•

retorta Montin BOTTLE HEATH Erect, straggling shrublet to 30 cm. Leaves reflexed. Flowers large, tubular-ampullaceous, sticky, pink. Jan.–Dec. Lower to middle slopes, SW (Viljoen's Pass to Betty's Bay).•

rhodantha Guthrie & Bolus Erect shrublet to 30 cm. Flowers small, subcalycine, cup-shaped, rose, with exserted anthers. Sept.–Oct. Lower northern slopes, LB (Langeberg: Riversdale).•

rhodopis (Bolus) Guthrie & Bolus Erect, rounded shrublet to 30 cm. Flowers small, ovoid, pink. Dec.–Feb. Sandy slopes and flats, SW (Botrivier).•

rhopalantha Dulfer (= *Erica nodiflora* Klotzsch) Erect shrublet to 50 cm. Flowers small, calycine, broadly urn-shaped, dark pink. Nov.–May. Sandy flats and slopes, SW, AP (Kogelberg to Bredasdorp).•

ribisaria Guthrie & Bolus Erect, diffuse shrublet to 45 cm. Flowers small, globose to broadly urn-shaped, mauve-pink with dark tips, hairy. Jan.–Apr. Marshy places on sandy flats and lower slopes, SW (Houwhoek to Kleinmond).•

richardii E.G.H.Oliv. & I.M.Oliv. Prostrate to erect shrublet to 30 cm. Flowers small, globose-urceolate, white, shortly hairy. May–July. Crevices in N-facing, quartzite outcrops, KM (Groot Swartberg: Witberg).•

rimarum E.G.H.Oliv. Compact, gnarled shrublet to 10 cm. Flowers small, campanulate, leathery, maroon. Oct.–Dec. S-facing, sandstone cliffs, NW, SW (Hex River and Du Toitskloof Mtns).•

riparia H.A.Baker Diffuse, spreading shrublet to 30 cm. Flowers small, globose, dark pink to purple, hairy, with exserted anthers. Aug.–Jan. Marshy slopes, SW, AP (Betty's Bay and Gansbaai to Soetanysberg).•

roseoloba E.G.H.Oliv. Erect, compact, rounded to flattened shrublet to 30 cm. Flowers small, cup-shaped, white with pink tips. Jan.–Mar. High alt., rocky slopes, KM (Klein Swartberg).•

rubens Thunb. (= *Erica vanheurckii* Müll.Arg.) Erect, compact or spreading shrublet to 30 cm. Flowers small, urn-shaped, dark pink to almost red. Sept.–Apr. Sandy flats to upper slopes, NW, KM (Cedarberg to Klein Swartberg).•

rubiginosa Dulfer (= *Erica fucata* Klotzsch ex Benth., *E. tenuipedicellata* Compton) Erect, compact shrublet to 30 cm. Flowers in dense spikes, small, broadly cup- to bell-shaped, white or pink, with dark, exserted anthers. July–Oct. Flats and lower slopes, SW, AP (Botrivier to Agulhas).•

rudolfii Bolus Erect shrub to 1.5 m. Flowers small, broadly urn-shaped, pale purplish pink. Aug.–Oct. Middle to high alt., LB (Langeberg: Swellendam to Heidelberg).•

rufescens Klotzsch Erect, compact, viscid shrublet to 30 cm. Flowers large, tubular-urn-shaped, magenta. Jan.–Apr. Upper rocky slopes, SW (Riviersonderend Mtns).•

rupicola Klotzsch Erect shrublet to 30 cm. Flowers small, ovoid to urn-shaped, rose. Sept.–Nov. Lower slopes, SW (Riviersonderend Mtns).•

rusticula E.G.H.Oliv. Compact shrublet to 30 cm. Flowers small, widely funnel-shaped, pink. Apr.–May. Sandy flats, NW (Cold Bokkeveld).•

sacciflora Salisb. SWARTBEKHEIDE Erect shrub to 1.5 m. Flowers tubular, yellow or orange with greenish tips. July–Oct. Lower slopes, SW (Franschhoek Mtns).•

salax Salisb. Erect, sprawling shrublet to 30 cm. Flowers small, broadly cyathiform, white. Oct. High alt., SW (Stellenbosch Mtns).•

salicina E.G.H.Oliv. & I.M.Oliv. (= *Erica viminalis* E.G.H.Oliv.) Willowy shrub to 1.5 m. Flowers small, ovoid, white. Jan. Moist, sheltered, sandstone cliffs, NW (Hex River Mtns: Milner Peak).•

salteri L.Bolus Erect, compact to slender, sprawling shrublet to 20 cm. Flowers small, broadly campanulate, cream-coloured or pink, hairy. Dec.–Feb. Locally in marshes on mountains, SW (Cape Peninsula).•

saptouensis E.G.H.Oliv. Erect shrublet to 30 cm. Flowers small, calycine, cup-shaped, pink to red, with exserted anthers. Oct.–Jan. Rocky upper slopes, SE (Kouga Mtns).•

savileae Andrews Erect shrublet to 1 m. Flowers medium, urn-shaped, bright pink. Jan.–May. High alt., SW (Hottentots Holland Mtns to Villiersdorp).•

saxicola Guthrie & Bolus Dwarf, brittle shrublet to 15 cm. Flowers small, subcalycine, white. Dec.–Apr. Coastal limestone, rock ledges, AP (Pearly Beach).•

saxigena Dulfer Erect to sprawling, woody shrublet to 50 cm. Flowers medium, urn-shaped, red, finely hairy. Aug.–Nov. Rocky places at high alt., KM (Swartberg).•

scabriuscula Lodd. (= *Erica gibbosa* Klotzsch) Erect shrub to 3 m. Flowers small, urn-shaped, white to pale pink. Jan.–Dec. Lower slopes and flats, SE (Mossel Bay to Humansdorp).•

schelpeorum E.G.H.Oliv. & I.M.Oliv. Erect, twiggy shrublet to 1.5 m. Flowers small, globose-urceolate, pink. Mainly May–July. Dry renosterveld, KM (Swartberg and Kammanassie Mtns).•

schumannii E.G.H.Oliv. Prostrate, sprawling, woody shrub. Flowers medium, urn-shaped, pink. Dec.–Jan. Rocky outcrops at high alt., SW (Stettynsberg).•

scytophylla Guthrie & Bolus Erect shrublet to 1 m. Flowers small, urn-shaped, pink, with dark, exserted anthers. June–Nov. Limestone hills, AP (Bredasdorp to De Hoop).•

selaginifolia Salisb. Erect shrublet to 1(–1.7) m. Flowers small, calycine, urn-shaped, pink. ? Rocky, lower to middle slopes, NW, SW, KM (Cedarberg to Willowmore).•

senilis Klotzsch ex Benth. Prostrate, creeping shrublet to 20 cm. Flowers in dense, terminal, woolly, white heads, small, cup-shaped, hairy, white. Sept.–Dec. Rocky, sandy slopes and flats, NW (Cedarberg to Cold Bokkeveld).•

seriphiifolia Salisb. Erect, usually compact shrublet to 30 cm. Flowers small, calycine, open cup-shaped, pink. Sept.–Jan. Moist areas, lower to middle slopes, KM, LB, SE (Rooiberg and Langeberg to Uniondale).•

sessiliflora L.f. Erect, woody shrub to 2 m. Flowers large, tubular, light green, with distinctive fruiting inflorescences on older branches. Jan.–Dec. Flats and mostly lower slopes, NW, SW, LB (Piketberg to Humansdorp).•

setacea Andrews Erect shrublet to 50 cm. Flowers small, urn-shaped, white to pink. July–Oct. Lower, dry hills to middle slopes, SW (Paarl to Caledon).•

setociliata H.A.Baker Straggling to erect shrublet to 30 cm. Flowers small, cup-shaped, white to pale pink. Sept.–Nov. Rocky, middle to upper slopes, NW (Cedarberg to Keeromsberg).•

setosa Bartl. Like **E. fausta**, erect shrublet to 50 cm. Flowers small, bell-shaped, pink, hairy. Oct.–Dec. Lower slopes, SW (Stellenbosch to Somerset West).•

setulosa Benth. Erect, sometimes sparse and spreading, shrublet to 50 cm. Flowers small, cup-shaped, white, hairy. Sept.–Nov. Rocky slopes, sometimes moist places, NW, KM (Keeromsberg to Kammanassie Mtns).•

sexfaria Bauer Like **E. spumosa**, erect shrublet to 50 cm. Flowers small, narrowly cup-shaped, white to pink, with exserted anthers. Oct.–Dec. Rocky places, upper slopes, SW, LB (Cape Peninsula to Langeberg).•

shannonii Andrews Erect, semispreading shrublet to 50 cm. Flowers large, tubular-ampullaceous, white turning pink, shiny. Dec.–Feb. Lower slopes and hills, SW (Stanford).•

sicifolia Salisb. Erect, resprouting shrublet to 30 cm. Flowers small, campanulate, dark purplish red, hairy. Dec.–June. Rocky, southern, middle to upper slopes, SW (Riviersonderend Mtns).•

simulans Dulfer Like **E. demissa**, erect shrublet to 1(–2) m. Flowers narrowly cup-shaped to urn-shaped, white, with exserted anthers. Jan.–Dec. Drier, lower to middle slopes, SE (Uniondale to Port Elizabeth and E Cape: Zuurberg).

sitiens Klotzsch Erect shrublet to 60 cm. Flowers small, elongate-urn-shaped, pale to dark pink, sometimes white. Jan.–Dec. Mountain slopes, SW (Hottentots Holland to Palmiet River Mtns).•

sociorum L.Bolus Erect shrublet to 50 cm. Flowers large, tubular-ovoid, greenish white. Feb.–Mar. Moist rock crevices and ledges, SW (Cape Peninsula).•

solandri Andrews Erect shrublet to 40 cm. Flowers in heads, small, narrowly urn-shaped, magenta. Feb.–July. Lower slopes, SE (Outeniqua Mtns: George and Kouga Mtns).•

sonderiana Guthrie & Bolus Erect, compact shrublet to 45 cm. Flowers small, cup-shaped, sticky, white. Sept.–Jan. High peaks, NW, SW, KM (Cedarberg to Riviersonderend and Swartberg).•

sparrmannii L.f. Erect shrublet to 1 m. Flowers large, tubular, greenish yellow, coarsely hairy. Jan.–Dec. Flats and lower slopes, SE (Uniondale to Humansdorp).•

sparsa Lodd. (= *Erica floribunda* Lodd.) KER-KER Erect shrub to 2 m. Flowers small, calycine, cup-shaped, pink. Feb.–Aug. Lower slopes, SE (George to Humansdorp, Cockscomb Mtns).•

spectabilis Klotzsch ex Benth. Like **E. syngenesia**, erect, stout shrublet to 70 cm. Flowers small to medium, globose to urn-shaped, white to greenish. Jan.–Dec. Coastal limestone hills, AP (Bredasdorp to Gouritsmond).•

sperata E.G.H.Oliv. Dense shrub to 2 m. Leaves small, bladder-like. Flowers small, cup-shaped, pinkish. Apr.–May. Limestone hills, AP (De Hoop).•

sphaerocephala J.C.Wendl. ex Benth. Erect shrublet to 50 cm. Flowers small, in nodding heads, urn-shaped, pink. Sept.–Jan. Middle to upper slopes, NW (Cedarberg to Hex River Mtns, Piketberg).•

spumosa L. FROTHY HEATH, SWARTBEKKIE Erect, compact shrublet to 45 cm. Flowers in pendulous, 3-flowered heads, calycine, small, narrowly cup-shaped, pink or red, with exserted anthers. Aug.–Dec. Dry lower slopes, SW (Cape Peninsula to Riviersonderend Mtns, Napier).•

squarrosa Salisb. Semispreading shrublet to 30 cm. Flowers medium, ovoid, sticky, dull red to pink. Nov.–Feb. Upper slopes, SW (Hottentots Holland Mtns).•

stagnalis Salisb. Erect shrub to 1.5 m. Flowers medium to large, tubular, yellow, hairy. Sept.–Dec. Seepage areas, streamsides, SW (Franschhoek to Hottentots Holland and Houwhoek).•

steinbergiana H.L.Wendl. ex Klotzsch Erect shrublet to 80 cm. Flowers medium, calycine, tubular-urn-shaped with spreading lobes, deep pink. Nov.–Mar. Damp, upper mountain slopes, LB, SE (Riversdale to George).•

stenantha Klotzsch ex Benth. Erect shrublet to 50 cm. Flowers small, calycine, cup-shaped, dark pink. Aug.–Dec. Upper slopes, LB (Langeberg: Swellendam to Heidelberg).•

stokoei L.Bolus Erect, rigid, compact shrublet to 20 cm. Flowers small, cup-shaped, pale pink. Oct.–Feb. Rocks at high alt., SW (Betty's Bay Mtns).•

strigilifolia Salisb. Erect shrublet to 1 m. Flowers large, tubular, carmine-red to rose, sometimes white, hairy. Jan.–Dec. Upper slopes, KM (Swartberg to Kouga Mtns).•

strigosa Sol. Erect, straggling shrublet to 30 cm. Flowers small, cup-shaped, reddish. July–Nov. Cliffs and rock crevices, SW (Cape Peninsula, Hottentot's Holland Mtns to Kogelberg).•

stylaris Spreng. Erect shrublet to 30 cm. Flowers in heads, small, narrowly bell-shaped, white, with exserted anthers. Nov.–Dec. High alt., LB, SE (Outeniqua to Tsitsikamma Mtns).•

subdivaricata P.J.Bergius Erect shrublet to 1 m. Flowers small, bell-shaped, white. Jan.–June, Nov. in east. Lower slopes and flats, SW, AP (Malmesbury to Bredasdorp).•

subulata J.C.Wendl. Erect shrublet to 1 m. Flowers small, elongate-urn-shaped, in terminal nodding heads, white or pink. Jan.–Sept. Rocky lower to middle slopes, NW, SW (Ceres to Paarl, Du Toitskloof Mtns).•

suffulta J.C.Wendl. ex Benth. Like **E. pogonanthera**, erect shrublet to 45 cm. Flowers small, calycine, urn-shaped, hairy, white, with exserted anthers. Aug.–Oct. Middle slopes, SW (Houwhoek).•

syngenesia Compton Erect, stout shrub to 1.7 m. Flowers small, broadly ovoid to urn-shaped, white. June–Oct. Lower to middle slopes, KM (Witteberg to Swartberg).•

tarantulae E.G.H.Oliv. Low, sprawling shrublet to 16 cm. Flowers small, calycine, cup-shaped, rose-pink. Aug.–Oct. Stony slopes at high alt., NW (Cold Bokkeveld Mtns).•

taxifolia F.A.Bauer Like **E. corifolia**, erect shrublet to 60 cm. Flowers medium, calycine, pink. Jan.–Apr. Middle to upper slopes, NW, SW (Grootwinterhoek to Riviersonderend Mtns).•

taylorii E.G.H.Oliv. Prostrate shrublet to 20 cm. Flowers medium, ovoid-urceolate, finely hairy or smooth, pink. Oct.–Dec. Sandstone slopes at high alt., NW, KM (Cedarberg, Swartberg).•

tegetiformis E.G.H.Oliv. Prostrate mat-forming shrublet. Flowers at ends of short erect branches, small, urn-shaped, white, with exserted anthers. Nov.–Jan. Middle to upper slopes, NW, KM (Ceres to Montagu).•

tegulifolia Salisb. BANKETHEIDE Erect stout shrublet to 1 m. Flowers small, calycine, cup-shaped, bright pink or red. Aug.–Dec. Middle to upper rocky slopes, SW (Hottentots Holland Mtns to Villiersdorp).•

tenella Andrews Erect shrublet to 1 m. Flowers small, ovoid-urn-shaped, bright pink. Jan.–Dec. Middle to upper mountain slopes, SW (Houwhoek to Elim).•

tenuicaulis Klotzsch ex Benth. Erect, slender shrublet. Flowers small, bell-shaped, white to pink. Sept.–Dec. Rocks and cliffs at low to middle alt., SW, LB (Riviersonderend to Langeberg).•

tenuifolia L. Erect shrublet to 40 cm. Flowers small to medium, calycine, urn-shaped with spreading lobes, pink. Sept.–Mar. Rocky upper slopes, SW (Cape Peninsula to Riviersonderend Mtns).•

tenuipes Guthrie & Bolus Sprawling shrublet. Flowers small, narrowly cup-shaped, sticky, pink. Sept.–Jan. Local on cliffs on middle to upper slopes, SW (Du Toitskloof and Franschhoek Mtns).•

tenuis Salisb. Sprawling to erect shrublet to 1(–2) m. Flowers small, bell-shaped, white. July–Dec. Rocky, wet ledges to open slopes, NW, SW, KM, LB, SE (Cedarberg to Cape Peninsula to Uitenhage).•

tetragona L.f. Erect to sprawling, slender shrublet to 60 cm. Flowers small to medium, narrowly urn-shaped, yellow. July–Mar. Damp slopes from sea level to middle alt., LB, SE (Riversdale to Humansdorp).•

tetrathecoides Benth. Like **E. cubica**, slender, sprawling shrublet to 25 cm. Flowers small/medium, bell-shaped, pink. Oct.–Dec. Marshes and seeps, middle slopes, LB (Langeberg: Riversdale).•

thimifolia J.C.Wendl. Erect to scrambling shrublet. Flowers small, obconic to urn-shaped, rose-pink, with exserted anthers. Oct.–Dec. Damp lower slopes, NW, SW (Witzenberg and Cape Peninsula).•

thomae L.Bolus (= *Erica porteri* Compton, *E. tenax* L.Bolus) Erect, robust shrublet to 1 m. Flowers large, tubular, sticky, white, pink or pale green. Jan.–June. Rocky slopes, SW (Betty's Bay to Kleinmond).•

thunbergii Montin MALAY HEATH, GEELROKHEIDE Erect shrublet to 60 cm. Flowers medium, spherical white tube with orange, cup-shaped lobes and yellow calyx. Sept.–Dec. Sandy flats and slopes, NW (Cedarberg to Cold Bokkeveld).•

tomentosa Salisb. Erect shrublet to 50 cm. Flowers small, urn-shaped, lilac or dark pink, finely hairy. Aug.–Nov. Rocky, lower southern slopes, SW (Riviersonderend Mtns.).•

toringbergensis H.A.Baker Erect, semispreading shrub to 1.3 m. Flowers medium, globosely urn-shaped, dark pink. Dec.–Feb. High peaks, KM (Swartberg: Ladismith).•

trachysantha Bolus Erect shrublet to 60 cm. Flowers medium, calycine, open cup-shaped, dark pink with woolly white calyx. Aug.–Nov. Upper slopes, SE (Tsitsikamma Mtns).•

tradouwensis Compton Erect shrublet to 50 cm. Flowers small, ovoid to urn-shaped, pink, hairy, with exserted anthers. Feb.–Aug. Lower to middle slopes, LB (Langeberg: Tradouw Pass).•

tragomontana R.C.Turner Erect, single-stemmed shrublet to 35 cm. Flowers broadly funnel-shaped, pink. Sept.–Nov. S-facing, quartzite slopes, NW (Cold Bokkeveld).•

tragulifera Salisb. Like **E. formosa** and **E. glomiflora**, erect shrublet to 50 cm. Flowers small, ovoid to urn-shaped, white. July–Nov. Lower slopes, SE (George to Uniondale).•

transparens P.J.Bergius Small, multi-stemmed, resprouting shrublet to 40 cm. Flowers small, narrow-tubular, pink or white. Nov.–Mar. Moist S slopes and ledges, middle to upper slopes, SW, KM, LB (Cape Peninsula to Swartberg and Uniondale).•

triceps Link (= *Erica adunca* Benth.) Erect shrublet to 60 cm. Flowers small, calycine, urn-shaped, white, with exserted anthers. Jan.–Dec. Rocky middle slopes, LB, SE (Swellendam to Humansdorp).•

trichadenia Bolus Erect or sprawling shrublet to 1 m. Flowers small, bell-shaped, with partially exserted anthers, sticky, white or pink. Oct.–Apr. Upper slopes, NW (Piketberg to Hex River Mtns).•

trichophora Benth. Erect shrublet to 1 m. Flowers medium, campanulate, pink. Sept. Marshes, lower slopes, SW (Hermanus).•

trichophylla Benth. Erect, slender shrublet to 40 cm. Flowers small, cup- to bell-shaped, white to pale pink. Oct.–Dec. Lower to middle, southern slopes, SW (Riviersonderend Mtns).•

trichostigma Salter Erect shrublet to 30 cm. Flowers small, ovoid, urn-shaped, pink or white. Mar.–Aug. Sandveld, SW (Hopefield to Langebaan).•

trichroma Benth. Like **E. tubercularis**, erect, compact shrublet to 30 cm. Flowers medium, ovoid, sticky, purplish red. Feb.–May. Middle slopes, sandy places, SW (Franschhoek to Elgin).•

triflora L. Erect, robust shrub to 2 m. Flowers small, calycine, urn-shaped, white or tinged red. June–Nov. Middle to upper slopes, SW (Du Toitskloof to Riviersonderend Mtns).•

truncata L.Bolus Erect shrublet to 20 cm. Flowers small, subcalycine, cup-shaped, dull red. Sept.–Dec. Upper slopes, SW (Betty's Bay Mtns).•

tubercularis Salisb. Erect, slender, low shrublet to 30 cm. Flowers medium, ovoid, pink. ? Upper slopes, SW (Hottentots Holland Mtns).•

tumida Ker Gawl. (= *Erica splendens* Andrews) Erect or semisprawling shrub to 2 m. Flowers large or medium, tubular-inflated, scarlet, hairy. Oct.–Mar. Rocky upper slopes, NW (Cedarberg to Matroosberg).•

turgida Salisb. Erect, compact shrublet to 20 cm. Flowers small, urn- to cup-shaped, dark pink, slightly hairy, with exserted anthers. Nov.–Dec. Very local on sand flats, SW (Cape Peninsula).• EXTINCT IN THE WILD

turneri E.G.H.Oliv. Sprawling shrublet to 45 cm. Flowers small, broadly cup-shaped to ovoid, white tinged pink. May–Aug. Seasonally moist crevices and rock ledges, LB (Langeberg: Zuurbraak Mtn).•

turrisbabylonica H.A.Baker Erect, slender shrublet to 30 cm. Flowers large, narrowly tubular, green turning red, hairy. Nov.–Dec. Marshy middle to upper slopes, SW (Babilonstoring).•

umbelliflora Klotzsch ex Benth. (= *Erica ionii* H.A.Baker, *E. manifesta* Compton) Erect, compact to sprawling shrublet to 40 cm. Flowers small, urn-shaped, pink, sometimes with exserted anthers. May–Nov. Lower to middle mountain slopes, KM, SE (Groot Swartberg to Humansdorp).•

umbraticola E.G.H.Oliv. & I.M. Oliv. Delicate, brittle shrublet to 50 cm with drooping branches. Flowers urceolate, white, sticky. Jan.–Dec. Moist southern slopes, KM (Swartberg: Meiringspoort).•

unicolor J.C.Wendl. (= *Erica dichrus* Spreng., *E. viridescens* Lodd.) Shrub to 1.5 m. Flowers large, tubular, slightly sticky, green. Jan.–Dec. Hills to middle slopes, LB, SE (Outeniqua Mtns: Robinson Pass to George).•

unilateralis Klotzsch ex Benth. Erect, multi-stemmed, resprouting shrublet to 60 cm. Flowers small, subtubular, white, with exserted anthers. Feb.–Aug. Lower slopes, SE (Tsitsikamma and Baviaanskloof Mtns to Port Elizabeth).•

urna-viridis Bolus STICKY HEATH, GROENTAAIHEIDE Erect, sparse shrub to 1.5 m. Flowers medium to large, ovoid-conical, sticky, green. Dec.–July. Mountain plateaus, SW (Cape Peninsula).•

ustulescens Guthrie & Bolus Erect shrublet to 50 cm. Flowers medium, narrowly urn-shaped, sticky, white, with exserted anthers. July–Sept. Hillsides, SW (Botrivier).•

utriculosa L.Bolus Prostrate, moss-like shrublet. Flowers small, cup-shaped, pink. Sept.–Feb. Damp, rock crevices, middle to high alt., SW (Cape Peninsula to Napier).•

uysii H.A.Baker Erect shrub to 2 m. Leaves glaucous. Flowers small, calycine, globosely urn-shaped, rose. Sept.–Oct. Limestone hills, AP (De Hoop).•

valida H.A.Baker Erect shrublet to 50 cm. Flowers small, ovoid to urn-shaped, sticky, hairy, red or pink. Nov.–Feb. Rocky upper slopes, KM, SE (Kammanassie Mtns to Uitenhage).•

vallisaranearum E.G.H.Oliv. Erect shrublet to 1 m. Flowers large, tubular, yellow, pendulous on long, red pedicels. Apr.–June. Moist upper slopes, SW (Kogelberg).•

vallisgratiae Guthrie & Bolus Erect shrublet to 50 cm. Flowers large, subcylindrical red tube with large, white, spreading lobes. Aug.–Nov. High alt., SW (Riviersonderend Mtns).•

velitaris Salisb. Shrublet to 30 cm. Flowers medium, subcyathiform, pink. ? Sandy flats, SW (?Cape Peninsula).•

ventricosa Thunb. WAX HEATH, FRANSCHHOEKHEIDE Erect shrublet to 0.5(–1) m. Flowers large, ovoid to urn-shaped, pale pink, with spreading lobes. Oct.–Mar. Upper slopes, SW (Franschhoek to Hottentots Holland Mtns).•

verecunda Salisb. Erect to somewhat spreading shrub to 1.5 m. Flowers small, ovoid to urn-shaped, pale pink. Jan.–July. Sandy flats and slopes, NW, KM (Kamiesberg, Bokkeveld Mtns to Witteberg). **gce**

versicolor Andrews Erect or sprawling shrub to over 2 m. Flowers large, tubular, pink with paler tips to red with green tips. Jan.–Dec. Sandstone slopes, NW, KM, LB (Cedarberg to Langeberg).•

verticillata P.J.Bergius Robust shrub to 1.5 m. Flowers large, tubular, mauve-pink, hairy. Jan.–May. Marshes on sandy flats, SW (Cape Flats).• EXTINCT IN THE WILD

vestita Thunb. TREMBLING HEATH, TRILHEIDE Compact, erect shrublet to 1 m. Flowers large, tubular, red, white or pink, very finely hairy. Jan.–Dec. Mountain and hill slopes, SW, AP, LB (Elim, Cape Agulhas, Riviersonderend to Langeberg: Riversdale).•

villosa J.C.Wendl. KAPOKKIE Like **E. bruniades**, erect, rather sparse shrublet to 40 cm. Flowers small, urn-shaped, woolly, white, with exserted anthers. June–Nov. Flats and lower slopes, SW (Hermanus).•

virginalis Klotzsch ex Benth. Erect, compact shrublet to 25 cm. Flowers small, narrowly urn-shaped, pink. Dec. Sandy flats on lower slopes, NW, SW (Cold Bokkeveld and Wolseley: Elandskloof Mtns).•

viridiflora Andrews (= *Erica primulina* Bolus) Straggling, erect shrublet to 1 m. Flowers large, tubular, slightly sticky, pale green to yellowish. Oct.–July. Middle to upper, rocky slopes, KM, SE (Swartberg and Outeniqua Mtns to Willowmore).•

viridimontana E.G.H.Oliv. & I.M.Oliv. Erect to sprawling shrub to 75 cm. Flowers large, tubular-funnel-shaped, yellow-orange to crimson. Sept.–Apr. Sandstone slopes at high altitude, SW (Hottentots Holland Mtns.)•

viscaria L. (= *Erica decora* Andrews, *E. gallorum* L.Bolus, *E. longifolia* Bauer, *E. onosmiflora* Salisb., *E. patersonii* L.Bolus, *E. pustulata* H.A.Baker) STICKY HEATH, KLOKKIESHEIDE Erect shrublet to 1(–1.5) m. Flowers medium, narrowly bell-shaped to large, tubular, pink, purple, white, yellow,

orange, red, greenish, sometimes bicoloured, sometimes slightly hairy, sometimes slightly sticky, white or pink to dull red. Jan.–Dec. Flats and lower slopes, SW, AP (Mamre to Cape Peninsula to Bredasdorp).•

vogelpoelii H.A.Baker Like **E. corifolia**, erect shrublet to 1 m. Flowers small/medium, calycine, urn-shaped, deep rose. Dec.–Apr. Middle slopes, SW (Napier).•

walkeri Andrews Erect shrublet to 1 m. Flowers medium, urn-shaped, pink. Aug.–Oct. Lower to upper sandstone slopes, SW (Du Toitskloof Mtns).•

wendlandiana Klotzsch (= *Erica xerophila* Bolus) Erect, sturdy, rather sparse shrub to 1.2 m. Flowers large, tubular, pale orange, hairy. Aug.–Oct. Rocky, dry places on mountain slopes, KM, SE (Witteberg to Baviaanskloof).•

winteri H.A.Baker Erect, sparse shrublet to 1 m. Flowers large, globose to urn-shaped, sticky, white to pinkish. May–Oct. Middle to high alt., LB (Langeberg: Riversdale).•

wittebergensis Dulfer Erect, delicate shrublet to 20 cm. Flowers small, bell-shaped, sticky, pink, with exserted anthers. Sept.–Dec. Upper slopes, SW (Du Toitskloof Mtns).•

xanthina Guthrie & Bolus (= *Erica parvulisepala* H.A.Baker) Erect shrublet to 1 m. Flowers large, tubular, dull cream-coloured to pinkish red, very finely hairy. Sept.–Dec. Local on high peaks, SW (Riviersonderend Mtns).•

zebrensis Compton Erect shrublet to 60 cm. Flowers small, cup-shaped, magenta, with exserted anthers. Nov.–Feb. Lower to middle northern slopes, SE (Outeniqua Mtns: Robinson Pass to George).•

zitzikammensis Dulfer Like **E. newdigateae** but to 30 cm, flowers medium, calycine, obconically bell-shaped, rose. Nov.–Dec. High ridges, SE (Tsitsikamma Mtns).•

zwartbergensis Bolus Like **E. andreaei** but to 1.2 m, flowers urn- to bell-shaped, slightly sticky, whitish. Sept.–Dec. Low to high alt., KM, SE (Swartberg to Outeniqua Mtns).•

[**Species excluded** Insufficiently known and possibly conspecific with one of the above: **E. forsteri** Dulfer, **E. schmidtii** Dulfer]

EUPHORBIACEAE (see also PHYLLANTHACEAE)

Euphorbia by P.V. Bruyns

1. Apparent flower composed of a number of stamens (male flowers) mingled with bracteoles, with or without a sessile or pedicellate ovary (female flower) in their midst, all enclosed in ± cup-shaped involucre; mostly succulent plants ..... **Euphorbia**
1.' Flowers male, female or bisexual, with calyx, but petals present or absent:
2. Petals present in male or all flowers:
3. Flowers in panicles or in 2- or 3-branched, fasciculate cymes, female surrounded by male; stamens usually 8 in 2 series ..... **Jatropha**
3.' Flowers usually unisexual, in axillary fascicles or female often solitary; stamens in single whorl of 5 below apex of central column ..... **Clutia**
2.' Petals absent:
4. Sepals of male flowers open in bud; flowers in unisexual or occasionally bisexual, axillary spikes; trees or shrubs ..... **Excoecaria**
4.' Sepals of male flowers not open in bud; inflorescence and habit various:
5. Styles connate in column continuous with body of carpels; stamens 20–30; filaments united into short column; twining or climbing herbs:
6. Flowers in dense, involucrate heads ..... **Dalechampia**
6.' Flowers in racemes or spikes ..... **Ctenomeria**
5.' Styles free or shortly united at base; stamens (2)3–10(–12); filaments free or connate at base:
7. Anther locules adnate laterally to connective throughout their length; calyx deeply 5-lobed, imbricate ..... **Adenocline**
7.' Anther locules separate, attached to filaments by their base only; calyx 3- or 4-lobed, valvate in male flowers:
8. Anther locules stalked; female sepals imbricate; annual or perennial herbs ..... **Acalypha**
8.' Anther locules sessile; female sepals valvate; soft annual herb ..... **Leidesia**

ACALYPHA L. VALSNETEL ± 450 spp., pantropical

capensis (L.f.) Prain & Hutch. Monoecious, slender, sprawling shrub to 3 m, velvety on young parts. Leaves ovate-cordate, coarsely toothed, margins often slightly revolute, discolorous, grey-

velvety beneath with reddish veins. Flowers unisexual, in axillary spikes, reddish. Mainly Sept.–Jan. Forests and coastal bush, LB, SE (Langeberg: Riversdale to E Cape).

ecklonii Baill. Monoecious, softly hairy annual to 50 cm. Leaves long-petioled, ovate, toothed. Flowers in unisexual, axillary spikes, females crowded terminally in short spikes with leafy, laciniate bracts. Nov.–Mar. Coastal bush and forests, SE (George to KwaZulu-Natal).

glabrata Thunb. BOSVALSNETEL Monoecious, scrambling shrub or tree to 5 m, bark velvety on young parts. Leaves long-petioled, ovate, toothed, finely hairy when young. Flowers in bisexual, axillary spikes, females 1 or 2 at base. Mainly Oct.–Dec. Forests and bush, often along streams, SE (Van Staden's Mtns to E Zimbabwe).

peduncularis E.Mey. ex Meisn. (incl. **A. zeyheri** Baill.) Dioecious perennial from woody caudex, to 80 cm. Leaves subsessile, coarsely hairy, ovate to elliptic, toothed. Male flowers in pedunculate, axillary spikes, females in terminal, bracteate clusters, with long red stigmas. Oct.–Dec. Coastal grasslands, SE (Van Staden's Mtns to Zimbabwe).

ADENOCLINE Turcz. 4 spp., southern Africa

acuta (Thunb.) Baill. Dioecious, scrambling shrub to 1 m. Leaves opposite, long-petioled, deltoid, toothed. Flowers in terminal racemes or panicles, cream-coloured, male flowers few per node, females solitary. Aug.–Jan. Coastal bush, SW, AP, LB, SE (Hottentots Holland Mtns to Mpumalanga).

pauciflora Turcz. (= *Adenocline humilis* Prain, *A. ovalifolia* Turcz., *A. serrata* (Sond.) Turcz., *A. sessilifolia* Turcz., *A. stricta* Prain) Dioecious perennial from woody rootstock, 10–30 cm. Leaves ovate to linear-lanceolate, toothed. Male flowers subsessile in leaf-opposed or axillary racemes, females in leaf-opposed racemes. Sept.–Dec. Sands and limestones, SW, AP, SE (Cape Peninsula to KwaZulu-Natal).

violifolia (Kuntze) Prain Monoecious, softly succulent annual to 10 cm. Leaves cordate, weakly toothed. Male flowers in axillary clusters, females in leaf-opposed racemes. Sept.–Oct. Sandy flats and limestone rocks, NW, SW, AP, LB, SE (Lambert's Bay to E Cape).

ANDRACHNE see **PHYLLANTHACEAE**

CLUTIA L. BLIKSEMBOS ± 70 spp., Africa and Arabia

A. Petals of male flowers each with 3 or more basal glands

daphnoides Lam. VAALBLIKSEMBOS Dioecious shrub to 2 m, white-mealy on young parts. Leaves shortly petioled, oblanceolate, 15–30 mm long, slightly discolorous. Flowers axillary, cream-coloured, males few, females solitary. June–Sept. Coastal bush, SW, AP, SE (Saldanha to E Cape).

govaertsii Radcliffe-Sm. (= *Clutia vaccinioides* (Pax ex K.Hoffm.) Prain) Dioecious shrublet from woody base, to 50 cm. Leaves elliptic-obovate, obtuse, subsessile, leathery, pellucid-dotted and warty. Flowers axillary, cream-coloured, males clustered, females solitary. Dec.–Jan. Stony, gravel slopes, AP (Albertinia to Great Brak River).•

heterophylla Thunb. Dioecious shrublet from woody rootstock, to 30 cm. Leaves subsessile, ovate-elliptic, margins slightly revolute, pellucid-dotted, margins slightly revolute. Flowers axillary, cream-coloured, males in pairs, females solitary, ovary and fruits warty. Feb.–Apr. Grassy slopes, SE (Van Staden's Mtns to E Cape).

polygonoides L. Dioecious shrublet from woody base with stiffly erect branches, to 60 cm. Leaves subsessile, narrowly elliptic, leathery, margins revolute, often deflexed below. Flowers yellow to orange, axillary, males clustered, females solitary. Oct.–Apr. Sandstone slopes, NW, SW, KM, LB (Cedarberg to Riversdale Langeberg and Little Karoo Mtns).•

thunbergii Sond. Dioecious, grey-mealy shrublet to 60 cm. Leaves shortly petioled, obovate, small, to 10 mm long, leathery. Flowers axillary, cream-coloured, males paired, females solitary, ovary and fruits warty. Mainly Aug.–Oct. Sandstone and granite slopes, NW, KM (Namaqualand to Bokkeveld Mtns and Karoo to Swartberg).

sp. 1 Dioecious shrub to 1.5 m, from woody base. Leaves subsessile, ovate, leathery. Flowers axillary, males few, sometimes on short shoots, females solitary on erect pedicels. Sept.–Oct. Rocky sandstone slopes near streams, NW (Cedarberg and Piketberg).•

A.' Petals of male flowers with 1 or 2 basal glands
B. Ovary hairy

marginata E.Mey. ex Sond. Like **C. tomentosa** but leaves oblanceolate, usually 15–30 mm long. June–Sept. Clay and loam in renosterveld, KM (Robertson Karoo, Montagu to Barrydale, Karoo Mtns).

pubescens Thunb. Dioecious, velvety shrub to 60 cm. Leaves shortly petiolate, narrowly elliptic to linear, margins revolute. Flowers axillary, cream-coloured, males 1–4, females solitary, ovary and fruits silky. Mainly Apr.–July. Mostly clay and granite slopes and flats, NW, SW, LB (Gifberg to Albertinia).•

tomentosa L. WOLBLIKSEMBOS Dioecious, twiggy shrub to 1 m. Leaves sessile, ovate to elliptic, grey-felted, ascending above, spreading below, mostly to 10 mm long. Flowers axillary, mostly solitary, cream-coloured to brownish, ovary and fruits silky. Mainly June–Sept. Clay and gravel slopes and flats in renosterveld, SW, KM, LB (Botrivier to Swellendam and Little Karoo).•

sp. 2 Like **C. ericoides** in leaf shape, but closely imbricate and spreading. Fruits subsessile, large and densely velvety. Probably June–July. Rocky slopes, SW (Bredasdorp).•

B.' Ovary glabrous

affinis Sond. OUMEISIEKNIE Dioecious shrub to 2.5 m. Leaves lanceolate to elliptic, petiolate, mealy-pubescent, pale beneath. Flowers axillary, males 4–6, females 2 or 3. Mainly Aug.–Oct. Forest margins, SW, LB, SE (Villiersdorp to Mpumalanga).

alaternoides L. (incl. **C. rubricaulis** Eckl. ex Sond.) Dioecious shrub, mostly 30–60 cm. Leaves oblanceolate to obovate, often very small on coppicing plants, margins minutely toothed, usually slightly revolute. Flowers axillary, males few in tight clusters, females solitary on short pedicels. Mainly Aug.–Oct. Mainly rocky sandstone or limestone slopes, NW, SW, AP, KM, LB, SE (Namaqualand to E Cape).

ericoides Thunb. Dioecious shrublet from a woody base, to 60 cm, usually with conspicuous black, axillary buds. Leaves small, subsessile, leathery, narrowly lanceolate, distinctly concave. Flowers axillary, cream-coloured, males in pairs, females solitary, ovary and fruits smooth or warty. May–July. Rocky sandstone slopes, NW, SW, AP, KM, LB, SE (Gifberg to E Cape).

laxa Eckl. ex Sond. Dioecious, twiggy shrub to 1 m. Leaves shortly petiolate, oblanceolate to elliptic, ± plane. Flowers axillary, cream-coloured, males 2 or 3, females solitary, ovary and fruits smooth. July–Sept. Sandstone slopes, SW, AP, KM, LB, SE (Mamre to Port Elizabeth and E Cape).

polifolia Jacq. (incl. **C. brevifolia** Sond., **C. pterogona** Müll.Arg.) Like **C. laxa** but leaves oblanceolate to linear, usually discolorous, pale beneath, glossy above, margins revolute. July–Sept. Sandstone slopes, NW, SW, KM, LB, SE (Namaqualand to Port Elizabeth).

pulchella L. Dioecious shrub or small tree to 2 m. Leaves ovate to broadly lanceolate, long-petiolate, thin-textured, pellucid-punctate. Flowers axillary, cream-coloured, males ± 3, females 1 or 2, ovary smooth. Capsules warty. Mainly Aug.–Sept. Sandstone and clay slopes in forests and thickets, NW, SW, LB, SE (Pakhuis Pass to Limpopo).

[**Species excluded** No authentic material found and probably conspecific with one of the above: **C. ovalis** Sond., **C. sericea** Müll.Arg.]

CTENOMERIA Harv. 1 sp., southern Africa

capensis (Thunb.) Harv. ex Sond. Monoecious, twining perennial to 2.5 m, with stinging hairs. Leaves cordate to sagittate, slightly toothed, paler beneath. Flowers in slender, axillary, bisexual spikes, greenish, females basal. Nov.–Mar. Forests and bush, SE (George to Mpumalanga).

DALECHAMPIA L. ± 100 spp., pantropical

capensis A.Spreng. Monoecious, twining, hairy perennial to 3.5 m. Leaves palmate, 5-lobed, lobes toothed, paler beneath. Flowers crowded in long-peduncled, bisexual, axillary clusters subtended by large, paired, yellowish, leafy bracts. Oct.–Nov. Coastal bush, SE (Baviaanskloof Mtns to Tanzania).

EUPHORBIA L. SPURGE ± 1 500 spp., cosmopolitan

A. Acaulescent geophytes with conspicuous leaves in rosettes on ground

ecklonii (Klotzsch & Garcke) A.Hässl. (= *Euphorbia pistiifolia* Boiss.) Like **E. tuberosa** but leaves adpressed to the ground, broadly elliptic, obtuse, narrowed abruptly below into short petioles

to 20 mm long, dark green and somewhat shiny with sunken veins and cyathia 3–5 mm diam. May–Aug. Clay and loamy slopes and flats, SW, AP, LB (Caledon to N of Mossel Bay).•

silenifolia (Haw.) Sweet (incl. **E. mira** L.C.Leach) Like **E. tuberosa** but leaves from narrowly oblanceolate to linear or filiform, tapering below into long, slender petioles, peduncles slender 25–125 mm long. Mainly June–Sept. Sandy or clay on stony flats and slopes, SW, AP, LB, SE (Darling to Cape Peninsula to East London).

tuberosa L. (incl. **E. crispa** (Haw.) Sweet) MELKBOL, WILDERAMENAS Dioecious, acaulescent, tuberous-rooted perennial to 5 cm. Leaves oblong to lanceolate-oblong, abruptly to gradually narrowed below into petioles, usually minutely hairy and grey-green, margins folded upwards, usually undulate, sometimes crisped. Several cyathia per stem on peduncles 1–5 cm long, greenish, 4–6 mm diam. Mainly June–Sept. Sandy and stony flats and slopes, NW, SW, AP, KM, LB (Spektakel to Hondeklip Bay and Kamiesberg to Cape Peninsula, Matjiesfontein and Riversdale). **gce**

A.' Woody perennials with conspicuous, herbaceous leaves

epicyparissias E.Mey. ex Boiss. PISGOED Like **E. erythrina** but leaves deflexed, margins usually slightly revolute, 10–40 mm long. Aug.–Nov. Coastal bush and forest margins, SW, KM, LB, SE (Gansbaai to Mpumalanga).

ericoides Lam. Like **E. genistoides** but leaves sharply deflexed, linear, dilated at base, ± truncate-apiculate, margins revolute. Aug.–Dec. Sandstone slopes, LB, SE (Swellendam to Lesotho).

erythrina Link Monoecious, closely leafy, softly woody perennial to 80 cm, with slender stems from woody base. Leaves elliptic to oblanceolate, ascending, imbricate, apiculate, shortly petiolate, 8–20 mm long. Flower clusters usually congested, floral glands crescent-shaped. July–Oct. Rocky sandstone slopes, NW, SW, KM, LB, SE (Cold Bokkeveld to E Cape).

foliosa N.E.Br. (incl. **E. artifolia** N.E.Br.) Like **E. erythrina** but rounded and to 30 cm, leaves small, obovate, 2–8 mm long, usually minutely ciliate on margins. Aug.–Oct. Mostly coastal limestones and calcareous sands, SW, AP (Mamre to Still Bay).•

genistoides P.J.Bergius Like **E. erythrina** but leaves linear to narrowly elliptic, margins revolute, spreading, apiculate, subsessile, 7–15 mm long. Flower clusters congested in cylindrical racemes. July–Oct. Rocky sandstone slopes, NW, SW (Gifberg to Cape Peninsula).•

kraussiana Bernh. Monoecious, erect shrub to 2 m, with slender stems. Leaves spreading or ascending, elliptic to oblanceolate, petiolate, 50–120 mm long, paler beneath. Flower clusters in lax panicles, floral glands oblong. Sept.–Feb. Forest margins and coastal bush, SE (George to Mpumalanga).

striata Thunb. MELKGRAS Monoecious shrublet to 50 cm, with wiry stems from woody base. Leaves ascending, linear-lanceolate, sessile, acuminate, 15–40 cm long. Flower clusters in lax panicles, floral glands crescent-shaped. Mainly Sept.–Nov. Sandy slopes and flats in fynbos and grasslands, SE (Humansdorp to Mpumalanga).

A." Succulents with leaves often rudimentary
B. Leaf-rudiments subtended by a pair of sharp, spreading spines, spines arising on a hardened brownish spine-shield surrounding base of leaf-rudiment

caerulescens Haw. NOORS Monoecious, spiny, decumbent, rhizomatous shrub, much-branched from base, stems 0.5–1.5 m, numerous, grey-green, 30–50 mm diam., 4–6-angled, constricted at intervals, spines 6–12 mm long. Leaves 1–4 × 1–4 mm, ovate, deciduous. Cyathia in groups of 3, 5–6 mm diam., glands bright yellow. Oct.–Dec. Stony, karroid slopes and flats among arid scrub, KM (Calitzdorp, Klipplaat to Jansenville).

grandidens Haw. TREE EUPHORBIA Monoecious, spiny, much-branched tree, 5–16 m, with cylindrical trunk and ascending branches bearing an apical rosette of ascending (2)3(4)-angled, green, deciduous branchlets 12–20 mm diam., spines 0.5–6 mm long. Leaves minute, triangular, deciduous. Cyathia 4–5 mm diam., glands entire, yellow-green. June–Aug. Steep slopes in dense valley bushveld, SE (Near Humansdorp to Swaziland and Mpumalanga).

ledienii A.Berger SUURNOORS Similar to **E. caerulescens** but not rhizomatous, stems longer, 1.3–2 m, with less obvious constrictions and spines shorter, 2–6 mm long. Jan.–Apr. Stony slopes and flats among arid scrub and larger bushes, SE (Uitenhage to Committees on Fish River).

stellata Willd. Monoecious, spiny, dwarf succulent, 2–15 cm, with clavate, subterranean main stem and spreading rosette of flat branches at ground level, green mottled with purple, 5–15 mm wide, bearing marginal spines 2–4 mm long. Leaves 1–2 × 1–2 mm. Cyathia in groups of 3,

2.5–4 mm diam., glands entire, red to yellow. Sept.–Mar. Gravelly flats in open patches between dense scrub, SE (Uitenhage to E of Peddie).

triangularis Desf. TREE EUPHORBIA, RIVIERNABOOM Monoecious, spiny tree with 1–several, ± cylindrical trunks each bearing a crown of ascending 3–5-angled green branches to 1.5 m long, 40–100 mm diam., branches constricted into segments, spines 3–8 mm long. Leaves 3–7 × 4–6 mm, ovate, deciduous. Cyathia 4–5 mm diam., glands yellow. June–Aug. Steep slopes in dense valley bushveld, SE (Near Humansdorp to Swaziland).

B.' Leaves not subtended by spines, spines (if present) developing from sterile short shoots, persistent woody peduncles or from tips of branches
C. Stems without obvious tubercles on which leaves are borne, terete and without angles
D. Plants monoecious; leaves conspicuous but fleeting, alternate; cyathia arising in rayed umbels around a central sessile cyathium

mauritanica L. BEESMELKBOS, GEELMELKBOS Monoecious, much-branched, succulent shrub to 2 m; stems terete, 3–6 mm diam., bright green. Leaves sessile, 8–15 × 3–5 mm, lanceolate, deciduous. Cyathia usually in terminal cymes with subsessile male surrounded by 5–7 bisexual cyathia, 7–15 mm diam., glands entire, yellow. May–Oct. Flats and stony slopes, NW, SW, KM, LB, SE (northern Namibia to Cape Peninsula to KwaZulu-Natal).

stolonifera Marloth KRUIPMELKBOS, RANKMELKBOS Like **E. mauritanica** but plant 15–60 cm, rhizomatous, branching at base and near tips of stems, branches 3–10 mm diam., often tapering to both ends and somewhat glaucous. May–Oct. Stony slopes to flats, in karoo bushes, KM (S Namibia to Laingsburg, Beaufort West to Mossel Bay).

D.' Plants dioecious; leaves rudimentary, opposite; cyathia often many near branch tips but not arising in rayed umbels around central sessile cyathium
E. Stipules present as flattened subglobose bodies along bases of leaf-rudiments

burmanii E.Mey. ex Boiss. (incl. **E. corymbosa** N.E.Br., **E. karroensis** (Boiss.) N.E.Br., **E. macella** N.E.Br.) STEENBOKMELKBOS, SOETMELKBOS Dioecious, much-branched shrublet, 15–100 cm; stems terete, greyish green to dark green, 3–5 mm diam., smooth. Leaves opposite, spathulate, 2–5 mm long, with subglobose, brownish stipules. Cyathia 2–4 mm diam., glands entire, pale green. June–Sept. Sandy to stony flats and slopes, NW, SW, KM, LB, SE (Buchuberg, N of Oranjemund to Cape Peninsula to Grahamstown).

E.' Stipules absent alongside bases of leaf-rudiments

muricata Thunb. (incl. **E. aspericaulis** Pax) Dioecious, spineless, glabrous succulent to 60 cm, branches 2–8 mm thick, grey-green, covered with laterally compressed ridges and warts. Leaves sessile, ± deltoid, 1–2 mm long, soon deciduous. Cyathia many, 1–3 terminating some branches, 1.5–2 mm diam., with 5 yellow glands. Capsule sessile, 2–3 mm diam., glabrous. June–Sept. Flats to gentle slopes on loam, NW (S Namaqualand to Calvinia to Doring River bridge). **gce**

rhombifolia Boiss. (incl. **E. bayeri** L.C.Leach, **E. caterviflora** N.E.Br., **E. decussata** E.Mey. ex Boiss., **E. mundii** N.E.Br.) STEENBOKMELKBOS SOETMELKBOS, SPRINGBOK MELKBOS Like **E. tenax** but stems stouter, often becoming rigid and slightly spiny near tips. June–Nov. Karroid scrub NW, SW, KM, LB, SE (Lüderitz to Free State and E Cape).

spartaria N.E.Br. (incl. **E. cibdela** N.E.Br., **E. racemosa** E.Mey. ex Boiss., **E. rectirama** N.E.Br.) Like **E. rhombifolia** but stems more slender and taller, leaves slender and narrowly spathulate, without basal horns. Cyathia and capsules glabrous. Oct.–Apr. Stony slopes, KM (Namibia: Otavi Mtn to Prince Albert and Oudtshoorn to E Cape and KwaZulu-Natal).

tenax Burch. (incl. **E. arceuthobioides** Boiss., **E. mixta** N.E.Br.) STEENBOKMELKBOS Dioecious, much-branched, succulent shrub, 5–50 cm, sometimes with tuberous rootstock; stems very slender, erect, greyish, often roughened, 2–4 mm diam., often slightly ridged. Leaves opposite, ± sessile, triangular, 1–3 mm long. Cyathia 2–3 mm diam., glands ± entire, greenish yellow. June–Nov. Fynbos on sand to karroid scrub on shales on slopes, NW, SW (Kotzesrus, Nieuwoudtville to Cape Peninsula). **gce**

C.' Stems with distinct tubercles bearing leaves at their apices, tubercles spiralled or arranged vertically into rows or fused into wing-like angles along stem

bupleurifolia Jacq. Like **E. clandestina** but stem 5–15 cm and partly subterranean, brown. Leaves lanceolate-spathulate, 5–10 × 1–2 cm. Cyathia on peduncles 1–5 cm long. Oct.–Feb. Gravelly flats, SE (Walmer to Pietermaritzburg).

caput-medusae L. (incl. **E. marlothiana** N.E.Br., **E. muirii** N.E.Br., **E. tuberculata** Jacq., **E. tuberculatoides** N.E.Br.) MEDUSA'S HEAD, VINGERPOL Monoecious, sprawling succulent, 20–75 × 15–100 cm with a rosette of branches from a short, thick, tuberculate stem; branches ascending, ± clavate, tuberculate, 10–30 mm diam. Leaves on tubercles at branch tips, linear, fleshy, 3–20 × 1–2 mm, deciduous. Cyathia solitary, 10–18 mm diam., glands 3–6-palmate, pale yellow. May–Sept. Sandy flats and stony slopes, NW, SW, LB (Oranjemund to Cape Peninsula to Mossel Bay). **gce**

clandestina Jacq. VOLSTRUISNEK Monoecious, erect, mostly single-stemmed succulent, 15–80 cm; stem cylindrical(–clavate), 25–50 mm diam. with stout, conical tubercles in ± 10–15 spiralling rows, green often mottled purple. Leaves on tubercles in an apical tuft, linear, 20–60 × 2–4 mm, deciduous. Cyathia solitary, sessile in axils of tubercles, closely surrounded by several bracts, 3–5 mm diam., glands minutely toothed, pale yellow. June–Sept. Stony lower slopes and karroid scrub, SW, KM, LB (Robertson to Uniondale, Swellendam and De Hoop to Albertinia).•

clava Jacq. (incl. **E. pubiglans** N.E.Br.) Like **E. clandestina** but sometimes branching below, tubercles often rounded, leaves 20–150 × 3–6 mm, cyathia solitary on peduncles 15–60 mm long, peduncle with several bracts, 3–5 forming a cup subtending cyathium, glands entire, green. Nov.–Apr. Stony slopes in karroid bush, SE (Knysna to Grahamstown).

colliculina A.C.White, R.A.Dyer & B.Sloane VINGERPOL Like **E. caput-medusae** but branches shorter, nearly cylindrical, 4–20 mm diam., slightly tuberculate. Leaves 1–1.5 mm. Cyathia smaller, 4.5–7 mm diam., glands entire to minutely toothed, yellowish green. Sept.-Oct. Gravelly flats and low hills among low karroid scrub, KM (Volmoed, W of Oudtshoorn to Toorwater).•

decepta N.E.Br. (incl. **E. gamkensis** J.G.Marx) SPUTNIK, VINGERPOL Monoecious, dwarf, mostly subterranean succulent with ascending or spreading branches from a stem 7–9 cm diam.; branches 10–15 mm diam., with conical tubercles. Leaves 2 mm, ovate, soon deciduous. Cyathia solitary, 7–8 mm diam., glands crenulate, pale green. Sept.–Jan. Karroid scrub usually in flats, KM (Great Karoo to Little Karoo: Calitzdorp).

esculenta Marloth VINGERPOL Like **E. caput-medusae** but branches shorter, nearly cylindrical, 4–17 mm diam., slightly tuberculate. Leaves 1 mm. Cyathia smaller, 4.5–5 mm diam., glands entire to finely notched very small and embedded in woolly pubescence, red to purple. Sept.–Oct. Karroid scrub on low stony hills and flats, SE (Uitenhage to Jansenville and Graaff-Reinet).

ferox Marloth Like **E. heptagona** but plant smaller, to 30 cm, branches 40–60 mm diam., 9–16-angled, thorns shorter, 8–20 mm long, irregularly scattered and spreading, leaves 2–3 mm long. Mar.–July. Flats and stony slopes among low karroid bushes, KM, (Calitzdorp to Oudtshoorn and E Cape).

fortuita A.C.White, R.A.Dyer & B.Sloane VINGERPOL Like **E. caput-medusae** but branches shorter, nearly cylindrical, 10–22 mm diam., slightly tuberculate. Leaves 1–1.5 mm. Cyathia smaller, 4.5–6 mm diam., glands finely toothed, purplish red to yellow. Aug.–Oct. Gravelly flats among low karroid scrub, KM (Little Karoo: Barrydale to Muiskraal).•

globosa (Haw.) Sims EIERPOL, KNOPMELKPOL Monoecious, dwarf, cushion-forming succulent, mostly 2.5–8 cm; stems many, densely packed, ± globose but flowering stems clavate, 7–14 mm diam., with low, conical tubercles arranged in 5 obscure rows. Leaves lanceolate, 2–3 mm long, deciduous. Cyathia solitary(–3), 10–20 mm diam., glands deeply dissected, segments erect, cream-coloured and pale green. Oct.–Feb. Karroid scrub in gravelly flat areas, SE (Uitenhage to Port Elizabeth).•

hallii R.A.Dyer Monoecious, mostly single-stemmed succulent to 50 cm; stem cylindrical-clavate, 30–40 mm diam., tuberculate, pale green. Leaves 10–70 × 1–2 mm, deciduous. Cyathia 1–3 per peduncle in axillary clusters of 1–5, with many, slender, leaf-like bracts to 100 × 2–4 mm, 8–10 mm diam., glands with 3–5-branched processes 2–4 mm long, red. Apr.–Sept. Gravelly lower slopes and flats, NW (Botterkloof to Biedouw and W Karoo). **gce**

hamata (Haw.) Sweet OLIFANTSMELKBOS Dioecious, succulent shrublet to 45 × 60 cm with many branches from a thickened main stem; branches 6–15 mm diam., with prominent conical tubercles 2–16 mm long loosely arranged in 3 angles, green to red. Leaves 5–15 × 3–12 mm, sessile, ovate-lanceolate, deciduous. Cyathia subtended by a whorl of 3 prominent bracts 6–10 × 4–10 mm, 5–7 mm diam., glands entire, red or yellow. Apr.–Sept. Stony slopes, NW, SW (Lüderitz to SE of Worcester). **gce**

heptagona L. (incl. **E. atrispina** N.E.Br., **E. enopla** Boiss.) Dioecious, much-branched, spinescent, succulent shrub, 20–100 cm; branches cylindrical, with obscure tubercles arranged in 6–8 angles, 15–30 mm diam., erect, mostly covered with stout thorns, spinescent peduncles 8–60 mm long. Leaves 1–2 mm long, deciduous. Cyathia solitary, 3–5 mm diam., glands entire, green to red. June–Nov. Karroid scrub on stony, N-facing slopes, KM, LB, SE (Touws River and Montagu to Jansenville).

inermis Mill. VINGERPOL Like **E. caput-medusae** but branches thinner, 10–12 mm diam., cyathia smaller, 8–9 mm diam., with many conspicuous bracteoles among flowers giving it a woolly appearance, and glands with white processes. Sept.–Dec. Gravelly flats, SE (Jeffreys Bay to Port Elizabeth).•

loricata Lam. DORINGPOL, HEDGEHOG Monoecious, spinescent, succulent shrub, 15–150 cm; branches 8–15 mm diam., cylindrical, tuberculate, covered with stout, spinescent peduncles 12–50 mm long. Leaves 15–75 × 3–10 mm, linear-lanceolate, glaucous, deciduous. Cyathia solitary, glands entire, green. May–Sept. Stony sandstone slopes and flats, NW (Vredendal to Clanwilliam and Botterkloof, Western Karoo). **gce**

mammillaris L. (incl. **E. fimbriata** Scop.) Like **E. heptagona** but plant smaller, to 30 cm, branches 40–60 mm diam., 7–15-angled, thorns shorter, 4–20 mm long, irregularly scattered and spreading, leaves 3–6 mm long. Mar.–July. Flats and stony slopes among bushes, SE (Albertinia to Grahamstown).

meloformis Aiton BOBBEJAANKOS, ESELKOS Dioecious, usually single-stemmed, dwarf succulent, 3–20 cm; stem spherical to cylindrical, 50–150 mm diam. with obscure tubercles joined in 8–12 angles, usually with many, spinescent, simple or branched peduncles to 60 mm long. Leaves 1–3 mm long, linear, deciduous. Cyathia in cymes of 1–12, ± 4 mm diam., glands entire, pale green. Nov.–Mar. Gravelly flats, SE (Port Elizabeth to Peddie).

multiceps A.Berger VINGERS-EN-TONE, VINGERHOEDPOL Monoecious, sparsely spiny, densely conical succulent to 60 cm, with thick main stem to 25 cm diam., nearly as tall as plant, with many, crowded, spreading branches 20–75 × 15–30 mm, decreasing in length towards apex, branches with conical, spreading tubercles, and a few, thick, spinescent peduncles toward apex. Leaves 6–20 × 1–2.5 mm, caducous. Cyathia solitary, 5–8 mm diam., glands with 2–4 ± linear spreading processes. May–Sept. Gravelly slopes and flats, KM (E of Springbok to Laingsburg to Little Karoo near Muiskraal). **gce**

multifolia A.C.White, R.A.Dyer & B.Sloane YSTERVARKPOL Like **E. loricata** but plant cushion-forming, 15–30 × 30–100 cm, branches 25–30 mm long, leaves 15–80 × 2–4.5 mm, linear-oblanceolate. May–Oct. Karroid scrub on stony slopes and summits, sandstone or shale, KM (Touws River to Calitzdorp).•

nesemannii R.A.Dyer Like **E. heptagona** but main stem mostly subterranean, branches laxly ascending, 10–30 mm diam., 6–14-angled, spines weak to absent, spreading, 10–25 mm long. Mar.–June. Karroid scrub on lower gravelly slopes, NW, LB (Worcester and Robertson to Swellendam).•

pillansii N.E.Br. KLEINNOORSDORING Dioecious, much-branched, spinescent, succulent shrublet, 15–30 cm; branches cylindrical-clavate, 25–60 mm diam., obtusely 7–9-angled (4 when young), with numerous, spinescent peduncles 8–20 mm long often branching near apex. Leaves 1–2 mm long, deciduous. Cyathia solitary to several per peduncle, 4–5 mm diam., glands entire, green. Dec.–May. Karroid scrub on stony slopes, KM (Tanqua Karoo to Matjiesfontein and Muiskraal). **gce**

polygona Haw. (incl. **E. horrida** Boiss.) Dioecious, spinescent, succulent shrub to 2 m, somewhat rhizomatous; branches cylindrical-clavate, 7–12 cm diam., with tubercles fused into 7–20 prominent, wing-like, often undulating angles, with spinescent peduncles 4–10 mm long. Leaves 1–2 mm long, deciduous. Cyathia solitary to 3 per axil, 5–7 mm diam., glands dark purple. Feb.–June. Rocky sandstone slopes, KM (Seweweekspoort and Calitzdorp to Grahamstown).

procumbens Mill. (incl. **E. gorgonis** A.Berger, **E. pugniformis** Boiss.) Monoecious, dwarf, mostly subterranean succulent with truncate stem bearing rosettes of spreading branches; branches tapering, to 3 cm long, 4–8 mm diam., covered with conical tubercles. Leaves 1–6 mm long, linear-lanceolate, deciduous. Cyathia solitary, 5–7 mm diam., glands mostly slightly toothed along edges, green to reddish. Sept.–Dec. Grasslands and karroid bush, LB, SE (Riversdale to Mossel Bay and Willowmore to E Cape).

pseudoglobosa Marloth (incl. **E. juglans** Compton) Dioecious, dwarf succulent with subterranean, main stem and rosette of slender branches just below ground; branches small, to 15 cm long, globose to cylindrical, obscurely 6–8-angled, 12–25 mm diam. Leaves 1–5 × 1 mm, deciduous. Cyathia solitary, 3–4 mm diam., glands entire, green to reddish brown. Apr.–July. Gravelly slopes or flats on shale, often in quartz patches, KM (Touws River to Barrydale).•

schoenlandii Pax NOORDPOL Monoecious, single-stemmed, spineless, glabrous succulent to 50 cm, stem 30–75 mm diam., cylindrical, covered with spirally arranged, conical tubercles, to 12 mm long, bearing slender, sterile short shoots in axils persisting as woody spines. Leaves soon deciduous, linear-lanceolate, 10–25 × 1–4 mm. Cyathia many around stem apex, each on short, non-persistent peduncle to 25 mm long in axil of tubercle and between sterile short shoot and stem, 6–7 mm diam., with 4 or 5 ± smooth, green glands. Capsule sessile on short, erect pedicel, ± 7 mm diam., glabrous. Apr.–June. Firm loam on flats in scattered, low bush, NW (Kotzesrus to Strandfontein). **gce**

susannae Marloth Like **E. pseudoglobosa** but plant mostly subterranean, branch tips flush with surface, branches ± spherical, often with flattened apex, 12–16-angled, with spreading, narrowly triangular tubercles. Apr.–June. Karroid scrub on gentle slopes, often in quartz patches, KM (E of Barrydale to Muiskraal).•

tridentata Lam. VINGERPOL Like **E. globosa** but branches cylindrical to clavate and often rhizomatous, stems to 15 mm long, 6–12 mm diam., with more prominent tubercles and cyathia 12–17 mm diam., glands pale yellow to white. Oct.–Dec. Grassy flats or stony, karroid slopes, KM, LB, SE (Ladismith, Heidelberg to Grahamstown).

EXCOECARIA L. ± 40 spp., Old World tropics

simii (Kuntze) Pax Monoecious shrublet or small tree to 6 m. Leaves narrowly lanceolate, glabrous, slightly toothed. Flowers in bisexual, terminal spikes, greenish, females basal. Nov.–Jan. Coastal forests and bush, SE (George to KwaZulu-Natal).

FLUEGGEA see **PHYLLANTHACEAE**

HYAENANCHE see **PICRODENRACEAE**

JATROPHA L. ± 175 spp., pantropical and subtropical

capensis (L.f.) Sond. Monoecious shrublet with pale, corky bark, 2–3 m, sticky on young parts. Leaves oblong- to lanceolate-hastate. Flowers in loose, terminal clusters, males on branched axes, females solitary, greenish. Nov.–Jan. Dry rocky slopes, SE (Baviaanskloof Mtns to E Cape).

LACHNOSTYLIS see **PHYLLANTHACEAE**

LEIDESIA Müll.Arg. 1 sp., S Africa

procumbens (L.) Prain (= *Leidesia obtusa* (Thunb.) Müll.Arg. Monoecious, soft, often sprawling annual to 30 cm. Leaves ovate, lobed to coarsely toothed, thinly hairy. Flowers axillary, males in spike-like cymes at branch tips, females solitary, greenish. Mainly Sept.–Dec. Forests and bush, SW, LB, SE (Cape Peninsula to Mpumalanga).

PHYLLANTHUS see **PHYLLANTHACEAE**

FABACEAE

by A.L. Schutte

Argyrolobium by T.J. Edwards & A.L. Schutte, **Calobota**, **Lebeckia** and **Wiborgiella** by J.S. Boatwright, **Euchlora**, **Ezoloba**, **Leobordea** and **Lotononis** by A.L. Schutte & J.S. Boatwright, **Indigofera** by B.D. Schrire, **Otholobium** and **Psoralea** by C.H. Stirton & A.L. Schutte, **Rafnia** by G.J. Campbell, **Rhynchosia** by G. Germishuizen & A.L. Schutte, **Tephrosia** by B.D. Schrire & A.L. Schutte

1. Flowers actinomorphic with petals valvate in bud, often united at base; seeds normally with areole (± U-shaped hairline fissure, often discoloured) on each side (subfamily MIMOSOIDEAE):
2. Stamens 10 . . . . . **Prosopis**
2.' Stamens many to numerous:

3. Stamens fused into a tube ..... **Paraserianthes**
3.' Stamens ± free:
4. Adult leaves either modified to simple phyllodes or bipinnate but then plants unarmed ... **Acacia**
4.' Adult leaves bipinnate and plants armed with stipular spines or recurved prickles:
5. Stipules spinescent, ± straight ..... **Vachellia**
5.' Spines not spinescent, plants armed with hooked prickles ..... **Senegalia**

1.' Flowers generally zygomorphic with petals imbricate in bud, free or some of them united; seeds usually without areole (if present then ± circular):
6. Perianth weakly zygomorphic, adaxial (upper) petal overlapped by adjacent lateral petals when these are present; sepals free or fused (subfamily CAESALPINIOIDEAE):
7. Flowers pink or red; sepals fused into a tube; anthers dehiscing by longitudinal slits ..... **Schotia**
7.' Flowers yellow; sepals free; anthers dehiscing by longitudinal slits or often by apical and/or basal pores ..... **Chamaecrista**
6.' Perianth strongly zygomorphic, pea-like, adaxial petal outside adjacent lateral petals; sepals united at base (subfamily PAPILIONOIDEAE):
8. Anthers with extended apical connective; biramous hairs present; petals usually caducous; upper margin of keel with fringe of hairs ..... **Indigofera**
8.' Anthers without extended apical connective; biramous hairs generally absent; petals usually persistent; upper margin of keel without hairs:
9. Leaflets with conspicuous, closely parallel veins extending to margins:
10. Leaflets dentate; stipules ± adnate to petiole; leaves (1–)3(–7)-foliolate ..... **Trifolium**
10.' Leaflets entire; stipules not adnate to petiole; leaves 1–many-foliolate, if 3-foliolate then lateral leaflets often slightly asymmetrical ..... **Tephrosia**
9.' Leaflets with veins not extending to margins:
11. Filaments of all or alternate stamens apically dilated; compound leaves generally with at least 3 terminal leaflets, lowermost pair sometimes stipule-like, sometimes with glandular stipule ..... **Lotus**
11.' Filaments of stamens not apically dilated:
12. Fruits both 1-seeded and glandular; leaves ± glandular-punctate:
13. Flower pedicels subtended by distinctive lobed cupulum ..... **Psoralea**
13.' Flower pedicels never subtended by cupulum:
14. Fruit conspicuously black glandular-warty when mature; mat-forming shrublet ... **Cullen**
14.' Fruit never black glandular-warty ..... **Otholobium**
12.' Fruits not both 1-seeded and glandular:
15. Fruits jointed and transversely septate, usually breaking up into 1-seeded segments
16. Stipules peltate, foliose; flowers solitary or interrupted spikes, enclosed by bracts ... **Zornia**
16.' Stipules not peltate, dry and brown; flowers long-pedicellate in open racemes or peduncles, lower petals caducous ..... **Desmodium**
15.' Fruits not jointed and transversely septate:
17. Leaves pinnately compound:
18. Leaves paripinnate; pods 4-angled or -winged ..... **Sesbania**
18.' Leaves imparipinnate; pods not 4-angled:
19. Stipules spinescent ..... **Robinia**
19.' Stipules not spinescent:
20. Calyx base not intrusive, upper 2 lobes not fused higher up; pods membranous ..... **Lessertia**
20.' Calyx base intrusive, upper 2 lobes fused higher up; pods leathery:
21. Flowers pink, purple or white; stamens free ..... **Virgilia**
21.' Flowers yellow; stamens fused ..... **Calpurnia**
17.' Leaves palmately (1–)3(–7)-foliolate or simple:
22. Calyx lower lip trifid:
23. Leaves 1-foliolate; branches often leafless ..... **Spartium**
23.' Leaves 3-foliolate; branches always leafy:
24. Wing petals much shorter than keel, distinctly spurred; calyx with upper 2 lobes fused high up to form bifid upper lip (as high up as trifid lower lip); stipules inconspicuous or absent, < 1 mm long if present ... **Dichilus**
24.' Wing petals as long as or longer than keel, not spurred as above; calyx with upper 2 lobes not fused as high up as trifid lower lip; stipules conspicuous, > 1 mm long:
25. Stipules semisagittate or semicordate at base, with narrow point of attachment; glandular tubercles often present ..... **Melolobium**
25.' Stipules not lobed below; glandular tubercles absent:

26. Peduncle absent, internode below inflorescence elongated; stipules often adnate to petiole (and sometimes also connate on leaf-opposed side); wing petals ± equal to keel petals in length; bracts and bracteoles rarely present; wing petals imbricate along lower side ... **Polhillia**
26.' Peduncle present, internode below inflorescence not elongated; stipules rarely fused; wing petals distinctly longer than keel petals; bracts and bracteoles invariably present; keel petals rarely imbricate ..... **Argyrolobium**

22.' Calyx lower lip not trifid:
27. Calyx base intrusive; stamens fused into closed tube; flowers magenta-pink with yellow nectar guide ..... **Hypocalyptus**
27.' Calyx base intrusive or not; stamens ± free or fused into open tube; flowers yellow, orange or red, pink or white with white nectar guide if present:
28. Fruits irregularly torulose, indehiscent; leaves 1-foliolate, subtending single floriferous thorns ..... **Alhagi**
28.' Fruits not as above:
29. Leaves 1(–3)-foliolate (when 3-foliolate then stamens free almost to base); seed aril conspicuous, fleshy (not fleshy in **Stirtonanthus**):
30. Stamens free almost to base:
31. Leaves digitately 3-foliolate; bracts paired ..... **Cyclopia**
31.' Leaves simple; bracts single:
32. Flowers yellow, decussate (arranged in opposite pairs of 2, 4 or 6 flowers); seeds with non-fleshy, rim aril ..... **Stirtonanthus**
32.' Flowers pink, mauve or white, racemose (1–5 flowers per raceme); seeds with fleshy, collar-like aril ..... **Podalyria**
30.' Stamens diadelphous or monadelphous:
33. Calyx base intrusive, carinal lobe usually longer than upper 4 lobes; leaves sessile, 3- or more-veined from base; inflorescences 4–many-flowered (rarely 2-flowered); bracts often leaf-like ..... **Liparia**
33.' Calyx base gradually narrowing to pedicel, carinal lobe usually not longer than upper 4 lobes; leaves usually petiolate or at least with pulvinus, single-veined from base; inflorescences 1- or 2-flowered; bracts not leaf-like:
34. Flowers yellow, fading to brown with age; bracteoles often present; aril not extended towards lens; pods compressed between seeds ..... **Xiphotheca**
34.' Flowers mostly pink, mauve or white (rarely yellow but then < 10 mm long and not fading to brown with age); bracteoles absent; aril extended towards lens; pods not compressed between seeds ..... **Amphithalea**
29.' Leaves (1–)3(–7)-foliolate; seed aril inconspicuous, not fleshy:
35. Stamens diadelphous, vexillary stamen free; lateral leaflets usually markedly asymmetrical and regularly stipellate; flowers in axillary or terminal racemes:
36. Leaflets and calyx generally with yellowish gland-dots; bracteoles absent:
37. Ovules 3 or more ..... **Bolusafra**
37.' Ovules 2, rarely 3:
38. Funicle of seed attached at end of linear hilum; stems usually stiff and erect ..... **Eriosema**
38.' Funicle of seed attached in middle of hilum; stems usually twining or trailing ..... **Rhynchosia**
36.' Leaflets and calyx without glands:
39. Style generally terete and unbearded (sometimes with few hairs below stigma):
40. Flowers red or pink, petals very unequal in length; trees ..... **Erythrina**
40.' Flowers yellow, petals subequal in length; climber ..... **Dumasia**
39.' Style expanded, flattened, coiled or bearded; climbers or twiners with mauve or magenta flowers:
41. Stigma lateral, obliquely or rarely ± terminal ..... **Vigna**
41.' Stigma terminal:
42. Standard appendage 1 large bilobed structure; style strongly S-curved (sigmoid) near base, bearded in upper half with hairs in 2 rows ..... **Dipogon**
42.' Standard appendages 2–4, separate; style glabrous or hairy around stigma ..... **Dolichos**

35.' Stamens fused into open tube; lateral leaflets symmetrical, not stipellate; flowers in terminal or leaf-opposed racemes:
43. Plants totally glabrous, even on adaxial surface of standard, except occasionally on bracts and bracteoles (if rarely pubescent then short-lived fireweeds with keel spirally twisted); leaves stiff and needle-like or flat:
44. Leaves laminar, sessile, often drying black; anthers 5+4+1 ..... **Rafnia**
44.' Leaves stiff and needle-like, with a flattened petiole (phyllodinous); anthers 5+5 ..... **Lebeckia**
43.' Plants hairy, at least with some hairs on leaves or on adaxial surface of standard; leaves digitate (rarely unifoliolate or sessile but then distinctly hairy and/or not drying black):
45. Anthers 5+5; keel strongly beaked; upper part of style with 1 or 2 lines of hairs (when glabrous then with thin upper part and thick lower part); pods usually much inflated ..... **Crotalaria**
45.' Anthers 5+4+1 or 6+4 (rarely 5+5); keel beaked or not; upper part of style glabrous, usually not with thin upper and thick lower part; pods flat or inflated:
46. Ovary with 2–4 ovules; fruit 1-seeded; leaves sessile, without stipules ..... **Aspalathus**
46.' Ovary with > 6 ovules; fruit several-seeded; leaves sessile or petiolate, with or without stipules:
47. Petals glabrous; leaflets exclusively 3-foliolate, petioles often tuberculate:
48. Fruit winged, indehiscent; carinal anther intermediate (5+4+1) ..... **Wiborgia**
48.' Fruit not winged, dehiscent or indehiscent; carinal anther resembles short anthers (6+4) ..... **Wiborgiella**
47.' Petals pubescent, at least on dorsal midrib of standard petal (if glabrous then plants strongly spinescent, practically leafless shrubs); leaflets simple or variously digitate, petioles not tuberculate:
49. Stipules absent; bracteoles present; calyx with lobes not united into pairs; fruit without verrucose upper suture ..... **Calobota**
49.' Stipules present or rarely absent; bracteoles absent or present; calyx lobes equal or united into pairs on either side; fruit often with upper suture verrucose:
50. Calyx lobes united into pairs on either side; stipules simple or dimorphic (if stipules equal in size then plants woody subshrubs resprouting from enlarged underground rootstock and stipules similar to leaflets):
51. Keel petals usually beaked and glabrous ..... **Lotononis**
51.' Keel petals usually obtuse and pubescent ..... **Leobordea**
50.' Calyx lobes not united into pairs; stipules equal in size:
52. Geophytic with woody tuber; leaves (at least basal ones) simple and sessile; bracteoles absent; anthers 6+4 .... **Euchlora**
52.' Rootstock not tuberous, leaves 3-foliolate and petiolate; bracteoles present; anthers 5+5 ..... **Ezoloba**

*__ACACIA__ Mill. WATTLE ± 1 075 spp., Madagascar, Asia and Pacific, mainly Australia (± 1 000 spp.) (see also **SENEGALIA**, **VACHELLIA**)

A. Leaves bipinnate

***baileyana** F.Muell. BAILEY'S WATTLE, BAILEY-SE-WATTEL Unarmed, evergreen, small tree, 3–9 m, with branches and leaves covered with a greyish or bluish, powdery bloom. Leaves bipinnate, greyish or silvery blue, sometimes tinged purple. Flowers in globose heads, bright yellow. Pods greyish brown. July–Sept. Grasslands, fynbos, roadsides, urban open spaces, watercourses, NW, SW, AP, LB, SE (Australian invader).

***dealbata** Link SILVER WATTLE, SILWERWATTEL Unarmed, evergreen tree, 5–15 m, branches with velvety-hairy growth tips, initially yellow, turning greyish or white. Leaves bipinnate, silvery grey, finely hairy. Flowers in globose heads, pale to bright yellow. Pods greyish or purplish brown,

slightly constricted between seeds. July–Aug. Grasslands, roadsides, watercourses, SW, LB, SE (Australian and Tasmanian weed).

*__elata__ A.Cunn. ex Benth. PEPPERTREE WATTLE, PEPERBOOMWATTEL Unarmed, evergreen tree to 20 m, Leaves bipinnate, dark green, glossy above. Flowers in globose heads, pale yellow. Pods brown, finely golden-hairy, Oct.–Dec. Forest clearings, roadsides, fynbos, moist sites, urban open spaces, SW, LB, SE (Australian invader).

*__mearnsii__ De Wild. BLACK WATTLE Tree to 15 m. Leaves bipinnate, dark green, with numerous raised glands on midvein. Flowers in globose heads, yellow. Pods flat, constricted between seeds. Aug.–Nov. Watercourses, forests, roadsides, NW, SW, AP, KM, LB, SE (Australian weed).

A.' Leaves reduced to simple phyllodes

*__cyclops__ A.Cunn. ex G.Don REDEYE, ROOIKRANS Shrub or tree to 4 m. Phyllodes oblong, with 3–7, longitudinal veins, bright green. Flowers in globose heads, bright yellow. Pods flat, undulate or twisted, not constricted between seeds. Seeds black, with prominent, fleshy, red aril. Oct.–May. Mountain and lowland fynbos, coastal dunes, watercourses, NW, SW, AP, KM, LB, SE (Australian weed).

*__longifolia__ (Andrews) Willd. LONG-LEAVED WATTLE Small, resprouting tree to 6 m. Phyllodes oblong, with 3–5, longitudinal veins, bright green. Flowers in cylindrical spikes, bright yellow. Pods cylindrical, constricted between seeds. June–Nov. Mountain and lowland fynbos, stream banks, marshy areas, SW, AP, LB, SE (Australian weed).

*__melanoxylon__ R.Br. BLACKWOOD Resprouting shrub or tree to 35 m. Phyllodes linear-oblanceolate, with 3–7, longitudinal veins, dull dark green. Flowers in globose heads, pale yellow. Pods flat, straight or variously coiled, not constricted between seeds. Aug.–Sept. Slopes, forests and stream banks, SW, AP, LB, SE (Australian weed).

*__podalyriifolia__ A.Cunn. ex G.Don PEARL ACACIA, VAALMIMOSA Unarmed, evergreen shrub or small tree, 3–10 m, with branches and new growth covered with a greyish, powdery bloom and densely velvety hairs. Phyllodes oval or elliptical, with 1 central, longitudinal vein, silvery grey to dull green, Flowers in globose heads, bright yellow. Pods greyish brown, velvety, broad, with wavy margins. June–Aug. Roadsides, urban open spaces, watercourses, SW, AP, LB, SE (Australian invader).

*__pycnantha__ Benth. GOLDEN WATTLE Shrub or tree to 20 m. Phyllodes falcate, with 1 central, longitudinal vein, dull green. Flowers in globose heads, bright yellow. Pods flat, slightly constricted between seeds. July–Oct. Mountain and lowland fynbos, forests, SW, AP, SE (Australian weed).

*__saligna__ (Labill.) H.L.Wendl. PORT JACKSON Resprouting shrub to 6 m. Phyllodes oblong-lanceolate, with 1 central, longitudinal vein, blue green turning bright green. Flowers in globose heads, bright yellow. Pods flat, constricted between seeds. Aug.–Oct. Coastal and lowland fynbos, watercourses, NW, SW, AP, KM, LB, SE (Australian weed).

*__ALHAGI__ Gagnebin CAMEL THORN BUSH, KAMEELDORINGBOS 3 spp., Eurasia to Nepal

*__maurorum__ Medik. Resprouting, thorny shrub to 1.5 m. Leaves 1-foliolate, cuneate-obcordate, leathery. Flowers scattered on axillary thorns, purple. Oct.–Nov. Karroid scrub, deep soils, NW, KM (Eurasian weed).

__AMPHITHALEA__ Eckl. & Zeyh. (= *COELIDIUM*) 42 spp., N to E Cape

A. Peduncle present

__pageae__ (L.Bolus) A.L.Schutte (= *Coelidium pageae* L.Bolus) Erect, reseeding shrub to 1 m. Leaves 1-foliolate, lanceolate, concave, margins strongly incurved, densely silky above, glabrescent below. Flowers in pedunculate racemes, white with keel tipped purple. July–Aug. Renosterbos-fynbos scrub, 300–450 m, KM (MacGregor to Swellendam).•

__parvifolia__ (Thunb.) A.L.Schutte (= *Coelidium fourcadei* Compton, *C. parvifolium* (Thunb.) Druce) Woody, reseeding shrub to 2.5 m. Leaves 1-foliolate, ovate, ± flat, margins slightly incurved, silky. Flowers in pedunculate racemes, rose and mauve. Sept.–Dec. Mountain fynbos, 650–1 625 m, KM, SE (Swartberg and Outeniqua to Kouga Mtns).•

spinosa (Harv.) A.L.Schutte (= *Coelidium spinosum* Harv.) Erect, dense, thorny shrub to 1.2 m. Leaves 1-foliolate, elliptic-ovate, ± flat, margins incurved, silky. Flowers in pedunculate racemes, pale rose, with dark purple, keel tip. Aug.–Oct. Mountain renosterveld and renosterbos-fynbos scrub, 500–1 300 m, NW, KM (Hex River Valley to Witteberg).•

A.' Peduncle absent
B. Leaves ± flat

axillaris Granby Willowy, reseeding shrublet to 1 m. Leaves 1-foliolate, lanceolate, ± flat, margins slightly recurved, silky. Flowers pale pink and purple. Apr.–Aug. Mountain fynbos, 360–1 200 m, LB, SE (Langeberg and Outeniqua Mtns).•

bodkinii Dummer Decumbent shrublet. Leaves 1-foliolate, broadly ovate or elliptic, flat, with scarcely visible venation, reddish to greyish hispid. Flowers rose, mauve and dark purple. Dec.–Feb. Mountain fynbos, rocky sites, 970–1 300 m, SW (Wemmershoek Mtns).•

cuneifolia Eckl. & Zeyh. Robust, resprouting shrub to 2.5 m. Leaves 1-foliolate, obovate, flat, with distinct venation, silky. Flowers bright purple. Oct.–Feb. Mountain fynbos, 600–1 300 m, SW (Du Toitskloof to Kleinrivier Mtns).•

fourcadei Compton Reseeding shrub to 1.5 m. Leaves 1-foliolate, ovate or elliptic, flat to weakly concave, with margins slightly thickened, silvery hairy. Flowers pink, light mauve and dark mauve. Nov.–Mar. Mountain and lowland fynbos, 225–980 m, SE (Outeniqua and Tsitsikamma Mtns).•

imbricata (L.) Druce Erect shrub to 1.8 m. Leaves 1-foliolate, ovate to obovate, flat, venation distinct, silky. Flowers deep mauve. Dec.–June. Mountain and lowland fynbos, 250–750 m, SW (Cape Peninsula to Hottentots Holland Mtns).•

intermedia Eckl. & Zeyh. Willowy, resprouting shrublet to 50 cm. Leaves 1-foliolate, elliptic, ± flat, margins slightly recurved, silky. Flowers pale and dark violet. July–Oct. Mountain and lowland fynbos, 60–1 650 m, SW, KM, SE (Hottentots Holland to Kouga Mtns).•

micrantha Walp. Dense, resprouting shrublet to 50 cm. Leaves 1-foliolate, ovate to cordate, flat to somewhat concave, minutely black-dotted, glabrous and glossy above, hairy or glabrous beneath. Flowers white and purple. Apr.–July. Mountain fynbos, 1 625–1 950 m, KM, SE (Swartberg to Van Staden's Mtns).•

sericea Schltr. Erect, resprouting shrublet to 1 m. Leaves 1-foliolate, ovate-lanceolate, flat, silky. Flowers violet or purple. Apr.–July. Lowland fynbos, limestone, sandy hills, 60–500 m, AP (Pearly Beach to Still Bay).•

tomentosa (Thunb.) Granby Willowy, resprouting shrub to 1 m. Leaves 1-foliolate, lanceolate, ± flat, grey-silky. Flowers lemon-yellow. Apr.–Sept. Lowland fynbos, below 200 m, SW, AP, LB (Betty's Bay to Riversdale).•

violacea (E.Mey.) Benth. Erect, resprouting shrublet to 1 m. Leaves 1-foliolate, lanceolate, ± flat, margins slightly recurved, silky. Flowers mauve and purple. Mar.–Aug. Mountain and lowland fynbos, 150–1 020 m, KM, LB, SE (Gamkaberg and Langeberg to Outeniqua Mtns and Mossel Bay).•

williamsonii Harv. Erect, resprouting shrub to 2 m. Leaves 1-foliolate, ovate, ± flat to somewhat concave, venation visible, silky. Flowers pale mauve and purple. May–Aug. Mountain fynbos, 475–650 m, SE (Plettenberg Bay to E Cape).

B.' Leaves concave or convex, with margins incurved or recurved
C. Leaves convex with recurved margins

alba Granby Erect, reseeding shrub to 1.2 m. Leaves 1-foliolate, ovate, margins recurved, silky. Flowers white or creamy. May–Sept. Lowland fynbos on limestone, below 150 m, AP (Agulhas to Still Bay).•

ericifolia (L.) Eckl. & Zeyh. Erect, resprouting shrublet to 1 m. Leaves 1-foliolate, lanceolate, margins strongly recurved, silky. Flowers pink, rose and dark pink. Apr.–Jan. Mountain and lowland fynbos below 1 500 m, SW, LB (Malmesbury to Albertinia).•

phylicoides Eckl. & Zeyh. Robust, resprouting shrub to 1.5 m. Leaves 1-foliolate, ovate-lanceolate, margins recurved, densely silky above, softly hairy beneath. Flowers pale rose, white and purple. Jan.–July. Mountain fynbos, 50–1 450 m, SE (Outeniqua Mtns to Grahamstown).

rostrata A.L.Schutte & B.-E.van Wyk Erect, robust, resprouting shrublet to 50 cm. Leaves 1-foliolate, ovate, margins strongly recurved, hairy above, densely silky beneath. Flowers dark maroon-red, with cucullate standard apex and squarrose wing petals. June–July. Lowland fynbos, hillsides, 120 m, AP (Pearly Beach: Carruthers Hill).•

speciosa Schltr. Resprouting shrublet to 1.3 m. Leaves 1-foliolate, lanceolate to ovate-lanceolate, margins recurved, glabrous above, silky beneath. Flowers white and violet. Apr.–Sept. Lowland fynbos, 80–300 m, AP (Elim to Bredasdorp).•

stokoei L.Bolus Erect, reseeding shrublet to 60 cm. Leaves 1-foliolate, ovate-lanceolate, margins recurved, pungent, glabrous or hairy above, densely silky beneath. Flowers rose and purple. Aug.–Nov. Sandstone slopes in fynbos, 320–500 m, SW (Hottentots Holland Mtns to Kogelberg).•

virgata Eckl. & Zeyh. Erect, resprouting shrublet to 30 cm. Leaves 1-foliolate, linear-lanceolate, margins strongly recurved, thinly hairy above, silky beneath, rusty brown when dry. Flowers pinkish mauve. May–Sept. Lowland fynbos, to 450 m, SW (Caledon).•

C.' Leaves concave with incurved margins
*D. Leaves twisted (see also **A. ciliaris, A. muraltioides**)*

bowiei (Benth.) A.L.Schutte (= *Coelidium bowiei* Benth.) Decumbent, resprouting shrublet to 30 cm. Leaves 1-foliolate, lanceolate-ovate, concave, margins strongly incurved, twisted, ciliate, silky above, glabrous below. Flowers yellow. June–Aug. Mountain fynbos, 300–600 m, SW (Houwhoek to Kleinmond).•

muirii (Granby) A.L.Schutte (= *Coelidium muirii* Granby) Resprouting shrublet to 70 cm. Leaves 1-foliolate, oblong, concave, margins incurved, twisted, densely silky above, glabrescent beneath. Flowers white or cream-coloured with dark purple, keel tip. May–Sept. Mountain fynbos, 1 000–1 950 m, KM, LB (Langeberg and Little Karoo Mtns).•

perplexa Eckl. & Zeyh. (= *Coelidium perplexum* (Eckl. & Zeyh.) Granby) Erect, reseeding shrub to 1.2 m. Leaves 1-foliolate, ovate to lanceolate, concave, margins slightly incurved, twisted, silky. Flowers pink, with dark violet-red keel. Sept.–Jan. Mountain fynbos, 1 625 m, NW, KM (Cold Bokkeveld to Klein Swartberg).•

tortilis (E.Mey.) Steud. (= *Coelidium tortile* (E.Mey.) Druce) Prostrate, resprouting shrublet to 20 cm. Leaves 1-foliolate, narrowly elliptic, concave, margins incurved, twisted, densely silky above, glabrescent beneath. Flowers pale cream-coloured or white, with dark purple, keel tip. June–Dec. Mountain fynbos, 360–1 600 m, NW, SW (Piketberg and Grootwinterhoek to Du Toitskloof Mtns).•

D.' Leaves not twisted

biovulata (Bolus) Granby Prostrate or decumbent, resprouting shrublet to 30 cm. Leaves 1-foliolate, lanceolate, concave, margins incurved, silky above, glabrous beneath. Flowers violet-blue. Sept.–Oct. Lowland fynbos, below 150 m, SW, AP (Kogelberg to De Hoop).•

bullata (Benth.) A.L.Schutte (= *Coelidium bullatum* Benth.) Low, resprouting shrublet to 15 cm. Leaves 1-foliolate, lanceolate to broadly ovate, concave, margins strongly incurved, ciliate, silky above, thinly hairy or glabrous beneath. Flowers unknown. ? Mountain fynbos, LB (Langeberg: Garcia's Pass).•

cedarbergensis (Granby) A.L.Schutte (= *Coelidium cedarbergense* Granby) Erect, resprouting shrub to 20 cm. Leaves 1-foliolate, lanceolate to ovate-lanceolate, concave, margins slightly incurved, densely silky above, thinly hairy or glabrous beneath. Flowers pink, with purple, keel tip. May–Oct. Mountain fynbos, 1 300–1 790 m, NW (Cedarberg to Cold Bokkeveld).•

ciliaris Eckl. & Zeyh. (= *Coelidium ciliare* (Eckl. & Zeyh.) Walp.) Erect or straggling, resprouting shrublet to 30 cm. Leaves 1-foliolate, lanceolate-ovate, concave, margins strongly incurved, sometimes twisted, silky above, glabrous beneath, bearded at apex. Flowers white with violet-brown keel. Aug.–Oct. Alluvium over shale, 160–1 300 m, SW (Caledon to Potberg).•

concava Granby Low, rigid, dense, resprouting shrublet. Leaves 1-foliolate, lanceolate, concave, margins incurved, sparsely silky or glabrescent above, silky beneath. Flowers pink and dark violet. Sept.–Dec. Mountain fynbos, 1 650–2 000 m, SW (Wemmershoek Mtns).•

cymbifolia (C.A.Sm.) A.L.Schutte (= *Coelidium cymbifolium* C.A.Sm.) Robust, resprouting shrublet to 30 cm. Leaves 1-foliolate, narrowly cymbiform, concave, margins strongly incurved, densely silky above, glabrous beneath, venation distinct. Flowers yellow. Oct. Mountain fynbos, 550 m, LB (Langeberg: Gysmaanshoek).•

dahlgrenii (Granby) A.L.Schutte (= *Coelidium dahlgrenii* Granby) Erect, robust, resprouting shrublet to 50 cm. Leaves 1-foliolate, linear-oblong, concave, margins incurved, densely silky above, thinly hairy or glabrous beneath. Flowers white with dark violet, keel tip. Aug.–Sept. Mountain fynbos, 975–1 300 m, NW (Matroosberg and Keeromsberg).•

esterhuyseniae (Granby) A.L.Schutte (= *Coelidium esterhuyseniae* Granby) Sprawling, dense, resprouting shrublet to 35 cm. Leaves 1-foliolate, linear-oblong, concave, margins strongly incurved, densely silky above, thinly hairy or glabrous beneath. Flowers white, pink with purple keel tip. Nov.–Jan. Mountain fynbos, alpine vegetation, 1 625–1 950 m, NW (Hex River Mtns).•

flava (Granby) A.L.Schutte (= *Coelidium flavum* Granby) Robust, resprouting, multistemmed shrublet to 80 cm. Leaves 1-foliolate, ovate, concave, margins strongly incurved, densely silky above, glabrous beneath. Flowers yellow. Sept. Mountain fynbos, lower slopes, 470 m, SE (Outeniqua Mtns).•

minima (Granby) A.L.Schutte (= *Coelidium minimum* Granby) Erect shrublet to 80 cm. Leaves 1-foliolate, oblong, subimbricate, concave, silky or glabrous. Flowers pale rose, with purple, keel tip. Sept. Fynbos, rocky outcrops, NW (Bokkeveld Mtns).•

monticola A.L.Schutte (= *Coelidium humile* Schltr.) Low, rounded, flat-topped, resprouting shrublet to 40 cm. Leaves 1-foliolate, oblong, concave, margins incurved, densely woolly. Flowers bright pink, with dark purple, keel tip. Oct.–Jan. Mountain fynbos, alpine vegetation, 1 625–2 110 m, NW, KM, LB (Hex River Mtns to Waboomsberg and W Langeberg).•

muraltioides (Benth.) A.L.Schutte (= *Coelidium muraltioides* Benth.) Low, diffuse, reseeding shrublet to 40 cm. Leaves 1-foliolate, lanceolate to ovate, concave, margins strongly incurved, sometimes somewhat twisted, hairy. Flowers pale rose, with dark purple, keel tip. Oct.–Mar. Mountain fynbos, 1 135–2 000 m, NW, KM (Cedarberg to Swartberg).•

oppositifolia L.Bolus Erect shrublet to 60 cm. Leaves opposite, 1-foliolate, linear, concave, margins incurved, silky above, glabrous beneath. Flowers mauve and dark purple. July–Sept. Mountain fynbos, lower slopes, 330–500 m, SW (Kogelberg to Betty's Bay).•

purpurea (Granby) A.L.Schutte (= *Coelidium purpureum* Granby) Compact, reseeding shrub to 50 cm. Leaves 1-foliolate, oblong, concave, margins incurved, silky. Flowers bright purple or pink, with dark purple, keel tip. Dec. Mountain fynbos, 1 820 m, NW (Cold Bokkeveld Mtns).•

villosa Schltr. (= *Coelidium villosum* (Schltr.) Granby) Erect, robust, sometimes resprouting shrub to 1 m. Leaves 1-foliolate, linear-oblong, concave, margins incurved, densely silky above, glabrescent beneath. Flowers pink, mauve or magenta, with dark pink or mauve, keel tip. Sept.–Nov. Mountain fynbos, karroid scrub, 940–1 470 m, NW, KM (Cedarberg to Witteberg).•

vlokii (A.L.Schutte & B.-E.van Wyk) A.L.Schutte (= *Coelidium vlokii* A.L.Schutte & B.-E.van Wyk) Willowy, resprouting shrub to 1 m. Leaves 1-foliolate, linear to narrowly oblong, concave, margins incurved, densely silky, sometimes glabrescent beneath. Flowers creamy yellow, with dark purple, keel tip. Sept. Renosterbos-fynbos scrub, 850 m, SE (Uniondale).•

ARGYROLOBIUM Eckl. & Zeyh. ± 70 spp., Africa, Mediterranean to India

A. Flowers solitary

argenteum (Jacq.) Eckl. & Zeyh. Shrublet to 50 cm, with characteristic densely hairy, white stems. Leaves 3-foliolate, with prominent petioles, leaflets weakly dimorphic, broadly obovate to obovate, somewhat conduplicate. Flowers solitary, small, sessile, yellow, fading russet. Mainly Apr. Fynbos, karroid scrub, lower slopes, 300–800 m, NW, SW, KM, LB, SE (widespread in dry interior).

collinum Eckl. & Zeyh. Sparsely branched, resprouting, silvery shrublet to 40 cm. Leaves 3-foliolate, subsessile, leaflets narrowly to broadly obovate, densely sericeous, conduplicate. Flowers solitary, occasionally paired, sessile, yellow, fading russet. Sept.–Feb. Fynbos, grasslands, 300–1 500 m, SE (Joubertina to Grahamstown).

harmsianum Schltr. ex Harms Sparsely branched shrublet to 20 cm with stoloniferous lateral stems. Leaves 3-foliolate, subsessile, leaflets obovate to oblong with glabrescent upper surface. Flowers solitary, subsessile, yellow. Apr.–June. Dune and limestone fynbos, below 300 m, AP (Struis Bay to De Hoop).•

harveyanum Oliv. Sparsely branched, resprouting, tuberous shrublet to 30 cm. Leaves 3-foliolate, dimorphic, lower petiolate with broadly obovate, elliptic to lanceolate leaflets, upper subsessile with linear to oblanceolate, conduplicate leaflets. Flowers solitary, sessile, yellow. Mainly Sept.–Mar. Grasslands, below 800 m, SE (Knysna to Limpopo).

pachyphyllum Schltr. Well-branched, resprouting shrublet, 10–30 cm, with white young stems. Leaves 3-foliolate, leaflets crescent-shaped, folded. Flowers solitary, yellow. Oct.–Apr. Mostly after fire, fynbos-renosterveld ecotone, below 400 m, SW, AP (Caledon to Greyton, Bredasdorp).•

pumilum Eckl. & Zeyh. Resprouting shrublet to 20 cm. Leaves 3-foliolate, uniform, leaflets ovate, flat, discolorous, with silver margins and petioles longer than small, recurved stipules. Flowers solitary, yellow. ?. Rocky outcrops, grassy fynbos, grasslands, SE (Van Staden's Mtns to Somerset East).

rarum Dummer Trailing, sparsely branched shrublet, with stems to 40 cm long. Leaves 3-foliolate with long petioles, leaflets linear. Flowers solitary, sessile, yellow. Dec.–Mar. Fynbos, 300–800 m, KM, SE (Swartberg, Rooiberg, Klipspringerberg and Outeniqua Mtns).•

A.' Flowers in terminal racemes, occasionally almost solitary
B. Leaflets linear-oblanceolate

aciculare Dummer Slender, resprouting, tuberous shrublet to 20 cm. Leaves 3-foliolate, leaflets linear-conduplicate, ericoid, glabrous. Flowers 2 or 3 per peduncle, bracts and bracteoles prominent, yellow. Nov.–Feb. Fynbos, sandstone, below 300 m, SW (Kogelberg, Caledon).•

angustissimum (E.Mey.) T.J.Edwards Erect, sparsely branched shrublet to 30 cm. Leaves 3-foliolate, leaflets linear. Flowers russet and yellow, large (calyx 17–20 mm long). Sept.–Dec. Fynbos, SW (Paarl Mtn).•

filiforme Eckl. & Zeyh. Sparsely branched, resprouting, tuberous shrublet to 15 cm. Leaves 3-foliolate, leaflets dimorphic, lower broadly obovate to lanceolate, upper linear to oblanceolate, conduplicate. Flowers sessile, several per peduncle, yellow. Sept.–Jan. Fynbos, below 300 m, SW, LB (Cape Peninsula to Albertinia).•

tuberosum Eckl. & Zeyh. Sparsely branched, resprouting, tuberous shrublet to 30 cm. Leaves 3-foliolate, leaflets usually dimorphic, lower broadly obovate to narrowly oblanceolate, upper linear to oblanceolate, conduplicate. Flowers multi-coloured, lemon-yellow and russet. Sept.–Apr. Grasslands, below 1 500 m, SE (Humansdorp to tropical Africa).

B.' Leaflets elliptic-obovate

crassifolium Eckl. & Zeyh. Much-branched shrublet, 0.5–1 m. Leaves 3-foliolate, leaflets broadly obovate, apiculate. Flowers yellow, fading russet. June–Nov. Fynbos, grasslands, below 300 m, SE (Humansdorp to Uitenhage).•

crinitum (E.Mey.) Walp. Sparsely branched, resprouting subshrub, 30–50 cm. Leaves 3-foliolate, leaflets obovate, with very large 2–4-lobed, fused stipules. Flowers pale yellow. June. Renosterveld, ?300 m, LB (Langeberg: Tradouw Pass).•

incanum Eckl. & Zeyh. Virgate, sparsely branched shrub to 2 m. Leaves 3-foliolate, leaflets round, densely hairy. Flowers yellow, fading russet. July–Jan. Fynbos, grasslands, 300–1 500 m, SE (Baviaanskloof Mtns to Grahamstown).

lunare (L.) Druce Trailing shrublet with stems 10–40 cm long. Leaves 3-foliolate, petioles very long, leaflets narrowly lanceolate-elliptic, stipules with cordate bases. Flowers yellow, fading brick-red, unique in having hairy anthers and pods constricted between seeds. Aug.–Feb. Fynbos and renosterveld, below 1 000 m, NW, SW (Clanwilliam to Caledon).•

molle Eckl. & Zeyh. Tufted to decumbent shrublet, 10–20 cm. Leaves 3-foliolate, leaflets slightly dimorphic, oblanceolate to obovate, weakly to strongly conduplicate, venation prominent. Flowers yellow, fading russet. Aug.–Feb. Grasslands, 300–1 500 m, LB, SE (Riversdale to Limpopo).

parviflorum T.J.Edwards Well-branched shrublet to 1 m. Leaves 3-foliolate, leaflets broadly obovate, venation prominent beneath, reticulate. Flowers small, yellow. Mainly Nov.–May. Fynbos, 300–1 500 m, SE (Baviaanskloof Mtns).•

polyphyllum Eckl. & Zeyh. Well-branched shrub, 0.5–2 m. Leaves 3-foliolate, dimorphic, lower leaflets caducous, narrowly to broadly obovate, petiole 8–20 mm long, upper leaflets narrowly obovate to elliptic, petiole 2–6 mm long. Flowers yellow. Dec.–Feb. Forest margins, 800–1 500 m, SE (Baviaanskloof Mtns to E Cape).

splendens (E.Mey.) Walp. Resprouting subshrub, 20–40 cm., silvery-haired when young but later glabrous. Leaves 3-foliolate, leaflets oblong to obovate, leathery, margins strongly revolute, stipules obliquely cordate. Flowers yellow. Dec., only after fire. Shale band, 300 m, SW (Babilonstoring).•

tomentosum (Andrews) Druce Well-branched, sprawling shrub, 0.2–1.5 m. Leaves 3-foliolate, leaflets ovate, elliptic or obovate, ciliate, venation somewhat prominent. Flowers yellow. Nov.–May. Forests and forest margins, below 1 500 m, SE (Knysna to tropical Africa).

trifoliatum (Thunb.) Druce Well-branched, resprouting subshrub, 2–50 cm. Leaves 3-foliolate, dimorphic, leaflets obovate to obcordate, emarginate to recurvo-mucronate, glabrous above, hairy below. Flowers yellow. Oct.–July. Grasslands below 300 m, SE (Humansdorp).•

velutinum Eckl. & Zeyh. Sparsely branched, resprouting subshrub, 10–50 cm. Leaves petiolate, 3-foliolate, leaflets broadly to narrowly obovate, sericeous to velutinous, stipules ovate. Flowers subsessile, 1–6 per peduncle, yellow. Fruits inflated. July–Nov. Sandveld, occasionally on limestone, NW, SW (Trawal to Langebaan).•

ASPALATHUS L. CAPE GORSE 279 spp., mainly W Cape, also N Cape and KwaZulu-Natal

A. Leaves 1-foliolate
B. Leaves terete, needle-like

lebeckioides R.Dahlgren Decumbent shrublet with branches 30–70 cm. Leaves 1-foliolate, needle-like, basally with a constricted portion, glabrous or shortly hairy. Flowers 1(–5) on branch ends, yellow or standard tinted violet or purple, wings and keel glabrous, calyx sparsely short-hairy, lobes triangular. Oct.–Nov. Lowland fynbos or renosterveld, 500–680 m, SW, AP (Mamre to De Hoop).•

linearis (Burm.f.) R.Dahlgren BUSH TEA, ROOIBOSTEE Erect shrub to 2 m. Leaves 1-foliolate, needle-like, ± glabrous, sometimes turning reddish brown, aromatic when dried. Flowers 1(–10) in racemes on branch tips, pale to bright yellow or partly purple or violet, wings glabrous, keel hairy, rarely with a tooth-like point, calyx glabrous or shortly hairy, lobes triangular. Aug.–Feb. Mountain fynbos, 100–1 300 m, NW, SW (Bokkeveld Mtns to Cape Peninsula).•

pendula R.Dahlgren Shrub or small tree with pendulous branches, 1.5–5 m. Leaves 1-foliolate, needle-like, basally with a constricted portion, glabrous. Flowers 3–7 on terminal, lax raceme with long peduncle, pale yellow or partly violet, wings glabrous, keel rostrate, hairy, calyx shortly hairy, lobes broadly triangular, short. Oct.–Nov. Mountain fynbos shale bands, sometimes forming small woods, 250–600 m, NW (Cedarberg and Piketberg).•

B.' Leaves ± flat (see also ***A. aemula****)*

alpestris (Benth.) R.Dahlgren Ascending or sprawling shrublet with branches 50–100 cm. Leaves 1-foliolate, lanceolate, pungent, 3–9-veined from base, glabrous. Flowers solitary or up to 6 in sparse raceme on a distinct peduncle, pale or bright yellow, wing, keel and calyx glabrous, lobes triangular. Jan.–Dec. Renosterveld and fynbos, 70–1 060 m, NW, SW, KM, LB, SE (Cold Bokkeveld and Botrivier to Uniondale).•

angustifolia (Lam.) R.Dahlgren Erect or decumbent shrublet, 15–50 cm. Leaves 1-foliolate, lanceolate, pungent, 3–5-veined from base, glabrous or occasionally sparsely long-hairy. Flowers solitary or 2–6 in raceme at branch tips, bright yellow to partly reddish, wing and keel hairy, calyx glabrous, lobes lanceolate to narrowly triangular. Oct.–Apr. Lowland fynbos or renosterbos-fynbos scrub, 260–460 m, NW, SW, LB, SE (Kamiesberg and Bokkeveld Mtns to Port Elizabeth). **gce**

barbata (Lam.) R.Dahlgren Rigid shrub with wand-like branches, 40–100 cm. Leaves 1-foliolate, lanceolate, pungent, subamplexicaul, 7–15-veined from base, margins white-ciliate. Flowers 2–5, crowded at branch tips, yellow, wings and keel hairy, calyx white-hairy, lobes lanceolate with prominent veins, spine-tipped. Oct.–Dec. Mountain fynbos, 160–660 m, SW (Cape Peninsula).•

commutata (Vogel) R.Dahlgren Sprawling or prostrate, mat-forming shrublet with branches > 50 cm. Leaves 1-foliolate, ovate-elliptic, pungent, ± 9-veined from base, ± reflexed, subglabrous. Flowers solitary or 2(–6) in raceme on distinct peduncle-like internode, pale yellow, wings and keel glabrous, calyx glabrous, lobes linear, tapering, weak, with margins sparsely hairy. Oct.–Apr. Mountain fynbos, upper slopes, 1 000–1 700 m, NW, SW (Grootwinterhoek to Hottentots Holland Mtns).•

compacta R.Dahlgren Prostrate shrub forming circular mats with slack branches to > 80 cm. Leaves 1-foliolate, lanceolate, pungent, 3-veined from base, glabrous. Flowers 1 or 2 on a distinct peduncle, pale yellow or standard partly purplish, wings and keel glabrous, calyx and bracteoles sparsely and softly hairy, lobes sharply pointed. Oct.–Nov. Renosterbos-fynbos scrub, 1 000 m, NW (Ceres: Skurweberg).•

complicata (Benth.) R.Dahlgren Like **A. crenata** but flowers cream-coloured to pale yellow, more numerous and smaller, keel blades to 4.5 mm. Oct.–Nov. Fynbos-renosterveld ecotone, NW (Piketberg: base of Versfeld Pass).• EXTINCT

cordata (L.) R.Dahlgren Rigid shrub to 1 m. Leaves 1-foliolate, ovate, subamplexicaul, pungent, 11–21-veined from base. Flowers 4–8 in head-like cluster at branch tips, bright yellow, fading bright

red, wings and keel hairy, calyx white-hairy, lobes lanceolate with prominent veins, sharply spine-tipped Sept.–Dec. Mountain fynbos, lower slopes, 30–400 m, NW, SW (Piketberg to Hangklip).•

crenata (L.) R.Dahlgren Erect or sprawling shrub, 0.2–1.5 m. Leaves 1-foliolate, ovate, subamplexicaul, pungent, margins denticulate, 7–11-veined from base. Flowers 3–15(–25) crowded at branch tips, yellow or standard partly purplish, fading red or brown, wings and keel glabrous, calyx glabrous, lobes narrowly triangular, not prickly. Sept.–Dec. Mountain fynbos, 200–830 m, NW, SW (Olifants River Mtns to Hangklip).•

elliptica (E.Phillips) R.Dahlgren Like **A. crenata** but leaves softer, weak, elliptic-ovate and not spine-tipped, and flowers 8–35 in dense racemes. Sept.–Nov. Mountain fynbos, steep, moist slopes, 660–1 260 m, SW (Bain's Kloof to Kleinrivier Mtns).•

lanceifolia R.Dahlgren Slender, decumbent to ascending shrublet to 20 cm. Leaves 1-foliolate, linear-lanceolate, pungent, sometimes softly hairy, 3-veined from base. Flowers solitary on long pedicels, yellow, fading reddish, wings sometimes hairy, keel hairy, calyx glabrous, lobes narrowly triangular to awl-shaped. Oct.–Jan. Mountain fynbos and renosterveld, below 500 m, NW, SW (Cedarberg to Riviersonderend Mtns and Potberg).•

lanifera R.Dahlgren Sprawling to prostrate shrublet, branches to 50 cm. Leaves 1-foliolate, flat, ovate-lanceolate, 3(–5)-veined from base, silky. Flowers solitary or 2 or 3 in racemes on distinct peduncles, pale yellow or violet on standard, wings and keel glabrous, calyx sparsely soft-hairy with attenuate lobes. Oct.–Jan. Renosterbos-fynbos scrub and mountain fynbos, 30–1 500 m, NW (Cedarberg and Cold Bokkeveld Mtns).•

monosperma (DC.) R.Dahlgren Erect shrub to 1.5 m. Leaves 1-foliolate, flat, narrowly lanceolate, sometimes long-ciliate on margins, 3-veined from base. Flowers 1(2) on a distinct peduncle, yellow, wings and keel glabrous, calyx sparsely and softly hairy. Sept.–Nov. Moist shale slopes and streamsides, 100–1 300 m, SW (Hottentots Holland Mtns to Hangklip).•

nudiflora Harv. Procumbent or decumbent shrublet with branches to 1 m. Leaves 1-foliolate, linear-lanceolate, ± flat, sometimes sparsely hairy. Flowers 1 or 2 or 3 on a short peduncle, yellow or partly reddish, wings twisted, glabrous, keel glabrous, calyx with sparse hairs, lobes triangular-awl-shaped, stigma elongate and forward-directed. Nov.–Jan. Mountain fynbos or renosterbos-fynbos scrub, 300–1 660 m, NW, SW (Pakhuis to Houwhoek Mtns).•

perfoliata (Lam.) R.Dahlgren Rigid, sparsely branched shrub to 1.8 m. Leaves 1-foliolate, ovate-orbicular, subamplexicaul, stiff, margins with peg-like teeth, 9–15-veined from base, glabrous. Flowers 4–15(–25) in sparse or compact terminal raceme with distinct peduncle, pale yellow or lemon-yellow, standard purplish or violet, wings and keel glabrous, calyx very sparsely and softly hairy, lobes triangular. Sept.–Dec. Mountain fynbos, to 1 700 m, NW, SW (Pakhuis to Hottentots Holland Mtns).•

perforata (Thunb.) R.Dahlgren Decumbent to prostrate shrublet with branches to 1 m. Leaves 1-foliolate, elliptic-orbicular, amplexicaul with base enclosing the stem, margins sparsely tuberculate-hairy, several-veined from base. Flowers solitary or 2–12 in a raceme on a distinct peduncle, pale yellow or standard and keel partly violet, wings and keel glabrous, calyx sometimes sparsely hairy, lobes triangular to awl-shaped, weak, sparsely long-hairy. Sept.–Dec. Mountain fynbos, often on clay, 300–1 160 m, NW, SW, LB (Olifants River to Langeberg).•

A.' Leaves 3-foliolate
C. Flowers white, cream-coloured, pink, mauve or purple
*(see also **A. ramosissima** and **A. willdenowiana**)*

argyrella MacOwan Decumbent to prostrate, sometimes mat-forming shrublet. Leaves 3-foliolate, leaflets linear-oblanceolate, silky. Flowers in terminal heads, mauve, wings sometimes sparsely hairy, keel silky, calyx silky, lobes triangular. Sept.–Oct. Lowland fynbos, below 400 m, NW, SW (Cold Bokkeveld to Kleinrivier Mtns).•

barbigera R.Dahlgren Like **A. cephalotes** but leaflets linear, slightly flattened and sparsely, long-curly hairy, petals more densely woolly-silky. Oct.–Nov. Renosterveld gulleys, SW, AP (Greyton to De Hoop and Swellendam).•

cephalotes Thunb. Shrub, 0.3–2 m. Leaves 3-foliolate, leaflets terete or slightly flattened, sparsely hairy. Flowers in a spike or head, pale violet or rose, sometimes almost white, keel tipped purplish violet, wings and keel silky, calyx silky, lobes awl-shaped. Aug.–Nov. Mountain fynbos, 160–830 m, NW, SW (Piketberg to Riviersonderend Mtns).•

cerrhantha Eckl. & Zeyh. Shrublet, 30–60 cm. Leaves 3-foliolate, leaflets terete, weak, sparsely hairy. Flowers in terminal heads, white to pale violet, keel tipped purplish, wings and keel silky,

calyx sparsely silky, lobes subfiliform. Sept.–Oct. Coastal or lowland fynbos, 160–530 m, SE (George to Port Elizabeth).•

costulata Benth. Erect shrub, 0.6–1.5 m. Leaves 3-foliolate, leaflets terete-ovoid, sausage-shaped, becoming dark when dried, glabrous. Flowers 1–5 near branch tips, rose or pale purplish, wings and keel glabrous, calyx subglabrous, lobes triangular, glabrous. Aug.–Nov. Mountain fynbos, 500–1 000 m, NW, KM (Bokkeveld Mtns to Witteberg).•

forbesii Harv. Shrub or shrublet, 0.4–2 m. Leaves 3-foliolate, leaflets terete, sausage-shaped, subglabrous. Flowers in terminal heads, white or cream-coloured, sometimes with pink on wings, wings sometimes sparsely hairy, keel glabrous, calyx shortly silky, lobes awl-shaped, split between upper two lobes deeper than those between other lobes. July–Apr. Coastal fynbos, limestone and marine sand, below 60 m, SW, AP (Cape Peninsula to Still Bay).•

globosa Andrews Erect shrub with tail-like, densely leafy branches, 1.5–2.5 m. Leaves 3-foliolate, leaflets subterete, straight, sparsely hairy. Flowers in terminal heads with an involucre, pale rose or almost white, wings woolly, keel silky woolly, calyx silky, lobes triangular. Aug.–Oct. Mountain fynbos, 400–700 m, SW (Hottentots Holland to Palmiet River Mtns).•

globulosa E.Mey. Shrublet, 30–80 cm. Leaves 3-foliolate, leaflets filiform. Flowers in terminal heads with an involucre of ovate leaves, almost white, keel tipped bluish violet, wings and keel hairy, calyx silky, lobes triangular. Oct.–Dec. Coastal fynbos, 110–180 m, SW (Cape Peninsula to Baardskeerdersbos).•

grandiflora Benth. Robust shrub, 0.4–1.3 m. Leaves 3-foliolate, leaflets linear to awl-shaped, slightly flattened, glabrous or ciliate. Flowers few at branch tips, large, cream-coloured, sometimes yellow, wings and keel glabrous, blade 16–18 mm long, calyx silky, upper two lobes broadly triangular, larger than three lower lobes. Aug.–Dec. Mountain fynbos, 300–1 000 m, SW, LB (Breede River Valley and Langeberg).•

nigra L. Shrublet to 70 cm, like **A. cephalotes** but bracts < 3.5 mm, calyx lobes mostly < 3 mm and flowers usually slate-blue to violet. Aug.–Nov. Mainly renosterveld, to 1 200 m, NW, SW, KM, LB, SE (Clanwilliam to Uniondale).•

pallidiflora R.Dahlgren Like **A. costulata** but calyx lobes narrowly triangular to awl-shaped with tips ± incurved. Oct.–Jan. Mountain fynbos, upper slopes, 1 300–1 600 m, NW (Cold Bokkeveld and Hex River Mtns).•

rosea Garab. ex R.Dahlgren Decumbent shrublet to 15 cm. Leaves 3-foliolate, leaflets linear, pointed, somewhat flattened, with sparse, spreading hairs. Flowers in terminal heads, rose-coloured, wings sparsely hairy, keel silky, beaked, calyx silky, lobes linear to narrowly-triangular. Sept. Lowland fynbos and fynbos-renosterveld ecotone, 100–300 m, SW (Botrivier to Elim and Napier).•

submissa R.Dahlgren Spreading shrublet, 10–35 cm tall. Leaves 3-foliolate, leaflets terete, sparsely hairy or glabrous. Flowers clustered in short spike, almost white, keel tipped purplish violet, wings and keel hairy, calyx shortly hairy, lobes narrowly triangular. Sept.–Nov. Renosterveld and renosterveld-fynbos ecotone, 100–1 200 m, SW, LB (Botrivier to Mossel Bay).•

C.' Flowers partly or wholly yellow, often with red or purple pattern
*D. Leaf base spurred and spine- or thorn-like (see also **A. opaca**)*

aculeata Thunb. Rigid shrublet to 1 m. Leaves 3-foliolate, leaflets linear, slightly flattened, weak, sometimes sparsely hairy, leaf bases forming woody spines. Flowers in terminal heads, bright or pale yellow, wings and keel glabrous, calyx silky, lobes narrowly triangular with recurved tips. Oct.–Jan. Renosterveld and lowland renosterbos-fynbos ecotone, 60–400 m, NW, SW (Piketberg to Wolseley and Stellenbosch).•

calcarata Harv. Erect or decumbent shrublet, 15–40 cm. Leaves 3-foliolate, leaflets terete, slightly curved, not spine-tipped, sparsely adpressed-hairy, leaf bases forming short woody spines. Flowers small, solitary on short shoots appearing spike-like, yellow to deep red, wings and keel glabrous, calyx silky, lobes linear-awl-shaped. Oct.–Jan. Renosterbos-fynbos transition, 130–160 m, SW, LB (Bredasdorp, Riviersonderend and Langeberg).•

dasyantha Eckl. & Zeyh. Rigid shrub with branches knotty or almost thorn-like. Leaves 3-foliolate, leaflets oblanceolate, weak, subglabrous, leaf base forming a short spine. Flowers 1 or 2 at branch tips but soon appearing lateral, pale yellow, fading purplish, wings and keel silky, calyx woolly, lobes triangular. Oct.–Dec. Lowland fynbos, 160–300 m, AP (Still Bay to Albertinia).•

desertorum Bolus Shrublet, often with thorn-like branches, 0.7–1 m. Leaves 3-foliolate, leaf bases forming recurved, woody spines, leaflets subterete, weak, glabrous or subglabrous. Flowers 1–3, clustered together at branch ends, pale yellow, standard sometimes purplish on back, wings gla-

brous, keel subrostrate, glabrous, calyx silky, lobes triangular or narrowly triangular, upper lobes broader than lower three lobes. Oct.–Dec. Renosterbos-fynbos scrub on shale, 600–1 060 m, NW (Cold Bokkeveld: Gydo Pass to Karoopoort).•

macrantha Harv. Erect shrub or small tree, 2–4 m. Leaves 3-foliolate, leaf bases forming small, blunt spurs, leaflets subterete, slender, sparsely hairy. Flowers 1(–4), clustered at branch tips, large, bright yellow or with reddish shades, standard with densely hairy basal calluses, wings glabrous, keel subrostrate, glabrous, calyx silky, lobes triangular to awl-shaped, subglabrous. Sept.–Nov. Mountain fynbos, 200–350 m, SW (N Cape Peninsula and Hottentots Holland Mtns).•

macrocarpa Eckl. & Zeyh. Lanky, sparsely branched shrub to 2 m. Leaves 3-foliolate, leaf bases forming spurs, leaflets terete, weak. Flowers solitary on short shoots, scattered for some distance, yellow, wings glabrous, keel rostrate, glabrous, calyx silky, lobes narrowly triangular, anthers hairy below. Nov.–Dec. Middle to lower slopes, often on shale bands, NW, LB (Langeberg: Robertson to Swellendam).•

rostrata Benth. Rigid, thorny shrub, ± 1 m. Leaves 3-foliolate, leaf bases forming short spurs, leaflets terete, non-pungent, shortly hairy. Flowers solitary on short shoots, pale yellow, wings glabrous, keel rostrate, glabrous, calyx shortly silky, lobes narrowly triangular, anthers hairy below. Sept.–Nov. Dry mountain fynbos or renosterbos-fynbos scrub, 1 000 m, NW (Langeberg: Robertson).•

rycroftii R.Dahlgren Rigid, decumbent shrublet to 60 cm. Leaves 3-foliolate, leaf bases forming recurved, woody spines, leaflets subterete, glabrous. Flowers solitary on short shoots, yellow or partly purple, wings glabrous, keel rostrate, glabrous, calyx shortly and sparsely hairy, lobes triangular, with thickened margins. Feb.–Mar. Renosterveld, 180–200 m, SW (Malmesbury District).•

ternata (Thunb.) Druce Erect shrub to 1 m. Leaves 3-foliolate, leaflets linear-oblanceolate, silvery silky, weak, leaf bases forming tubercles or spurs. Flowers 1 or 2 at branch tips but soon appearing lateral, pale yellow, fading purplish or brownish purple, wings and keel silky, calyx silky, lobes varying from short triangular (1 mm) to long-linear (11 mm). Sept.–Nov. Sandveld, NW, SW (Lambert's Bay to Cape Peninsula).•

tridentata L. Erect shrub or shrublet, 30–90 cm. Leaves 3-foliolate, leaf bases usually forming a simple or ternate spine, leaflets linear-oblanceolate, weak, flexible, glabrous or silky, with indistinct veins. Flowers in terminal heads with an involucre, pale yellow, wings and keel silky, calyx silky, lobes narrowly triangular, weak, sometimes recurved. Oct.–Dec. Fynbos and Renosterveld, below 800 m, NW, SW (Bokkeveld Mtns to Potberg).•

uniflora L. Like **A. willdenowiana** but calyx glabrous or sparsely adpressed-hairy. Sept.–Jan. Mountain fynbos, middle and lower slopes, 300–660 m, NW, SW (Cedarberg to Cape Peninsula).•

willdenowiana Benth. Shrub, 1.5–3.5 m. Leaves 3-foliolate, leaflets needle-like, straight, weak, hairy becoming glabrous, leaf bases forming woody spurs or spines. Flowers solitary but several clustered together on short shoots, pale yellow or white to rose, standard with 2 disc-shaped callosities at base, wings and keel glabrous, calyx silky, lobes awl-shaped. June–Dec. Marshes and seeps in mountain fynbos, 100–1 000 m, SW, LB (Cape Peninsula to Mossel Bay).•

D.' Leaf base not spurred
E. Leaflets distinctly flat
F. Leaflets spine-tipped

acidota Garab. ex R.Dahlgren Rigid, much-branched shrub to > 1 m. Leaves 3-foliolate, leaflets narrowly lanceolate, spine-tipped, flat or slightly keeled, slightly recurved, ciliate and sparsely hairy. Flowers in a terminal head, large, bright yellow, partly fading reddish, wings subglabrous, keel silky, calyx hairy, lobes elongate-spine-tipped. Sept.–Dec. Rocky sandstone slopes above 500 m, NW (Piketberg and southern Olifants River Mtns).•

borboniifolia R.Dahlgren Like **A. acidota** but flowers smaller, standard < 7 mm, and ovary and fruit hairy only along dorsal suture. Nov.–Dec. Mountain fynbos, 660 m, SW (Cape Peninsula).•

corniculata R.Dahlgren Small, rigid shrublet. Leaves 3-foliolate, leaflets lanceolate, spine-tipped, flat, keeled, rigid, recurved, subglabrous. Flowers in a terminal cluster, yellow or reddish, wings glabrous, keel hairy, calyx hairy, lobes awl-shaped, spine-tipped, recurved, lowest lobe longer than others, subglabrous. Dec.–Jan. Mountain fynbos, lower slopes, 830 m, NW (Witzenberg).•

erythrodes Eckl. & Zeyh. Like **A. fusca** but flowers in an elongate raceme of 5–12. Nov. Mountain fynbos, SW (Tulbagh Waterfall).•

fusca Thunb. Rigid shrub or shrublet to 2 m. Leaves 3-foliolate, leaflets linear-subterete to obovate, stiff, usually pungent, glabrous. Flowers in a terminal cluster of 2–12, yellow, standard partly violet, keel glabrous, calyx fleshy, glabrous, lobes triangular, bract fused with pedicel base. Oct.–Nov. Lowland fynbos, to 500 m, SW (Wemmershoek to Bredasdorp).•

polycephala E.Mey. Erect or sprawling shrub, 0.2–1.5 m. Leaves 3-foliolate, leaflets lanceolate, flat, recurved, spine-tipped, grey-hairy. Flowers in a terminal head, pale yellow or yellow, standard ± violet, wings glabrous, keel silky, calyx silky, lobes narrowly triangular, spine-tipped, the lowest lobe enlarged. Aug.–Dec. Mountain fynbos, 700–1 250 m, NW (Nardouw Mtns and Cedarberg).•

rupestris R.Dahlgren Erect shrublet to 80 cm. Leaves 3-foliolate, leaflets oblanceolate, stiff, leathery, spine-tipped, ± veiny, glabrous. Flowers in a terminal head, bright yellow, wings and keel glabrous, calyx hairy, lobes triangular to awl-shaped, spine-tipped, the lowest lobe oblanceolate, ± veiny. Nov.–Jan. Mountain fynbos, up to 1 500 m, NW (Cedarberg to Hex River Mtns).•

venosa E.Mey. Dense, rigid shrublet. Leaves 3-foliolate, leaflets oblanceolate, flat, leathery, recurved, spine-tipped, ± veiny, shiny, glabrous. Flowers in a terminal head, yellow, fading reddish, wings glabrous, keel hairy, calyx hairy, lobes triangular, spine-tipped, the lowest lobe enlarged with a recurved tip. Oct. Mountain fynbos, above 500 m, NW (Gifberg and Matsikamma Mtns).•

*F.' Leaflets not spine-tipped (see also **A. bracteata, A. fusca, A. ternata**)*

acocksii (R.Dahlgren) R.Dahlgren Erect, sparsely branched, rigid shrub to 1 m. Leaves 3-foliolate, leaf bases on a tubercle, leaflets linear-oblanceolate, flat, rather thick, glabrous or shortly hairy. Flowers crowded at branch tips, bright yellow, wings hairy or glabrous, keel silky, calyx silky, lobes linear to awl-shaped, weak. Aug.–Dec. Mountain fynbos, middle slopes, 900–1 000 m, NW (Bokkeveld Mtns to Cedarberg).•

aemula E.Mey. Sparsely branched shrub with wand-like branches, 0.6–2.5 m. Leaves 3-foliolate, median leaflet elliptic-lanceolate, weak, thinly silky, lateral leaflets mostly reduced or lacking. Flowers crowded in terminal spikes, pale yellow, fading brownish, wings and keel softly hairy, calyx woolly, lobes linear, weak. Sept.–Nov. Mountain fynbos, 400–1 250 m, NW, KM (Cedarberg and Cold Bokkeveld Mtns to Witteberg).•

altissima R.Dahlgren Sparsely branched, somewhat lanky shrub with wand-like branches to 2 m. Leaves 3-foliolate, leaflets linear-oblanceolate, soft, weak, densely silky. Flowers crowded in terminal spikes, pale yellow, wings and keel silky, calyx shortly hairy, lobes triangular. Aug.–Nov. Mountain fynbos, 660–1 500 m, NW (Bokkeveld Mtns to Ceres).•

aspalathoides (L.) R.Dahlgren Erect shrublet, 15–40 cm. Leaves 3-foliolate, leaflets linear-lanceolate, flat, weak, veiny or almost smooth, glabrous or thinly hairy. Flowers in a terminal head, bright yellow, often partly reddish on standard, wings and keel hairy, calyx silky, lobes awl-shaped, weak, tapering, sometimes with distinct midvein. Oct.–Jan. Lowland fynbos, 150–400 m, NW, SW, AP, LB (Cape Peninsula to Robertson and Potberg).•

bidouwensis Garab. ex R.Dahlgren Erect shrublet, 30–60 cm. Leaves 3-foliolate, leaflets linear-oblanceolate, flat, soft, white-woolly. Flowers few in terminal heads, pale yellow, wings and keel white hairy, calyx white-woolly, lobes linear, weak, large. Nov.–Dec. Mountain fynbos, lower slopes, 660–1 000 m, NW (Biedouw Mtns).•

bodkinii Bolus Prostrate, ± mat-forming shrublet. Leaves 3-foliolate, leaflets elliptic to suborbicular, silky. Flowers solitary, pale yellow, wings and keel silky, calyx silky, lobes ovate to rounded. Dec.–Jan. Sandstone outcrops at high alt., 1 100–1 550 m, NW, SW (Cedarberg to Hex River Mtns).•

caledonensis R.Dahlgren Erect, rod-like shrub to 1.2 m. Leaves 3-foliolate, median leaflet lanceolate, lateral leaflets smaller, flat, weak, silvery silky. Flowers single on short shoots, scattered along stems, pale yellow, wings and keel silky, calyx silky, lobes narrowly triangular. Aug.–Nov. Lowland fynbos, 200–600 m, SW, AP (Houwhoek to Potberg).•

callosa L. Erect shrublet, 15–60 cm. Leaves 3-foliolate, leaflets linear, flattened, non-pungent, without distinct veins, glabrous. Flowers crowded in terminal, spike-like raceme, yellow, wings and keel glabrous, calyx glabrous, lobes triangular to ovate, overlapping at base, not spine-tipped. Oct.–Jan. Lowland fynbos, to 200 m, SW, AP (Cape Peninsula to Bredasdorp).•

comptonii R.Dahlgren Prostrate, ± mat-forming shrublet. Leaves 3-foliolate, leaflets oblanceolate, weak, without distinct veins, hairy to subglabrous. Flowers few on a terminal peduncle, pale yellow, wings and keel silky, calyx silky, lobes narrowly ovate. Nov.–Dec. Mountain fynbos, 900–1 200 m, NW (Cedarberg: Middelberg).•

cytisoides Lam. Erect, rigid shrublet, 20–60 cm. Leaves 3-foliolate, leaflets linear to oblanceolate, often with recurved tip, with distinct midvein below, subglabrous. Flowers in a terminal head, pale

to bright yellow, wings and keel hairy, calyx hairy, lobes narrowly triangular, non-pungent. Oct.–Nov. Mountain fynbos, lower slopes, below 800 m, NW, SW (Tulbagh to Riviersonderend Mtns).•

diffusa Eckl. & Zeyh. Small, much-branched shrublet with prostrate branches to 15 cm. Leaves 3-foliolate, leaflets narrowly elliptic with incurved margins, silky. Flowers small, solitary, inserted directly on branches between successive leaves, sessile, pale yellow, wings glabrous, keel silky, calyx silky, lobes linear, weak. June–Nov. Mountain fynbos, SW, LB, SE (Riviersonderend to Langeberg, W Outeniqua Mtns).•

dunsdoniana Alston ex R.Dahlgren Like **A. salicifolia** but pubescence longer and more silky, flowers larger, keel 5–6 mm long, and ovules only 2. Jan.–Feb. Mountain fynbos, upper slopes, 800–1 000 m, SW (Franschhoek to Hottentots Holland Mtns).•

esterhuyseniae R.Dahlgren Sprawling or ascending shrublet. Leaves 3-foliolate, leaflets linear to oblanceolate, flat, with distinct midvein, sometimes softly hairy. Flowers 1–3 at branch tips, yellow or partly purplish, wings glabrous, keel hairy on midline, calyx shortly hairy, lobes linear-triangular, lowest lobe distinctly larger than others, subglabrous. Dec.–Jan. Mountain fynbos, upper slopes, 1 000–1 400 m, NW (S Cedarberg to Grootwinterhoek Mtns).•

fasciculata (Thunb.) R.Dahlgren Erect, rigid, much-branched shrublet, 0.5–1 m. Leaves 3-foliolate, leaflets oblanceolate, flat, somewhat keeled, veiny, stiff, sometimes ciliate on margins. Flowers in terminal heads, bright yellow, wings and keel glabrous, calyx hairy, lobes linear to triangular, lowest lobe enlarged, veiny, partly glabrous. Nov.–Jan. Mountain fynbos, lower slopes, 45–200 m, NW (Grootwinterhoek Mtns).•

heterophylla L.f. Sprawling shrublet to 20 cm. Leaves 3-foliolate, leaflets linear-oblanceolate, flexible, subglabrous, leaves on short shoots smaller and crowded. Flowers scattered in spikes, pale yellow to yellow, wings and keel silky, calyx thinly and softly hairy, lobes linear, attenuate-recurved. Sept.–Dec. Lowland fynbos, 300–900 m, NW, SW (Bokkeveld Mtns to Du Toitskloof).•

incana R.Dahlgren Sprawling shrublet with yellowish branches. Leaves 3-foliolate, leaflets oblanceolate, flat, weak, grey-hairy. Flowers ?, probably in terminal groups, calyx woolly, lobes linear-oblong. Dec. Shale band on sandstone slopes, 1 250 m, KM (Klein Swartberg).•

inops Eckl. & Zeyh. Sprawling shrublet with branches to 30 cm. Leaves 3-foliolate, leaflets linear-oblanceolate, flat, thick, with distinct midvein, glabrous or sparsely hairy. Flowers in terminal heads, yellow to reddish, wings and keel hairy, calyx shortly hairy, lobes awl-shaped, weak. Oct.–Nov. Mountain fynbos, lower slopes, below 450 m, LB (Langeberg).•

intervallaris Bolus Slender, sparsely branched, sprawling shrublet. Leaves 3-foliolate, leaflets ovate or broadly lanceolate, weak, silky. Flowers 1 or 2 at branch tips but appearing subterminal, pale yellow, fading purplish, wings and keel silky, calyx silky, lobes blunt. Nov.–Apr. Lowland and mountain fynbos, 750 m, SW (Houwhoek to Kleinrivier Mtns).•

lanata E.Mey. Rather large, sprawling shrublet with trailing branches. Leaves 3-foliolate, leaflets lanceolate, subequal, flat, subglabrous, with 1–3 distinct main veins. Flowers 1–4 in a pedunculate spike, yellow or partly purplish, wings and keel glabrous, calyx shortly hairy, lobes narrowly triangular (awl-like). Oct.–Dec. Mountain fynbos, lower slopes, below 600 m, NW (Bokkeveld Mtns to Porterville).•

latifolia Bolus Like **A. lanata** but leaflets broadly lanceolate, with ± 3 distinct veins, often undulate, sparsely hairy and calyx lobes linear-awl-shaped with sparse, long hairs, Sept.–Nov. Mountain fynbos, mainly shale bands, 660–1 330 m, NW (Piketberg).•

linearifolia (Burm.f.) DC. Much-branched shrub to 2 m. Leaves 3-foliolate, leaflets linear-oblanceolate, weak, silky when young, becoming glabrous. Flowers in terminal heads, pale yellow, wings and keel silky, calyx silky, lobes linear, weak. Nov. Lowland fynbos, flats and low hillsides, 150 m, NW, SW (Saron to Franschhoek).•

lotoides Thunb. Sprawling shrublet to 15 cm. Leaves 3-foliolate, leaflets oblanceolate, flat, densely or sparsely hairy. Flowers in terminal spikes, pale yellow, wings and keel silky, calyx silky, lobes linear-triangular, weak. Oct.–Dec. Mainly coastal fynbos, sometimes mountain fynbos, below 300 m, SW (Saldanha Bay to Cape Peninsula).•

marginata Harv. Erect, rather compact shrublet to 30 cm. Leaves 3-foliolate, leaflets elliptic to suborbicular, flat, mucronate or spine-tipped, leathery, subglabrous, margins and main veins thickened. Flowers 2–4 at branch tips, yellow, fading bright or dark red, wings and keel silky, calyx shortly hairy, lobes awl-shaped, weak. Oct.–Jan. Lower slopes in fynbos, to 1 300 m, SW, AP (Hangklip to Bredasdorp).•

mundiana Eckl. & Zeyh. Shrublet to 60 cm with erect, tail-like branches, sometimes with very prominent leaf base tubercles. Leaves 3-foliolate, leaflets linear, flattened with thick margins, deeply grooved above, incurved, glabrous. Flowers 1–3 on short shoots, scattered, yellow, stand-

ard with reddish shades, wings and keel glabrous, calyx glabrous, lobes triangular, very short. Aug.–Apr. Lowland fynbos, 130–620 m, SW, LB, SE (Elim to Knysna).•

myrtillifolia Benth. Like **A. marginata** but calyx glabrous, with triangular lobes and the lower lobe somewhat larger than the others. Distribution unknown.

oblongifolia R.Dahlgren Erect, often rod-like shrublet to 1 m. Leaves 3-foliolate, leaflets oblong-oblanceolate, shortly hairy or subglabrous, on prominent, nearly spur-like tubercles. Flowers single on short shoots, scattered, pale yellow, wings and keel silky, calyx shortly hairy, lobes ovate-triangular. Jan.–Apr. Lowland fynbos, below 300 m, SW (Kogelberg to Elim).•

obtusata Thunb. Rigid, stiffly branched shrublet to 40 cm, branches ending in thorns. Leaves 3-foliolate, leaflets oblanceolate-spathulate, flat, sparsely hairy. Flowers solitary in leaf axils, pale yellow or partly or entirely pale purple, wings and keel glabrous, calyx sparsely hairy, lobes minute. Aug. Granite slopes and quartzite ridges in karroid scrub, 175–425 m, NW (Namaqualand to Lambert's Bay and Matsikamma Mtns). **gce**

orbiculata Benth. Robust, rigid shrub, 0.5–1 m. Leaves 3-foliolate, leaflets suborbicular, flat, somewhat convex, leathery, subglabrous, main veins thickened. Flowers in terminal heads, bright yellow, fading reddish, wings glabrous, keel hairy at tips, calyx silky, lobes triangular. Nov.–Dec. Shale bands on sandstone slopes, 1 250 m, NW (Matroosberg).•

patens Garab. ex R.Dahlgren Prostrate, mat-like shrublet. Leaves 3-foliolate, leaflets oblanceolate, flat, subglabrous. Flowers 1(–3) on slender, terminal peduncles, yellow, wing glabrous, keel glabrous, sometimes with a small, apical, tooth-like lobe, calyx subglabrous, lobes narrowly-triangular. Dec.–Mar. Subalpine mountain fynbos, above 1 500 m, KM (Swartberg and Kammanassie Mtns).•

psoraleoides (C.Presl) Benth. Low, erect shrublet to 20 cm. Leaves 3-foliolate, leaflets ovate-obovate, flat, leathery, thick, subglabrous, margins and main veins thickened. Flowers in terminal heads, yellow, wings and keel hairy, calyx hairy, lobes broadly triangular. Oct.–Dec. Mountain fynbos, 300–500 m, SW (Cape Peninsula to Babilonstoring).•

quadrata L.Bolus Sparsely branched shrublet to 60 cm. Leaves 3-foliolate, leaflets oblong-lanceolate, ± flat, margins often involute, shortly hairy. Flowers single on short shoots, scattered, pale yellow, wings and keel silky, calyx hairy, lobes rounded to almost square. Apr.–May. Lowland fynbos, below 300 m, LB (Albertinia).•

quinquefolia L. Erect or sprawling shrub to 1.5 m. Leaves 3-foliolate, leaflets oblong-elliptic, flat, weak, grey-silky or subglabrous. Flowers in terminal spikes, pale to bright yellow, wings and keel silky, calyx silky, lobes triangular to narrowly triangular, weak. Aug.–Jan. Coastal, lowland and mountain fynbos, below 1 000 m, NW, SW, LB (Bokkeveld Mtns to Mossel Bay).•

radiata Garab. ex R.Dahlgren Erect or sprawling shrublet to 50 cm. Leaves 3-foliolate, leaflets linear-oblanceolate, weak, shortly hairy. Flowers in terminal, subglobose spikes, yellow to reddish brown, wings and keel silky, calyx silky, lobes linear, tapering. Oct.–Dec. Sandstone slopes in mountain fynbos, 250–1 250 m, SW (Hex River Mtns to Riviersonderend).•

ramulosa E.Mey. Stiff, sparsely branched shrublet with strong, knotty branches to 70 cm. Leaves 3-foliolate, leaflets ovate-oblanceolate, flat, weak, small, silvery silky. Flowers clustered in heads at branch tips, pale lemon-yellow, wings and keel silky, calyx silky, lobes triangular, often dark pigmented. Sept.–Nov. Mountain fynbos, 200–350 m, SW (Houwhoek to Riviersonderend Mtns).•

rugosa Thunb. Shrub or small tree to 2 m. Leaves 3-foliolate, leaflets linear-oblanceolate, flat, weak, distinctly veined, subglabrous. Flowers in short, terminal racemes, bright or pale yellow, wings and keel silky, calyx shortly hairy, lobes triangular, weak. Nov.–Jan. Mountain fynbos, 440–800 m, NW, SW, KM (Cold Bokkeveld to Du Toitskloof to Ladismith).•

salicifolia R.Dahlgren Erect shrub, 0.4–1 m. Leaves 3-foliolate, leaflets oblanceolate, weak, flexible, grey-silky. Flowers in terminal heads, pale yellow, wings and keel silky, calyx silky, lobes narrowly triangular, long and slender. Aug.–Sept. Mountain fynbos, moist kloofs, 500–750 m, SW (Hottentots Holland to Kleinrivier Mtns).•

securifolia Eckl. & Zeyh. Erect, robust shrub to 1.2 m. Leaves 3-foliolate, leaflets obovate-spathulate, flat, leathery, indistinctly veined, glabrous. Flowers in terminal heads on long pedicels, pale yellow, wings and keel silky, calyx shortly hairy, lobes awl-shaped, subglabrous. Jan.–Dec. Mountain fynbos, often rock outcrops, below 1 000 m, SW, LB (Bain's Kloof to Langeberg).•

sericea P.J.Bergius Slender shrublet with rod-like branches to 1 m like **A. aemula** but calyx silky and flowers smaller, wing blades 9–10 mm long. Sept.–Nov. Coastal fynbos, flats, below 300 m, SW, AP (Hopefield to Agulhas).•

singuliflora R.Dahlgren Rigid shrublet with almost thorn-like branches to 20 cm. Leaves 3-foliolate, leaflets obovate, flat, soft, silvery silky. Flowers solitary on branch tips, pale yellow, wings and keel silky, calyx silky, lobes narrowly triangular. Oct. Arid fynbos, KM (Bonteberg).•

stenophylla Eckl. & Zeyh. Erect or sprawling shrublet, 5–35 cm. Leaves 3-foliolate, leaflets narrowly oblanceolate to linear-spathulate, flat, leathery, with distinct midvein, subglabrous. Flowers 1–5 in terminal heads, bright yellow or partly reddish brown, wings and keel shortly hairy, calyx hairy, lobes awl-shaped, weak, sparsely hairy. Sept.–Dec. Lowland fynbos, 800–1 400 m, SW (Houwhoek to Bredasdorp).•

stokoei L.Bolus Robust shrub to 3 m. Leaves 3-foliolate, leaflets linear, flattened, with prominent midvein, long-ciliate. Flowers large, in terminal heads, bright yellow, wings glabrous, keel rostrate, almost glabrous, calyx sparsely hairy, lobes narrowly triangular, tapering, margins ciliate. Oct.–Jan. Mountain fynbos, streamsides, 350–900 m, SW (Kogelberg).•

suaveolens Eckl. & Zeyh. Slender, sprawling shrublet 20 cm. Leaves 3-foliolate, leaflets linear-oblanceolate, flat, weak, subglabrous but margins long ciliate. Flowers in terminal heads, yellow, wings and keel glabrous, calyx sparsely hairy, lobes linear with lowest lobe enlarged and boat-shaped, margins ciliate. Nov.–Jan. Mountain fynbos, 700–1 250 m, NW (Grootwinterhoek Mtns).•

sulphurea R.Dahlgren Sprawling? shrublet. Leaves 3-foliolate, leaflets spathulate-oblanceolate, strongly flattened, glaucous with a shallow groove on each side of a ± distinct middle ridge, glabrous. Flowers single on a lateral short shoot, large, strongly compressed, pale yellow (sulphur-coloured), wings glabrous, keel glabrous with scattered hairs along lower margin, calyx compressed and broad, glabrous, lobes ovate, the upper subacute, the lower narrower. Oct. Mountain fynbos, NW (Witzenberg and Grootwinterhoek Mtns).•

taylorii R.Dahlgren Sprawling shrublet with slender, peduncle-like branches 25–45 cm. Leaves 3-foliolate, leaflets linear-spathulate, keeled, basally thread-like, long spreading-hairy. Flowers small, 1–5 at branch tips, pale to bright yellow, fading red, wings glabrous, keel shortly hairy, calyx shortly hairy, lobes thread-like, awl-like, weak. Dec. Mountain fynbos, lower slopes, 200 m, SW (Riviersonderend Mtns: Spitzkop).•

theresae Cupido Erect shrublet to 70 cm with densely leafy, woolly branches. Leaves 3-foliolate, leaflets oblong-elliptic, linear-lanceolate, glabrous above but softly hairy below. Flowers in a terminal head, bright yellow, keel beaked, hairy, calyx silky-hairy, lobes triangular. Nov. Sandstone slopes, 1 300 m, SW (Riviersonderend Mtns).•

truncata Eckl. & Zeyh. Rigid shrub, 0.5–1.5 m. Leaves 3-foliolate, leaflets narrowly linear to broadly oblanceolate, flat, often incurved, not pungent. Flowers in terminal heads of 8–25, yellow, bracts very broad, wings glabrous, keel shortly hairy, calyx hairy below, lobes large, ovate to lanceolate, non-spiny, glabrous. Nov. Mountain fynbos, below 1 000 m, SW (Tulbagh: Elandskloof Mtns to Bainskloof).•

tylodes Eckl. & Zeyh. Like **A. callosa** but young branches shortly hairy and flowers smaller, standard blade to 6 mm long. Oct.–Nov. Coastal fynbos, 350–400 m, SW, AP (Cape Flats and Struis Bay to Albertinia).•

vacciniifolia R.Dahlgren Robust shrublet to 30 cm. Leaves 3-foliolate, leaflets oblong-oblanceolate, flat, fleshy. Flowers in terminal heads of 4–15, bright yellow, wings and keel glabrous, with tapering basal upper lobe, calyx fleshy, shortly hairy at base, lobes large, narrowly ovate-triangular, glabrous. Nov.–Dec. Subalpine mountain fynbos, 1 000–1 300 m, SW (Hottentots Holland Mtns: Somerset Sneeuwkop).•

villosa Thunb. Slender, sprawling shrublet with branches 10–40 cm. Leaves 3-foliolate, leaflets oblanceolate, weak, silvery silky. Flowers 1–4 in terminal heads, pale lemon-yellow, fading reddish, wings and keel hairy, calyx silvery silky, lobes oblong-oblanceolate. Oct.–Dec. Mountain fynbos, below 1 000 m, NW (Cedarberg to Ceres).•

vulpina Garab. ex R.Dahlgren Erect, rigid, rod-like shrublet, closely leafy. Leaves 3-foliolate, leaflets lanceolate, margins long ciliate, 1–3 veined. Flowers solitary, scattered along branches, yellow, wings hairy, keel beaked, hairy, calyx shortly hairy, lobes triangular. Sept.–Oct. Middle to lower N-facing slopes,, mountain fynbos, 600 m, LB (Langeberg: Barrydale to Garcia's Pass).•

*E.' Leaflets subterete or angular, sometimes sulcate or somewhat flattened (see also **A. fusca**)*

*G. Leaflets mucronate or spine-tipped (see also **A. pachyloba**)*

abietina Thunb. Erect or sprawling shrublet, 10–60 cm. Leaves 3-foliolate, leaflets fascicled, subterete, recurved-pungent, subglabrous. Flowers single on short shoots, scattered, bright yellow, fading orange, wings and keel glabrous, calyx glabrous or sparsely adpressed-hairy, lobes narrowly triangular, pungent. Sept.–Dec. Mountain fynbos, below 500 m, NW, SW (Wolseley to Anysberg).•

acanthes Eckl. & Zeyh. Erect, sparsely branched, densely leafy shrub, 0.5–1.5 m. Leaves 3-foliolate, leaflets terete, needle-like, often slightly incurved, spine-tipped, subglabrous. Flowers solitary, scattered along branches, bright yellow, wings glabrous, keel somewhat rostrate, glabrous, calyx shortly hairy, lobes awl-shaped, spine-tipped. Aug.–Dec. Mountain fynbos, 300–760 m, LB (Langeberg).•

acanthiloba R.Dahlgren Like **A. chenopoda** but flowers smaller, standard blade 7–9 mm long with a spine at the tip of the standard. Oct.–Nov. Mountain fynbos, lower slopes, below 200 m, SW (Gordon's Bay to Cape Hangklip).•

acifera R.Dahlgren Rigid, sprawling shrublet with branches to 60 cm. Leaves 3-foliolate, leaflets needle-like, middle leaflets often much longer, straight, rigid, pungent, glabrous. Flowers 1 or 2 at branch tips, pale yellow, partly purplish or violet, wings glabrous, keel hairy, calyx adpressed-hairy, lobes narrowly triangular, needle-like, hairy. Aug.–Dec. Mountain fynbos, 500–1 000 m, NW (Olifants River and Cedarberg).•

aciphylla Harv. Rigid shrub or shrublet, 0.3–2 m with thick, stiff branches. Leaves 3-foliolate, leaflets awl-shaped, straight, rigid, angular, pungent, bracts broadly ovate. Flowers single, scattered at branch tips, bright lemon-yellow, wings and keel glabrous, calyx glabrous, lobes ovate or lanceolate, upper ones basally overlapping, pungent. July–Nov. Mountain fynbos, lower to upper slopes, up to 1 200 m, AP, KM, LB, SE (Elim to Humansdorp).•

acuminata Lam. Erect shrub, 0.15–5 m, with branches ending in leafless thorns. Leaves 3-foliolate, leaflets awl-shaped, terete or angular, often slightly recurved, spine-tipped, glabrous. Flowers 1–5 on thorny branches, pale or bright yellow or orange, standard sometimes partly violet, wings glabrous or somewhat hairy, keel shortly hairy, calyx adpressed-hairy, lobes triangular, spine-tipped. Aug.–Mar. Mountain fynbos, lower slopes, 100–660 m, NW, SW, LB (Namaqualand to Albertinia). **gce**

albens L. Erect shrub or shrublet with spreading branches, to 1 m. Leaves 3-foliolate, leaflets terete or subterete, straight or S-curved, rigid, pungent, hairy to subglabrous. Flowers small, 3–10(–30) in terminal spike-like racemes, pale yellow, fading brownish or rose, wings and keel hairy, calyx large, hairy, lobes triangular, pungent, hairy. Aug.–Sept. Sandveld, NW, SW (Namaqualand: near Hondeklip Bay to Cape Peninsula). **gce**

alopecurus Benth. Erect, sometimes decumbent, sparsely branched shrublet with closely leafy, tail-like branches, 20–70 cm. Leaves 3-foliolate, leaflets linear, needle-like, terete, often slightly incurved, sometimes straight, sometimes weak, spine-tipped, sparsely long-hairy or glabrescent. Flowers single on short shoots, scattered or clustered near branch ends, yellow, wings glabrous or somewhat hairy, keel upper margins slightly S-curved, silky, calyx silky, lobes linear, needle-like, sparsely hairy or glabrous. July–Sept. Coastal fynbos, marine sand, 60–200 m, AP, SE (Bredasdorp to Knysna).•

aristata Compton Procumbent or prostrate shrublet to 30 cm. Leaves 3-foliolate, leaflets awl-shaped, needle-like, recurved or S-curved, spine-tipped, glabrous. Flowers solitary at branch tips, pale yellow or purplish or rose-coloured, wings glabrous, keel with S-shaped upper margin, glabrous, calyx glabrous, lobes awl-shaped, needle-like and upcurved. Oct.–Dec. Mountain fynbos, upper slopes and subalpine habitats, 1 000–2 000 m, NW (Cedarberg to Hex River Mtns).•

aristifolia R.Dahlgren Procumbent or prostrate shrublet, with branches to 1 m. Leaves 3-foliolate, leaflets awl-shaped, straight, rigid, yellow spine-tipped, glabrous or sparsely hairy. Flowers 1 or 2 at tips of densely leafy branches, lemon-yellow or violet on keel and back of standard, wings hairy, keel whitish hairy, sometimes with little tip below apex, calyx whitish hairy, lobes triangular, yellow spine-tipped. Sept.–Nov. Mountain fynbos, 600–1 160 m, NW (Piketberg and Olifants River Mtns).•

astroites L. Like **A. abietina** but branch tips whitish hairy, keel tapering and beaked, calyx subglabrous. Oct.–Nov. Lowland fynbos, 330–900 m, SW (Cape Peninsula to Du Toitskloof and Kleinrivier Mtns).•

batodes Eckl. & Zeyh. Erect, sprawling or prostrate shrublet to 50 cm. Leaves 3-foliolate, leaflets fascicled, subterete, awl-shaped, succulent, spine-tipped, glabrous. Flowers 1–3 at branch tips, pale or bright yellow, sometimes partly reddish, wings glabrous, keel with apical part almost square, glabrous, calyx glabrous, with ridges, lobes awl-shaped, succulent, spine-tipped, glabrous. July–Oct. Lowland fynbos, 200–700 m, SW, AP (Hangklip to Bredasdorp).•

brevicarpa (R.Dahlgren) R.Dahlgren Prostrate, often mat-forming shrublet with branches to 1 m. Leaves 3-foliolate, leaflets subterete, usually incurved, weak, apiculate or spine-tipped. Flowers solitary at branch tips, bright yellow, wings glabrous, keel strongly upcurved, glabrous, calyx usually shortly hairy, lobes triangular, spine-tipped. Oct.–Jan. Subalpine mountain fynbos, 1 000–2 000 m, NW (Cedarberg to Hex River Mtns).•

chenopoda L. Rigid shrub, 1–2 m. Leaves 3-foliolate, leaflets needle-like, pungent, rigid, sparsely and softly hairy. Flowers in terminal heads, bright yellow, wings and keel glabrous, calyx densely woolly, lobes needle-like, spine-tipped. Aug.–Dec. Mountain fynbos, 180–260 m, SW (Cape Peninsula to Caledon Swartberg).•

collina Eckl. & Zeyh. Rigid shrub or shrublet, 0.3–1.3 m. Leaves 3-foliolate, leaflets subterete, straight, stiff, pungent. Flowers 1 or 2 at branch tips, or single on short shoots, yellow, standard sometimes reddish or purplish, wings glabrous, keel with slightly pointed tip, glabrous, calyx sometimes woolly, lobes triangular, pungent. July–Dec. Mountain or lowland fynbos, 200–1 500 m, KM, SE (Swartberg to Kouga Mtns).•

crassisepala R.Dahlgren Sprawling to prostrate shrublet with branches to 1 m. Leaves 3-foliolate, leaflets subterete, awl-shaped, usually recurved, succulent, mucronate to spine-tipped. Flowers 2–6 in small, dense heads at tips of branchlets, pale yellow, often violet or rose on back of standard and bottom of keel, wings glabrous, keel apical upper part almost square, glabrous, calyx subglabrous, with prominent ridges, lobes awl-shaped, terete, generally recurved. Sept. Lowland fynbos, often on limestone, 50–280 m, SW, AP, LB (Gansbaai to Mossel Bay).•

cuspidata R.Dahlgren Like **A. acifera** but keel shortly hairy on lower margin only and wing blades longer than 4 mm. Oct.–Dec. Mountain fynbos, karroid scrub, sandveld, 45–1 000 m, NW (Namaqualand to Leipoldtville and Clanwilliam). **gce**

divaricata Thunb. Erect or sprawling shrublet to 0.1–1 m. Leaves 3-foliolate, leaflets linear or awl-shaped, subterete, mucronate or spine-tipped. Flowers 1–10, solitary or in terminal heads, pale or bright yellow or partly purplish or violet on back of standard, wings glabrous, keel strongly rostrate, glabrous, calyx glabrous or subglabrous, lobes triangular, spine-tipped or needle-like. Oct.–Feb. Mountain fynbos, up to 1 300 m, NW, SW (Bokkeveld Mtns to Riviersonderend Mtns).•

florifera R.Dahlgren Like **A. glabrescens** but leaves much longer, 20–35 mm, and more densely silky and calyx lobes shorter and pointed. July–Aug. Mountain fynbos, lower slopes, 100–500 m, LB, SE (Langeberg and Outeniqua Mtns).•

fourcadei L.Bolus Like **A. hirta** but keel beaked and silky and calyx lobes very short. ?Sept. Mountain fynbos, 350 m, SE (Tsitsikamma and Kouga Mtns).•

glabrescens R.Dahlgren Erect shrub to 2 m. Leaves 3-foliolate, leaflets needle-like, subterete, straight or slightly curved, rather rigid, silvery silky, often glabrous at least on apical parts. Flowers 1 or 2 on short shoots, scattered, pale lemon-yellow, standard partly violet, wings and keel glabrous, calyx silky, lobes awl-shaped, hairy. Aug.–Oct. Renosterbos-fynbos scrub, 600–800 m, SE (Outeniqua Mtns).•

glossoides R.Dahlgren Diffuse shrublet to 1 m. Leaves 3-foliolate, leaflets awl-shaped, subterete to angular, straight, rigid, spine-tipped, glabrous. Flowers 1 or 2 at branch tips, partly yellow and partly violet, wings shortly hairy, keel silky, with a finger-like process below the apex, calyx glabrous, lobes triangular, spine-tipped, glabrous. Oct.–Nov. Mountain fynbos, NW (Piketberg Mt).•

hirta E.Mey. Erect shrub, 0.8–2 m. Leaves 3-foliolate, leaflets terete, needle-like or slightly angular, straight, rigid, spine-tipped, glabrous. Flowers single on short shoots, often scattered, bright yellow, wings and keel glabrous, calyx shortly hairy, lobes awl-shaped, needle-like, spine-tipped, sometimes hairy. Sept.–Dec. Mountain fynbos, 250–700 m, NW, SW, KM, LB, SE (Bokkeveld to Kouga Mtns).•

horizontalis (R.Dahlgren) R.Dahlgren Prostrate, mat-forming shrublet with branches to 1 m. Leaves 3-foliolate, leaflets oblong-ovoid, subterete, often slightly curved, shortly mucronate. Flowers solitary at ends of branchlets, bright yellow or standard slightly violet on back, wings glabrous, keel boomerang-shaped, glabrous, calyx thinly adpressed-hairy, lobes triangular, spine-tipped. Renosterveld, 200–300 m, SW (Moorreesburg to Blouberg).•

humilis Bolus Sprawling subshrub to 35 cm. Leaves 3-foliolate, leaflets fasciculate, sausage-shaped, terete, ± incurved, mucronate, glabrous. Flowers 4–12 in terminal heads, pale yellow, fading red, wings and keel glabrous, calyx thinly hairy, lobes triangular, with incurved tips, succulent, glabrous. Oct. Mountain fynbos, 600–1 100 m, SW (Cape Peninsula and Jonkershoek).•

hystrix L.f. Like **A. hirta** but leaves grey-hairy. Aug.–Nov. Mountain fynbos or renosterbos-fynbos scrub, 700–1 600 m, KM, SE (Witteberg to Willowmore). .•

joubertiana Eckl. & Zeyh. Erect shrublet, 40–70 cm with densely leafy, wand-like branches, Leaves 3-foliolate, leaflets terete, slightly incurved, not very rigid or spine-tipped, silky. Flowers solitary, scattered along branches, bright yellow, wings glabrous, keel rostrate, sparsely hairy to glabrous, calyx hairy, lobes awl-shaped, narrow, not spine-tipped or stiff. Sept. Renosterbos-fynbos scrub, 160–830 m, SW, AP (Bredasdorp Mtns to Potberg).•

laeta Bolus Erect to sprawling shrublet with branches to 1 m long. Leaves 3-foliolate, leaflets awl-shaped, straight or slightly recurved, pungent. Flowers 1 or 2 at branchlet tips, pale yellow, standard and keel often purplish, wings glabrous, keel hairy, calyx thinly hairy, lobes triangular, pungent. Oct.–Dec. Mountain fynbos, 300 to > 750 m, NW, SW, KM (Swartruggens to Witteberg).•

lamarckiana R.Dahlgren Like **A. hystrix** but leaflets longer (15–23 mm) and flowers larger, standard ± 16 mm broad and wing blades ± 5.5 mm broad. Sept.–Dec. Arid fynbos, 660 m, KM (Witteberg and Klein Swartberg).•

leptocoma Eckl. & Zeyh. Like **A. divaricata** but calyx with short, spreading hairs and wings half as long as keel. Oct.–Feb. Mountain fynbos, below 900 m, NW (Grootwinterhoek to Elandskloof Mtns).•

leptoptera Bolus Prostrate, mat-forming shrublet with branches to 1 m. Leaves 3-foliolate, leaflets subterete, usually curved, mucronate, glabrous. Flowers 1 or 2 at tips of branchlets, pale yellow, wings sometimes with some hairs, keel silky, calyx densely hairy, lobes triangular, incurved-cuspidate, subglabrous. Oct.–Feb. Mountain fynbos, 1 500 m, NW (Skurweberg).•

longifolia Benth. Like **A. glabrescens** but leaflets often to 40 mm long and calyx lobes much reduced. Aug. Middle to lower slopes, LB (Langeberg: Garcia's Pass to Cloete's Pass).•

neglecta Salter Erect, much-branched shrub, 0.7–2 m. Leaves 3-foliolate, leaflets linear, needle-like, angular, straight, rigid, spine-tipped, sparsely hairy. Flowers 1–4 in terminal groups or solitary on short shoots, bright yellow-orange or ferruginous, fading bright or dark red, wings glabrous, keel somewhat rostrate, usually sparsely hairy, calyx sparsely silky, lobes awl-shaped, straight, rigid, spine-tipped, margins long ciliate. Sept.–Dec. Mountain fynbos, lower slopes, 240–830 m, SW (Cape Peninsula, Wemmershoek to Hottentots Holland Mtns).•

opaca Eckl. & Zeyh. Sprawling or erect shrublet to 60 cm. Leaves 3-foliolate, with leaf base tubercle sometimes spurred, leaflets terete, needle-like, rigid, straight or slightly curved, glabrous or sparsely hairy. Flowers solitary, scattered few to several along branches, bright yellow or brownish red, wings glabrous, keel hairy, calyx shortly hairy, lobes triangular to lanceolate, sometimes incurved, subglabrous, sometimes with fleshy ridges. Jan.–Dec. Renosterbos-fynbos scrub, 300–600 m, SW, LB, SE (Caledon to Alexandria).

potbergensis R.Dahlgren Prostrate, densely branched, matted shrublet with branches to 60 cm, like **A. batodes** but leaves glaucous and flowers smaller, keel blades 3–3.5 mm long. Dec. Mountain fynbos, 400–500 m, SW (Potberg).•

proboscidea R.Dahlgren Like **A. glossoides** but more procumbent, to 50 cm, with mucronulate leaves and puberulous calyx. Sept.–Oct. Mountain fynbos?, on ferricretes, 700–800 m, NW (Bokkeveld Mtns).•

pulicifolia R.Dahlgren Like **A. acuminata** but wings very short, to half as long as boomerang-shaped keel. Sept.–Nov. Mountain fynbos, 160 m, NW (Namaqualand to Gifberg). **gce**

rigidifolia R.Dahlgren Erect or sprawling shrublet to 1 m. Leaves 3-foliolate, often tufted, leaflets subterete, needle-like, straight, rigid, spine-tipped, glabrous. Flowers 1 or 2 on short shoots, pale yellow or partly purple, wings glabrous, sometimes with a few hairs, keel subglabrous, calyx glabrous, lobes triangular, glabrous. Nov.–Dec. Mountain fynbos, 780–1 900 m, NW, KM (Cold Bokkeveld to Swartberg).•

rostripetala R.Dahlgren Sprawling shrublet, 0.3–1 m. Leaves 3-foliolate, leaflets awl-shaped, subterete, straight, rigid, spine-tipped, glabrous. Flowers 1–3 at branch tips, pale yellow, fading brown, wings somewhat hairy, keel silky, strongly beaked, calyx subglabrous, lobes triangular, spine-tipped, subglabrous. Oct.–Nov. Mountain fynbos, 200–300 m, NW (Olifants River Mtns).•

sceptrum-aureum R.Dahlgren Erect, sparsely branched, densely leafy shrub to 2.5 m, with rod-like branches. Leaves 3-foliolate, leaflets terete, needle-like, rigid, straight, spine-tipped. Flowers solitary, scattered along branches, yellow, wings glabrous, keel somewhat rostrate, glabrous, calyx shortly velvety, lobes ovate-triangular, short and blunt. July–Nov. Renosterbos-fynbos scrub, 710–1 500 m, KM, SE (Swartberg, Rooiberg and Outeniqua Mtns).•

secunda E.Mey. Like **A. acuminata** but standard silky on both surfaces. Sept. Fynbos-renosterveld ecotone, 250 m, SW (Riebeek-Kasteel).•

serpens R.Dahlgren Procumbent shrublet with creeping branches to 1.5 m. Leaves 3-foliolate, leaflets awl-shaped, subterete-angular, straight, rigid, spine-tipped, glabrous. Flowers solitary on wiry peduncles from short shoots, pale to bright yellow, wings glabrous, keel apical part slightly square, glabrous, calyx glabrous, with longitudinal ridges, lobes narrowly triangular, spine-tipped, glabrous. Sept.–Feb. Mountain fynbos, lower slopes, 150–660 m, SW (Cape Peninsula to Bredasdorp).•

setacea Eckl. & Zeyh. Erect shrub, 0.25–2 m. Leaves 3-foliolate, leaflets subterete, needle-like, straight or slightly curved, spine-tipped, glabrous or hairy. Flowers single on short shoots, several

near branch tips, pale to bright yellow, often fading brownish, wings hairy, keel upper margins usually S-curved, silky, calyx shortly hairy, lobes narrowly triangular, spine-tipped, subglabrous or hairy. July–Mar. Mountain fynbos or grassy fynbos, lower slopes, 330–830 m, SE (Knysna to E Cape).

shawii L.Bolus Sparsely branched shrub with densely leafy, wand-like branches, 0.5–1.2 m. Leaves 3-foliolate, leaflets needle-like, rigid, often S-shaped, spine-tipped, usually grey-hairy. Flowers single, scattered or crowded near branch tips, pale to bright yellow, wings and keel glabrous, calyx silky, lobes awl-shaped, usually spine-tipped, silky. May–Dec. Mountain fynbos, 700–1 500 m, NW, SW, KM (Bokkeveld Mtns to Willowmore).•

spectabilis R.Dahlgren Like **A. hirta** but flowers larger, wing and keel blades 13–17 mm long. Oct.–Nov. Mountain fynbos, 150–300 m, LB (Langeberg and Aasvogelberg).•

spiculata R.Dahlgren Erect shrublet to 80 cm. Leaves 3-foliolate, leaflets awl-shaped, sharply spine-tipped, glabrous. Flowers single, scattered at branch tips, bright yellow, fading greyish or greenish, wings and keel glabrous, calyx with short, scattered, spreading hairs, lobes triangular, awl-shaped, pungent. Sept.–Oct. Mountain fynbos, 600–1 150 m, KM (Witteberg and Waboomsberg).•

spinosissima R.Dahlgren Erect or sprawling shrub, 0.3–1 m. Leaves 3-foliolate, leaflets subterete-angular, straight or slightly recurved, rigid, spine-tipped, glabrous. Flowers 1–3 on slender, axillary peduncles, pale or bright yellow, sometimes reddish on back of standard, wings glabrous, sometimes hairy, keel slightly beaked, silky, calyx glabrous, lobes triangular, spine-tipped. Oct.–Feb. Mountain fynbos, 500–2 000 m, NW, SW (Cedarberg to Stellenbosch Mtns).•

stricticlada (R.Dahlgren) R.Dahlgren Like **A. acifera** but calyx shortly hairy. Feb. Renosterbos-fynbos scrub, SW (Malmesbury and Paardeberg).•

subulata Thunb. Shrublet to 70 cm. Leaves 3-foliolate, leaflets needle-like, subterete, usually grooved above, pungent. Flowers in a terminal cluster of 3–10, yellow, fading orange, standard purplish on back, wings and keel glabrous, calyx hairy, lobes lanceolate. Sept.–Nov. Mountain fynbos, lower slopes, up to 600 m, SW (Groenland Mtns and Caledon Swartberg).•

teres Eckl. & Zeyh. Erect shrub or small tree, 1–5 m. Leaves 3-foliolate, leaflets terete, needle-like, straight, rigid, spine-tipped, glabrous. Flowers single, scattered, yellow, fading brown, wings hairy, keel with slightly S-curved upper margin, shortly hairy, calyx shortly hairy, lobes needle-like, rigid, spine-tipped, glabrous. Oct.–June. Mountain or lowland fynbos, low alt., below 700 m, SE (Knysna to E Cape).

tulbaghensis R.Dahlgren Like **A. acuminata** but flowers slightly larger, wing blades > 10 mm and keel blades > 9 mm. Nov. Renosterveld-fynbos scrub, SW (Wolseley to Worcester).•

ulicina Eckl. & Zeyh. Erect shrub, 0.2–1.5 m. Leaves 3-foliolate, leaflets subterete-angular, straight, rigid, spine-tipped, glabrous. Flowers 1–8 in terminal racemes, pale yellow, standard often partly violet on back, wings glabrous, sometimes hairy, keel silky, calyx glabrous, lobes triangular, spine-tipped, glabrous. Sept.–Nov. Mountain fynbos, 200–700 m, NW, SW (Olifants River to Elandskloof Mtns).•

verbasciformis R.Dahlgren Like **A. sceptrum-aureum** but calyx woolly with tapering lobes. Oct. Mountain fynbos, 800 m, NW, LB (Langeberg: Montagu to Swellendam).•

vulnerans Thunb. Erect shrub or small tree, 1–3 m. Leaves 3-foliolate, leaflets terete-angular, straight, rigid, pungent, glabrous. Flowers 3–6(–11) in short racemes or heads on lateral branchlets, bright yellow, wings glabrous, keel shortly hairy, calyx glabrous, lobes awl-shaped, yellow, spine-tipped, glabrous. Sept.–Dec. Mountain fynbos, 330–830 m, NW (Bokkeveld to Olifants River Mtns).•

*G.' Leaflets not spine-tipped (see also **A. grandiflora**)*
*H. Keel ± hairy (see also **A. asparagoides**, **A.corrudifolia**, **A. hispida**)*

acanthoclada R.Dahlgren Erect, much branched shrub to 1 m, with wand-like branches ending in thorns. Leaves 3-foliolate, leaflets terete, sausage-shaped, straight to slightly incurved, glabrous. Flowers single on short peduncles, pale lemon-yellow, standard violet, keel shortly silky, calyx shortly hairy, lobes triangular, ± incurved. Jan.–Mar. Renosterbos-fynbos scrub, 300 m, SW (Breede River Valley: Wolseley to Villiersdorp).•

burchelliana Benth. Erect shrublet to 80 cm with robust, tail-like branches. Leaves 3-foliolate, leaflets subterete to slightly flattened, with groove on both sides, slender, rigid, subglabrous. Flowers 1–3 clustered on short shoots, scattered, pale yellow, keel silky, calyx densely hairy, lobes triangular. Sept.–Jan. Renosterbos-fynbos scrub, low alt., 150–300 m, LB (Riviersonderend to Swellendam).•

chortophila Eckl. & Zeyh. Erect or sprawling shrublet to 1 m. Leaves 3-foliolate, leaflets linear, subterete, almost straight or slightly incurved, glabrous or subglabrous. Flowers single on short shoots, scattered, bright yellow or partly orange, red or purplish, keel hairy, calyx silky, lobes awl-shaped, subterete, glabrous near tips. Oct.–Dec. Mountain fynbos or grassy fynbos, 600–1 300 m, SE (Uitenhage to KwaZulu-Natal).

cliffortiifolia R.Dahlgren Erect, sparsely branched shrublet, 20–50 cm. Leaves 3-foliolate, leaflets terete, needle-like, straight or slightly curved, not very rigid, glabrous. Flowers single, scattered along branch ends, yellow, keel shortly hairy, calyx velvety, lobes awl-shaped, subterete, subglabrous. ?Sept. Coastal fynbos, SE (Port Elizabeth).•

congesta (R.Dahlgren) R.Dahlgren Dense, sprawling to rounded shrublet. Leaves 3-foliolate, leaflets subterete, slightly incurved, glabrous. Flowers single on short shoots, scattered, yellow, keel and wings shortly silky, calyx softly hairy, lobes awl-shaped, terete, tips subglabrous. Oct.–Jan. Subalpine fynbos, 1 250–1 750 m, KM (Swartberg).•

digitifolia R.Dahlgren Scrambling shrublet to 60 cm. Leaves 3-foliolate, leaflets terete, slightly incurved, weak, densely short-hairy. Flowers single, at tips of branchlets, pale yellow, fading reddish, keel with a few hairs on lower part, calyx densely short-hairy, lobes awl-shaped, hairy. Aug.–Sept. Mountain fynbos, 530–1 000 m, SE (Outeniqua Mtns near Mossel Bay).•

empetrifolia (R.Dahlgren) R.Dahlgren Spreading shrublet with branches to 50 cm. Leaves 3-foliolate, leaflets linear or sausage-shaped, short (± 2.5 mm long), terete, glabrous or sparsely hairy. Flowers solitary on branch tips, yellow or somewhat purple, standard blade to 5.7 mm long, wings glabrous, keel with almost square tip, glabrous or with some hairs along margins, calyx hairy, lobes lanceolate to awl-shaped, glabrous or sparsely hairy. ?Sept. Mountain fynbos, 1 500–2 000 m, NW (Cold Bokkeveld Mtns).•

ericifolia L. Erect or sprawling shrublet, 20–60 cm. Leaves 3-foliolate, leaflets terete, linear to ovoid, glabrous or hairy. Flowers solitary, scattered at branch ends, pale or bright yellow, wings glabrous, keel hairy, sometimes glabrous, calyx shortly hairy, lobes slender-filiform. Sept.–Nov. Mountain and lowland fynbos, up to 800 m, NW, SW, AP (Porterville to Agulhas).•

intermedia Eckl. & Zeyh. Like **A. chortophila** but flowers smaller, wing and keel blades < 5 mm. Dec.–Mar. Lowland fynbos, plains and lower slopes, 130–1 000 m, SE (Humansdorp to East London).

isolata (R.Dahlgren) R.Dahlgren Like **A. varians** but flowers smaller, calyx lobes to 2.5 mm long and standard blade to 6.3 mm long. Nov. Mountain fynbos, 800 m, NW (Bokkeveld to Matsikamma Mtns).•

kougaensis (Garab. ex R.Dahlgren) R.Dahlgren Like **A. chortophila** but leaves grey-hairy and flowers pale lemon-yellow. Aug.–Mar. Mountain fynbos, 200–750 m, KM, SE (Swartberg to Humansdorp).•

muraltioides Eckl. & Zeyh. Erect or sprawling shrub to 30 cm. Leaves 3-foliolate, leaflets subterete, weak, densely, long hairy. Flowers solitary, scattered, pale yellow with keel often orange or reddish, wings and keel hairy, calyx white woolly-hairy, lobes linear, weak. Aug.–Nov. Renosterveld or mountain fynbos, below 260 m, NW, SW (Piketberg to Somerset West).•

nivea Thunb. Much-branched shrub, 1–3 m. Leaves 3-foliolate, leaflets terete, densely silvery silky. Flowers solitary on slender peduncles, pale yellow, standard partly violet, wings and keel hairy, calyx silvery silky, lobes linear, awl-shaped, hairy. Aug.–Apr. Renosterbos-fynbos scrub, low alt., 80–430 m, SE (Uniondale to Uitenhage).•

pedunculata Houtt. Erect, much-branched shrub, 1–2 m. Leaves 3-foliolate, leaflets terete or very slightly flattened, weak, densely white-velvety. Flowers solitary at branchlet tips, pale yellow, wings and keel hairy, calyx shortly hairy, lobes triangular, hairy. July–Dec. Renosterbos-fynbos, 500–1 000 m, SE (Outeniqua Mtns).•

pigmentosa R.Dahlgren Sprawling shrublet with branches to 25 cm. Leaves 3-foliolate, leaflets terete, often slightly incurved, weak, sparsely long hairy. Flowers in terminal heads, pale yellow, standard sometimes purplish, wings glabrous, keel sparsely hairy, calyx woolly hairy, lobes linear to terete, flexible, purplish violet with long hairs from distinct tubercles. Oct.–Nov. Mountain fynbos, 250–1 000 m, NW, SW (Grootwinterhoek to Groenland Mtns).•

pilantha R.Dahlgren Erect shrublet 30–60 cm. Leaves 3-foliolate, leaflets sausage-shaped, straight or slightly incurved, glabrous. Flowers solitary at branchlet tips, pale yellow, partly reddish purple, wings partly hairy, keel with S-curved upper margin, shortly hairy, calyx shortly white-hairy, lobes triangular, subglabrous. Nov. Mountain fynbos, 700 m, NW (Matroosberg).•

puberula (Eckl. & Zeyh.) R.Dahlgren Sprawling shrublet with branches to 60 cm. Leaves 3-foliolate, leaflets linear, subterete, straight, with short, spreading hairs. Flowers solitary on short

shoots, scattered along branches, bright yellow, wings glabrous or with some hairs near tip, keel hairy, calyx hairy, lobes awl-shaped, slightly recurved, subglabrous. Oct. Renosterveld, 300 m, SW (Moorreesburg to Stellenbosch).•

rubens Thunb. Sprawling shrublet to 25 cm. Leaves 3-foliolate, leaflets subterete, straight or slightly incurved, glabrous or silvery silky. Flowers solitary on tips of branchlets, yellow or orange to red or dark red, wings and keel silky, calyx shortly hairy, lobes triangular or awl-shaped, hairy. Jan.–Dec. Mountain fynbos, to 2 000 m, KM, LB, SE (Anysberg and Langeberg to Port Elizabeth).•

spinescens Thunb. Rigid, thorny shrub or shrublet, 0.6–2 m with branch ends thorny. Leaves 3-foliolate, leaflets ovoid to linear, terete or slightly flattened, straight or slightly incurved, glabrous. Flowers 1 or 2(3) on short shoots, scattered, pale or bright yellow, wings glabrous, keel silky, calyx hairy or subglabrous, lobes reduced. Sept.–Oct. Sands and clays, 40–560 m, NW, SW (Namaqualand: near Hondeklip Bay to Malmesbury). **gce**

varians Eckl. & Zeyh. Sprawling shrub, 15–60 cm. Leaves 3-foliolate, leaflets linear, straight, often with distinct midrib, shiny, with hairy margins. Flowers solitary, scattered at branch ends, yellow, fading brownish, wings and keel hairy, calyx densely white-woolly, lobes tapering, recurved. Oct.–Nov. Renosterbos-fynbos scrub, 50 m, NW, SW (Olifants River Mtns to Tygerberg).•

vermiculata Lam. Erect shrub or shrublet, 0.4–2 m. Leaves 3-foliolate, leaflets terete, sausage-shaped, glabrous or thinly hairy. Flowers 1–4(–6) in terminal clusters, bright yellow, wings and keel shortly hairy, calyx shortly hairy, lobes shortly triangular. Oct.–Jan. Mountain fynbos, 600–800 m, KM, SE (Groot Swartberg to Langkloof).•

*H.' Keel glabrous (see also **A. empetrifolia**, **A. ericifolia**)*

acanthophylla Eckl. & Zeyh. Like **A. spinosa** but leaves and calyx softly grey-hairy. Flowers single, bract on middle of pedicel, lemon-yellow, rarely partly dark red. Sept.–Feb. Renosterveld, often disturbed sites, 200–300 m, SW (Hopefield to Tygerberg).•

aciloba R.Dahlgren Prostrate shrublet. Like **A. calcarea** but flowers larger, standard blade 6.5–8 mm long keel upper margin straight, calyx lobes as long as wings. ?Sept. Lowland fynbos, limestone, AP (Bredasdorp to Agulhas).•

acutiflora R.Dahlgren Erect or sprawling shrublet to 1 m. Leaves 3-foliolate, leaflets terete, often slightly incurved, glabrous. Flowers single on short shoots, scattered, pale yellow with purple standard midrib, wings and keel glabrous, calyx shortly hairy, lobes awl-like, hairy. Oct.–Dec. Coastal fynbos, below 50 m, AP (Still Bay and Albertinia).•

amoena (R.Dahlgren) R.Dahlgren Erect, closely branched shrublet, 30–70 cm. Leaves 3-foliolate, leaflets fasciculate, subterete, weak, straight or slightly incurved, glabrous. Flowers single on slender, peduncle-like branches, pale yellow, wings and keel glabrous, calyx shortly white-hairy, lobes awl-shaped, glabrous. ?Sept. Lowland fynbos, river banks, 300–1 000 m, NW, SW (Breede River Valley: Wolseley).•

araneosa L. Like **A. ciliaris** but calyx lobes narrower, long and linear-filiform and flowers remaining yellow. Aug.–Nov. Lowland fynbos, 200–830 m, SW (Malmesbury to Cape Peninsula).•

arenaria R.Dahlgren Robust shrub, 1–1.7 m. Leaves 3-foliolate, leaflets linear, terete, weak, glabrous. Flowers single on short shoots, scattered, bright yellow, wings glabrous, keel strongly rostrate, glabrous, calyx glabrous, lobes narrowly triangular. Sept.–Nov. Coastal fynbos, 20–140 m, AP (Still Bay to Gouritsmond).•

arida E.Mey. Erect or spreading shrub to 1.5 m, branches sometimes ending as thorns. Leaves 3-foliolate, leaflets linear, subterete or slightly depressed, with tip sometimes slightly recurved, glabrous. Flowers single, scattered, yellow, or standard partly red or purple, wings with 3 foldlets arranged alongside each other, wings glabrous or partly ciliate along margins, keel ± rostrate, glabrous, calyx compressed with double ridge between upper 2 lobes, glabrescent, lobes awl-shaped with carnose margins. Pods covered in persistent floral parts. Oct.–Jan. Mountain fynbos, 30–1 320 m, NW, SW (Bokkeveld Mtns to Bredasdorp).•

asparagoides L.f. Erect or spreading shrublet, 0.5–1 m. Leaves 3-foliolate, leaflets variable, linear, subterete or angular, glabrous to tuberculate-hairy. Flowers solitary, scattered, yellow, fading rusty or dark red, wings glabrous, keel glabrous or hairy, calyx hairy, lobes terete, weak, tuberculate-hairy. Sept.–Feb. Lowland fynbos, sometimes renosterbos-fynbos scrub, 10–650 m, SW, LB, SE (Gansbaai to Alexandria).

attenuata R.Dahlgren Sprawling, sparsely branched shrublet with branches 30–80 cm. Leaves 3-foliolate, leaflets linear, succulent, mucronulate, glabrous. Flowers solitary at branch tips, pale

yellow or standard partly violet, wings glabrous, keel strongly rostrate, glabrous, calyx subglabrous, lobes triangular, spine-tipped, glabrous. Oct.–Feb. Mountain fynbos, lower slopes, 100–350 m, SW (Bain's Kloof to Houwhoek).•

aurantiaca R.Dahlgren Like **A. biflora** but flowers larger, standard blade 9–10 mm long, bright yellow, fading orange or orange-red. Oct.–Jan. Mountain fynbos, up to 1 700 m, NW, SW (Cedarberg to Du Toitskloof Mtns).•

biflora E.Mey. Sprawling shrublet. Leaves 3-foliolate, leaflets terete, often broadest towards tip, straight or slightly curved, mucronulate (not very prickly), glabrous. Flowers 1–3(–5) on terminal peduncles, pale yellow, orange or rusty, wings glabrous, keel usually with almost square or rarely rostrate tip, glabrous, sometimes hairy at tip, calyx glabrous, lobes small and triangular, glabrous. Aug.–Apr. Mountain fynbos, lower slopes and hills, 1 000–1 200 m, SW, LB, SE (Cape Peninsula to E Cape).

bowieana (Benth.) R.Dahlgren Erect shrub to over 1 m. Leaves 3-foliolate, leaflets linear, subterete or slightly flat, slender, silvery velvety. Flowers single, scattered, pale yellow, wings and keel glabrous, calyx velvety, lobes triangular, short, hairy. Sept. Mountain fynbos, slopes and foothills, below 850 m, SE (Outeniqua Mtns).•

bracteata Thunb. Procumbent or scrambling, diffusely branched shrublet, with slender branches to 1 m. Leaves 3-foliolate, leaflets terete or ± flat, weak, glabrous or ± hairy. Flowers 1(–3) at branch tips on a long, leafless peduncle, pale or bright yellow or back of standard violet, wings and keel glabrous, calyx sparsely adpressed-hairy, lobes awl-shaped. Sept.–Apr. Mountain fynbos, middle slopes to subalpine habitats, up to 1 500 m, NW, SW (Cedarberg to Caledon Swartberg).•

caespitosa R.Dahlgren Compact or cushion-like shrublet with creeping branches to 20 cm. Leaves 3-foliolate, leaflets linear, subterete, slightly incurved, sparsely tuberculate-hairy. Flowers single on branch tips, surrounded at base by uppermost leaves, yellow, fading reddish, wings and keel glabrous, calyx sparsely long-hairy, lobes awl-shaped, sparsely tuberculate-hairy. Nov. Subalpine, mountain fynbos, summit and upper slopes, 1 250–1 500 m, SW (Du Toit's Peak and Stettynsberg).•

calcarea R.Dahlgren Sprawling or erect shrublet to 60 cm. Leaves 3-foliolate, leaflets awl-shaped, subterete, needle-like, ± incurved, glabrous. Flowers single on short shoots, scattered, pale yellow, wings glabrous, keel upper margins S-curved, glabrous, calyx shortly hairy, lobes awl-shaped, pointed, slightly incurved, glabrous. Jan.–May. Lowland fynbos, limestone, 20–160 m, AP (Elim to Still Bay).•

campestris R.Dahlgren Erect or spreading shrublet, 15–35 cm. Leaves 3-foliolate, leaflets fasciculate, linear to awl-shaped, subterete-angular, glabrous or sparsely hairy. Flowers solitary, scattered, pale yellow, fading brownish purple, wings glabrous, keel subrostrate, glabrous, calyx subglabrous, lobes awl-shaped. Dec.–Mar. Renosterbos-fynbos scrub, 40–50 m, NW, SW, LB (Montagu and Riviersonderend to Mossel Bay).•

candicans W.T.Aiton Erect, densely branched shrub to 1.5 m. Leaves 3-foliolate, leaflets subterete or slightly flattened, weak, soft, shortly white-hairy. Flowers 1 or 2 on short shoots, densely scattered, pale to lemon-yellow, claws to two thirds length of blades, wings and keel glabrous, calyx grey-hairy, lobes triangular to short awl-shaped. Sept.–Nov. Renosterbos-fynbos scrub, 230–580 m, SW (Breede River Valley: Worcester to Bonnievale).•

candidula R.Dahlgren Like **A. calcarea** but leaves shortly silky or hairy. Nov.–Dec. Lowland fynbos, limestone, 165 m, AP (Still Bay).•

capensis (Walp.) R.Dahlgren Like **A. carnosa** but flowers larger, wing blades 16–18 mm long (7–13 mm in **A. carnosa**). July–Dec. Lowland fynbos, 50–400 m, SW (Cape Peninsula).•

capitata L. Like **A. carnosa** but leaves sparsely hairy, flowers 10–30, keel rostrate and calyx hairy on base, lobes glabrous. Pods nearly black. Dec.–July. Lowland and mountain fynbos, 30–950 m, SW (Cape Peninsula).•

carnosa P.J.Bergius Much-branched, rigid shrub, 0.6–2.5 m. Leaves 3-foliolate, leaflets terete or subterete, sausage-shaped, straight or slightly incurved, often slightly prickly. Flowers 2–7 in terminal heads, sometimes scattered, rarely solitary on short shoots, bright yellow, standard partly red, wings and keel glabrous, calyx fleshy, sparsely hairy or glabrous, lobes ± orbicular; bract attached to pedicel. Aug.–Dec. Lowland fynbos, 10–660 m, SW (Cape Peninsula and Hangklip Mtns).•

chrysantha R.Dahlgren Like **A. juniperina** but bracts larger, 3.5–5 mm long and wing blades with few folds below. Oct. Mountain fynbos, above 450 m, NW (Piketberg).•

ciliaris L. Erect or sprawling shrub or shrublet, 0.1–1.5 m. Leaves 3-foliolate, leaflets linear to awl-shaped, often slightly incurved, glabrous or softly tuberculate-hairy. Flowers in terminal heads, bright yellow, fading reddish or black or brown, wings glabrous, keel with pointed tip, glabrous,

calyx woolly, lobes linear to lanceolate or rarely ovate, with a distinct midvein, tuberculate-hairy. Sept.–Feb. Lowland fynbos, below 800 m, NW, SW, LB, SE (Clanwilliam to Humansdorp).•

cinerascens E.Mey. Shrub, usually 1–2 m. Leaves 3-foliolate, leaflets linear, soft, weak, silvery silky. Flowers 1–3 on short shoots, scattered along branches, pale yellow, wings and keel glabrous, calyx silky, lobes linear to narrowly triangular, silky. Jan.–Apr. Lowland fynbos, 50–200 m, SE (Uitenhage to E Cape).

citrina R.Dahlgren Erect shrublet, 20–70 cm. Leaves 3-foliolate, leaflets subterete or slightly angular, straight or slightly incurved, glabrous. Flowers single on short shoots, scattered along branches, bright lemon- or sulphur-yellow, wings glabrous, keel with tip nearly pointed, glabrous, calyx compressed, glabrous, fleshy, lobes large and broad below, cordate-triangular, basally rounded and often slightly overlapping, Pods basally pointed. Oct.–Jan. Mountain fynbos, lower slopes, 500 m, SW, AP (Houwhoek to Agulhas).•

cliffortioides Bolus Like **A. ciliaris** but leaves opposite or subopposite, flowers smaller, wing blades to 7 mm long. Oct.–Jan. Mountain fynbos, lower and upper slopes, 100–1 250 m, SW, LB (Stettynsberg to Langeberg and Potberg).•

concava Bolus Like **A. juniperina** but leaflets smaller, ovoid, calyx sometimes shortly hairy, lobes ovoid-globose, fleshy, ± 1 mm long. ?Sept. Mountain fynbos, 800 m, SW (Houwhoek).•

condensata R.Dahlgren Like **A. juniperina** but standard not pointed at tip, and laterally recurved (not incurved) along sides. ?Sept. Mountain fynbos, 1 000–2 000 m, SW (Slanghoek Mtns to Somerset Sneeuwkop).•

confusa R.Dahlgren Sprawling, sparsely branched shrublet to 25 cm. Leaves 3-foliolate, leaflets linear, slightly flattened, weak, sparsely long-hairy to glabrous. Flowers few in a terminal head, pale yellow, wings and keel glabrous, calyx white-silky, lobes thread-like. Oct.–Dec. Mountain fynbos, 700–800 m, NW (Clanwilliam to Ceres and Tulbagh, Ceres and Clanwilliam).•

cordicarpa R.Dahlgren Sprawling shrublet to 50 cm. Leaves 3-foliolate, leaflets fascicled, subterete, awl-shaped, weak, often slightly curved, glabrous. Flowers single on short shoots or very short branchlets, yellow or partly reddish of purplish, wings glabrous, keel with S-curved upper margins, glabrous, calyx glabrous, lobes awl-shaped, often somewhat incurved or recurved, glabrous. Pods cordate. Sept. Mountain fynbos, 400–600 m, LB (Langeberg: Garcia's Pass).• EXTINCT

corrudifolia P.J.Bergius Slender, erect shrub, 1–3 m. Leaves 3-foliolate, leaflets subterete, weak, ± curved, glabrous or subglabrous. Flowers 2–12 in a terminal raceme, bright yellow, rather large, wings glabrous, keel rostrate, glabrous or thinly adpressed-hairy, calyx glabrous, lobes triangular, glabrous. Oct.–Dec. Mountain fynbos, 100–1 000 m, NW, SW (Grootwinterhoek Mtns to Robertson).•

crewiana Boatwr. & Cupido Like **A. lenticula** but flowers pseudopedunculate and larger, 6–7 mm long with subulate calyx lobes. Nov.–Feb. Granite renosterveld, SW (Paarl to Durbanville).•

cymbiformis DC. Sprawling, densely branched shrublet, 15–40 cm. Leaves 3-foliolate, leaflets subterete-angular, glabrous to hairy. Flowers 1 or 2 at branch tips, bright yellow, often with violet shades on back of standard, wings glabrous, keel with pointed tip, glabrous, calyx hairy, lobes spoon-shaped. Oct.–Nov. Mountain fynbos, 30–500 m, NW, SW (Piketberg to Bredasdorp).•

decora R.Dahlgren Erect shrub 1–4 m. Leaves 3-foliolate, leaflets terete, filiform, weak, non-pungent, thinly hairy. Flowers in terminal heads, pale yellow, wings and keel glabrous, calyx hairy, lobes awl-shaped, slender. Nov.–Dec. Mountain fynbos, 1 000–1 350 m, NW (Cedarberg).•

densifolia Benth. Erect shrub, 1–1.5 m. Leaves 3-foliolate, leaflets subterete, needle-like, slightly incurved, glabrous or sparsely hairy. Flowers in dense heads, yellow, often with purplish shades on back of standard and keel, wings glabrous, keel tip slightly pointed, glabrous, calyx white-hairy, upper two lobes broader than lower three lobes. Sept.–Dec. Mountain fynbos, 500–1 000 m, NW (Witzenberg and Waaihoek Mtns).•

dianthopora E.Phillips Erect shrub, 0.6–2 m. Leaves 3-foliolate, leaflets subterete or slightly grooved, straight, hairy towards tip. Flowers 1(–3) on lateral peduncles, pale or bright yellow, or partly pale purplish, wings glabrous, keel with somewhat pointed tip, glabrous, calyx glabrous, lobes narrowly-triangular. Sept.–Oct. Mountain fynbos or fynbos-karoo transition, 330–1 100 m, NW (Bokkeveld Mtns to Hex River Mtns).•

excelsa R.Dahlgren Like **A. carnosa** but bracts rhombic-ovate with slightly dentate margins and a sharply pointed tip, pedicels longer, 5–10 mm long, and keel rostrate. Sept.–Nov. Lowland fynbos, 50 m, SW (Hermanus).•

ferox Harv. Rigid shrub or shrublet, branches ending in thorns. Leaves 3-foliolate, leaflets linear, subterete or slightly flattened, straight, weak, glabrous. Flowers 1–3 on short shoots, or 2–4 on

tips of short, rigid branches, scattered, pale yellow, wings and keel glabrous, calyx shortly hairy, lobes reduced or tooth-like. Oct. Renosterveld, SW (Breede River Valley).•

filicaulis Eckl. & Zeyh. Shrublet to 70 cm. Leaves 3-foliolate, leaflets subterete to slightly flattened. Flowers 1–3 scattered or at branch tips, yellow or back of standard ± purplish, wings glabrous, keel tip slightly rostrate, glabrous, calyx shortly hairy, lobes awl-shaped, weak. Pod linear, many-seeded. Nov.–Jan. Lowland and mountain fynbos, marshy areas, 20–1 660 m, NW, SW (Cedarberg to Hottentots Holland Mtns).•

flexuosa Thunb. Erect or sprawling shrublet to 60 cm. Leaves 3-foliolate, leaflets terete, straight, hairy. Flowers solitary, scattered at branch ends, yellow, fading orange, reddish or brown-purple, wings and keel glabrous, calyx hairy, lobes linear, subterete, glabrous towards apices. Aug.–Nov. Renosterbos-fynbos scrub, 80–300 m, NW, SW, LB (Nardouw Mtns to Riversdale).•

florulenta R.Dahlgren Decumbent shrublet to 50 cm. Leaves 3-foliolate, leaflets subterete, thickest near tip, straight or slightly curved, glabrous or sparsely hairy. Flowers single at tips of branchlets, very small, pale yellow, standard ± violet, wings and keel glabrous, calyx sparsely hairy, lobes awl-shaped, subterete, slightly incurved, subglabrous. Oct.–Dec. Mountain fynbos, NW (Bokkeveld to Nardouw Mtns).•

galeata E.Mey. Erect shrublet, 20–60 cm. Leaves 3-foliolate, leaflets linear-angular, somewhat flattened, subglabrous. Flowers 1–3 at branch tips, yellow, sometimes reddish on back of standard, wings glabrous, keel rostrate, glabrous, calyx sparsely silky, lobes needle-like. Sept.–Jan. Mountain fynbos, 300–900 m, NW (Cedarberg and Olifants River Mtns).•

glabrata R.Dahlgren Like **A. spinosa** but pedicels mostly glabrous and calyx always glabrous, lobes triangular. Sept.–Dec. Renosterbos-fynbos scrub, SW (Darling).•

granulata R.Dahlgren Erect shrublet, 0.2–1 m. Leaves 3-foliolate, leaflets succulent, ovoid-oblong, thick, terete, with pointed tip, glabrous. Flowers scattered along branches, pale yellow, wings and keel glabrous, calyx thinly woolly, lobes narrowly triangular. Aug.–Dec. Mountain fynbos, 430–920 m, KM, LB (Langeberg, Outeniqua Mtns and Rooiberg).•

grobleri R.Dahlgren Prostrate, mat-forming shrublet with branches to 50 cm long. Leaves 3-foliolate, leaflets terete, slender, weak, slightly S-curved, thinly hairy, often violet. Flowers 1 or 2 on tips of branchlets, sometimes with long, peduncle-like internode, pale yellow or ± purplish, fading dark purple, wings and keel glabrous, calyx silky, lobes linear, subterete, weak, silky. Sept. Renosterveld-fynbos scrub, often shales or silcretes, LB (Swellendam District).•

hispida Thunb. Erect or spreading shrub to 1 m. Leaves 3-foliolate, leaflets subterete, straight or slightly curved, subglabrous. Flowers solitary, scattered at branch ends, pale yellow or nearly white with keel tip and back of standard dull violet, wings glabrous, keel sometimes hairy, calyx sparsely hairy, lobes awl-shaped, subterete, subglabrous. Sept.–Jan. Clays and sands, 100–1 230 m, NW, SW, AP, LB, SE (Namaqualand and widespread from Bokkeveld Mtns to Alexandria).

hypnoides R.Dahlgren Prostrate, mat-forming shrublet with branches to 30 cm. Leaves 3-foliolate, leaflets fascicled, terete, very slender, slightly curved, weak, glabrous. Flowers single on tips of branchlets, yellow or ± purplish, wings glabrous, keel with slightly S-curved, upper margin, glabrous, calyx purplish, sparsely hairy or subglabrous, lobes awl-shaped, subterete, weak, glabrous. ?Sept. Mountain fynbos, lower slopes, LB (Langeberg: Swellendam).•

incompta Thunb. Low, prostrate, densely branched shrublet. Leaves 3-foliolate, leaflets terete, slightly incurved, weak, shortly hairy. Flowers single on short shoots, scattered, small, light or bright yellow, standard partly purple, wing blades with 4 rows of folds and ± half as long as keel, glabrous, keel glabrous, calyx hairy, lobes linear to awl-shaped, hairy. Aug.–Sept. Exposed clays and silcretes, renosterveld, 60–300 m, SW (Bredasdorp to Stormsvlei and Malgas).•

incurva Thunb. Like **A. linguiloba** but flowers larger, calyx lobes usually > 6 mm and keel blades usually > 8 mm. Nov.–Mar. Mountain fynbos, 600 m. SW (Cape Peninsula).•

incurvifolia Vogel ex Walp. Sprawling shrublet with densely leafy, brush-like branches to 1 m. Leaves 3-foliolate, leaflets terete-filiform, incurved, weak (not very prickly), glabrous. Flowers single on short shoots, scattered, pale yellow, wing and keel glabrous and claws as long as blades, calyx glabrous to shortly hairy, lobes shortly triangular, reduced, glabrous or subglabrous. July–Sept. Lowland fynbos on limestone, 50–160 m, AP (Gansbaai to Gouritsmond).•

intricata Compton Like **A. wittebergensis** but branches becoming thorny and flowers mainly light yellow. Sept.–Dec. Mountain fynbos, 1 000–1 500 m, NW, KM (Cold Bokkeveld Mtns to Witteberg).•

juniperina Thunb. Sprawling or prostrate shrublet, sometimes mat-forming, with branches 0.2–2 m long. Leaves 3-foliolate, leaflets subterete, awl-shaped, straight or ± incurved, glabrous. Flowers 1–3(–5) at tips of branches, pale yellow, sometimes partly reddish to purplish, standard in-

curved on sides, wings glabrous, keel strongly upcurved, glabrous, calyx glabrous with zigzag veins, lobes linear to awl-shaped, glabrous. Aug.–Sept. Mountain fynbos, 260–2 000 m, NW, SW, AP, KM (Piketberg to Agulhas and Klein Swartberg).•

karrooensis R.Dahlgren Spreading shrublet, 50–80 cm. Leaves 3-foliolate, leaflets subterete, slightly flattened, densely white-woolly. Flowers single on tips of branchlets, partly surrounded by upper leaves, pale yellow, fading purplish, wings glabrous, keel purplish, with slightly S-shaped, upper margin, glabrous, calyx densely white-woolly, lobes linear, slender, weak, long-hairy. ?Sept. Mountain fynbos, KM (Rooiberg).•

keeromsbergensis R.Dahlgren Spreading shrublet to 30 cm. Leaves 3-foliolate, leaflets linear, weak, shortly hairy. Flowers solitary at branchlet tips, pale yellow, wings glabrous, keel with pointed tip, glabrous, calyx hairy, lobes finger-like. ?Sept. Mountain fynbos, 500–740 m, NW (Keeromsberg).•

lactea Thunb. Erect shrublet with rigid branches becoming thorny, 0.3–1 m. Leaves 3-foliolate, leaflets subterete, weak, glabrous. Flowers 1(2) on short shoots, scattered, pale yellow, often partly purplish, wings and keel glabrous, calyx shortly hairy, sometimes glabrous, lobes reduced or tooth-like. Sept.–Mar. Renosterveld, below 1 000 m, NW, SW (Worcester to Barrydale).•

lanceicarpa R.Dahlgren Sprawling shrublet with branches to 80 cm. Leaves 3-foliolate, leaflets terete, glabrous. Flowers solitary on slender, peduncle-like stalks, yellow to rusty or partly red, wings and keel glabrous, calyx adpressed-hairy, lobes awl-shaped, glabrous. Pods long, diamond-shaped. Apr.–May. Mountain fynbos, SE (Van Staden's Mtns).•

laricifolia P.J.Bergius Sprawling shrublet to 50 cm. Leaves 3-foliolate, leaflets subterete, often slightly incurved, glabrous to densely silvery hairy. Flowers solitary on short shoots, scattered, pale or bright yellow, wings and keel glabrous, calyx densely hairy, lobes narrowly triangular, weak, hairy. Sept.–Dec. Mountain fynbos, lower slopes, below 1 000 m, SW, LB, SE (Bain's Kloof to George).•

lenticula Bolus Sprawling shrublet with branches to 50 cm. Leaves 3-foliolate, leaflets erect, somewhat pressed against stems, terete, ovoid-oblong, pointed, glabrous. Flowers solitary at branch tips, pale yellow, standard partly purple, wings ± half the length of keel, glabrous, keel with rostrate tip, glabrous, calyx shortly hairy, lobes triangular, spine-tipped. Dec.–Jan. Renosterveld-fynbos scrub, 230 m, NW (Tulbagh: Saronsberg to Nieuwe Kloof).•

leucophylla R.Dahlgren Erect shrublet, 0.5–1.5 m. Leaves 3-foliolate, leaflets terete, ovoid-oblong, minutely grey- or white-hairy. Flowers 1(2) on short shoots, scattered, pale yellow or lemon-coloured, wings and keel glabrous, calyx shortly hairy, lobes narrowly triangular. Aug.–Dec. Renosterbos-fynbos scrub, lower slopes and foothills, 330–1 160 m, NW, KM, SE (Cold Bokkeveld to Kammanassie Mtns).•

linguiloba R.Dahlgren Sprawling shrublet, rarely higher than 30 cm. Leaves 3-foliolate, leaflets subterete-angular, glabrous. Flowers 1 or 2 at branch tips, pale yellow or ± purplish, wings and keel glabrous, calyx hairy, lobes tongue-like, with 3 or 5 distinct veins, subglabrous. Nov.–Jan. Coastal fynbos, 30–800 m, SW, AP (Blouberg to Potberg).•

longipes Harv. Erect or scrambling shrublet, 30–80 cm. Leaves 3-foliolate, leaflets terete, slender, weak, grey- or white-hairy. Flowers 1–4 on slender, peduncle-like branchlets, pale yellow, keel and standard often partly purplish, wings and keel glabrous, calyx hairy, lobes linear, slender, soft, hairy. Sept.–Dec. Lowland fynbos, 35–100 m, SW, LB (Riviersonderend to Riversdale).•

marginalis Eckl. & Zeyh. Erect shrublet, 15–70 cm. Leaves 3-foliolate, leaflets terete, weak, straight or slightly curved, glabrous. Flowers solitary on tips of branchlets, yellow, wings and keel glabrous, calyx shortly hairy, lobes lanceolate, with thickened, fleshy margins. ?Sept. Mountain fynbos, 600–700 m, SE (Uitenhage to Albany).

microphylla DC. Like **A. lenticula** but keel tip truncate. Oct.–Feb. Lowland or coastal fynbos, 30–830 m, SW, AP, LB (Bokbaai and Cape Peninsula to Agulhas and Swellendam).•

millefolia R.Dahlgren Like **A. ciliaris** but leaves minute, to 4 mm long. Oct.–Jan. Renosterbos-fynbos scrub, 830 m, SW, LB (Houwhoek to Riversdale).•

obliqua R.Dahlgren Erect, single-stemmed, short-lived shrub to 1.5 m. Leaves 3-foliolate, leaflets subterete, weak, glabrous. Flowers scattered, white, back of standard with purple patch, standard and wings strongly reflexed, wings and keel glabrous, calyx glabrous, lobes very small, tooth-like. Oct.–Nov. Sandstone fynbos, ± 750 m, NW (Bokkeveld Escarpment: Avontuur to Nieuwoudtville waterfall).•

obtusifolia R.Dahlgren Erect shrub to 1.2 m. Leaves 3-foliolate, leaflets terete, sausage-shaped, only ± 1–2mm long, glabrous. Flowers 1 or 2 on short shoots, scattered, bright yellow, wings and

keel glabrous, calyx glabrous, lobes reduced, shortly triangular. Dec.–Mar. Lowland fynbos to 130 m, AP (Still Bay to Mossel Bay).•

odontoloba R.Dahlgren Like **A. pinguis** but leaflets always terete, sausage-shaped, 2–5 mm long and calyx lobes ovoid, fleshy, swollen. Jan.–Feb. Lowland fynbos, 10–100 m, AP (Albertinia to Gouritsmond).•

oliveri R.Dahlgren Erect shrub to 75 cm. Leaves 3-foliolate, leaflets fascicled, terete, sausage-shaped, succulent, glabrous. Flowers solitary on tips of branchlets, pale yellow, wings and keel glabrous, calyx shortly hairy, lobes triangular to awl-shaped, glabrous. Nov. Subalpine fynbos, 1 250 m, KM (Groot Swartberg: Tierberg).•

pachyloba Benth. Erect shrub or shrublet, 0.4–2 m. Leaves 3-foliolate, leaflets subterete, often oblong-ovoid, sausage-shaped, sometimes pungent. Flowers scattered along branch ends, bright yellow, fading black when dried, wings and keel glabrous, calyx glabrous or thinly hairy, lobes triangular to awl-shaped, sometimes pungent, glabrous. Oct.–Dec. Mountain fynbos, 200–1 500 m, NW, SW, KM, LB (Cold Bokkeveld Mtns to Caledon Swartberg, Langeberg and Swartberg).•

pallescens Eckl. & Zeyh. Erect, rigid shrub, 0.5–1.2 m. Leaves 3-foliolate, on prominent tubercles, leaflets subterete, slightly incurved, not stiff, subglabrous. Flowers solitary, scattered, pale yellow or cream-white, wings and keel glabrous, calyx shortly hairy, lobes triangular, succulent, overlapping, glabrous or sparsely hairy. Mar.–Apr. Lowland fynbos, limestone ridges, 200 m, AP (De Hoop).•

parviflora P.J.Bergius Spreading shrublet to 20 cm. Leaves 3-foliolate, leaflets terete, weak, often slightly recurved, hairy or glabrous. Flowers solitary, scattered, pale to bright yellow, bracts and bracteoles lacking, wings and keel glabrous, calyx hairy, lobes awl-shaped, generally recurved, weak. Sept.–Oct. Renosterbos-fynbos scrub, 30–280 m, NW, SW, AP (Piketberg to Agulhas).•

pedicellata Harv. Sprawling or mat-forming shrublet. Leaves 3-foliolate, leaflets subterete or slightly compressed, straight or ± incurved, glabrous. Flowers 1 or 2(–5) at branch tips, pale to bright yellow or back of standard partly purple, wings glabrous, keel somewhat rostrate, glabrous, calyx glabrous, lobes narrowly triangular, not spine-tipped. Nov.–Jan. Subalpine mountain fynbos or renosterbos-fynbos scrub, 1 000–2 200 m, NW (Cold Bokkeveld to Hex River Mtns).•

petersonii R.Dahlgren Shrub, 0.6–2 m. Leaves 3-foliolate, leaflets linear, ± flat, rarely subterete, flexible, glabrous to densely hairy. Flowers 1(2) on short shoots, scattered, pale yellow, wings and keel glabrous, calyx shortly hairy, lobes linear, awl-shaped, sometimes hairy. Sept.–Feb. Dry fynbos, 200–1 090 m, NW (Bokkeveld Mtns to Swartruggens).•

pinea Thunb. Erect shrub or shrublet with tail- or rod-like branches, 0.2–2 m. Leaves 3-foliolate on tubercle-like bases, leaflets terete, needle-like, non-pungent, sparsely hairy. Flowers solitary, clustered in spike-like fashion at branch tips, pale yellow, wings glabrous, keel rostrate, glabrous, calyx thinly hairy, lobes linear, weak. Oct.–Dec. Mountain fynbos, 130–1 000 m, NW, SW (Cedarberg to Stellenbosch Mtns).•

pinguis Thunb. Sparsely branched shrublet with erect, tail-like branches, 0.2–1 m. Leaves 3-foliolate, leaflets subterete to ovoid, variable, straight or incurved, glabrous. Flowers 1(2) on short shoots, scattered, yellow or partly red, wings and keel glabrous with concave upper margin, calyx glabrous, lobes triangular, glabrous. Aug.–Feb. Renosterbos-fynbos scrub, 100–1 000 m, NW, SW, AP, KM, LB, SE (Olifants River Mtns to Uniondale).•

prostrata Eckl. & Zeyh. Prostrate, mat-forming shrublet with branches to 50 cm. Leaves 3-foliolate, leaflets subterete or slightly flattened, thinly hairy. Flowers solitary at branch tips, yellow, wings and keel glabrous, calyx thinly hairy lobes ovate, overlapping and prominently ridged. Nov.–Dec. Lowland fynbos, limestone, 50–100 m, AP (De Mond to Arniston).•

pycnantha R.Dahlgren Shrublet to 50 cm. Leaves 3-foliolate, leaflets subterete, shortly hairy, sometimes glabrous. Flowers solitary, scattered, pale or bright yellow, standard partly purple, wings and keel glabrous, calyx silky, lobes awl-like. July–Oct. Renosterveld, 10–300 m, SW, AP (Baardskeerdersbos to Agulhas).•

ramosissima R.Dahlgren Erect shrub to 2 m. Leaves 3-foliolate, leaflets linear to awl-shaped, terete, straight or slightly incurved, glabrous. Flowers solitary, terminal on branch tips with long, peduncle-like internodes, yellow with darker shades on standard back, wings and keel glabrous, calyx hairy, lobes linear, terete, subglabrous. Nov. Mountain fynbos, 1 300–1 700 m, KM (Groot Swartberg).•

rectistyla R.Dahlgren Rigid shrublet with almost thorn-like branches, 20–60 cm. Leaves 3-foliolate, leaflets needle-like, glabrous, midrib of middle leaflet hard and often persisting. Flowers solitary, scattered near branch tips, yellow to orange-yellow fading brown or purple, wings glabrous, keel narrow and prolonged, glabrous, style straight and protruding, calyx adpressed-hairy, lobes

narrowly triangular, upper 2 lobes well separated. Aug.–Oct. Renosterbos-fynbos scrub, 200–850 m, NW (Piketberg and Olifants River Mtns).•

recurva Benth. Like **A. wurmbeana** but flowers larger, keel blades > 5.5 mm. Dec.–May. Renosterveld, 40–300 m, NW, SW, LB (Piketberg to Swellendam).•

recurvispina R.Dahlgren Decumbent or sprawling shrublet with branches to 35 cm, Leaves 3-foliate, leaflets subterete with distinct longitudinal groove, tip distinctly recurved. Flowers 1–3(4) on short shoots, scattered, pale yellow, turning purplish, wings and keel glabrous, calyx glabrous, lobes narrowly triangular, weak, glabrous. Oct.–Apr. Coastal fynbos, below 100 m, SE (Port Elizabeth).•

repens R.Dahlgren Prostrate, matted shrublet with branches to 50 cm, like **A. juniperina** but calyx lobes ovoid-fleshy. ?Oct. Lowland fynbos, limestone, 90 m, AP (Bredasdorp).•

retroflexa L. Sprawling shrublet with branches to 1 m long. Leaves 3-foliolate, leaflets subterete, awl-shaped, often curved near tip, weak, sometimes hairy. Flowers solitary at tips of branchlets, yellow, standard, wing and keel partly dark violet, purple or red, wings glabrous or rarely hairy, keel glabrous, calyx shortly hairy, lobes awl-shaped, sometimes ± reflexed, subglabrous. Sept.–Mar. Mountain and lowland fynbos, 100–300 m, NW, SW, AP (Cedarberg to Agulhas).•

rubiginosa R.Dahlgren Spreading shrub, 30–80 cm. Leaves 3-foliolate, leaflets terete, rigid to hardly rigid, subglabrous or sparsely tuberculate-hairy. Flowers in terminal heads, yellow, fading orange or reddish, wings and keel glabrous, calyx sparsely long-hairy or glabrous, lobes needle-like similar to leaflets, tuberculate-hairy. Oct.–Dec. Mountain fynbos, lower and upper slopes, 150–1 250 m, NW, SW (Ceres to Riviersonderend Mtns).•

salteri L.Bolus Sprawling shrublet to 15 cm. Leaves 3-foliolate, leaflets terete, glabrous or thinly hairy. Flowers solitary at branchlet tips, bright or pale yellow, wings and keel glabrous, calyx thinly hairy, lobes triangular, succulent, prominently ridged. Nov.–Dec. Lowland fynbos, limestone, 30–200 m, SW, AP (Cape Peninsula to Arniston).•

sanguinea Thunb. Sprawling or erect shrub to 1 m. Leaves 3-foliolate, leaflets terete-filiform, slightly incurved, glabrous. Flowers solitary on short shoots, scattered near branch tips, pale or bright yellow, partly rose or purple, wings and keel glabrous, calyx glabrous, lobes subterete. Jan.–Mar. Lowland fynbos, limestone, below 330 m, AP (Bredasdorp to Still Bay).•

smithii R.Dahlgren Rigid shrublet to 30 cm. Leaves 3-foliolate, leaflets cylindrical-terete, slightly incurved, only 1–2 mm long. Flowers solitary on short shoots, scattered, small, bright yellow, fading reddish, standard apex hood-like, wings and keel glabrous, calyx shortly hairy, lobes small, ovoid, fleshy. Feb.–Apr. Renosterveld, 100–120 m, SW, LB (Riviersonderend to Swellendam).•

spicata Thunb. Erect or sprawling shrub or shrublet, 0.2–2 m. Leaves 3-foliolate, leaflets subterete, rigid or weak, glabrous or tuberculate-hairy. Flowers 1 or 2 at branch tips, pale yellow to orange-yellow, sometimes rusty, wings and keel glabrous, calyx hairy, lobes variable from ovate to linear, straight or recurved, with prominent midvein and margins, sometimes glabrous. Aug.–Jan. Mountain fynbos, below 1 000 m, NW, SW (Bokkeveld Mtns to Franschhoek).•

spinosa L. Thorny shrub to 2 m, thorns lateral, ± recurved and leafless. Leaves 3-foliolate, leaflets terete to oblong, slightly flattened, weak, glabrous or sparsely hairy. Flowers 1 or 2 in thorn axils, yellow, partly red or purplish, wings and keel glabrous, calyx usually adpressed-hairy, lobes shortly triangular to broadly awl-shaped. Aug.–Mar. Lowland fynbos and renosterveld, 60–200 m, NW, SW, LB, SE (Olifants River Mtns to KwaZulu-Natal).

steudeliana Brongn. Erect shrublet, 0.3–1 m. Leaves 3-foliolate, leaflets small, ovoid-oblong or granular, glabrous. Flowers solitary, scattered, small, pale or bright yellow, wings and keel glabrous, calyx shortly hairy, sometimes reddish, lobes reduced, subglabrous. Pods black when dry. Aug.–Oct. Renosterveld, 160–1 000 m, SW, LB (Robertson and Botrivier to Mossel Bay).•

subtingens Eckl. & Zeyh. Erect or sprawling shrub or shrublet, 0.2–2 m. Leaves 3-foliolate, leaflets terete or sausage-shaped, often slightly incurved, weak, glabrous, usually reddish brown when dry. Flowers 1 or 2 on short shoots, scattered, yellow, fading orange-red, wings and keel glabrous, calyx glabrous, lobes triangular or tooth-like. Oct.–Mar. Renosterveld and arid fynbos, 660–1 300 m, KM, SE (Witteberg to Somerset East).

tenuissima R.Dahlgren Procumbent shrublet with branches to 1 m long. Leaves 3-foliolate, leaflets subterete, straight or slightly incurved, glabrous. Flowers solitary on filiform peduncles, small, yellow to orange or red-purple on back of standard, fading dark red, wings and keel glabrous, calyx softly hairy, lobes ovoid-subglobose to lanceolate, succulent, glabrous. Jan.–Dec. Mountain fynbos, up to 1 000 m, KM, SE (Mossel Bay to Van Staden's Mtns).•

triquetra Thunb. Erect shrub or shrublet to 1.5 m. Leaves 3-foliolate, leaflets linear to awl-shaped, angular, or somewhat flattened, distinctly veined, glabrous or subglabrous. Flowers few on

branch tips, yellow, often purplish on back of standard, wings glabrous, keel slightly beak-like, glabrous, calyx white-silky, upper lobes much broader than lower three lobes. Sept.–Jan. Mountain fynbos, moderate to high alt., up to 1 500 m, NW, SW, KM (Cedarberg to Riviersonderend Mtns and Witteberg).•

tuberculata Walp. Erect shrublet to 1 m. Leaves 3-foliolate, leaflets subterete, rather thick or slightly flattened, with distinct groove on both sides, adpressed-hairy or subglabrous. Flowers 1(–3) on short shoots, scattered along branches, pale yellow, with claws < half the length of blades, wings subglabrous, keel glabrous, calyx shortly silky, lobes broadly awl-shaped, hairy. June–Feb. Renosterbos-fynbos scrub, below 800 m, NW, SW, KM (Breede River Valley to Caledon Swartberg and Anysberg to Klein Swartberg).•

variegata Eckl. & Zeyh. Slender shrublet, 15–40 cm. Leaves 3-foliolate, leaflets subterete, straight. Flowers 1–4 in terminal heads, yellow, wings and keel glabrous, calyx thinly hairy, lobes triangular, subglabrous, bract attached to pedicel. Nov. Clay flats, SW (Cape Peninsula: near Mowbray).• EXTINCT

wittebergensis Compton & P.E.Barnes Erect or sprawling shrublet to 50 cm. Leaves 3-foliolate, leaflets awl-shaped, subterete or slightly flat or angular, often slightly recurved, glabrous or grey-hairy. Flowers solitary on tips of branchlets, bright yellow or orange, wings and keel glabrous, calyx hairy, lobes awl-shaped, glabrous or subglabrous. Aug.–Jan. Renosterveld and arid fynbos, 800–1 600 m, NW, KM (Bokkeveld Mtns to Witteberg).•

wurmbeana E.Mey. Erect shrub or shrublet to 1.5 m, branches often standing in one or several horizontal planes. Leaves 3-foliolate, leaflets terete, glabrous or thinly hairy. Flowers 1(2) on short shoots, scattered, bright yellow, rarely purple on standard, wings and keel glabrous, calyx hairy, often reddish, lobes with thickened margins, hairy. Feb. Renosterveld, 60 m, NW, SW (Gifberg to Paarl).•

zeyheri (Harv.) R.Dahlgren Like **A. sanguinea** but wings with longer claws, ± 2.5 mm long and smaller blades, to 3.5 × 1.2 mm. Sept.–Nov. Renosterveld, 65–370 m, SW, LB (Swellendam and Potberg to Riversdale).•

BOLUSAFRA Kuntze• TAR PEA, TEER-ERTJIE 1 sp., W Cape

bituminosa (L.) Kuntze Sprawling, resinous, tar-scented shrublet. Leaves pinnately 3-foliolate. Flowers bright yellow. Aug.–Jan. Mountain fynbos, especially streamsides, 100–800 m, NW, SW (Tulbagh to Caledon).•

CALOBOTA Eckl. & Zeyh. (= *LEBECKIA* in part) 16 spp., S Africa, Namibia and N Africa

A. Unarmed shrubs; pods semi-terete

angustifolia (E.Mey.) Boatwr. & B.-E.van Wyk (= *Lebeckia multiflora* E.Mey.) Erect shrub, rarely spinescent, to 2 m. Leaves 3-foliolate, petiole longer or shorter than leaflets. Flowers yellow, wings longer than keel. Pods linear, sericeous, dehiscent, spongy. Jan.–Nov. Karroid scrub, well-drained sand or sand dunes, up to 500 m, NW, SW (Walvis Bay to Langebaan).

cinerea (E.Mey.) Boatwr. & B.-E.van Wyk (= *Lebeckia cinerea* E.Mey.) Erect shrub to 1.5 m. Leaves 3-foliolate, petiole longer or shorter than leaflets. Flowers yellow, wings shorter than keel. Pods linear, tomentose, dehiscent, spongy. Aug.–Nov. Karroid scrub, well-drained sand, up to 500 m, NW (S Namibia to Clanwilliam) **gce**

cytisoides (Berg.) Eckl. & Zeyh. (= *Lebeckia cytisoides* Berg.) Erect, diffuse shrub or small tree to 2 m. Leaves 3(–5)-foliolate, petiole as long as or shorter than leaflets. Flowers bright yellow, wings shorter than keel. Pods linear, glabrous, dehiscent, spongy. June–Nov. Renosterveld and fynbos scrub, well-drained sand or clay, 20–1 000 m, NW, SW, KM, LB (Bokkeveld Mtns to Riversdale).•

elongata (Thunb.) Boatwr. & B.-E.van Wyk (= *Lebeckia melilotoides* R.Dahlgren) Erect to procumbent shrub to 1 m. Leaves 3-foliolate, petiole longer or shorter than leaflets. Flowers pale yellow, wings longer than keel. Pods ovate to elliptic, 1- or 2-seeded, densely pubescent, indehiscent, thin-walled. Oct.–Nov. Karroid scrub, sandy soil or dunes, 500-800 m, NW, KM (Touws River to Ladismith).•

sericea (Thunb.) Boatwr. & B.-E.van Wyk (= *Lebeckia sericea* Thunb.) Erect, diffuse shrub to 2 m. Leaves 3-foliolate, petiole longer or shorter than leaflets. Flowers yellow or cream-coloured,

wings shorter than keel. Pods linear, sericeous, dehiscent, spongy. May–Oct. Karroid scrub, well-drained sand or granite, 200–1 200 m, NW (Namaqualand to Citrusdal) **gce**

*A.' Strongly spinescent shrubs; pods laterally compressed (see also **C. angustifolia**)*

psiloloba (E.Mey.) Boatwr. & B.-E.van Wyk (= *Lebeckia psiloloba* E.Mey.) Erect, thorny, almost leafless shrub to 1.2 m. Leaves 1(–3)-foliolate, petiole shorter than leaflets. Flowers yellow, wings shorter than keel. Pods oblong, glabrous, indehiscent, thin-walled. Oct.–June. Open grasslands, sandy soils, 30–520 m, SE (Uitenhage to E Cape).

pungens (Thunb.) Boatwr. & B.-E.van Wyk (= *Lebeckia pungens* Thunb.) Erect, thorny, almost leafless shrub to 2.5 m. Leaves 1(–3)-foliolate, petiole shorter than leaflets. Flowers bright yellow, wings shorter than keel. Pods oblong to falcate, tomentose, indehiscent, thin-walled. Sept.–Dec. Karroid scrub, rocky loam or quartzites, 790–1 100 m, KM, SE (Witteberg to Swartberg and S Karoo).•

spinescens (Harv.) Boatwr. & B.-E.van Wyk (= *Lebeckia spinescens* Harv.) Erect to spreading, thorny shrub to 1 m. Leaves 3-foliolate, petiole longer than leaflets. Flowers yellow, wings shorter than keel. Pods linear to falcate, sericeous or sometimes glabrous with a hairy upper suture, dehiscent, thin-walled. Sept.–May. Karroid scrub, sandy soils, roadsides or dunes, also granite and limestone, 600–1 100 m, KM (S Namibia, N, W and E Cape).

CALPURNIA E.Mey. CAPE LABURNUM, GEELKEURBOOM 7 spp., southern and tropical Africa to India

intrusa (R.Br.) E.Mey. Tree-like, reseeding shrub to 6 m. Leaves pinnate, dark green. Flowers yellow, calyx intrusive at base. Dec.–June. Renosterbos-fynbos scrub, karroid scrub, streamsides, 600–900 m, KM (Swartberg: Ladismith to Oudtshoorn).•

CASSIA see **CHAMAECRISTA**

CHAMAECRISTA Moench (= *CASSIA* in part) ± 250 spp., pantropical and warm temperate

capensis (Thunb.) E.Mey. (= *Cassia capensis* Thunb.) Erect or sprawling, fine-leaved resprouting shrublet, 20–40 cm. Leaves bipinnate. Flowers few in axils, bright yellow. Dec.–Jan. Grasslands, SE (Humansdorp to tropical Africa).

CROTALARIA L. GEELKEURTJIE ± 600 spp., tropics and subtropics

capensis Jacq. Erect shrub, 2–3 m. Leaves 3-foliolate, leaflets obovate, thinly hairy, petiole usually shorter than leaflets, stipules foliaceous, sometimes lacking. Flowers in terminal racemes, yellow. May–Dec. Grasslands, bushland, forest margins, below 1 830 m, SE (Knysna to tropical Africa).

excisa (Thunb.) Baker f. Decumbent, sprawling subshrub with woody rootstock, 10–15 cm. Leaves 3-foliolate, leaflets obovate, thinly hairy, petiole ± as long as leaflets, stipules linear-awl-shaped. Flowers 1 or 2 on slender peduncles, yellow. Aug.–Oct. Karroid scrub, NW, SW (Namaqualand to Cape Peninsula to Montagu) **gce**

humilis Eckl. & Zeyh. Like **C. excisa** but annual and not developing a woody rootstock. Sept.–Oct. Karroid scrub, sandy places, 300–1 050 m, NW (Richtersveld to Olifants River) **gce**

lebeckioides Bond Rigid, wand-like shrublet to 1 m. Leaves 3-foliolate, leaflets reduced, linear-conduplicate, glaucous, petiole much longer than leaflets, stipules absent. Flowers in elongate terminal racemes, yellow. July–Dec. Karroid scrub, 500–600 m, KM (Ladismith to Calitzdorp).•

obscura DC. Much-branched shrublet with long, straggling or decumbent, shaggy hairy branches. Leaves 3-foliolate, leaflets elliptic-subrotund, long-ciliate, petiole mostly longer than leaflets, stipules linear-lanceolate or spathulate. Flowers in terminal racemes, yellow, often reddish outside. June–Nov. Grasslands, 230–660 m, SE (Uitenhage to KwaZulu-Natal).

*CULLEN Medik. BLUE CLOVER, BLOUKLAWER 35 spp., Old World tropics and subtropics

***obtusifolia** (DC.) C.H.Stirt. Spreading, mat-forming shrublet with soft stems to 1 m long. Leaves 3-foliolate, clover-like, leaflets obovate. Flowers purple, mauve. Sept.–Nov. Dry river beds and dry flats, SW, KM, LB (Robertson through Little Karoo, native to drier parts of summer-rainfall area).

CYCLOPIA Vent.• HONEY BUSH 23 spp., W and S Cape

A. Bracts clasping the base of the calyx

bowieana Harv. Erect, robust, resprouting or reseeding shrub to 1.8 m. Leaves 3-foliolate, leaflets linear-oblanceolate, terete, sometimes somewhat flattened, margins usually strongly revolute, softly hairy. Flowers yellow, bracts clasping base of calyx. Oct.–Dec. Mountain fynbos, upper slopes, 1 220–1 830 m, LB, SE (Langeberg and Outeniqua Mtns).•

glabra (Hofmeyr & E.Phillips) A.L.Schutte Robust, resprouting shrub to 1.2 m. Leaves 3-foliolate, leaflets linear, terete, margins strongly revolute, thinly hairy when young. Flowers yellow, bracts clasping base of calyx. Nov.–Dec. Subalpine mountain fynbos, 1 660–2 249 m, NW (Hex River Mtns).•

meyeriana Walp. WOLTEE Erect, reseeding shrub to 2 m. Leaves 3-foliolate, leaflets linear, terete, margins strongly revolute, softly hairy or glabrescent. Flowers yellow, bracts clasping base of calyx. Sept.–Dec. Mountain fynbos, upper slopes, 1 000–1 800 m, NW, SW (Cedarberg to Riviersonderend Mtns).•

A.' Bracts not clasping the base of the calyx
*B. Leaflets terete or subterete (see also **C. buxifolia**)*

alopecuroides A.L.Schutte Erect, resprouting or reseeding shrublet to 60 cm. Leaves 3-foliolate, leaflets linear, terete, margins strongly revolute, hirsute. Flowers yellow. Sept.–Dec. Subalpine mountain fynbos, 1 500–2 000 m, KM (Groot Swartberg and Kammanassie Mtns).•

alpina A.L.Schutte Sprawling, lax, resprouting shrub to 30 cm. Leaves 3-foliolate, leaflets linear-terete to oblanceolate, margins strongly revolute, sometimes slightly recurved. Flowers yellow. Nov.–Dec. Sandstone slopes at high alt., 1 170–2 070 m, NW, SW, KM (Hex River to Hottentots Holland to Kammanassie Mtns).•

aurescens Kies Sturdy, erect, resprouting shrub to 70 cm. Leaves 3-foliolate, leaflets linear, margins strongly revolute. Flowers yellow. Oct.–Dec. Subalpine mountain fynbos, above 1 800 m, KM (Klein Swartberg).•

bolusii Hofmeyr & E.Phillips Lax, sprawling, resprouting shrublet to 30 cm. Leaves 3-foliolate, leaflets linear, margins strongly revolute, softly hairy when young. Flowers yellow. Nov.–Jan. Subalpine mountain fynbos, 1 900–2 270 m, KM (Groot Swartberg).•

galioides (P.J.Bergius) DC. Robust, softly hairy, resprouting shrub to 1 m. Leaves 3-foliolate, leaflets linear-terete, margins strongly revolute, softly hairy to glabrescent. Flowers yellow. Jan.–May. Lowland fynbos, flats and slopes, 160–700 m, SW (Cape Peninsula).•

genistoides Walp. HEUNINGTEE, HONEYBUSH TEA Robust, erect, resprouting shrub to 2 m. Leaves 3-foliolate, leaflets linear-terete, margins strongly revolute. Flowers yellow. Sept.–Nov. Lowland fynbos, flats slopes, 60–1 170 m, SW, LB (Malmesbury to Albertinia).•

maculata (Andrews) Kies VLEITEE Erect, reseeding shrub to 3.5 m, rarely resprouting after fire. Leaves 3-foliolate, leaflets linear-terete, margins strongly revolute. Flowers yellow. Sept. Streamsides in lowland fynbos, 150–830 m, SW, LB (Bain's Kloof to Riversdale).•

plicata Kies Erect, widely branched, reseeding shrub to 1.7 m. Leaves 3-foliolate, leaflets linear-terete, margins strongly revolute. Flowers yellow, bracts distinctly pleated, with rounded apices, calyx lobes distinctly bi-lobed and thickened. Sept. Mountain fynbos, shale bands on sandstone slopes, 1 000–1 700 m, KM (Kammanassie and Kouga Mtns).•

pubescens Eckl. & Zeyh. Erect, reseeding shrub to 1.7 m. Leaves 3-foliolate, leaflets linear-terete, margins strongly revolute. Flowers yellow, bracts pleated, with recurved apices, calyx lobes tapering, thickened. Sept. Marshes and seeps in lowland fynbos, ± 300 m, SE (Port Elizabeth).•

squamosa A.L.Schutte Reseeding shrub. Leaves 3-foliolate, leaf bases persistent, leaflets linear-terete, margins strongly revolute. Flowers yellow. Oct. Mountain fynbos, southern slopes, deep peaty soils, 1 700 m, SW (Wemmershoek Mtns).•

*B.' Leaflets ± flat (see also **C. alpina**)*

burtonii Hofmeyr & E.Phillips SUIKERTEE, HEUNINGTEE Robust, reseeding shrublet to 80 cm. Leaves 3-foliolate, leaflets elliptic, margins sometimes slightly recurved. Flowers yellow. Oct.–Dec. Subalpine mountain fynbos, sandstone slopes, 1 600–2 070 m, KM (Groot Swartberg).•

buxifolia (Burm.f.) Kies Erect or prostrate, robust, resprouting shrub to 2 m. Leaves 3-foliolate, leaflets elliptic to obovate, sometimes subterete, margins slightly recurved to revolute, minutely crisped. Flowers yellow. Sept. Mountain fynbos, sandstone slopes, 830–1 670 m, NW, SW, LB, SE (Cold Bokkeveld to Outeniqua Mtns).•

falcata (Harv.) Kies Erect, robust, resprouting shrub to 1.5 m. Leaves 3-foliolate, leaflets linear to elliptic, margins slightly revolute. Flowers yellow. Sept.–Nov. Mountain fynbos, sandstone slopes, 550–1 600 m, NW, SW (Cold Bokkeveld Mtns to Caledon Swartberg).•

filiformis Kies Erect, ?reseeding shrub. Leaves 3-foliolate, leaflets linear, margins slightly recurved. Flowers yellow, calyx lobes triangular, acuminate. ?Oct. Lowland fynbos, sandy flats, 100 m, SE (Van Staden's Mtns).• EXTINCT

intermedia E.Mey. KOUGABERGTEE, BERGTEE Erect, robust, resprouting shrub to 2 m. Leaves 3-foliolate, leaflets oblanceolate, margins slightly recurved. Flowers yellow. Sept.–Nov. Mountain fynbos, sandstone slopes, 500–1 700 m, KM, LB, SE (Witteberg and Langeberg to Van Staden's Mtns).•

latifolia DC. Erect, reseeding shrub to 1 m. Leaves 3-foliolate, leaflets cordate, margins slightly recurved, finely crisped. Flowers yellow. Sept.–Nov. Mountain fynbos, sandstone seeps, 900–1 000 m, SW (Cape Peninsula).•

laxiflora Benth. Erect, ?reseeding shrub. Leaves 3-foliolate, leaflets linear-oblanceolate, margins slightly recurved. Flowers yellow. ?Sept. Lowland fynbos, sandy flats, SE (Knysna, Plettenberg Bay).• EXTINCT

longifolia Vogel Erect, reseeding shrub to 3 m. Leaves 3-foliolate, leaflets linear-oblanceolate, margins sometimes slightly recurved. Flowers bright yellow. Oct.–Nov. Lowland fynbos, sandy slopes and flats, 300–360 m, SE (Van Staden's Mtns).•

sessiliflora Eckl. & Zeyh. HEIDELBERGTEE Erect, robust resprouting shrublet to 1 m. Leaves 3-foliolate, leaflets linear to narrowly elliptic, margins slightly recurved. Flowers pale yellow. Apr.–Sept. Mountain fynbos, sandstone slopes, 300–1 500 m, KM, LB (Warmwaterberg and Langeberg).•

subternata Hofmeyr & E.Phillips VLEITEE Erect, reseeding shrub to 3.5 m. Leaves 3-foliolate, leaflets obovate to oblanceolate, margins slightly recurved. Flowers yellow. Sept. Mountain fynbos, sandstone seeps, 160–1 000 m, LB, SE (Langeberg to Tsitsikamma Mtns).•

DESMODIUM Desv. DESMODIUM, BURR PEA ± 275 spp., cosmopolitan in tropics and subtropics

repandum (Vahl.) DC. Straggling, thinly rusty-hairy shrub to 1 m. Leaves long-petiolate, trifoliolate, with varnished patches above and paler beneath, leaflets tetragonal, terminal largest and lateral asymmetric; stipules papery, brown. Flowers in open racemes or panicles, nodding on slender pedicels, orange. Pods fragmenting into crescent-shaped segments, velvety-barbed. Jan.–June(–Aug.). Forest floor, often along streams, SE (Knysna to tropical Africa and Asia).

DICHILUS DC. 5 spp., southern Africa

gracilis Eckl. & Zeyh. Wide, spreading, reseeding shrublet to 30 cm. Leaves digitately 3-foliolate, glaucous, leaflets obovate, adpressed-hairy beneath. Flowers solitary, inserted between opposite leaves, yellow, fading orange-brown. Pods oblong, constricted between seeds. Apr.–Nov. Karroid scrub and grasslands, shale slopes, KM (Little Karoo to Free State).

DIPOGON Liebm. CAPE SWEET PEA, BOSKLIMOP 1 sp., W and E Cape

lignosus (L.) Verdc. Herbaceous climber from woody base. Leaves pinnately 3-foliolate, leaflets rhombic, glaucous below. Flowers in pedunculate racemes, magenta or pink. Jan.–Dec. Scrub or forests, SW, AP, KM, LB, SE (Saldanha to E Cape).

DOLICHOS L. BUTTERFLY PEA 60 spp., Africa and E Asia

decumbens Thunb. Straggling shrublet, 30–60 cm. Leaves pinnately 3-foliolate, leaflets rhombic-ovate. Flowers in pedunculate corymbs, violet, pink or blue, style terete. July–Aug. Clay flats, NW, SW (Bokkeveld Mtns to Cape Peninsula and Caledon).•

hastiformis E.Mey. Straggling shrublet with long, slender stems. Leaves pinnately 3-foliolate, leaflets narrowly to broadly hastate. Flowers subumbellate on peduncles, bright pink or mauve, style channelled. Oct.–May. Coastal grasslands, below 300 m, LB, SE (Riversdale to E Cape).

DUMASIA DC. 8 spp., Africa and Asia

villosa DC. Slender climber. Leaves pinnately 3-foliolate, leaflets ovate, glaucous and thinly adpressed-hairy beneath. Flowers in slender, pedunculate racemes, yellow, calyx truncate-cupular. Dec.–Feb. Forests, SE (Knysna to tropical Africa and Asia).

ERIOSEMA (DC.) G.Don. 130 spp., pantropical

squarrosum (Thunb.) Walp. Erect or sprawling shrublet, 15–45 cm. Leaves pinnately 3-foliolate, erect, leaflets elliptic, adpressed-hairy, silvery below. Flowers in pedunculate racemes, brownish orange. Pods oblong, rusty yellow-hairy. Oct.–Nov. Grasslands, SE (Knysna to E Cape).

ERYTHRINA L. CORAL TREE 108 spp., pantropical and subtropical

caffra Thunb. Deciduous, prickly tree to 20 m. Leaves pinnately 3-foliolate, leaflets rhombic-deltoid. Flowers red to pink, standard recurved, calyx bilabiate at maturity. July–Aug. Coastal forests, streamsides, SE (Humansdorp to KwaZulu-Natal).

EUCHLORA Eckl. & Zeyh. 1 sp., winter-rainfall S Africa **gce**

hirsuta (Thunb.) Druce (= *Lotononis hirsuta* (Thunb.) D.Dietr.) Shrublet with slender branches from a woody rootstock. Leaves 1(–3)-foliolate, stipules absent or paired and leaf-like. Flowers few on slender peduncles, yellow, partly brown or dark purple. June–Oct. Renosterveld and karroid scrub, 720–2 200 m, NW (Namaqualand and W Karoo to Clanwilliam). **gce**

EZOLOBA B.-E.van Wyk & Boatwr.• 1 sp., SW Cape

macrocarpa (Eckl. & Zeyh.) B.-E.van Wyk & Boatwr. (= *Lotononis macrocarpa* Eckl. & Zeyh.) Prostrate or procumbent, often mat-forming shrublet. Leaves 3-foliolate, leaflets obovate, secund, glabrescent, stipules paired, equal. Flowers few on slender peduncles, bracteolate, yellow. July–Aug. Renosterveld, 80–280 m, NW, KM (Clanwilliam to Montagu).•

HYPOCALYPTUS Thunb.• 3 spp., SW Cape

coluteoides (Lam.) R.Dahlgren Tree-like, reseeding shrub to 3 m. Leaves 3-foliolate, leaflets elliptic, paler beneath. Flowers 6–15(–25) in ± lax terminal racemes, pink to magenta, calyx shortly hairy. Pods long-stipitate, inflated. Mainly Sept.–Nov. Mountain fynbos, sandstone slopes, 160–1 670 m, SW, LB, SE (Hottentots Holland to Van Staden's Mtns).•

oxalidifolius (Sims) Baill. Sprawling, reseeding shrublet to 50 cm with wiry branches. Leaves 3-foliolate, leaflets small, broadly obovate, drooping. Flowers 2–6(–15) in lax, terminal racemes, pale purple to almost white, calyx glabrescent. Pods stipitate, ovate to obliquely oblong, flattened. July–Sept. Mountain fynbos, sandstone slopes, streamsides or moist places, below 700 m, SW, LB, SE (Hottentots Holland to Tsitsikamma Mtns).•

sophoroides (P.J.Bergius) Baill. Shrub or small, reseeding or resprouting, tree-like shrub to 6 m. Leaves 3-foliolate, erect, leaflets obcordate-cuneate, apiculate. Flowers 30–more in dense, terminal racemes, magenta with yellow nectar guide, calyx glabrous. Pods narrowly oblong, almost segmented between seeds. Oct.–Dec. Mountain fynbos, sandstone slopes, streamsides, 60–1 670 m, NW, SW, KM, LB (Cedarberg to Langeberg and Little Karoo Mtns).•

INDIGOFERA L. INDIGO ± 720–730 spp., worldwide tropical and subtropical

A. Leaves sparse, usually present during early stages of growth only

filifolia Thunb. (= *Indigofera juncea* DC.) Erect, resprouting, almost leafless shrub to 3 m. Leaves mostly on younger plants or new growth, petiole 4–6 cm long, basal leaflets 6–8, elliptic to oblanceolate, thinly hairy beneath, upper leaflets scale-like. Flowers in racemes on peduncles shorter than leaves, white to pink or purple, 9–11 mm long, back of standard petal glabrous. Pods glabrous, spreading. Oct.–Apr. Mountain and lowland fynbos, streamsides, to 1 000 m, SW, LB, SE (Cape Peninsula to Tsitsikamma Mtns).•

gifbergensis C.H.Stirt. & Jarvie Stiffly branched, wand-like shrub to 1 m. Leaves scarce, pinnately 3–5-foliolate, petiole ± 15 mm long, leaflets obovate, thinly hairy beneath, upper leaflets scale-like; stipules fused, adnate to base of petiole. Flowers in racemes on peduncles to twice as long as leaves, brick-red, 5–7 mm long, back of standard petal minutely hairy. Aug.–Nov. Arid fynbos, 600–1 650 m, NW (Bokkeveld to Cedarberg).•

ionii Jarvie & C.H.Stirt. (= *Indigofera filifolia* Thunb. var. *minor* Salter) Erect or sprawling, reseeding shrublet to 80 cm. Leaves present during early stages of growth, pinnately 3–5-foliolate, petiole 15–25 mm long, leaflets narrowly obovate or elliptic-oblanceolate, glabrous above; stipules narrowly triangular, free. Flowers in long racemes on peduncles to twice as long as leaves, pink. Aug.–Dec. Fynbos, marshy places, 160–700 m, SW (Cape Peninsula to Kleinrivier Mtns).•

A.' Leaves many, present at all stages of growth
B. Leaves 1–3-foliolate
*C. Ovary and pods glabrous (see also **I. denudata, I. sarmentosa, I. sp. 12**)*

alpina Eckl. & Zeyh. (= *Indigofera stipularis* Link) Densely leafy, decumbent shrublet to 25 cm. Leaves digitately 3-foliolate, leaflets obovate-cuneate, coarsely long-hairy; stipules broadly cordate-ovate, as long as or longer than petioles. Flowers in racemes on robust peduncles, brick-red. Pods deflexed. Aug.–Dec. Mountain fynbos, 660–1 900 m, SE (Uniondale to E Cape).

guthriei Bolus Erect or decumbent shrublet to 25 cm. Leaves 1-foliolate, linear-oblanceolate, margins involute, glabrescent; stipules lanceolate to awl-shaped. Flowers in racemes on filiform peduncles, pink. Nov.–Jan. Mountain fynbos, 430–1 000 m, SW (Hottentots Holland to Bredasdorp Mtns).•

ovata L.f. Slender, prostrate or trailing shrublet to 20 cm. Leaves 1-foliolate, subsessile, ovate-oblong or elliptic, glabrescent, leathery; stipules awl-shaped. Flowers in racemes on slender peduncles, pink, mauve or red. Sept.–Jan. Mountain fynbos, often high alt., 130–1 660 m, SW (Franschhoek to Kleinrivier Mtns).•

sp. 1 Sprawling, decumbent shrublet. Leaves 3-foliolate, leaflets narrowly elliptic-oblanceolate; stipules broadly ovate-lanceolate, about as long as petioles. Flowers in racemes on robust peduncles, pink. Aug.–Nov. Mountain fynbos in moist places, 450–1 100 m, SE (Langkloof to Grahamstown).

sp. 2 Like **I. sarmentosa** but leaves 1–3-foliolate, leaflets leathery, oblong-elliptic, greyish hairy beneath with margins strongly revolute, (8–)11–26 × 3–11 mm. Nov.–Dec. Limestone fynbos, 150–600 m, AP (Potberg).•

sp. 3 (= *Indigofera culmenicola* Baker f. *nom. nud.*) Like **I. capillaris** but leaves 1–3-foliolate, leaflets broadly oblong-elliptic. Flowers dark pink, purple or magenta. Dec. Mountain fynbos, ± 1 650 m, KM (Swartberg Pass).•

C.' Ovary and pods hairy (occasionally glabrescent when mature)
D. Petioles < 1 cm
E. Rigid woody shrubs; leaflets thickened or leathery

denudata L.f. (= *Indigofera kraussiana* Meisn.) Much-branched shrublet to 1.2 m, unarmed or branches spine-tipped. Leaves 1–3-foliolate with slender petioles, leaflets linear-oblong to obovate, fleshy to leathery, glaucous, glabrous or minutely hairy; stipules minute. Flowers in subsessile racemes, mauve. Sept.–July. Fynbos, 100–730 m, SE (Uniondale to E Cape).

nigromontana Eckl. & Zeyh. (= *Indigofera dealbata* Harv., *I. spinescens* E.Mey.) Erect, spinescent shrub to 2 m. Leaves 3-foliolate, subfasciculate, leaflets small, obovate, concave, thick, thinly hairy above; stipules obsolete. Flowers in subsessile racemes, pinkish purple. June–Mar. Karroid

scrub, renosterveld, fynbos, 50–1 750 m, NW, KM, LB, SE (Namaqualand and W Karoo, Little and Great Karoo to Lesotho).

obcordata Eckl. & Zeyh. Erect or spreading shrub to 1m. Leaves 1–3-foliolate, sparse, leaflets obcordate, thinly greyish hairy; stipules obsolete. Flowers in subsessile racemes, red. July–Apr. Karroid scrub, 400–660 m, KM (Witteberg and Swartberg).•

sp. 4 Like **I. denudata** but pedicels longer, 4–8 mm long (not shorter than 4 mm). Flowers magenta to deep pink. May–July. Mountain fynbos, ± 250 m, KM (Montagu).•

sp. 5 Robust, twiggy, gnarled shrublet to 50 cm tall, branches often spinescent. Leaves digitately 1–3(–7)-foliolate, often on spur shoots. Flowers in racemes on peduncles shorter than to ± as long as leaves, red. June. Fynbos, 300–500 m, NW (Cedarberg).•

E.' Prostrate or sprawling shrublets; stems mostly herbaceous; leaflets not thickened or leathery

F. Back of standard petal glabrous (see also ***I. meyeriana****)*

gracilis Spreng. Slender, creeping, carpet-forming shrublet. Leaves digitately 3-foliolate, rather distant, leaflets small, elliptic-oblong to obovate, glabrous or thinly hairy above; stipules small, awl-shaped. Flowers in racemes on filiform peduncles, purple or reddish pink. Aug.–Jan. Mountain and lowland fynbos, 300–930 m, SW (Cape Peninsula, Paarl to Stellenbosch Mtns).•

incana Thunb. Spreading, prostrate to suberect shrublet, 30–60 cm. Leaves digitately 3-foliolate, leaflets obovate-oblong, coarsely long hairy; stipules ovate-lanceolate, acuminate, often longer than petioles. Flowers in racemes on robust peduncles, rose to pink. July–Nov. Renosterbos-fynbos scrub, lower to middle slopes, below 800 m, NW, SW, KM (Piketberg to Barrydale).•

sp. 6 (= *Indigofera setacea* auct.) Like **I. gracilis** but leaflets obovate to suborbicular, stipules absent, stamens 3.5–4 mm long (not 2–3 mm) and pods to 14 mm long with 5–7 seeds (not 5–7 mm long with 2 or 3 seeds). July–Oct. Mountain fynbos, 200–600 m, SW (Cape Peninsula).•

F. Back of standard petal hairy (see also **I. erecta**, **I. heterophylla**, **I. meyeriana**, **I. tomentosa***)*

glomerata E.Mey. Prostrate, much-branched, closely leafy shrublet to 20 cm. Leaves imbricate, digitately 3-foliolate, leaflets obovate-oblong, softly white-hairy; stipules deltoid, long-acuminate, longer than petioles. Flowers in subsessile racemes, pink to purple. Aug.–Nov. Lowland and mountain fynbos, 30–860 m, SW, AP (Cape Peninsula to Bredasdorp).•

leptocarpa Eckl. & Zeyh. Slender, erect or sprawling, angularly branched shrublet to 30 cm. Leaves 1–3-foliolate, leaflets linear or oblanceolate, minutely hairy; stipules minute. Flowers in racemes on short peduncles, red to purple. Nov.–Jan. Renosterbos-fynbos scrub, arid fynbos, 100–900 m, SE (George to E Cape).

thesioides Jarvie & C.H.Stirt. Twiggy, sprawling shrublet to 40 cm. Leaves 1–3-foliolate, lateral leaflets caducous, leaflets narrowly obovate, folded, densely minutely hairy; stipules narrowly triangular. Flowers in racemes on peduncles 10–15 mm long, pink. June–Oct. Arid fynbos, karroid scrub, 700 m, KM (Groot Swartberg: Meiringspoort).•

sp. 7 (= *Indigofera depressa* Harv.) Slender, prostrate or trailing shrublet to 50 cm. Leaves digitately 3-foliolate, leaflets cuneate-obovate, hairy; stipules lanceolate to awl-shaped, spreading-recurved. Flowers in racemes on peduncles ± as long as leaves, pink, rose or brick-red. Pods thinly hairy, compressed with a ridge above seeds. Nov.–Aug. Renosterveld, fynbos, 200–1 000 m, SW, AP, KM, LB, SE (Riviersonderend and Little Karoo to Tsitsikamma Mtns).•

D.' Petioles 1–4 cm long

G. Bracts broad, ovate, ± enclosing flower buds

amoena Aiton (= *Indigofera intermedia* Harv.) Robust, suberect to sprawling resprouting shrub to 1 m. Leaves pinnately 3-foliolate, leaflets elliptic-oblong or obovate, thinly hairy; stipules lanceolate. Flowers in racemes on robust peduncles, pink, magenta or rose, back of standard petal glabrous, bracts ovate-acuminate to trowel-shaped. July–Oct. Karroid scrub, strandveld, 150–750 m, NW (Namaqualand to Piketberg). **gce**

venusta Eckl. & Zeyh. Erect to prostrate, resprouting shrublet, 0.2–1.5 m. Leaves digitately 3-foliolate, leaflets obovate to linear-lanceolate, shortly hairy; stipules lanceolate to attenuate. Flowers in racemes on robust peduncles, red, purple or pink, bracts ovate-cuspidate, enclosing flower buds. June–Oct. Mountain and coastal fynbos, 350–780 m, NW (Namaqualand to St Helena Bay). **gce**

G.' Bracts narrow, linear-lanceolate or awl-shaped (subulate), not enclosing flower buds

complanata Spreng. (= *Indigofera nitida* Salter) Straggling, suberect perennial to 40 cm. Leaves digitately 3-foliolate, leaflets lanceolate, shortly hairy, the hairs ± perpendicular to midrib above; stipules . Flowers in racemes on robust peduncles, bright red, back of standard petal hairy. July–Nov. Lowland fynbos, ± 100–300 m, SW (Cape Peninsula).•

erecta Thunb. (= *Indigofera porrecta* Eckl. & Zeyh. var. *bicolor* Harv.) Erect or spreading shrublet, 10–90 cm. Leaves digitately 3-foliolate, leaflets obovate to oblanceolate, glabrous above, thinly hairy beneath; stipules setaceous, spreading. Flowers in racemes on robust peduncles, orange-red to pink. July–Dec. Lowland and coastal fynbos, below 200 m, SE (Knysna to Port Elizabeth and E Cape).

heterophylla Thunb. (= *Indigofera adscendens* Eckl. & Zeyh.) Erect or sprawling to prostrate shrublet, 0.3–1 m, stems furrowed. Leaves pinnately or digitately 3-foliolate, leaflets sublanceolate (especially upper) to cuneate-obovate, thinly hairy; stipules awl-shaped-setaceous, spreading to recurved. Flowers in racemes on robust peduncles, orange-pink to reddish purple; calyx thinly hairy, lobes awl-shaped, up to 3 times as long as tube. May–Feb. Renosterveld and fynbos, 50–1 500 m, NW, SW, AP, KM, LB, SE (Namaqualand and Karoo to E Cape).

meyeriana Eckl. & Zeyh. (= *Indigofera cardiophylla* Harv., *I. complicata* Eckl. & Zeyh.) Dense, erect or sprawling resprouting shrublet to 1 m, stems furrowed, often greyish. Leaves digitately 3-foliolate, leaflets linear-lanceolate to obcordate, thinly hairy; stipules minute, awl-shaped, spreading or recurved. Flowers in racemes on robust peduncles, pink, purple or red, bracts lanceolate to awl-shaped. June–Oct. Karroid scrub, renosterveld, strandveld, 30–1 230 m, NW, SW, AP, KM, LB, SE (Namaqualand and Karoo to E Cape).

platypoda E.Mey. Prostrate or spreading shrublet to 30 cm. Leaves digitately 3-foliolate, petiole fleshy, leaflets linear-oblong, thinly hairy; stipules lanceolate to awl-shaped, spreading or reflexed. Flowers in racemes on robust peduncles, pink. Sept.–Oct. Coastal fynbos, 100 m, SW (Saldanha Bay).•

porrecta Eckl. & Zeyh. Like **I. heterophylla** but procumbent, leaflets broadly obovate and truncate to retuse and racemes rounded at tips (*vs.* tapering). Sept.–Apr. Coastal grasslands, AP, SE (Still Bay to E Cape).

procumbens L. (= *Indigofera discolor* E.Mey.) Spreading or trailing perennial to 10 cm, stems often running underground. Leaves digitately 3-foliolate; leaflets obovate or rhomboid, glabrous or thinly hairy above; stipules lanceolate to awl-shaped. Flowers in racemes on fleshy peduncles, orange, copper, rose to purple, bracts awl-shaped. June–Oct. Renosterveld, coastal fynbos, strandveld, below 160 m, NW, SW (Lambert's Bay to Cape Flats).•

psoraloides (L.) L. (= *Indigofera racemosa* L.) Erect or straggling shrublet to 80 cm. Leaves digitately 3-foliolate, leaflets lanceolate, acute, shortly hairy; stipules elongate, awl-shaped, erect. Flowers in racemes on robust peduncles; flowers red, rose, purple. June–Dec. Renosterveld, 30–520 m, NW, SW (Citrusdal to Cape Peninsula and Somerset West).•

tomentosa Eckl. & Zeyh. Prostrate or trailing shrublet, 30–45 cm. Leaves digitately 3-foliolate, leaflets cuneate-obovate, densely white-hairy; stipules small, lanceolate to awl-shaped. Flowers in racemes on robust peduncles, copper, orange or rose. Sept.–Nov. Coastal fynbos, 10–100 m, SE (Mossel Bay to E Cape).

triquetra E.Mey. Erect, slightly branched shrublet to 1 m, stems strongly 3-angled. Leaves digitately 3-foliolate, leaflets linear, shortly hairy; stipules awl-shaped. Flowers in racemes on robust peduncles, purple or pink. Sept.–Jan. Renosterveld-fynbos scrub, 200–400 m, NW, SW (Piketberg to Malmesbury).•

sp. 8 Like **I. heterophylla** but calyx densely grey hairy, lobes lanceolate-acuminate, 3 or 4 times as long as tube and upper surface of standard petal glabrous to sparsely hairy. Sept.–Oct. Granite outcrops, 50–150 m, SW (Vredenburg to Langebaan).•

B.' Leaves 5–17-foliolate (if leaflets 3 then only in a few leaves) H. Back of standard petal with adpressed, dark brown hairs (at least along midline)

stricta L.f. (= *Indigofera lateritia* Bertol., *I. notata* N.E.Br.) Erect or scrambling, resprouting shrub to 1.2 m, stems angular, ribbed. Leaves pinnately 5–11-foliolate, subsessile or shortly petiolate, leaflets narrowly oblong, weakly discolorous, subglabrous above, more densely hairy beneath.

Flowers in racemes on peduncles shorter than leaves or subsessile, pink or brick-red, back of standard petal with adpressed, dark brown hairs, pedicels shorter than 3 mm. June–Apr. Pods thinly hairy, spreading to suberect. Coastal bush and thickets, grasslands, to 860 m, SE (Mossel Bay to E Cape).

verrucosa Eckl. & Zeyh. (= *Indigofera glabella* Fourc.) Like **I. stricta** but racemes on peduncles ± as long as to longer than leaves, and flowers on pedicels 3–7 mm long. Aug.–Apr. Coastal fynbos, grasslands, 15–300 m, SE (Mossel Bay to E Cape).

H.' Back of standard petal with white or grey hairs, or glabrous
I. Ovary and pods hairy
J. Petals persistent to fruiting stage; stamens mostly hidden in flower remnants

brachystachya (DC.) E.Mey. Dense shrub to 1.5 m, mass flowering, stems densely grey-hairy. Leaves pinnately 5–7-foliolate, subsessile, leaflets linear-subcuneate, shortly hairy above, densely grey-hairy beneath, midrib prominent beneath, margins strongly revolute. Flowers in racemes on peduncles shorter than to twice as long as leaves, subsessile, mauve to pink, petals persistent, back of standard petal white-silky. Pods hairy. Nov.–Sept. Coastal fynbos, limestone, 20–500 m, SW, AP (Cape Peninsula to Agulhas).•

flabellata Harv. Erect, densely hairy, reseeding shrub to 1.5 m, mass flowering. Leaves subdigitately (3–)5–7-foliolate, subsessile; leaflets linear-oblanceolate, minutely hairy, midrib prominent beneath, margins revolute. Flowers in racemes on peduncles shorter than leaves, subsessile, pink or purple, petals persistent, back of standard petal hairy, calyx densely hairy, shortly 5-toothed. Pods grey-hairy, spreading. Jan.–Sept. Mountain and lowland fynbos, 100–1 330 m, KM, LB, SE (Klein Swartberg and Langeberg to Tsitsikamma Mtns).•

hamulosa Schltr. Erect or prostrate shrublet to 60 cm, mass flowering. Leaves pinnately 5–7-foliolate, subsessile, leaflets oblong-cuneate to oblanceolate, shortly hairy, midrib prominent beneath, margins revolute. Flowers in racemes on short peduncles ± equalling leaves, subsessile, white to pink, petals persistent, back of standard petal white-hairy. Pods densely hairy, spreading. Oct.–Mar. Lowland fynbos, limestone, 5–200 m, AP (Gansbaai to De Hoop).•

hispida Eckl. & Zeyh. (= *Indigofera rhodantha* Fourc.) Erect shrub to 3 m, mass flowering, stems densely grey-hairy and bristly. Leaves pinnately (3–)5–7-foliolate, subsessile, leaflets oblanceolate, grey-hairy, midrib prominent beneath, margins revolute. Flowers in racemes on peduncles shorter than leaves, subsessile, pink, purple or red, petals persistent, back of standard petal hairy, calyx softly hairy, lobes awl-shaped-setaceous. Pods hairy, spreading. Dec.–June. Mountain fynbos, 100–1 000 m, SE (Uniondale to Port Elizabeth).•

pappei Fourc. Erect, slender, leafy shrublet, 0.3–1 m, mass flowering. Leaves digitately 5–9-foliolate, subsessile, leaflets linear, folded, minutely hairy, midrib prominent beneath, margins revolute. Flowers in racemes on peduncles shorter than leaves, subsessile, pink, petals persistent, back of standard petal minutely hairy. Pods thinly hairy, spreading. Jan.–July. Mountain fynbos, lower slopes, 260–1 400 m, KM, LB, SE (Swartberg to Kareedouw Mtns).•

sp. 9 Like **I. sarmentosa** but leaves pinnately (3–)5-foliolate, subsessile, leaflets leathery, to 10 × 5 mm, obovate to oblanceolate, densely hairy or silky beneath, margins strongly revolute. Flowers in racemes on filiform peduncles ± as long as leaves, pink to magenta, pedicels ± 4 mm long, petals persistent. Pods densely hairy when young. Mountain fynbos, SE (Outeniqua Mtns: near George).•

*J.' Petals soon caducous and stamens clearly visible after anthesis (see also **I. sp. 17**)*

cytisoides (L.) L. Erect, reseeding shrub to 3 m. Leaves pinnately (3–)5-foliolate, subsessile or petiole to 8 mm long, leaflets elliptic-obovate, minutely hairy, midrib prominent beneath, 2–5 cm long. Flowers in racemes on robust peduncles ± as long as leaves, purple to pink, to 11 mm long, back of standard petal densely hairy, bracts broadly ovate. Pods greyish hairy, erect. Mar.–July. Mountain and riverine fynbos, 20–1 330 m, SW (Cape Peninsula to Kleinrivier Mtns).•

digitata Thunb. Sprawling shrublet, 30–60 cm. Leaves digitately 7–9-foliolate, petiole 4–7 mm long, leaflets cuneate-oblanceolate, roughly hairy. Flowers in racemes on robust peduncles > twice as long as leaves, pink, orange, purple, back of standard petal glabrous. Pods shortly hairy, deflexed. Sept.–Dec. Renosterbos-fynbos scrub, coastal renosterveld, 130–1 100 m, NW, SW (Tulbagh to Kleinmond).•

disticha Eckl. & Zeyh. Decumbent or sprawling shrub to 80 cm or higher when clambering through other vegetation, stems greyish. Leaves pinnately 5–7-foliolate, petiole 4–8 mm long, leaflets elliptic-oblong to linear, thinly hairy. Flowers in racemes on peduncles ± as long as leaves, brick-red, calyx 2–3 mm long, lobes lanceolate, ± equalling to twice length of tube, back of standard petal grey-hairy. Pods pale, thinly hairy, apex sharply acute. Oct.–Apr. Grasslands, karroid scrub, 100–1 660 m, SE (Patensie to E Cape).

exigua Eckl. & Zeyh. Slender, prostrate or decumbent shrublet to 20 cm. Leaves pinnately 7–11-foliolate, petiole 4–10 mm, leaflets alternate, oblanceolate to obcordate, thinly hairy. Flowers in racemes on peduncles ± as long as or longer than leaves, pink or mauve, 6–7 mm long, back of standard petal thinly hairy, calyx 3–4 mm long, lobes lanceolate. Pods thinly hairy, yellowish brown. July–Oct. Karroid scrub, 300–400 m, NW (Namaqualand to Bokkeveld Mtns) **gce**

glaucescens Eckl. & Zeyh. Erect or sprawling shrublet to 40 cm, branches flexuous, greyish hairy and ribbed. Leaves pinnately 3–9-foliolate, petiole 1–14 mm long; leaflets oblanceolate-cuneate, thinly hairy. Flowers in racemes on peduncles ± as long as leaves, orange-red to pink, back of standard petal greyish hairy, calyx 3.5–5 mm long, lobes awl-shaped, > twice as long as tube. Pods thinly hairy. Sept.–Apr. Grassy fynbos and dunes, 10–300 m, SE (Van Staden's Mtns to E Cape).

poliotes Eckl. & Zeyh. (= *Indigofera pauciflora* Eckl. & Zeyh.) Multistemmed shrublet to 80 cm, sometimes with reddish glands. Leaves pinnately 5–9-foliolate, subsessile or shortly petiolate; leaflets linear-oblanceolate to oblong-elliptic, thinly hairy above, more densely hairy beneath, midrib slightly sunken above, prominent beneath; stipules awl-shaped-setaceous, spreading. Flowers few in racemes on slender peduncles scarcely longer than leaves, pink to orange-red, back of standard petal minutely hairy. Pods thinly hairy, spreading. Nov.–Apr. Grasslands, 10–700 m, SE (Knysna to E Cape).

sp. 10 (= *Indigofera pilgeriana* Schltr. *nom. nud.*) Like **I. angustifolia** but leaves subdigitately (3–)5–7-foliolate (not pinnately 5–11-foliolate); leaflets linear-elliptic, yellowish grey-hairy beneath, 3–8 mm long (not to 14 mm long). Flowers rostrate, 6–9 mm long (not ± 5 mm long with a nonrostrate keel). Pods thinly hairy (not glabrous), spreading to deflexed. May–Nov. Mountain fynbos, 250–1 060 m, SW (Tulbagh: Elandskloof Mtns to Riviersonderend Mtns).•

sp. 11 Like **I. brachystachya** but petal shape normal for the genus, caducous except for standard petal (not elongated, narrowly oblong-elliptic and all persistent). May–Sept. Limestone fynbos, 20–250 m, AP (Agulhas to Still Bay).•

sp. 12 Slender, prostrate or trailing shrublet to 50 cm. Leaves subdigitately 5–7-foliolate, leaflets cuneate-obovate, hairy; stipules lanceolate to awl-shaped, spreading-recurved. Flowers in racemes on peduncles ± as long as leaves, pink, rose or brick-red. Pods thinly hairy, compressed with a ridge above seeds. Nov.–Aug. Coastal fynbos, 20–150 m, LB, SE (Riversdale to Knysna).•

I.' Ovary and pods glabrous
K. Leaf margins involute

concava Harv. Erect, wiry shrublet, 20–30 cm tall. Leaves pinnately (3–)5-foliolate, subsessile, leaflets linear-oblong, glabrous, paler above, minutely hairy beneath, margins strongly involute. Flowers in racemes on peduncles ± as long as leaves, pink or purple, back of standard petal hairy, calyx lobes ovate-lanceolate, keeled. Pods glabrous. June–Sept. Mountain fynbos, 600–1 600 m, NW, LB (Tulbagh, Langeberg).•

dillwynioides Benth. ex Harv. Slender, erect or sprawling, reseeding shrublet to 60 cm. Leaves digitately 5–7-foliolate, sessile, leaflets linear-oblanceolate, subglabrous, margins strongly involute. Flowers 6–8 in racemes on peduncles ± as long as or longer than leaves, pink, mauve or red, back of standard petal minutely hairy. Pods glabrous, spreading. Sept.–Oct. Mountain and coastal fynbos, 170–600 m, NW, SW (Bokkeveld Mtns to Malmesbury).•

filicaulis Eckl. & Zeyh. Slender, decumbent, mat-like, reseeding shrublet to 40 cm. Leaves digitately 3–9-foliolate, sessile, leaflets linear-oblanceolate, subglabrous above, margins strongly involute. Flowers 3 or 4 in racemes on thread-like peduncles > twice as long as leaves, red or pink, back of standard petal minutely hairy. Pods stipitate, glabrous, spreading. Sept.–Dec. Mountain and lowland fynbos, 30–830 m, NW, SW, AP (Clanwilliam to Bredasdorp).•

quinquefolia E.Mey. Bushy shrublet to 20 cm tall, closely leafy. Leaves digitately 5-foliolate, subsessile or shortly petiolate; leaflets cuneate-oblong, subterete with margins strongly involute, coarsely hairy. Flowers few in racemes on wiry peduncles ± as long as or longer than leaves, pink or purple, back of standard petal minutely hairy. Pods glabrous, spreading. Dec.–Jan. Mountain fynbos, 1 600 m, SW (Riviersonderend Mtns: Galgeberg).•

sp. 13 (= *Indigofera pentaphylla* Burch. ex Harv. *nom. illegit.*, *I. remota* Baker f. *nom. nud.*) Diffuse, creeping shrublet with filiform stems. Leaves subdigitately 3–7-foliolate, subsessile, leaflets linear-oblong, paler above, minutely hairy beneath, margins involute. Flowers in racemes on peduncles ± as long as leaves, pink or purple, pedicels slender to 13 mm long, back of standard petal hairy, calyx lobes ovate-lanceolate, keeled. Pods glabrous. Dec.–Jan. Mountain fynbos in moist habitats, 900–1 500 m, LB (Langeberg: Swellendam to Heidelberg).•

K.' Leaves flat or margins revolute
*L. Peduncles shorter than to ± as long as leaves (see also **I. declinata**)*

candolleana Meisn. (= *Indigofera coriacea* Aiton var. *hirta* Harv., *I. mauritanica* (L.) Thunb. var. *hirta* Harv.) Similar to **I. mauritanica** but more robust, erect or ascending, the leaves often imbricate with leaflets concolorous. Flowers on peduncles shorter than to ± as long as leaves. Aug.–Mar. Mountain fynbos, 250–560 m, SW (Cape Peninsula).•

frutescens L.f. Stout shrub to 3 m. Leaves pinnately 5–9-foliolate, petiole longer than 13 mm, rachis deeply channelled; leaflets obovate to elliptic, glabrous or minutely hairy, glaucous, often fleshy, 13–25 mm long. Flowers in racemes on peduncles shorter than leaves, mauve, red or pink, to 15 mm long, back of standard petal minutely hairy. Pods glabrous, spreading to deflexed. July–Mar. Mountain fynbos, 330–830 m, NW, SW (Bokkeveld Mtns to Paarl).•

fulcrata Harv. Erect or decumbent shrublet, 3–80 cm. Leaves pinnately (3–)5–7-foliolate, petiole 8–25 mm long, leaflets elliptic to obovate-oblong, almost glabrous; stipules large, membranous, ovate-lanceolate, fused at base. Flowers in racemes on peduncles ± as long as leaves, pink to purple, back of standard petal minutely hairy apically, bracts large, membranous, enclosing buds. Pods glabrous, spreading. Nov.–Apr. Mountain fynbos, streamsides, 360 m, NW, SW (Cedarberg to Elandskloof Mtns).•

grisophylla Fourc. Like **I. sulcata** but stems more densely hairy, leaflets broader, nonsulcate and densely grey-hairy beneath. ?.?, SE (Baviaanskloof and Great Winterhoek Mtns).•

langebergensis L.Bolus Like **I. frutescens** but a smaller resprouting shrublet to 1 m, leaves 7–11(–13)-foliolate and leaflets broadly obovate to suborbicular. Sept.–Apr. Mountain fynbos, 330–500 m, LB (Langeberg: Montagu to Heidelberg).•

sulcata DC. Erect, rigid shrublet to 80 cm, mass flowering, branches furrowed. Leaves subdigitately (3–)5-foliolate, subsessile; leaflets linear, minutely hairy, midrib prominent below, margins strongly revolute. Flowers in racemes on peduncles shorter than leaves, subsessile, mauve, petals semipersistent but not to fruiting stage, back of standard petal mostly hairy along midrib. Pods glabrous, spreading. Mar.–Aug. Mountain and lowland fynbos, 10–1 330 m, KM, SE (Swartberg to E Cape).

superba C.H.Stirt. Willowy, grey-hairy shrub, 1–3 m. Leaves pinnately (7–)9–11-foliolate, subsessile or petiole to 4 mm long; leaflets obovate to suborbicular, minutely hairy, 10–25 mm long. Flowers many in dense racemes on peduncles ± as long as leaves, pink, 7–9 mm long, back of standard petal hairy. Pods glabrous, spreading. Dec.–Apr. Mountain fynbos, lower slopes, 100–400 m, SW (Kleinrivier Mtns).•

sp. 14 Diffuse wiry shrublet. Leaves subdigitately 3–7-foliolate, subsessile, leaflets linear, retuse-apiculate. Flowers in subsessile racemes or on slender peduncles shorter than leaves, rachis sometimes much condensed, pink or red, petals persistent, pedicels thread-like, 2–8 mm long, bracts persistent. Nov.–Mar. Mountain fynbos, 300–600 m, LB, SE (Langeberg to Outeniqua Mtns).•

sp. 15 Densely grey-hairy, twiggy shrublet to 40 cm. Leaves subdigitately 5–7-foliolate, subsessile; leaflets linear-oblanceolate, folded, 4–6 mm long, 1–2 mm wide. Flowers in racemes on peduncles shorter than to ± as long as leaves, pink to red, back of standard petal minutely hairy. Pods glabrous or thinly hairy, oblong, spreading. Aug.–Oct. Mountain fynbos, NW (Gifberg).•

L.' Peduncles longer than leaves
*M. Petiole 2 mm long or longer (see also **I. ionii**)*

capillaris Thunb. Sprawling or decumbent shrublet to 30 cm, stems reddish brown, often brittle. Leaves pinnately 5–13-foliolate, almost glabrous, petiole 1–3 cm long, leaflets linear-oblanceolate to elliptic, margins often involute; stipules awl-shaped, ascending to erect, to 6 mm long. Flowers in racemes on slender peduncles > twice as long as leaves, dark pink, purple, copper or magenta, back of standard petal hairy apically, stamens (4–)6–8 mm long. Pods glabrous, deflexed. Aug.–Jan. Mountain fynbos, 300–1 700 m, NW, SW, KM, LB (Bokkeveld to Langeberg and Swartberg).•

declinata E.Mey. Prostrate to decumbent shrublet to 20 cm. Leaves 5–13-foliolate, petiole 2–8(–9) mm long, leaflets obovate-oblong to suborbicular or oblanceolate, glabrous or thinly hairy above, hairy beneath; stipules lanceolate to awl-shaped, spreading to reflexed, 1–4 mm long. Flowers in racemes on slender peduncles to twice or more the length of leaves, pink to magenta, back of standard petal hairy, stamens 4–5 mm long. Pods glabrous, spreading to suberect. Oct.–Feb. Mountain fynbos, 600–2 130 m, NW, KM, LB, SE (Biedouw Mtns through Little Karoo to Kouga Mtns).•

humifusa Eckl. & Zeyh. Diffuse, prostrate or decumbent shrublet to 20 cm, stems pale, softly hairy or glabrous. Leaves pinnately 9–17-foliolate, petiole 4–12 mm long, leaflets obovate to oblanceolate; stipules ovate-falcate to lanceolate, spreading to reflexed, often membranous. Flowers in racemes on slender peduncles > twice as long as leaves, mauve to purple, back of standard petal hairy, stamens 6–7 mm long. Pods glabrous, spreading. Aug.–Nov. Mountain fynbos, 380–1 800 m, NW (Cedarberg to Cold Bokkeveld Mtns).•

sp. 16 (= *Indigofera capillaris* auct.) Like **I. capillaris** but an annual or short-lived perennial to 10 cm, with very narrow linear leaflets. Flowers with stamens 3–4 mm long. Sept.–Dec. Coastal fynbos, along streams or in vleis, or weed in lawns. 20–300 m, SW (Cape Peninsula, Kleinmond).•

sp. 17 Like **I. capillaris** but a robust shrub, 1.2–2 m. Sept.–Jan. Mountain fynbos. 1 200–1 400 m, NW (Hex River Mtns).•

M.' Petiole < 2 mm long

alopecuroides (Burm.f.) DC. (= *Indigofera coriacea* Aiton var. *alopecuroides* (Burm.f.) Harv.) Erect or creeping shrublet to 90 cm. Leaves pinnately 5–7-foliolate, subsessile, crowded; leaflets elliptic-oblanceolate to suborbicular, densely hairy, midrib prominent below, concolorous. Flowers few to many in lax or subcapitate racemes on long, slender peduncles 2 or more times as long as leaves, pink, back of standard petal densely hairy. Pods glabrous, spreading. July–Feb. Mountain and lowland fynbos, 30–900 m, SW, AP, LB, SE (Stellenbosch to Humansdorp).•

angustifolia L. Diffuse, sprawling shrublet, 20–60 cm. Leaves pinnately 5–11-foliolate, subsessile, leaflets linear, thinly hairy above, greyish hairy beneath, midrib sunken above, prominent beneath, margins revolute. Flowers in racemes on slender peduncles 2 or more times as long as leaves, pink or red, back of standard petal greyish hairy. Pods glabrous, spreading to deflexed. May–Dec. Lowland fynbos, 15–500 m, SW, AP, LB (Cape Peninsula to Riversdale).•

filiformis L.f. (= *Indigofera wynbergensis* S.Moore) Erect or sprawling shrublet to 1.2 m, stems wiry. Leaves pinnately to subdigitately (3–)5-foliolate, subsessile, leaflets linear-oblong, thinly hairy, midrib sunken above, prominent below, margins revolute. Flowers in racemes on slender peduncles > twice as long as leaves, pink, violet or red, back of standard petal densely grey-silky. Pods glabrous, spreading. Mar.–Dec. Mountain fynbos seeps and streamsides, 130–800 m, SW (Cape Peninsula).•

mauritanica (L.) Thunb. (= *Indigofera coriacea* Aiton var. *cana* Harv.) Sprawling or prostrate, hairy shrublet with stems to 30 cm long. Leaves pinnately 5-foliolate, subsessile, leaflets obovate to cuneate-obovate, discolorous, grey-hairy beneath, midrib sunken above, prominent below. Flowers in racemes on thread-like peduncles > twice as long as leaves, mauve or pink, back of standard petal softly hairy. Pods glabrous, spreading to deflexed. Apr.–Aug. Mountain fynbos, 60–660 m, SW (Cape Peninsula).•

mundiana Eckl. & Zeyh. Like **I. angustifolia** but leaves 7–9-foliolate and leaflets broader, elliptic-oblong, discolorous, silvery beneath. Sept.–Feb. Mountain and lowland fynbos, AP, LB (Langeberg and De Hoop).•

sarmentosa L.f. Diffuse, wiry, sprawling reseeding shrublet to 20 cm. Leaves pinnately 3–5-foliolate, subsessile, leaflets oblong-elliptic to obovate, thinly hairy, midrib sunken above, prominent below, margins sometimes revolute, < 11 mm. Flowers in racemes on thread-like peduncles > twice as long as leaves, pink or magenta, back of standard petal hairy. Pods glabrous, spreading. July–Mar. Mountain fynbos, 100–1 500 m, SW, LB, SE (Bain's Kloof to Tsitsikamma Mtns).•

sp. 18 (= *Indigofera mischocarpa* Schltr. *nom. nud.*) Like **I. angustifolia** but more diffuse with smaller, densely arranged, subdigitately 3–7-foliolate leaves; leaflets 3–6 mm long, ± 1 mm wide. Pods stipitate. Sept.–Dec. 200–400 m, SW (Hottentots Holland Mtns to Napier).•

sp. 19 Like **I. sarmentosa** but leaves subdigitately (3–)5-foliolate, crowded; leaflets leathery, oblanceolate to obcordate, dark-spotted above, greyish hairy beneath, 3–7 mm long; stipules minute. Flowers in racemes on filiform peduncles, pink to magenta, petals persistent. Oct.–Mar. Mountain fynbos, 600–1 600 m, KM, SE (Swartberg and Outeniqua Mtns).•

LEBECKIA see **CALOBOTA**

LEBECKIA Thunb. GANNA 14 spp., N, W and E Cape

A. Pods subsessile or sessile
B. Plants glabrous, estipulate

ambigua E.Mey. Erect shrublet to 80 cm. Leaves simple, terete, articulated near centre. Flowers yellow, wings as long as or longer than keel. Pods linear, sometimes falcate, dehiscent, thin-walled. Aug.–Dec. Karroid scrub, deep sandy flats or disturbed areas, mostly coastal, usually below 300 m, NW, SW (Namaqualand to Hopefield). **gce**

brevicarpa M.M.le Roux & B.-E.van Wyk Erect shrublet to 80 cm. Leaves simple, terete, articulated near centre. Flowers yellow, wings longer than keel. Pods ovoid, up to 13 × 5 mm, indehiscent, spongy. Aug.–Oct. Fynbos and renosterveld, deep sandy flats and disturbed areas, above 400 m, NW (Bokkeveld Mtns and Cedarberg).•

gracilis Eckl. & Zeyh. (= *Lebeckia sepiaria* auct.) Like **L. ambigua** but inflorescences short and congested, calyx tube > lobes. Aug.–Jan. Fynbos, Renosterveld and Strandveld, deep, coastal, sandy flats below 300 m, AP, LB, SE (Bredasdorp to Port Elizabeth).•

sepiaria (L.) Thunb. (= *Lebeckia simsiana* Eckl. & Zeyh. Erect shrublet to 80 cm. Leaves simple, terete, articulated near centre. Flowers yellow, wings longer than keel. Pods linear, indehiscent, spongy. July–Dec. Renosterbos-fynbos scrub, sandy flats, mostly above 300 m, NW, SW, LB (Piketberg to Riversdale).•

B.' Plants pubescent, stipulate

uniflora M.M.le Roux & B.-E.van Wyk Decumbent shrublet to 40 cm. Leaves simple, terete, unarticulated, pubescent, stipulate. Flowers yellow, 8–12 mm long, solitary, wings longer than keel and the keel spirally twisted. Pods oblong, dehiscent, thin-walled. July–Dec. Mountain fynbos, mainly after fire, 500–1 250 m, SW (Kogelberg Mtns and Palmiet River).•

wrightii (Harv.) Bolus Like **L. uniflora** but inflorescences few-flowered (up to 5 flowers) and flowers smaller (5–8 mm long). June–Jan. Mountain fynbos, mainly after fire, 60–750 m, SW (Cape Peninsula to Bredasdorp Mtns).•

A.' Pods stipitate
C. Calyx lobes long; pods semi-terete

grandiflora Benth. Decumbent or suberect shrublet to 35 cm. Leaves simple, terete, articulated near centre. Flowers yellow, wings as long as keel. Pods linear, dehiscent, thin-walled. Oct. Subalpine fynbos, after fire, NW, SW (Worcester to Caledon).•

pauciflora Eckl. & Zeyh. Decumbent to suberect shrublet to 1 m. Leaves simple, terete, articulated or unarticulated. Flowers yellow, the standard partly purple and keel spirally twisted. Pods linear, up to 165 mm long, dehiscent, thin-walled. Aug.–Jan. Mountain fynbos, after fire, 130–600 m, NW, SW, KM, LB, SE (Kamiesberg to Steytlerville).

C.' Calyx lobes short; pods laterally compressed

brevipes M.M.le Roux & B.-E.van Wyk Decumbent shrublet to 50 cm. Leaves simple, terete, unarticulated. Flowers yellow, wings as long as keel. Pods narrowly elliptic, dehiscent, thin-walled. Nov.–Jan. Mountain fynbos, recently burnt, sandy soil, KM, LB, SE (Langeberg and Outeniqua Mtns).•

contaminata (L.) Thunb. (= *Lebeckia carnosa* (E.Mey.) Druce) Decumbent shrublet to 40 cm. Leaves simple, terete, articulated near centre. Flowers yellow, wings as long as or longer than keel. Pods long-stipitate, dehiscent, thin-walled. Aug.–Nov. Mountain and lowland fynbos, 30–800 m, NW, SW, LB (Cedarberg to Bredasdorp).•

longipes Bolus Decumbent to diffuse shrublet with branches to 40 cm. Leaves simple, terete, unarticulated. Flowers yellow, wings shorter than keel. Pods long-stipitate, dehiscent, thin-walled. Dec.–Jan. Mountain fynbos, moist, sandy soil, 400–2 000 m, NW, SW (Cedarberg to Caledon).•

meyeriana Eckl. & Zeyh. (= *Lebeckia macowanii* Salter) Decumbent shrublet to 40 cm. Leaves simple, terete, articulated near centre. Flowers yellow, wings shorter than keel. Pods oblong, narrowly winged on upper suture, dehiscent, thin-walled. Aug.–Oct. Lowland and mountain fynbos, mainly after fire, 80–600 m, NW, SW (Cape Peninsula to Worcester).•

plukenetiana E.Mey. Decumbent shrublet to 40 cm. Leaves simple, terete, unarticulated. Flowers yellow, wings longer than keel. Pods oblong, narrowly winged on upper suture, dehiscent, thin-walled. Aug.–Oct. Renosterbos-fynbos scrub, sandy soil or well-drained sandstone below 600 m, NW, SW (Piketberg to Cape Peninsula).•

zeyheri M.M.le Roux & B.-E.van Wyk Decumbent shrublet to 30 cm. Leaves simple, terete, unarticulated. Flowers yellow, wings as long as keel. Pods linear, dehiscent, thin-walled. Nov. Renosterveld, SW (Klipfontein).•

LEOBORDEA B.-E.van Wyk & Boatwr. 51 spp., S and E tropical Africa to N Africa and Eurasia

diffusa (Thunb.) B.-E.van Wyk & Boatwr. (= *Lotononis rosea* Dummer, *Trifolium diffusum* Thunb.) Prostrate annual to 10 cm. Leaves 3–5-foliolate, leaflets cuneate-oblanceolate, hairy below, stipules solitary. Flowers sessile in dense heads, pink, keel hairy at tip. Oct.–Nov. Karroid scrub, 100–200 m, NW (Olifants River Valley: Gifberg to Citrusdal).•

globulosa (B.-E.van Wyk) B.-E.van Wyk & Boatwr. (= *Lotononis globulosa* B.-E.van Wyk) Like **L. lanata** but bracts large, cordate and leaflets 3-foliolate, keel and standard hairy at tips. Oct. Karroid scrub, 1 050 m, NW, KM (Ceres to Witteberg).•

lanata (Thunb.) B.-E.van Wyk & Boatwr. (= *Lotononis bolusii* Dummer, *Trifolium lanatum* Thunb.) Prostrate annual to 5 cm. Leaves 5-foliolate, leaflets obovate-cuneate, hairy below, stipules solitary. Flowers sessile in dense heads, yellow, petals shorter than calyx. Aug.–Oct. Lowland fynbos, 400 m, NW, SW (Olifants River Valley to Hopefield).•

laticeps (B.-E.van Wyk) B.-E.van Wyk & Boatwr. (= *Lotononis laticeps* B.-E.van Wyk) Like **L. globulosa** but inflorescence discoid and standard half as long as keel. Nov. Mountain fynbos, sandy stony plateaus, 1 160 m, NW (Cold Bokkeveld).•

longicephala (B.-E.van Wyk) B.-E.van Wyk & Boatwr. (= *Lotononis longicephala* B.-E.van Wyk) Prostrate annual. Leaves 3-foliolate, leaflets obovate-cuneate, stipules solitary. Flowers sessile in dense spikes, yellow, keel hairy at tip. Oct. Karroid scrub, 900–1 050 m, NW, KM (Cold Bokkeveld to Ceres and Witteberg).•

LESSERTIA DC. (= *SUTHERLANDIA*) BALLOON PEA, BLAASERTJIE ± 55 spp., S and E tropical Africa

A. Flowers red, 25–35 mm long; wing petals small, concealed in calyx; standard petal much shorter than keel

canescens Goldblatt & J.C.Manning (= *Sutherlandia tomentosa* Eckl. & Zeyh.) EENDJIES Shrublet to 40 cm. Leaves imparipinnate, leaflets broadly oblong-obcordate, retuse, silvery grey-hairy on both surfaces. Flowers red. Pods large, inflated, papery, adpressed-hairy. Sept.–Dec. Coastal sands, below 100 m, SW, AP (Hondeklip Bay, Melkbosstrand to Mossel Bay). **gce**

frutescens (L.) Goldblatt & J.C.Manning (= *Sutherlandia frutescens* (L.) R.Br., *S. microphylla* Burch. ex DC.) KANKERBOS, BELLETJIE, GANSIES, EENDJIES Single-stemmed shrublet to 1.5 m. Leaves imparipinnate, leaflets oblong to elliptical, obtuse, glabrous or thinly hairy above, greyish green. Flowers to 50 mm long, bright red. Pods large, inflated, papery, glabrous. July–Dec. Mountain fynbos, karroid scrub, disturbed places, sandstone and shale flats and slopes, NW, SW, AP, KM, LB, SE (Namaqualand and W Karoo to E Cape).

A.' Flowers pinkish or mauve to red, or mostly white, to 15 mm long; wing petals conspicuous and protruding; standard petal ± as long as keel
B. Annuals

brachystachya DC. Willowy, woody annual to 60 cm. Leaves imparipinnate, leaflets oblong. Flowers ± scattered on peduncles shorter than leaves, purple to pale pink. Pods oblong, compressed, papery, adpressed-hairy, pedicels elongating and much longer than calyx. July–Dec. Disturbed places, grassy areas, below 700 m, SE (Mossel Bay to E Cape).

B.' Shrublets

meyeri Boatwr., T.Nkonki & B.-E.van Wyk (= *Lessertia rigida* auct.) BLAASERTJIE Rigid, somewhat spinescent shrublet to 50 cm. Leaves imparipinnate, leaflets oblong. Flowers scattered on

rigid, at length somewhat spinescent peduncles longer than leaves, pink to purple. Pods obliquely broadly ovate, compressed around margins but subinflated in middle, mostly distinctly veined, pedicels longer than calyx and mostly blackish hairy. Aug.–Sept. Stony and sandy flats and slopes, NW, SW (Namaqualand to Cape Peninsula and Laingsburg).

spinescens E.Mey. Like **L. meyeri** but peduncles shorter than leaves, distinctly spinescent and pods suborbicular and not conspicuously veined. Aug.–Sept. Stony, shale slopes, NW (Namaqualand to Clanwilliam). **gce**

B." Sprawling or prostrate subshrubs
C. Flowers congested on peduncles longer than leaves; sprawling subshrubs

capensis (P.J.Bergius) Druce HARSLAGBOSSIE Prostrate subshrub to 10 cm. Leaves imparipinnate, leaflets oblong. Flowers congested on peduncles longer than leaves, dull or dark red with pink standard. Pods oblong-elliptic, compressed, papery, glabrous. Aug.–Oct. Mountain fynbos, 100–420 m, NW, SW (Tulbagh to Hangklip).•

carnosa Eckl. & Zeyh. Sprawling shrublet to 30 cm. Leaves imparipinnate, leaflets linear-channelled, leathery. Flowers crowded on peduncles longer than leaves. Flowers violet. Pods broadly oblong, subinflated, adpressed-hairy. Aug.–Dec. Karroid hills, SE (Uitenhage to E Cape).

diffusa R.Br. DOU-GANSIEBOS Softly hairy, sprawling subshrub, 20–45 cm. Leaves imparipinnate, leaflets oblong-cuneate. Flowers congested on peduncles longer than leaves, pink. Pods obliquely ovate, semilunate, compressed, prominently veined. July–Oct. Renosterveld, karroid scrub, NW, KM (Namaqualand to W Little Karoo). **gce**

excisa DC. Like **L. diffusa** but pods obliquely ovoid, inflated, papery, glabrous. Aug.–Oct. Sandstone slopes and flats, 100–830 m, NW, SW (Namaqualand to Cape Peninsula). **gce**

miniata Salter Like **L. capensis** but leaves usually narrower, linear-oblong, flowers orange-red and pods ellipsoid, inflated, leathery or woody. Sept.–Oct. Coastal fynbos, often limestone, 100 m, SW, AP (Cape Peninsula to Still Bay).•

stenoloba E.Mey. Like **L. capensis** but pods oblong-falcate, > twice as long as broad. July–Oct. Coastal and arid fynbos, 100–1 660 m, AP, LB, SE (Bredasdorp to E Cape).

subumbellata Harv. Like **L. miniata** but pods not inflated. Oct. Grassy clay slopes, LB (Swellendam).•

tomentosa DC. Like **L. excisa** but ovary hairy and pods globose and velvety. Aug.–Sept. Coastal sands and limestones, SW (Saldanha to Cape Peninsula).•

C.' Flowers scattered or congested but then peduncles shorter than leaves
D. Pods oblong, > twice as long as broad

annularis Burch. Prostrate or sprawling, resprouting subshrub to 50 cm. Leaves imparipinnate, leaflets oblong-obovate. Flowers crowded on peduncles shorter than leaves, mauve to cerise. Pods narrowly oblong, strongly coiled into a semicircle, compressed, papery, adpressed-hairy. Aug.–Oct. Karroid scrub, 450–1 000 m, KM (Namibia to Montagu to E Cape).

lanata Harv. Shrublet with densely white-woolly branches to 1m. Leaves imparipinnate, leaflets oblong, white-hairy. Flowers scattered on terminal peduncles, purplish pink. Pods oblong, compressed, papery. Aug.–Sept. Stony slopes, KM (Swartberg).•

D.' Pods broadly obovate to suborbicular, up to twice as long as broad

argentea Harv. STRAND-ERTJIESBOS Sprawling subshrub, 30–50 cm. Leaves imparipinnate, leaflets oblong. Flowers scattered on peduncles slightly longer than leaves, dull purple. Pods broadly elliptic-oblong, obtuse at both ends, compressed, papery, adpressed-hairy. Sept.–Oct. Coastal dunes, SW (Saldanha Bay to Cape Peninsula).•

depressa Harv. Sprawling subshrub, 15–45 cm. Leaves imparipinnate, leaflets oblong. Flowers crowded on peduncles shorter than leaves, pink. Pods obliquely ovoid, subinflated, glabrous. Aug.–Dec. Stony slopes, streamsides, SE (Uitenhage to E Cape).

globosa L.Bolus Sprawling subshrub, 30–50 cm. Leaves imparipinnate, leaflets oblong. Flowers congested on peduncles much shorter than leaves, white often veined purple at tepal bases. Pods much inflated, papery, thinly adpressed-hairy, slightly longer than wide. July–Sept. Sandy coastal flats, NW, SW (Namaqualand to Langebaan). **gce**

herbacea (L.) Druce Erect or sprawling perennial to 50 cm, with slender stems from base. Leaves imparipinnate, leaflets linear-oblong. Flowers in short racemes soon elongating, on peduncles

longer than leaves and becoming stiff and arched in fruit, pink to purple. Pods obliquely broadly ovate or semi-lunate, compressed around margins but subinflated in middle, pedicels as long as or longer than calyx and mostly blackish hairy. Sept.–Dec. Stony and sandy flats and slopes, NW, SW, AP, KM, LB, SE (Bokkeveld Mtns and S Karoo to Kammanassie Mtns).

prostrata DC. Like **L. argentea** but flowers congested on peduncles shorter than leaves. Sept.–Nov. Sandy flats and slopes, NW, SW (Clanwilliam to Stellenbosch).•

LIPARIA L.• MOUNTAIN PEA 20 spp., SW Cape

A. Inflorescences not decussate; bracts not clasping base of calyx
B. Racemes congested and head-like

parva Vogel ex Walp. Prostrate, resprouting shrublet to 20 cm. Leaves elliptic. Flowers 7 in congested, globose racemes, pale yellow-green, bracts longer than pedicel, not clasping base of calyx, dark reddish brown. May–Nov. Lowland and mountain fynbos, below 300 m, SW (Cape Peninsula).•

splendens (Burm.f.) Bos & De Wit MOUNTAIN DAHLIA Much-branched, resprouting shrub to 1 m. Leaves elliptic. Flowers 15–17 in congested, globose racemes, orange to red, bracts longer than pedicel, not clasping base of calyx, dark reddish brown. May–Jan. Mountain and lowland fynbos, 20–1 200 m, SW, LB (Cape Peninsula to Hottentots Holland Mtns, Albertinia).•

B.' Racemes not congested and head-like

angustifolia (Eckl. & Zeyh.) A.L.Schutte Reseeding shrublet to 30 cm. Leaves linear-elliptic. Flowers 3–10 in racemes, yellow, bracts longer than pedicel, not clasping base of calyx. Oct.–Dec. Lowland fynbos, marshy places, below 130 m, SW, AP (Cape Peninsula to Hermanus and Ratel River).•

confusa A.L.Schutte Resprouting shrublet to 60 cm. Leaves narrowly elliptic-oblanceolate. Flowers 6–13 in racemes, yellow, bracts longer than pedicel, not clasping base of calyx. Nov.–Dec. Mountain fynbos, subalpine vegetation, above 1 250 m, KM (Groot Swartberg).•

genistoides (Lam.) A.L.Schutte Reseeding, tree-like shrub to 2.5 m. Leaves narrowly oblanceolate. Flowers 3–7 in racemes, yellow, bracts shorter than pedicel, not clasping base of calyx. Nov.–Dec. Mountain fynbos, streamsides, 1 300–1 660 m, SE (Kammanassie and Kouga Mtns).•

graminifolia L. Resprouting shrublet to 30 cm. Leaves linear, often twisted. Flowers 5–10 in racemes, yellow, bracts longer than pedicel, not clasping base of calyx. Lowland fynbos, SW (Cape Flats).• EXTINCT

hirsuta Thunb. Reseeding, single-stemmed, sometimes multistemmed shrub to 3 m. Leaves oblanceolate to obovate. Flowers 7–12 in racemes, yellow, bracts longer than pedicel, clasping base of calyx. Aug.–Apr. Mountain fynbos, 300–1 070 m, LB, SE (Langeberg to Kareedouw Mtns).•

racemosa A.L.Schutte Reseeding, tree-like shrub to 3 m. Leaves oblanceolate to narrowly elliptic. Flowers 3–5 in racemes, yellow, bracts longer than pedicel, not clasping base of calyx. Flowers bright yellow. Dec.–Feb. Mountain fynbos, streamsides, 1 600 m, KM (Klein and Groot Swartberg).•

striata A.L.Schutte Resprouting, multistemmed shrublet to 1 m. Leaves oblanceolate. Flowers 4–6 in racemes, yellow with maroon markings on inner face of standard petal, bracts as long as pedicel, not clasping base of calyx. Dec.–Jan. Renosterveld, 200 m, AP (Heidelberg–Swellendam: Soutkloof).•

A.' Inflorescences decussate
C. Bracts clasping base of calyx

boucheri (E.G.H.Oliv. & Fellingham) A.L.Schutte Single-stemmed, reseeding shrublet to 50 cm. Leaves narrowly elliptic-obovate, flat. Flowers 2 in decussate racemes, pale greenish cream, bracts longer than pedicel, clasping base of calyx. Flowers pale greenish cream. Apr.–May. Mountain fynbos, 1 120–1 330 m, SW (Kogelberg).•

calycina (L.Bolus) A.L.Schutte Single-stemmed, reseeding shrub to 2.5 m. Leaves elliptic, concave. Flowers 4 in decussate racemes, yellow, bracts longer than pedicel, clasping base of calyx. Aug.–Nov. Mountain fynbos, streamsides, 460–1 000 m, SW (Hottentots Holland to Kleinrivier Mtns).•

capitata Thunb. Multistemmed, resprouting shrublet to 60 cm. Leaves linear-elliptic, concave. Flowers 4 in decussate racemes, yellow, bracts longer than pedicel, clasping base of calyx. Oct.–

Dec. Mountain fynbos, crests and upper slopes, 580–2 000 m, SW, KM (Hex River to Riviersonderend Mtns and Klein Swartberg).•

congesta A.L.Schutte Single-stemmed, much-branched, reseeding shrub to 2 m. Leaves obovate to elliptic. Flowers 4 in decussate racemes, yellow, bracts longer than pedicel, clasping base of calyx. Oct.–Nov. Arid mountain fynbos, 1 400–1 800 m, NW, KM (Cedarberg to Swartberg).•

umbellifera Thunb. Single-stemmed, reseeding shrub to 3 m. Leaves elliptic to narrowly elliptic, margins slightly incurved. Flowers 4 in decussate racemes, yellow, bracts as long as or longer than pedicel, sometimes shorter, mostly clasping base of calyx. Oct.–Feb. Mountain fynbos, marshy sandstone slopes and streamsides, 1 200–2 000 m, NW, SW, KM (Cedarberg to Du Toitskloof and Klein Swartberg).•

vestita Thunb. Multistemmed, resprouting shrub to 2.5 m. Leaves broadly elliptic to almost circular, concave. Flowers 4 in decussate racemes, yellow, bracts longer than pedicel, clasping base of calyx. Flowers bright yellow. Mar.–Oct. Mountain fynbos, 100–1 000 m, SW (Somerset West to Bredasdorp).•

*C.' Bracts not clasping base of calyx (see also **L. umbellifera**)*

bonaespei A.L.Schutte Shrublet to 30 cm. Leaves obtrullate, somewhat concave. Flowers 4 in decussate racemes, yellow, bracts shorter than pedicel, not clasping base of calyx. Mar.–Apr. Mountain fynbos, above 1 400 m, SW (Hottentots Holland Mtns).•

laevigata (L.) Thunb. Single-stemmed, tree-like, reseeding shrub to 2.5 m. Leaves elliptic to narrowly elliptic. Flowers 4 in decussate racemes, yellow, bracts shorter than pedicel, not clasping base of calyx. Oct.–Nov. Mountain fynbos, marshy places, 740–1 030 m, SW (Cape Peninsula).•

latifolia (Benth.) A.L.Schutte Multistemmed, resprouting shrub to 1.5 m. Leaves obovate to broadly obovate. Flowers 4 in decussate racemes, yellow, bracts shorter than pedicel, not clasping base of calyx. Apr.–June. Mountain fynbos, 660–1 400 m, NW, SW, KM (Cold Bokkeveld to W Riviersonderend Mtns and Gamkaberg).•

myrtifolia Thunb. Single-stemmed, tree-like, reseeding shrub to 3 m. Leaves elliptic to narrowly elliptic. Flowers 4 in decussate racemes, yellow, bracts shorter than pedicel, not clasping base of calyx. Mar.–June. Mountain fynbos, 300–1 400 m, NW, SW, LB, SE (Hex River to Outeniqua Mtns).•

rafnioides A.L.Schutte Tree-like shrub to 4 m. Leaves cordate, with prominent palmate venation. Flowers 4 in decussate racemes, yellow, bracts shorter than pedicel, not clasping base of calyx. Oct.–Feb. Mountain fynbos, streamsides, 500–1 600 m, SW (Groot-Drakenstein and Hottentots Holland Mtns).•

LOTONONIS (DC.) Eckl. & Zeyh. (= *BUCHENROEDERA*) 91 spp., southern and E Africa

A. Flowers blue or blue and yellow

alpina (Eckl. & Zeyh.) B.-E.van Wyk (= *Buchenroedera multiflora* Eckl. & Zeyh.) Much-branched shrublet to 60 cm. Leaves 3-foliolate, leaflets oblanceolate, thinly hairy, stipules paired. Flowers solitary on slender peduncles, blue, standard and keel silky. Sept.–June. Mountain fynbos, grasslands, 700–1 320 m, SE (Baviaanskloof Mtns to E Cape).

argentea Eckl. & Zeyh. Prostrate or procumbent shrublet. Leaves 3-foliolate, leaflets obovate, densely silvery silky above, stipules solitary or paired, unequal. Flowers solitary on slender peduncles, blue. Nov. Karroid scrub, 300–1 000 m, NW, KM (Ceres to Montagu).•

azurea (Eckl. & Zeyh.) Benth. Prostrate or procumbent shrublet to 10 cm. Leaves 3-foliolate, stipules paired, unequal. Flowers solitary on slender peduncles, blue. Aug.–Nov. Mountain and lowland fynbos, 80–1 260 m, SE (Uniondale to Port Elizabeth).•

complanata B.-E.van Wyk Prostrate or procumbent shrublet to 10 cm. Leaves 3-foliolate, leaflets oblanceolate, ciliate, tips recurved, stipules solitary. Flowers solitary on slender peduncles, blue. June. Renosterveld, 120 m, SW (Bo-Hermon: Elandskloof Mtns).•

filiformis B.-E.van Wyk Prostrate or procumbent shrublet to 10 cm. Leaves 3-foliolate, leaflets linear, thinly hairy, stipules paired, unequal. Flowers solitary on slender peduncles, blue and yellow. Oct.–Dec. Renosterbos-fynbos scrub, arid fynbos, 430–530 m, KM, LB (Swartberg and Outeniqua Mtns).•

maximiliani Schltr. ex De Wild. Prostrate annual. Leaves 3-foliolate, thinly hairy, leaflets elliptic-obovate, closely hairy, stipules solitary or paired. Flowers solitary on short peduncles, blue, often cleistogamous. July–Oct. Karroid scrub, 300–730 m, NW (Namaqualand to Clanwilliam). **gce**

stricta (Eckl. & Zeyh.) B.-E.van Wyk Shrub with erect branches to 1.5 m. Leaves 3-foliolate, stipules paired. Flowers 1 or 2 on short peduncles, blue and yellow, standard glabrous. Mar.–June. Grasslands, 160–1 700 m, SE (Uitenhage to KwaZulu-Natal and Lesotho).

varia (E.Mey.) Steud. Prostrate or procumbent shrublet to 10 cm. Leaves 3-foliolate, leaflets broadly obovate, glabrescent, stipules paired, unequal. Flowers often 2 or more, on slender peduncles, blue. Sept.–Apr. Mountain fynbos, 100–1 000 m, SW (Franschhoek to Kleinrivier Mtns).•

villosa (E.Mey.) Steud. Prostrate or procumbent shrublet to 10 cm. Leaves 3-foliolate, leaflets elliptic, softly hairy, stipules solitary. Flowers blue. Oct. Coastal renosterveld, 180 m, NW, SW (Piketberg to Caledon).•

A.' Flowers yellow, sometimes partly white, pink, purple or brown
*B. Stipules paired or absent (see also **L. leptoloba, L. prostrata**)*

brevicaulis B.-E.van Wyk Shrublet with procumbent flowering branches from a thick, woody rootstock. Leaves 5–8-foliolate, leaflets elliptic, densely silky, stipules paired. Flowers 1 or 2(–4) on slender peduncles, yellow. Sept.–Oct. Karroid scrub, ± 900 m, KM (Bonteberg).•

dahlgrenii B.-E.van Wyk Like **L. rigida** but flowers solitary, and stipules always absent. Oct. Mountain fynbos, 300–800 m, KM (Rooiberg and Gamkaberg).•

densa (Thunb.) Harv. Woody, sometimes thorny, shrub to 1.2 m. Leaves 3-foliolate, leaflets linear to obovate, thinly hairy, stipules absent. Flowers few on slender, often thorn-like peduncles, yellow. Aug.–Oct. Renosterveld, strandveld, 350–940 m, NW, SW (Namaqualand to Paarl). **gce**

dissitinodis B.-E.van Wyk Shrublet with erect branches to 50 cm. Leaves 3-foliolate, leaflets linear-oblong, densely silky, stipules sometimes present, solitary or paired. Flowers solitary on slender peduncles, yellow. July–Sept. Karroid scrub and renosterveld, 760–900 m, KM (Anysberg to Rooiberg).•

exstipulata L.Bolus Procumbent shrublet to 30 cm, with thick, woody rootstock. Leaves 3-foliolate, leaflets oblanceolate, thinly hairy, stipules absent. Flowers few, subumbellate on slender peduncles, yellow, fading orange. Oct. Renosterveld, 1 200 m, NW (Ceres).•

fastigiata (E.Mey.) B.-E.van Wyk Shrublet with erect flowering branches from a thick, woody rootstock. Leaves 3-foliolate, leaflets linear-oblong, thinly hairy, stipules paired. Flowers few, subumbellate on slender peduncles, yellow. Oct.–Nov. Lowland fynbos, 30–300 m, SW, LB (Cape Peninsula to Swellendam).•

involucrata (P.J.Bergius) Benth. Shrublet with procumbent branches from a thick, woody rootstock. Leaves 3–5-foliolate, leaflets linear to oblanceolate, thinly hairy, stipules paired. Flowers few, subumbellate on slender peduncles, yellow. June–Oct. Mountain and coastal fynbos, karroid scrub, 150–750 m, NW, SW, AP (Clanwilliam to Potberg).•

lamprifolia B.-E.van Wyk Prostrate or procumbent shrublet. Leaves 3-foliolate, leaflets lanceolate to obovate, densely silky, stipules solitary when present. Flowers solitary on slender peduncles, yellow. Aug. N slopes in fynbos, ± 300 m, LB (Langeberg).•

pallens (Eckl. & Zeyh.) Benth. Prostrate annual. Leaves 3-foliolate, leaflets obovate, thinly hairy below, stipules paired. Flowers few on slender peduncles, yellow, calyx hairs in rows on veins, fruit with thick, upper suture. Karroid scrub, NW (Clanwilliam).•

racemiflora B.-E.van Wyk Subshrub with procumbent or erect flowering branches from a woody rootstock. Leaves 3-foliolate, leaflets oblong, thinly silky, stipules paired. Flowers several on elongate peduncles, yellow. Oct. Karroid scrub, 300 m, NW (Clanwilliam).•

*B.' Stipules solitary (see also **L. dissitinodis, L. lamprifolia**)*

acocksii B.-E.van Wyk Decumbent, sparsely branched shrublet to 50 cm. Leaves 3-foliolate, linear-oblanceolate, thinly hairy, stipules solitary. Flowers 3–5 on slender peduncles, yellow. Sept. Renosterbos-fynbos scrub, ± 500 m, KM (Rooiberg, Gamkaberg and Swartberg).•

acuminata Eckl. & Zeyh. Prostrate or procumbent shrublet to 25 cm. Leaves 3-foliolate, leaflets elliptic, silky, net-veined, stipules solitary. Flowers solitary on slender peduncles, yellow. Nov.–Dec. Disturbed renosterveld, grassy fynbos, 30–50 m, SE (Humansdorp to Port Elizabeth).•

carnea B.-E.van Wyk Prostrate or procumbent annual, roots bright yellow. Leaves 3-foliolate, leaflets obovate, shortly silky, stipules solitary. Flowers few on vestigial peduncles, yellow, fading salmon-orange. Sept.–Oct. Karroid scrub, 800–1 200 m, NW (Namaqualand to Bokkeveld Mtns). **gce**

comptonii B.-E.van Wyk Like **L. acocksii** but flowers mostly > 5, yellow, fading orange. Oct. Karroid scrub, 1 100–1 200 m, KM (Swartberg: Bantamskop to Seweweekspoort).•

elongata (Thunb.) D.Dietr. Prostrate or procumbent shrublet to 20 cm. Leaves 3-foliolate, leaflets linear to oblanceolate, thinly hairy, stipules solitary. Flowers solitary on slender peduncles, yellow and purplish. Nov.–Dec. Sandstone slopes in renosterbos-fynbos scrub, 660–1 800 m, KM, SE (Swartberg and Outeniqua Mtns to Langkloof).•

esterhuyseana B.-E.van Wyk Prostrate annual with sparsely leafy branches to 30 cm long. Leaves 3-foliolate, leaflets cuneate-obovate, densely silky, stipules solitary. Flowers several on short peduncles, yellow, keel silky at tip, standard half as long as keel. Nov. Mountain fynbos, sandy flats, 1 000–1 330 m, NW (Swartruggens).•

falcata (E.Mey.) Benth. Prostrate annual to 20 cm. Leaves 3-foliolate, leaflets linear-oblanceolate, shortly silky, stipules solitary. Flowers 1–few, subumbellate on short peduncles, yellow, fading orange. July–Oct. Karroid scrub, 260–900 m, NW, KM (Namibia and Karoo to Cold Bokkeveld and Swartberg). **gce**

glabra (Thunb.) D.Dietr. Prostrate shrublet. Leaves 3-foliolate, leaflets broadly ovate, shortly silky, stipules solitary. Flowers few, subumbellate on slender peduncles, yellow to white fading pink. Nov.–May. Coastal fynbos, to 250 m, LB, SE (Riversdale to E Cape).

leptoloba Bolus Sprawling annual to 80 cm. Leaves 3-foliolate, basal leaves opposite, leaflets obovate, thinly hairy, stipules solitary or paired, dissimilar in shape and size. Flowers 1(2) on slender peduncles, yellow, often cleistogamous. Sept.–Oct. Karroid scrub, arid fynbos, 400–1 250 m, NW (Namibia to Bokkeveld Mtns). **gce**

monophylla Harv. Prostrate shrublet. Leaves 1-foliolate, leaflets ovate to oblong, shortly silky below, stipules solitary. Flowers few on short peduncles, yellow. Oct.–Nov. Mountain fynbos, 280 m, SE (Van Staden's Mtns).•

nutans B.-E.van Wyk Like **L. umbellata** but flowers smaller, < 7 mm. Sept. Renosterveld, SE (George to Uniondale).•

oxyptera (E.Mey.) Benth. Prostrate or procumbent annual, with bright yellow roots. Leaves 3-foliolate, leaflets oblanceolate-obovate, shortly silky, stipules solitary. Flowers few on slender, long peduncles, yellow, fading orange. Sept.–Oct. Karroid scrub, river banks, 100–300 m, NW, SW (Clanwilliam to Wellington).•

parviflora (P.J.Bergius) D.Dietr. Like **L. falcata** but softly hairy, white and pink. Sept.–Oct. Karroid scrub, 100–650 m, NW, SW (Namaqualand to Hopefield). **gce**

perplexa (E.Mey.) Eckl. & Zeyh. Like **L. rostrata** but flowers 1 or 2 on slender peduncles. Sept.–Nov. Mountain and lowland fynbos, 100–830 m, NW, SW (Bokkeveld Mtns to Cape Peninsula).•

prostrata (L.) Benth. Prostrate or procumbent shrublet. Leaves 3-foliolate, leaflets cuneate-obovate, thinly hairy, stipules solitary or paired, unequal. Flowers solitary on slender peduncles, yellow and green. Aug.–Sept. Renosterveld and lowland fynbos, 100–320 m, NW, SW (Tulbagh and Malmesbury to Stellenbosch).•

pumila Eckl. & Zeyh. Prostrate annual. Leaves 3-foliolate, the basal often 1-foliolate, leaflets obovate to suborbicular, shortly hairy, stipules solitary. Flowers 1–4, subumbellate on short peduncles, yellow, partly pink, with keel dark purple at tip. Sept.–Dec. Karroid scrub, renosterveld, 360–830 m, KM, SE (Karoo and Swartberg to E Cape).

pungens Eckl. & Zeyh. Prostrate or procumbent shrublet to 20 cm. Leaves 3-foliolate, leaflets linear to obovate, thinly hairy, stipules solitary. Flowers solitary on short peduncles, yellow, often cleistogamous. Aug.–Mar. Karroid scrub, 30–1 100 m, NW, SW, KM, LB, SE (Klein Swartberg and Worcester to E Cape and Karoo).

purpurescens B.-E.van Wyk Sparsely branched shrublet to 20 cm, with thick, woody branches. Leaves 3-foliolate, leaflets elliptic, shortly hairy below, stipules solitary. Flowers few on slender peduncles, pale purple. June–Oct. Karroid scrub, ± 300 m, KM (Montagu).•

rigida (E.Mey.) Benth. Rigid, widely branched shrublet to 80 cm. Leaves 3-foliolate, leaflets linear-oblanceolate, densely silky, stipules solitary or absent. Flowers 2 or 3 on thorn-like peduncles, yellow. July–Aug. Renosterbos-fynbos scrub, 330–460 m, NW (Worcester, Gamkaberg and Outeniqua Mtns).•

rostrata Benth. Like **L. stenophylla** but flowers smaller, shorter than 7 mm, on short or long peduncles. Sept.–Nov. Karroid scrub, river banks, 100–700 m, NW, SW (Namaqualand to Villiersdorp). **gce**

sabulosa Salter Like **L. falcata** but flowers on long slender peduncles, keel acute. Sept.–Oct. Karroid scrub, strandveld, river banks, 100 m, NW, SW (Clanwilliam to Cape Peninsula).•

stenophylla (Eckl. & Zeyh.) B.-E.van Wyk Prostrate or procumbent, woody annual, with bright yellow roots. Leaves 3-foliolate, leaflets linear-oblong, shortly hairy, stipules solitary. Flowers few on short peduncles, yellow. Sept. Karroid scrub, 100–500 m, NW (Namaqualand to Piketberg). **gce**

tenella (E.Mey.) Eckl. & Zeyh. Like **L. pungens** but standard purple-veined and keel tipped purple. Sept.–June. Karroid scrub, 600–700 m, KM, SE (Karoo and Little Karoo to E Cape).

umbellata (L.) Benth. Prostrate shrublet with thick, woody branches to 10 cm. Leaves 3-foliolate, leaflets cuneate-obcordate, thinly hairy, stipules solitary. Flowers few, subumbellate on slender peduncles, yellow. May–Oct. Mountain and coastal fynbos, to 530 m, SW, LB, SE (Cape Peninsula to Port Elizabeth).•

venosa B.-E.van Wyk Like **L. leptoloba** but leaflets linear-elliptic, softly hairy, stipules solitary. Flowers solitary on slender peduncles, yellow, fading blue. Sept. Karroid scrub, 1 100–1 460 m, NW, KM (Bokkeveld Mtns and Barrydale).•

viborgioides Benth. Like **L. comptonii** but flowers smaller, shorter than 8 mm. Oct.–Nov. Renosterveld, 160–300 m, NW, LB (Montagu to Bredasdorp).•

*LOTUS L. ± 100 spp., worldwide temperate

***subbiflorus** Lag. Mat-forming subshrub to 30 cm. Leaves 3-foliolate, leaflets obovate-oblanceolate, thinly hairy. Flowers subumbellate on slender peduncles, yellow. Nov.–Mar. Marshy places, SW, LB, SE (Eurasian weed).

MELOLOBIUM Eckl. & Zeyh. 15 spp., southern Africa

adenodes Eckl. & Zeyh. Glandular-hairy subshrub to 30 cm, slightly spiny, covered in stalked glands. Leaves 3-foliolate, leaflets broadly obovate, glandular. Flowers in terminal racemes, yellow; upper calyx lobes narrowly triangular. Pods slightly curved, glandular, hairy, Sept.–Oct. Karroid scrub, fynbos, sand dunes, flats, dry river beds, sandstone slopes, shale ridges, 350–1 140 m, NW, SW, AP, KM, LB, SE (S Namibia, Karoo to Cape Town and E Cape).

aethiopicum (L.) Druce Softly hairy, subshrub to 30 cm, without spines, completely lacking glands. Leaves 3-foliolate, leaflets oblanceolate to obovate, densely pubescent. Flowers in terminal racemes, yellow, fading orange. Pods straight to slightly falcate, hairy. July–Sept. Coastal scrub and dunes, NW, SW (Springbok to Bredasdorp). **gce**

candicans (E.Mey.) Eckl. & Zeyh. STROOPBOS Rigid, scarcely glandular shrublet to 60 cm, with spiny, white-velvety stems. Leaves 3-foliolate, leaflets oblong to broadly obovate, with sessile glands. Flowers few, terminal on thorns, yellow, fading reddish orange; upper calyx lobes acute. Pods straight, very hairy. May–Jan. Karroid scrub, grasslands, sandstones, clay, disturbed areas, 400–1 130 m, NW, SW, KM, SE (Namaqualand and Karoo to E Cape).

exudans Harv. Glabrescent, sticky subshrub to 60 cm, without spines, glands not stalked. Leaves 3-foliolate, leaflets obovate, dark green, almost shiny, with sessile glands, usually covered with a white crust where glands occur. Flowers in terminal racemes, yellow, fading orange; upper calyx lobes acute. Pods straight to somewhat falcate, glandular, hairy. June–Oct. Karroid scrub and coastal sands, 15–1 330 m, NW, SW, KM (Piketberg to Cape Town and Little Karoo).•

humile Eckl. & Zeyh. Like **M. adenodes** but spines completely absent, upper calyx lobes broadly triangular and plants much more hairy. Pods straight to somewhat falcate, glandular, hairy. Sept.–Oct. Karroid scrub, sandy places, NW, SW, KM (Richtersveld to Cape Town, Montagu and Bredasdorp). **gce**

lampolobium (E.Mey.) A.Moteetee & B.-E.van Wyk Rigid, scarcely glandular shrublet to 60 cm, with strongly spiny branches with thick, curved spines. Leaves 3-foliolate, leaflets obcordate. Flowers terminal on thorns, yellow, fading reddish orange. Pods falcate, shining, lacking glands, almost glabrous. May–Jan. Karroid scrub, 900–1 500 m, SW, KM (Robertson Karoo and Little Karoo mountains).•

stipulatum (Thunb.) Harv. Robust, glandular-hairy shrublet to 40 cm, without spines. Leaves 3-foliolate, leaflets oblanceolate, glandular, sparsely hairy. Flowers imbricate in dense, terminal racemes, yellow; upper calyx lobes acute. Pods straight, glandular, hairy. Oct. Karroid scrub, 900 m, KM (Touws River).•

OTHOLOBIUM C.H.Stirt. SKAAPBOSTEE 55 spp., southern and E Africa

A. Leaves 1-foliolate

accrescens C.H.Stirt. Resprouting, rhizomatous subshrub to 20 cm. Leaves 1-foliolate, long-petiolate, broadly elliptic-obovate, densely glandular above; stipules glandular. Flowers white, calyx black-ciliate on margins, accrescent. Sept.–Nov. Mountain fynbos, SE (Great Winterhoek Mtns).•

dreweae C.H.Stirt. Resprouting subshrub to 20 cm, branches dark-hairy. Leaves 1-foliolate, elliptic, hairy on veins, margins scabridulous; stipules glabrous. Flowers reddish purple, calyx shortly white- and long black-hairy. Oct.–Nov., mostly after fire. Mountain fynbos, 400 m, SW (Kleinrivier Mtns).•

lanceolatum C.H.Stirt. Resprouting, decumbent subshrub to 20 cm. Leaves 1-foliolate, subsessile, elliptic, margins scabridulous, glandular; stipules glandular. Flowers white, calyx densely white-hairy and glandular, lowest sepal larger. Nov.–Dec., after fire. Renosterveld, 100–200 m, SW (Caledon to Shaw's Pass).•

rotundifolium (L.f.) C.H.Stirt. Resprouting subshrub to 20 cm. Leaves 1-foliolate, rhomboid-obovate; stipules glabrous. Flowers pale lilac to white, calyx silky white-hairy and glandular, lowest sepal larger. Oct.–Jan. Mountain fynbos, often on clay, 430–530 m, SW (Jonkershoek to Kleinrivier Mtns).•

thomii (Harv.) C.H.Stirt. Resprouting subshrub to 40 cm, branches densely white- or silver-hairy. Leaves 1-foliolate, elliptic, hairy, margins scaberulous; stipules hairy. Flowers purple, calyx densely black- and white-hairy. July–Dec., mostly after fire. Mountain fynbos, 100 m, SW (Kleinmond to Bredasdorp Mtns).•

A.' Leaves 3-foliolate
B. Leaves subsessile
C. Lateral leaflets symmetrical

arborescens C.H.Stirt. Loosely branched tree to 5 m. Leaves digitately 3-foliolate, leaflets oblanceolate, adpressed-hairy; stipules glandular. Flowers white or cream-coloured, calyx grey-hairy and glandular, lower sepals recurved, pale green, tips brownish. Oct.–Dec. Arid fynbos, water courses, NW, KM (Namaqualand and W Karoo to Swartberg). **gce**

candicans (Eckl. & Zeyh.) C.H.Stirt. Reseeding shrublet to 1.5 m. Leaves digitately 3-foliolate, leaflets oblanceolate, subglabrous; stipules ciliate. Flowers white, cream-coloured, mauve or pink, calyx glabrous to densely white-silky, accrescent. Sept.–Nov. Mountain fynbos, renosterveld, 130–920 m, NW, SW, KM, LB, SE (Tulbagh to Grahamstown).

hirtum (L.) C.H.Stirt. Erect, much-branched shrub to 2 m, appressed white-hairy. Leaves digitately 3-foliolate, leaflets cuneate-obovate, adpressed-hairy and glandular; stipules glabrous. Flowers pale blue, mauve, calyx white-silky, accrescent. Sept.–Dec. Renosterveld, 160–330 m, NW, SW (Piketberg to Gordon's Bay).•

rubicundum C.H.Stirt. Shrub to 1.5 m. Leaves digitately 3-foliolate, leaflets oblanceolate, glabrescent, glandular; stipules thinly hairy and orange-glandular. Flowers mauve-pink and dark purple, calyx glandular with densely ciliate margins. Oct.–Dec. Mountain fynbos, 1 000–1 460 m, KM (Swartberg).•

uncinatum (Eckl. & Zeyh.) C.H.Stirt. Erect or spreading shrub. Leaves digitately 3-foliolate, leaflets linear-oblanceolate, glabrescent; stipules recurved, silky. Flowers mauve with violet nectar patch, calyx thickly hairy and heavily glandular, lowest sepal slightly larger. Nov.–Jan. Renosterveld, 160 m, NW, SW (Piketberg to Kleinmond).•

sp. 1 (*Otholobium sabulosum* C.H.Stirt. *ms.*) Resprouting, prostrate subshrub to 5 cm, branches to 40 cm long. Leaves digitately 3-foliolate, leaflets obovate, emarginate; stipules glabrous. Flowers white, standard mottled purple, calyx patent hairy, lowest sepal larger. Sept. Coastal fynbos, limestone, 180–200 m, AP (Agulhas to Still Bay).•

sp. 2 (*Otholobium spissum* C.H.Stirt. *ms.*) Tangled shrub to 1.5 m. Leaves digitately 3-foliolate, leaflets obovate; stipules glabrous. Flowers white with purple nectar patch, calyx sparsely hairy. Oct. Renosterveld, 300–660 m, NW, SW, KM (Tulbagh to Barrydale and Botrivier).•

C.' Lateral leaflets oblique

acuminatum (Lam.) C.H.Stirt. Reseeding shrub to 2 m. Leaves digitately 3-foliolate, leaflets cuneate-emarginate, prominently glandular; stipules hairy. Flowers mauve, purple, calyx ciliate on margins and glandular, lowest sepal suborbicular-attenuate, longer than flower, upcurved. Sept.–Mar. Fynbos at forest margins and in open areas, 160–540 m, KM, SE (Kammanassie and Outeniqua Mtns to Van Staden's Mtns).•

bolusii (H.M.L.Forbes) C.H.Stirt. Lax, sprawling shrublet to 40 cm. Leaves digitately 3-foliolate, leaflets linear-oblanceolate, thinly hairy; stipules silky on margins. Flowers pink, with mauve and white nectar patch, calyx hairy and glandular, lowest sepal larger. Aug.–Nov. Mountain fynbos, renosterbos-fynbos scrub, strandveld, limestone, 30–1 000 m, NW, SW (Cedarberg to Paarl).•

bowieanum (Harv.) C.H.Stirt. Sprawling, resprouting subshrub to 50 cm. Leaves digitately 3-foliolate, shiny green, leaflets oblanceolate, glabrescent; stipules glabrous, brown. Flowers white, calyx ciliate on margins and glandular, lowest sepal larger. Sept.–Dec. Mountain and lowland fynbos, 60–650 m, LB (Langeberg).•

carneum (E.Mey.) C.H.Stirt. Rare, slender shrublet. Leaves digitately 3-foliolate, leaflets linear-oblanceolate; stipules glabrous, margins ciliate. Flowers white, calyx thinly hairy, lowest sepal larger, broadly ovate. Oct.–Nov. Mountain fynbos, 550–600 m, SE (Kouga, Outeniqua and Baviaanskloof Mtns).•

heterosepalum (Fourc.) C.H.Stirt. Resprouting shrub to 2.5 m. Leaves digitately 3-foliolate, leaflets oblong, laterals gibbous, glabrescent; stipules ciliate. Flowers white and mauve, calyx subglabrous or hairy, prominently glandular, lowest sepal larger, broadly ovate. Oct.–Nov. Mountain fynbos, forest margins, 260–730 m, SE (Langkloof to Humansdorp).•

macradenium (Harv.) C.H.Stirt. Erect, resprouting shrub to 2 m, very aromatic. Leaves digitately 3-foliolate, leaflets cuneate, glabrescent and large, glandular-warty beneath; stipules hairy. Flowers creamy white, calyx silky. Nov. Renosterveld, 900 m, KM, LB (Langeberg and Swartberg).•

polyphyllum (Eckl. & Zeyh.) C.H.Stirt. Erect, closely leafy shrublet to 1 m. Leaves digitately 3-foliolate, leaflets oblong, margins minutely ciliate; stipules caducous. Flowers white, calyx black-hairy, accrescent, lowest sepal larger. May–Nov. Mountain fynbos, 400–600 m, SE (Baviaanskloof and Great Winterhoek Mtns).•

saxosum C.H.Stirt. Shrublet with slender branches to 20 cm. Leaves 3-foliolate, warty, leaflets obovate, glabrescent; stipules glabrous. Flowers white, calyx hairy, lowest sepal larger. Oct. Mountain fynbos, 500 m, LB (Langeberg and Outeniqua Mtns: Garcia's Pass to Attaquaskloof).•

B.' Leaves petiolate
D. Lateral leaflets symmetrical

bracteolatum (Eckl. & Zeyh.) C.H.Stirt. Sprawling shrub to 2 m. Leaves 3-foliolate, leaflets obovate-cuneate, glandular; stipules ciliate and glandular. Flowers blue and white, calyx softly hairy and glandular, lowest sepal larger, accrescent. Nov.–Apr. Coastal sandveld, limestone hills, below 170 m, SW, AP, LB, SE (Saldanha to Grahamstown).•

flexuosum C.H.Stirt. Dense shrub to 2.5 m. Leaves 3-foliolate, leaflets obovate, bluish green, sparsely silky beneath; stipules caducous. Inflorescences zigzag. flowers white, calyx sparsely silky and glandular. Nov. Karroid brokenveld, NW (Namaqualand to Biedouw Valley). **gce**

fruticans (L.) C.H.Stirt. Straggling subshrub to 40 cm. Leaves 3-foliolate, leaflets obovate, glabrescent; stipules ciliate. Flowers purple to violet, calyx sparsely silky and glandular, lowest sepal much larger, very prominent, accrescent. Sept.–Dec. Mountain fynbos, 160–400 m, SW (Cape Peninsula).•

racemosum (Thunb.) C.H.Stirt. Slender, resprouting subshrub to 80 cm. Leaves 3-foliolate, leaflets elliptic-oblanceolate, margins sparsely hairy; stipules caducous. Flowers in slender racemes, purple, calyx hispidulous and prominently glandular, lowest sepal slightly larger. Nov.–Jan. Mountain fynbos, 600–1 400 m, KM, SE (Kammanassie and Outeniqua Mtns).•

striatum (Thunb.) C.H.Stirt. Willowy shrub to 2.5 m. Leaves 3-foliolate, dark green, leaflets elliptic-oblanceolate, adpressed-hairy when young; stipules hairy. Flowers white to cream-coloured, calyx white-hairy and glandular, accrescent. Nov.–Dec. Mountain fynbos, karoo-fynbos scrub, 300–1 000 m, NW, SW, KM (Bokkeveld Mtns to Montagu).•

trianthum (E.Mey.) C.H.Stirt. Slender shrub to 2 m. Leaves 3-foliolate, leaflets linear-oblanceolate, glabrescent; stipules glandular. Flowers pale mauve, calyx adpressed-hairy and glandular, accrescent. Nov.–Jan. Lowland and mountain fynbos, 100–500 m, NW, SW (Clanwilliam to Franschhoek).•

virgatum (Burm.f.) C.H.Stirt. (= *Otholobium decumbens* (Aiton) C.H.Stirt. *ms*.) Trailing resprouting subshrub. Leaves 3-foliolate, leaflets obovate-obcordate, tips strongly recurved, glabrescent; stipules ciliate. Flowers pale pink, mauve-purple, calyx softly hairy and glandular, lowest sepal larger. Aug.-Nov. Disturbed areas in fynbos, to 400 m, NW, SW, KM, LB, SE (Porterville and Saldanha to E Cape).

D.' Lateral leaflets oblique

argenteum (Thunb.) C.H.Stirt. Sprawling resprouting subshrub to 1 m. Leaves 3-foliolate, leaflets obovate, densely grey-hairy; stipules densely hairy and glandular below. Flowers white to pale yellow, calyx silvery silky. Nov. Karroid scrub, NW, KM (Namaqualand to Cedarberg).•

incanum C.H.Stirt. Sprawling shrub to 1 m. Leaves 3-foliolate, leaflets obovate, shortly grey-hairy; stipules silky and glandular. Flowers white, calyx grey-hairy. Aug.–Nov. Sandveld, coastal limestones, 60–130 m, NW (Vredendal to Lambert's Bay).•

mundianum (Eckl. & Zeyh.) C.H.Stirt. Densely leafy, resprouting shrub to 1 m. Leaves 3-foliolate, leaflets obovate-rhomboid, glabrescent and pellucid-glandular; stipules hairy. Flowers ?blue, calyx softly hairy and glandular, lowest sepal larger, accrescent. Nov.–Jan. Mountain fynbos, 1 200–1 580 m, SW (Bain's Kloof to Riviersonderend Mtns).•

obliquum (E.Mey.) C.H.Stirt. Resprouting shrub to 1 m. Leaves 3-foliolate, leaflets obovate, glabrescent and glandular; stipules glabrous. Flowers variable, mostly mauve (blue, pink, white) with purple nectar patch, calyx hairy and densely glandular. June–Dec. Mountain fynbos, 360–1 300 m, NW, SW (Piketberg to Kogelberg).•

parviflorum (E.Mey.) C.H.Stirt. Resprouting subshrub to 1 m. Leaves 3-foliolate, leaflets elliptic; stipules hairy, deciduous. Flowers in elongate racemes, white to cream-coloured, calyx hairy and glandular. Oct.–Dec. Mountain fynbos, 260–1 160 m, SW (Bain's Kloof to Kogelberg).•

pictum C.H.Stirt. Slender shrub to 2 m. Leaves 3-foliolate, leaflets linear-oblanceolate, glabrescent; stipules orange glandular-warty. Flowers white with blue centre, calyx densely black-hairy and glandular, lowest sepal larger. Aug.–Sept. Mountain fynbos, 630–1 330 m, SE (Baviaanskloof Mtns).•

prodiens C.H.Stirt. Erect shrub to 2.5 m. Leaves 3-foliolate, leaflets obovate; stipules caducous. Flowers white with thin purple nectar flash, calyx sparsely black-hairy. July–Sept. Mountain fynbos, renosterveld, 200–700 m, LB, SE (Langeberg to E Cape).

pungens C.H.Stirt. Sprawling shrublet. Leaves 3-foliolate, leaflets oblanceolate to elliptic, pungent; stipules white-hairy. Flowers pink or blue, calyx hairy, lowest sepal larger, accrescent. Sept.–Jan. Renosterveld, 20–160 m, SW, AP (Kleinmond to Potberg).•

sericeum (Poir.) C.H.Stirt. Sprawling, silvery hairy shrub to 2 m. Leaves 3-foliolate, leaflets elliptic, densely white beneath, shiny green, glabrous above, margins revolute; stipules densely hairy. Flowers crowded on long, naked peduncles, deep blue-purple, calyx silvery or black-silky, lowest sepal larger. Mainly Sept.–Jan. Lowland and mountain fynbos, riverbeds, 10–600 m, LB, SE (Albertinia to E Cape).

spicatum (L.) C.H.Stirt. Willowy, reseeding, colonial shrub to 3.5 m. Leaves 3-foliolate, leaflets obovate to oblong, glabrescent; stipules hairy. Flowers in elongate racemes, lilac or purple with white wings, calyx softly hairy and glandular. Mainly Oct.–Dec. Coastal renosterveld, common along roadsides, loves disturbance, 30–500 m, SW, LB (Cape Peninsula to Riversdale).•

stachyerum (Eckl. & Zeyh.) C.H.Stirt. Reseeding, colonial shrub to 3 m. Leaves 3-foliolate, leaflets obovate-cuneate, hairy on midribs; stipules silky. Flowers in compact, elongate racemes, violet to mauve, calyx white- or black-hairy and glandular. Sept.–Mar. Grassy fynbos, river banks, forest margins, 200–1 450 m, SW, LB, SE (Caledon to E Cape).

swartbergense C.H.Stirt. Sprawling shrublet to 30 cm. Leaves 3-foliolate, leaflets elliptic, silky; stipules silky. Flowers crowded on long, naked peduncles, mauve-purple, calyx black-hairy, lowest sepal much larger. Nov.–Dec. Mountain fynbos, subalpine fynbos, 1560–1 860 m, KM (Groot Swartberg).•

venustum (Eckl. & Zeyh.) C.H.Stirt. Sprawling or trailing shrub to 1 m. Leaves 3-foliolate, leaflets elliptic-oblanceolate, glabrescent; stipules finely hairy. Flowers in lax racemes, white to pale mauve, calyx black-silky. Nov. Coastal sands, 100–200 m, NW (Lambert's Bay to Langebaan).•

zeyheri (Harv.) C.H.Stirt. Resprouting subshrub to 40 cm. Leaves 3-foliolate, leaflets obcordate-oblanceolate, glabrescent, margins ciliate; stipules ciliate. Flowers crowded on slender, naked peduncles, white and mauve, calyx silky. Nov.–Apr. Fynbos, grasslands, 60–800 m, SW, AP (Jonkershoek to Bredasdorp).•

sp. 3 (*Otholobium lucens* C.H.Stirt. *ms*.) Multistemmed, resprouting shrub to 60 cm, becoming shrubby and woody after a few years. Leaves 3-foliolate, leaflets obovate, distinctly glandular-warty; stipules hairy. Flowers white, calyx black-hairy and glandular. July–Nov. Mountain fynbos, 650–1 330 m, KM (Swartberg).•

sp. 4 (*Otholobium nitens* C.H.Stirt. *ms*.) Dense shrub to 1.5 m, leafy above. Leaves 3-foliolate, leaflets linear-elliptic, margins finely crisped, rigid, glabrescent; stipules hairy and glandular. Flowers bluish mauve, calyx adpressed black-hairy on veins and margins, lowest sepal larger. Oct.–Dec. Mountain fynbos, 700–1 200 m, NW, SW (Bain's Kloof and Robertson to Kogelberg).•

*PARASERIANTHES I.C.Nielsen AUSTRALIAN ALBIZIA, STINKBOON 1 sp., Australasia

***lophantha** (Willd.) I.C.Nielsen (= *Albizia lophantha* (Willd.) Benth.) Evergreen shrub or small tree, 4–6 m. Leaves bipinnate, with elongated gland midway along petiole. Flowers in cylindrical

spikes, cream-coloured. Pods flattened, oblong-apiculate. July–Aug. Lowland fynbos, grasslands, stream banks, SW, LB, SE (Australian weed).

PODALYRIA Willd. BUSH SWEET PEA, KEURTJIE, KEURBLOM 17 spp., mainly winter-rainfall S Africa

A. Calyx with short split near base between upper two lobes at anthesis; sepals ± reflexed
B. Pedicels up to 2 mm long

burchellii DC. Willowy to dense and much-branched, resprouting shrub to 1 m (rarely a non-sprouter in marshy habitats). Leaves 1-foliolate, elliptic to suborbicular, thinly silky and sometimes shiny glabrescent above, felted beneath. Flowers dark pink and white, bracts broadly ovate, prominently veined, mucronate. Aug.–June. Sandstone slopes, 300–1 500 m, KM, LB, SE (Swartberg, Kammanassie, Langeberg to Grahamstown and southern KwaZulu-Natal).

rotundifolia (P.J.Bergius) A.L.Schutte Erect, woody, resprouting shrub to 3 m. Leaves 1-foliolate, ovate to suborbicular, adpressed-hairy above, felted or softly hairy beneath when young. Flowers bright pink and white, bracts depressed ovate, sheathing > half of bud but not calyptrate. Aug.–Nov. Sandstone slopes, 260–1 166 m, NW, SW, LB (Cedarberg to Langeberg).•

B.' Pedicels > 3 mm long

calyptrata (Retz.) Willd. Small tree to 5 m, rarely sprouting after fire. Leaves 1-foliolate, obovate, silky. Flowers bright pink and white, bracts very broad, fused to form a calyptra. Aug.–Oct. Sandstone slopes in marshy places, below 1 000 m, SW, LB (Cape Peninsula to Tradouws Pass).•

cordata R.Br. Erect, woody, resprouting shrub to 1.7 m. Leaves 1-foliolate, ovate to suborbicular, with a cordate base, densely woolly. Flowers bright pink and white, bracts lanceolate to broadly ovate. Nov.–Feb. Sandstone slopes, 540–930 m, SW (Hottentots Holland Mtns).•

hirsuta (Aiton) Willd. Erect, woody, resprouting shrub to 3 m. Leaves 1-foliolate, ovate to suborbicular, adpressed-hairy above, felted below. Flowers bright pink and white, bracts lanceolate to ovate. June–Jan. Sandstone slopes, 400–1 230 m, SW, LB (Hottentots Holland Mtns to Langeberg).•

lanceolata Benth. Small tree to 4 m. Leaves 1-foliolate, lanceolate to obovate, hairy. Flowers pink and maroon, bracts ovate. Aug. Sandstone slopes, stream banks, 350–400 m, LB (Langeberg).•

orbicularis E.Mey. (= *Podalyria reticulata* Harv.) Erect, willowy, resprouting shrub to 1.5 m. Leaves 1-foliolate, ovate to orbicular, margins slightly rolled under, hairy to shiny glabrescent above, felted beneath. Flowers pink and white, bracts broadly obovate. Aug.–Nov. Sandstone slopes, 550 m, SW (Genadendal Mt and Caledon Swartberg).•

A.' Calyx not split near base on upper side
C. Calyx up to half as long as keel

argentea Salisb. Much-branched, resprouting shrublet to 30 cm. Leaves 1-foliolate, elliptic to broadly elliptic, silky above, silvery felted beneath. Flowers bright pink and white, bracts broadly ovate, mucronate. Sept.–Nov. Sandstone lower slopes, below 500 m, SW (Cape Peninsula and Hottentots Holland Mtns).•

leipoldtii L.Bolus ex A.L.Schutte Rigid, woody, resprouting shrub to 2 m. Leaves 1-foliolate, obovate, silky above and beneath. Flowers pink and white, bracts oblanceolate. Aug.–Sept. Sandstone slopes, 180–700 m, NW (Bokkeveld to Cedarberg).•

microphylla E.Mey. Erect, resprouting shrublet to 60 cm. Leaves 1-foliolate, obovate, glabrescent above, silky beneath. Flowers pink and white, bracts oblanceolate. Sept.–Oct. Renosterveld-fynbos scrub, rocky outcrops, 100 m, SW (Tulbagh: Elandskloof Mtns to Cape Flats).•

myrtillifolia (Retz.) Willd. (= *Podalyria cuneifolia* Vent.) Erect, woody, reseeding shrub to 2 m, sometimes resprouting after fire. Leaves 1-foliolate, obovate, silky above and beneath. Flowers pink and white, bracts oblanceolate to obovate. June–Nov. Sandstone, limestone or shale flats and lower slopes, 120–330 m, NW, SW, AP, LB, SE (Tulbagh to Port Elizabeth).•

pearsonii E.Phillips Willowy, resprouting shrub to 1 m. Leaves 1-foliolate, elliptic to narrowly elliptic, glabrous above except along margin, silky beneath. Flowers magenta pink and white, bracts obovate to oblanceolate. Sept. Sandstone slopes, 830–870 m, NW (Bokkeveld Mtns to Gifberg).•

C.' Calyx > half as long as keel
D. Leaves linear to elliptic with margins revolute

buxifolia (Retz.) Willd. (= *Podalyria glauca* DC.) Spreading, resprouting shrublet to 90 cm. Leaves 1-foliolate, elliptic-oblong, margins rolled under, shiny and glabrous above, felted beneath. Flowers magenta, bracts linear-lanceolate. Aug.–Apr. Sandstone slopes, 200–1 000 m, SE (Outeniqua to Kareedouw Mtns).•

oleaefolia Salisb. Willowy, resprouting shrub to 1 m. Leaves 1-foliolate, linear to elliptic-oblong, margins rolled under, shiny glabrous above, felted below. Flowers dark pink and white, bracts ovate. June–Dec. Sandstone lower slopes, below 500 m, SW, AP (Hottentots Holland Mtns to Elim).•

D.' Leaves usually broader, margins flat or only slightly rolled under

biflora Lam. Prostrate, resprouting shrublet to 30 cm. Leaves 1-foliolate, elliptic to broadly elliptic, silky, sometimes glabrous above, felted beneath, margins often golden-brown. Flowers bright pink and white, bracts oblanceolate. Aug.–Nov. Sandstone slopes, 100–1 000 m, NW, SW, LB (Clanwilliam to Mossel Bay).•

sericea (Andrews) R.Br. ex W.T.Aiton Erect, reseeding shrublet to 1 m. Leaves 1-foliolate, obovate to oblanceolate, silky above and beneath. Flowers pink and white, bracts oblanceolate. May–June. Sandstone and granite outcrops, below 500 m, SW (Saldanha to Cape Peninsula).•

variabilis A.L.Schutte Much-branched, resprouting shrublet to 80 cm. Leaves 1-foliolate, elliptic to obovate, silky or glabrescent above, silky or felted beneath. Flowers pink and white, bracts broadly ovate to depressed ovate. Aug.–Oct. Sandstone slopes, below 1 200 m, SW (Tygerberg to Caledon Swartberg).•

POLHILLIA C.H.Stirt.• 6 spp., mostly W Cape, 1 sp. in W Karoo **gce**

brevicalyx (C.H.Stirt.) B.-E.van Wyk & A.L.Schutte Multistemmed shrublet to 40 cm. Leaves 3-foliolate, leaflets oblanceolate-conduplicate, recurved, thinly silky; stipules free, 3–5 mm long. Flowers 1–3 at branch tips, yellow. Oct. Renosterveld, 200–300 m, LB (Swellendam: Uitvlug).•

canescens C.H.Stirt. Erect, somewhat wand-like shrublet to 1.5 m. Leaves 3-foliolate, leaflets elliptic-conduplicate, silvery silky; stipules connate and fused to petiole, 7–14 mm long. Flowers 1–4 at branch tips, bright yellow. Sept.–Oct. Renosterveld, 200–300 m, SW (Bredasdorp: Rooivlei to Adoonskop).•

connata (Harv.) C.H.Stirt. Resprouting shrub to 50 cm. Leaves 3-foliolate, leaflets recurved, conduplicate, silvery silky. Flowers 1–3 at branch tips, yellow; capsules silky-hairy. June–Oct. Renosterveld, usually with quartz pebbles, 300 m, LB (Bredasdorp: Haarwegskloof).•

ignota Boatwr. Like **P. obsoleta** but leaflets wider and flattened and inflorescences more crowded (pods unknown). Sept. Coastal granite or clay, SW (Vredenburg and Porterville).•

obsoleta (Harv.) B.-E.van Wyk (= *Polhillia waltersii* (C.H.Stirt.) C.H.Stirt.) Like **P. pallens** but leaves greener, flowers brighter and pods finely hairy, conspicuously pleated. July–Sept. Renosterveld, 300–330 m, NW (Worcester).•

pallens C.H.Stirt. Multistemmed, resprouting shrub to 1.5 m. Leaves 3-foliolate, leaflets linear-conduplicate, recurved, silvery silky; stipules connate and fused to petiole, 1–3 mm long. Flowers 1 or 2 at branch tips, pale yellow. Pods narrowly oblong, shaggy, impressed between seeds. June–Oct. Renosterveld, 30–100 m, SW (Bredasdorp to Potberg).•

*PROSOPIS L. MESQUITE ± 44 spp., SW Asia, Africa and America.

glandulosa Torr. HONEY MESQUITE, HEUNINGPROSOPIS Multistemmed, armed shrub or small tree to 10 m, glabrous; spines paired. Leaves bipinnate. Flowers in cylindrical spikes, yellow. Pods slender, ± straight, woody, yellowish to purplish, constricted between seeds, indehiscent. June–Nov. Karroid scrub, river banks, NW, SW, KM, LB (invasive weed from America, throughout arid areas of southern Africa).

PSORALEA L. BLUE PEA, BLOUKEURTJIE ± 70 spp., southern Africa

A. Leaves 1-foliolate or absent
B. Leaflets ovate, lanceolate, cordate or oblong

alata (Thunb.) T.M.Salter Prostrate, matted, trailing, resprouting shrub to 10 cm high, with flattened stems. Leaves 1-foliolate, narrowly lanceolate, bluish green; stipules large. Flowers mauve.

Dec.–Jan. Seasonally damp, lowland fynbos and renosterveld, NW, SW (Cedarberg to Cape Peninsula to Elim).•

asarina (P.J.Bergius) T.M.Salter Prostrate, trailing, mat-forming, resprouting shrublet. Leaves 1-foliolate, oblong, spine-tipped; stipules spreading. Flowers on filiform pedicels, purple. Oct.–Feb. Mountain fynbos, renosterbos-fynbos scrub, 20–1 400 m, SW, AP, LB, SE (Cape Peninsula to Knysna).•

gueinzii Harv. Erect, reseeding, much-branched shrublet to 2 m. Leaves 1-foliolate, lanceolate. Flowers violet with white wing petals. Oct.–Feb. Lowland fynbos, marshy places, SW (Stellenbosch).• EXTINCT

imbricata (L.) T.M.Salter Sprawling, resprouting shrublet to 50 cm. Leaves 1-foliolate, folded flat, broadly elliptic. Flowers on filiform pedicels, deep purple with black nectar patch. Oct.–Jan. Mountain and lowland fynbos, 180–800 m, NW, SW (Bokkeveld to Kleinrivier Mtns).•

laxa T.M.Salter Straggling, prostrate, lax shrublet to 40 cm. Leaves 1-foliolate, obliquely lanceolate asymmetrical. Flowers on filiform pedicels, mauve with violet nectar patch. Nov.–Mar. Mountain and coastal fynbos, streamsides, 30–1 160 m, SW, AP, LB, SE (Cape Peninsula to Port Elizabeth).•

monophylla (L.) C.H.Stirt. Trailing, decumbent, resprouting shrublet to 30 cm. Leaves 1-foliolate, narrowly ovate to broadly lanceolate. Flowers on filiform pedicels, blue with white and purple nectar patch. Nov.–Jan. Mountain fynbos, 230–1 700 m, SW, LB, SE (Cape Peninsula to Humansdorp).•

sp. 1 (*Psoralea plauta* C.H.Stirt. *ms*.) Prostrate, trailing, resprouting shrub with flattened stems. Leaves 1-foliolate, ovate to elliptic, with wispy white hairs; stipules spreading. Flowers on filiform pedicels, dark blue. Sept.–Feb. Mountain and lowland fynbos, dry slopes, streamsides, 200–1 600 m, SW, LB, SE (Riviersonderend to E Cape).

B.' Leaflets needle-like or linear or reduced to scales

aphylla L. FONTEINBOS Erect, reseeding, broom-like shrub to 5 m; seasonal shoots densely white to silvery hairy. Leaves absent, reduced to appressed scales in mature plants; 1–3-foliolate in seedlings. Flowers solitary in axils along lax shoots, mauve or purple with white wing petals. Sept.–Apr. Mountain and lowland fynbos, stream banks, 10–300 m, SW (Cape Peninsula and Cape Flats).• [Hybridizes with *P. pinnata*].

implexa C.H.Stirt. Trailing, mounded, grass-like, resprouting shrublet with flattened stems. Leaves 1-foliolate. Flowers on filiform pedicels, brick-red to salmon-coloured. Jan.–Feb. Mountain fynbos, dry slopes, 650 m, SW (Du Toitskloof).•

peratica C.H.Stirt. Tree to 5 m, seasonal shoots densely pubescent. Leaves absent, reduced to patent, caducous scales. Flowers pseudo-capitate at end of seasonal shoots, purple and white, standard darker with large M-shaped nectar patch. Oct. Mountain fynbos, streamsides, 360–1 670 m, NW (Piketberg).•

restioides Eckl. & Zeyh. Reseeding, multi-stemmed shrublet to 50 cm. Leaves 1(–3)-foliolate, with large, adnate stipules. Flowers blue or purple with large white nectar patch. Aug.–Dec. Mountain and lowland fynbos, dry slopes and marshy areas, 30–960 m, SW, AP (Cape Peninsula to Bredasdorp).•

sp. 2 (*Psoralea arida* C.H.Stirt. *ms*.) Large, densely branched, erect, reseeding shrub to 3.5 m. Leaves 1-foliolate, flat, glaucous, warty; 3-foliolate at base of seasonal shoots. Flowers white with purple flash. Nov.–Apr. Riverine habitats and seepages, 300–800 m, SW (Hex River to Kleinrivier Wilderness).•

sp. 3 (*Psoralea congesta* C.H.Stirt. & Muasya *ms*.) Erect, reseeding, stiff shrub to 1.5 m; stems 1–3, greyish black, rough, seasonal shoots clustered on branch ends, erect and stiff even when in flower. Leaves absent, reduced to tightly clasping, overlapping scales, densely white pubescent below. Flowers purple, wing petals white and held vertically, nectar guide M-shaped, white with purple flash. Oct.–Dec. Mountain fynbos on dry slopes, 600–700 m, SW (Cape Peninsula).

sp. 4 (*Psoralea fleta* C.H.Stirt. *ms*.) Willowy, reseeding tree to 6 m; seasonal shoots densely white pubescent. Leaves absent, sometimes with a tiny filiform leaflet; 7–9-foliolate in seedlings. Flowers in large trusses, purple and white, strongly scented. Sept.–Mar. Mountain fynbos, seepages, 250–2 050 m, NW, SW (Ceres and Tulbagh to Bain's Kloof).•

sp. 5 (*Psoralea fulva* C.H.Stirt. & Muasya *ms*.) Erect, reseeding, willowy or broom-like shrub to 3 m; stems solitary, pale chestnut-brown or tan. Leaves absent, reduced to appressed scales on older plants; 1–3-foliolate on younger plants. Flowers 5–7 on short, stiff pedicels, in terminal axils of flowering shoots, pom-pom-like, white or blue. Oct.–Feb. Mountain and lowland fynbos, seepages and gulleys, 250–550 m, SW (Hex River Valley).•

sp. 6 (*Psoralea gigantea* Dludlu, Muasya & C.H.Stirt. *ms*.) Reseeding tree, 6–8 m, forming dense colonies; stem to 40 cm diam., grey. Leaves 1-foliolate on older branches, scale-like on young plants. Flowers mauve and white, standard mauve with white nectar patch. Sept.–Dec. Mountain fynbos, streamsides, 300–700 m, SW (Du Toitskloof to Caledon Swartberg and Elim).•

sp. 7 (*Psoralea karooensis* C.H.Stirt, Muasya & Vlok *ms*.). Erect, willowy, floppy branched shrub to 3 m, reseeding but coppicing annually. Leaves 1-foliolate. Flowers on long pedicels, greenish cream-coloured, standard with purple nectar patch and purplish veins. Jan.–Mar. Gulleys and dry riverbeds, 1 000–1 200 m, SW (Witteberg to Anysberg).•

sp. 8 (*Psoralea pullata* C.H.Stirt. *ms*.) Erect, broom-like shrub to 2 m; seasonal shoots dark green, densely covered in black and white hairs. Leaves absent, reduced to patent, caducous scales. Flowers blue and white. June–Dec. Mountain fynbos, streamsides, 95–1 200 m, SW, AP (Kogelberg and Kleinrivier Mtns to De Hoop).•

sp. 9 (*Psoralea ramulosa* C.H.Stirt. *ms*.) Erect, broom-like, resprouting shrub to 3 m; seasonal shoots glabrous. Leaves absent on mature plants; 1- or 2(3-)-foliolate at basal nodes of water shoots and on seedlings, leaflets lanceolate, bright green, flat. Flowers on long, flexuous peduncles, purple and white. Nov.–Apr. Mountain fynbos, damp areas on hillsides, 150–1 100 m, NW (Cedarberg).•

sp. 10 (*Psoralea rigidula* C.H.Stirt. *ms*.) Multi-stemmed, broom-like shrub to 60 cm, resprouter; seasonal shoots striate. Leaves absent, reduced to appressed scales; 3-foliolate in seedlings. Flowers purple and white with violet and white nectar patch. Nov.–Apr. Mountain fynbos, seepages and dry slopes, 560–1 273 m, SW (Bain's Kloof to Klein Drakenstein Mtns).•

sp. 11 (*Psoralea tridens* C.H.Stirt. *ms*.) Shrub to 2 m; stems pustulate. Leaves small, digitately trifoliolate, trident-shaped, terminal leaflet twice as long as laterals. Flowers small, < 10mm long, solitary in leaf axils in upper parts of seasonal shoots, white with mauve tinge. Aug. Mountain fynbos on dry slopes, 500 m, KM (Kammanassie Mtns).•

sp. 12 (*Psoralea usitata* C.H.Stirt. *ms*.) Lax, erect shrub to 2 m, with floppy branches and burst-branching in upper parts. Leaves absent, reduced to appressed scales; 1–3-foliolate on seedlings. Flowers on short, stout pedicels, blue and white. Sept.–May. Mountain and lowland fynbos on dry slopes, seepages, and riverine habitats, 170–1 600 m, NW, SW, LB (Groot Winterhoek to Langeberg).•

A.' Leaves 3-foliolate
C. Plants prostrate or sprawling

glaucina Harv. Sprawling, straggling shrublet, 30–60 cm. Leaves 3-foliolate. Flowers white. Dec.–Feb. Acid/alkaline sands in seasonally damp, lowland fynbos, SW (Atlantis to Cape Flats).•

oreophila Schltr. Sprawling shrublet to 50 cm. Leaves 3-foliolate. Flowers on slender pedicels exceeding leaflets, purple. Oct.–Feb. Mountain fynbos on dry slopes, 460–1 660 m, SW (Bain's Kloof to Hottentots Holland Mtns).•

repens L. Prostrate, trailing shrublet, sending out long, thick runners. Leaves 3-foliolate, fleshy. Flowers on long pedicels, violet-brown. Nov.–Feb. Coastal fore dunes, SW, AP, LB, SE (Saldanha to E Cape).

tenuissima E.Mey. Erect reseeding shrublet, 30–60 cm, much-branched from base, Leaves 3-foliolate. Flowers on filiform pedicels, 1–3 per axil along seasonal shoots, blue. Jan.–Mar. Mountain fynbos, 900–1 400 m, NW, SW (Cold Bokkeveld to Du Toitskloof Mtns).•

trullata C.H.Stirt. Prostrate, reseeding shrublet with branches to 1 m long. Leaves 3-foliolate; stipules long, adnate. Flowers deep purple with large, white nectar patch. Oct.–Jan. Mountain fynbos, marshy places, 400–1 500 m, LB, SE (Langeberg, Outeniqua and Tsitsikamma Mtns).•

sp. 13 (*Psoralea fulcrata* C.H.Stirt. *ms*.) Mat-forming shrub to 1.5 m diam. Leaves 3-foliolate, leaflets lanceolate, shiny. Flowers purple with white and violet nectar patch. Dec.–Feb. Mountain and subalpine fynbos, 980–1 850 m, SW (Du Toit's Peak to Wemmershoek Mtns).•

C.' Plants ± erect

aculeata L. Tree-like shrub to 2.5 m. Leaves 3-foliolate, glabrous, rigid, claw-like with strong, recurved mucro. Flowers longer than leaves, mauve, standard darker with large, white, M-shaped nectar patch with purple flash. Oct.–Dec. Upland fynbos, 30–900 m, SW (Cape Peninsula to Franschhoek and Kleinrivier Mtns).• [Hybridizes with *P. pinnata*].

angustifolia Jacq. Floppy, tree-like shrub to 4 m; stems pale green, smooth. Leaves 3-foliolate. Flowers in stalked, up to 7-flowered inflorescences, mauve, standard with purple flush and darker purple flash. Nov.–Apr. Seepages and streamsides, 80–200 m, NW (Sandveld).•

axillaris L.f. Reseeding, compact shrub to 3 m. Leaves 3-foliolate, leaflets flat, dark green. Flowers deep purple with violet flash, wing petals white. Nov.–Apr. Mountain fynbos, stream banks, forming dense stands, 400–1 100 m, SE (George to Joubertina).•

ensifolia (Houtt.) Merr. Spreading shrub, 0.5–1.2 m. Leaves 3-foliolate. Flowers in tightly capitate inflorescences, purple or mauve. Dec.–Apr. Mountain and coastal fynbos, NW, SW, KM, LB, SE (Cold Bokkeveld to Kouga Mtns).•

fascicularis DC. Resprouting shrub to 2.5 m. Leaves (1–)3-foliolate; stipules large, adnate. Flowers in loosely capitate inflorescences, purple and white. Sept.–Dec. Mountain and lowland fynbos, 100–600 m, SW (Cape Peninsula to Hermanus).•

filifolia Thunb. Reseeding, stiff shrubs but floppy higher up, 1–3.5 m. Leaves 1(–3)-foliolate. Flowers overtopping leaves, purple and white. Sept.–Mar. Lowland fynbos, stream banks and rocky seepages, 20–140 m, NW, SW (Tulbagh to Franschhoek).•

glaucescens Eckl. & Zeyh. Floppy, much-branched shrub to 2 m. Leaves 3-foliolate. Flowers pale lemon with purple nectar patch. Nov.–Mar. Renosterbos-fynbos scrub, mountain fynbos, dry slopes, 760–1 260 m, NW (Richtersveld, Kamiesberg to Bokkeveld and Matsikamma Mtns). **gce**

keetii H.M.L.Forbes Reseeding shrub to 2 m. Leaves 3-foliolate. Flowers white and deep purple. Jan.–Feb. Mountain fynbos, dry slopes and seepages, 830–1 560 m, SE (Outeniqua and Tsitsikamma Mtns).•

oligophylla Eckl. & Zeyh. Reseeding, willowy shrub to 4 m, with burst-branching in older plants. Leaves (1–)3-foliolate. Flowers dirty white, standard with violet nectar flash. Oct.–Apr. Mountain fynbos, streamsides, SE (George to E Cape).

tenuifolia L. Tree-like, weeping shrub to 5 m; stems smooth. Leaves 3(–5)-foliolate. Flowers 1 or 2 per axil, on long pedicels in upper axils of seasonal shoots, mauve. Oct.–Apr. Mountain fynbos, riverbeds, 260–830 m, NW, SW (Kamiesberg, Bokkeveld Mtns to Franschhoek Mtns). **gce**

triflora Thunb. Erect, bluish green, resprouting shrub to 3 m. Leaves 3-foliolate. Flowers exceeding leaves, mauve and white, standard dark mauve with purple flash. Oct.–Jan. Lowland and mountain fynbos, seepages, 140–450 m, SE (Storms River to Uitenhage).•

verrucosa Willd. Erect, glaucous shrub to 2 m; stems densely warty with soapy feel. Leaves 3-foliolate. Flowers in stalked inflorescences longer than leaves, up to 3–6-flowered, mauve and purple. Dec.–Mar. Mountain fynbos, stream banks, 400–1 600 m, NW (Cedarberg).•

vlokii C.H.Stirt. Prostrate, multi-stemmed, reseeding shrublet to 60 cm diam. Leaves (1–)3-foliolate. Flowers white; carinal tooth of calyx longer than petals. Dec.–Jan. Mountain fynbos, seepages and dry slopes, 530–590 m, LB, SE (Langeberg and Outeniqua Mtns).•

sp. 14 (*Psoralea crista* C.H.Stirt. *ms*.) Low shrub. Leaves 3-foliolate. Flowers ?blue. Feb. Mountain fynbos, 1 660 m, SE (Great Winterhoek Mtns).•

sp. 15 (*Psoralea forbesii* C.H.Stirt. *ms*.) Dense, resprouting shrub to 2.5 m, older plants with burst-branching to give untidy habit. Leaves 3-foliolate, yellowish green, densely warty. Flowers purple and white with violet flush. Dec.–Feb. Moist, mountain fynbos, streamsides and seepage areas, 1 500–1 800 m, KM (Swartberg).•

sp. 16 (*Psoralea muirii* C.H.Stirt. *ms*.) Much-branched shrub to 1.5 m; young shoots purple. Leaves 3-foliolate, warty. Flowers mauve with purple flash on standard. Nov. Lowland fynbos on limestone, 350–400 m, AP (Albertinia to Still Bay).•

sp. 17 (*Psoralea nubicola* C.H.Stirt. *ms*.) Sprawling, resprouting shrub to 1 m. Leaves 3-foliolate, bluish green. Flowers purple and white with violet flush. Dec. Moist, mountain fynbos, rocky outcrops, 1 500–1 800 m, LB (Langeberg).•

sp. 18 (*Psoralea oreopola* C.H.Stirt. *ms*.) Lax shrub to 3 m. Leaves 3-foliolate, bright yellowish green. Flowers white with purple flash on standard. Oct.–Apr. Mountain fynbos on dry slopes, 550–1 160 m, NW (Cedarberg).•

sp. 19 (*Psoralea sparsa* C.H.Stirt. *ms*.) Willowy, laxly branched, 1- or 2-stemmed, resprouting shrub to 2 m. Leaves 3-foliolate, spreading. Flowers azure-blue with deep purple nectar patch. Jan.–Feb. Mountain fynbos on dry slopes and lower valleys, KM (Swartberg).•

A." Leaves 5–11-foliolate (see also ***P. tenuifolia****)*

affinis Eckl. & Zeyh. Tall, reseeding shrub or small tree to 9 m. Leaves 5–11-foliolate. Flowers long-pedicellate, terminating seasonal leafy shoots, blue, intensely scented; old inflorescences persistent. Sept.–Jan. Mountain, lowland and coastal fynbos seepages, 100–1 800 m, NW, SW, LB, SE (Bokkeveld Mtns to E Cape).

arborea Sims Tall, reseeding shrubs to 5 m. Leaves 5–7-foliolate. Flowers mauve and blue. June–Oct. Lowland fynbos, forest margins, 30–330 m, AP, LB, SE (Robertson and Arniston to Humansdorp).•

laevigata L.f. Small, erect to semi-erect, bright green shrub to 1 m. Leaves 5-foliolate, glossy yellowish green, cupped. Flowers on long, stiff pedicels, deep blue with small, white nectar patches; calyx and buds purplish. Nov.–May. Mountain fynbos, 700–1 500 m, LB (Langeberg).

odoratissima Jacq. Tree-like shrub to 6 m; stems yellowish green to tan. Leaves 9–19-foliolate. Flowers 1–3 per axil on long, hairy pedicels persisting after seeds shed, white to pale mauve. Oct.–Dec. Mountain fynbos, gulleys and streamsides, 300–1 330 m, KM, LB (Langeberg and Klein Swartberg).•

pinnata L. FONTEINBOS, PENWORTEL Willowy tree to 6 m. Leaves 5–9-foliolate. Flowers sessile or subsessile, axillary along length of seasonal shoots, blue, scarcely scented. Oct.–Apr. Mountain fynbos, forest margins, riverbeds, 230–1 060 m, NW, SW, LB, (Cape Peninsula to Kogelberg).•

speciosa Eckl. & Zeyh. Small, colonial, resprouting, tree-like shrub with arching stems to 2 m. Leaves 5-foliolate, clasping, thickened. Flowers large, deep blue with large, white, nectar patches; calyx fleshy, yellowish, hairless. Aug.–Nov. Mountain fynbos, hillsides and streamsides, 600–1 200 m, LB, SE (Langeberg to Kouga Mtns).•

suaveolens Jacq. Tree-like, flaccid shrub, 3–4 m; stems blackish grey. Leaves 7–13-foliolate, tips recurved. Flowers 3 per axil on long, hairy pedicels, mauve and white with back of standard purple; old inflorescences persistent. Jan.–Feb. Mountain fynbos, streamsides, 450–1 000 m, SW (Hex River Mtns).

sp. 20 (*Psoralea azuroides* C.H.Stirt. *ms*.) Compact, resprouting shrub, 20–80 cm. Leaves 3–7-foliolate, stiff. Flowers azure-blue, standard with large M-shaped nectar patch. June–Jan. Mountain fynbos on dry slopes, 260–1 130 m, SW, LB, SE (Riviersonderend to Outeniqua Mtns).•

sp. 21 (*Psoralea bella* C.H.Stirt. & Muasya *ms*.) Large, rounded, compact shrub to 1.5 m. Leaves 5-foliolate. Flowers pseudospicate on short, stout pedicels along length of seasonal shoots, dark mauve, standard with large M-shaped nectar patch and small purple patch in cleft; buds purplish green. Dec. Mountain fynbos, dry slopes, 960 m, SE (Outeniqua Mtns).•

sp. 22 (*Psoralea brilliantissima* C.H.Stirt. & Muasya *ms*.) Large, reseeding shrub or small tree to 4 m. Leaves 7–9-foliolate. Flowers intense caerulean-blue, strongly scented. Nov.–Dec. Limestone hills, 95–220 m, AP (Still Bay to Albertinia).•

sp. 23 (*Psoralea elegans* C.H.Stirt. *ms*.) Reseeding shrub to 4 m. Leaves 7-foliolate. Flowers mauve to purple with deep purple nectar flash. Nov.–Dec. Mountain fynbos, subalpine fynbos, gullies and streams, 1 300–1 700 m, KM (Groot Swartberg).•

sp. 24 (*Psoralea floccosa* C.H.Stirt. *ms*.) Small, decumbent shrub. Leaves 5-foliolate. Flowers white to cream-coloured. Sept.–Dec. Mountain fynbos on dry slopes, 660–1 000 m, LB, SE (Langeberg to Outeniqua Mtns).•

sp. 25 (*Psoralea imminens* C.H.Stirt. *ms*.) Tree, 4–5 m. Leaves 7-foliolate, spreading. Flowers 1–3 per axil, white; calyx glabrous. Oct.–Dec. Mountain fynbos, streamsides, ± 800 m, KM, SE Calitzdorp to Baviaanskloof).•

sp. 26 (*Psoralea intonsa* C.H.Stirt. *ms*.) Reseeding shrub to 2 m, branching near base. Leaves 9-foliolate. Flowers white with blue striations. Nov.–Dec. Mountain fynbos, seepages, 750–1 160 m, NW, LB, SE (Cedarberg to Great Winterhoek Mtns).•

sp. 27 Erect, columnar, multi-stemmed shrub to 2 m; shoots blackish. Leaves tightly packed, 5–7-foliolate, warty; stipules persistent, becoming woody. Flower nested among leaves, mauve with large purple nectar patch. Dec. Mountain fynbos, dry slopes, 830 m, SE (Uniondale: Potjiesberg).•

sp. 28 (*Psoralea papillosa* C.H.Stirt. *ms*.) Rounded, resprouting shrub to 1 m. Leaves 5-foliolate, yellowish green, papillate. Flowers sparse, shortly pedicelled, white with purple nectar flash on standard. Aug.–Sept. Arid fynbos on dry slopes, 300–600 m, LB (Langeberg).•

sp. 29 (*Psoralea sordida* C.H.Stirt. *ms*.) Shrub, compact and much branched after fires but reducing with age to 1 or 2 stems to 3 m. Leaves 3–5-foliolate. Flowers numerous in congested inflorescences, on short pedicels, mauve with purple nectar patch. Oct.–July. Mountain fynbos on dry slopes, 460–2 000 m, KM, LB, SE (Swartberg and Langeberg to Outeniqua Mtns).•

sp. 30 (Psoralea *semota* C.H.Stirt. *ms*.) Low shrub to 1 m. Leaves 3–5-foliolate, densely packed at ends of bare shoots; stipules densely glandular, becoming woody and persistent on old branches. Flowers shortly petiolate, longer than subtending leaves, white with mauve markings; calyx densely black-haired and glandular. Nov. Mountain fynbos on dry slopes, 1 000 m, SW (Riviersonderend Mtns).•

RAFNIA Thunb. WIDOW PEA 20 spp., N Cape to KwaZulu-Natal

A. Calyx bilabiate with lower lobe longest; keel truncate or obtuse; wing petals usually smooth; style shorter than ovary

capensis (L.) Schinz Erect to prostrate shrublet to 1 m. Leaves unifoliolate, alternate to opposite on flowering branches, linear to orbicular. Flowers solitary or crowded, wings smooth, keel obtuse to ± rostrate and often subapically lobed, calyx lobes triangular to narrowly triangular, upper lobes broader than the others. Pods stipitate, oblong to broadly oblong or obliquely lanceolate. All year. Fynbos, Renosterveld, stony or sandy flats and slopes, 0–2 000 m, NW, SW, AP, KM, LB, SE (Bokkeveld to Swartberg).•

diffusa Thunb. Prostrate or decumbent shrublet to 60 cm. Leaves unifoliolate, subopposite on flowering branches, linear to suborbicular, sometimes bright green. Flower solitary, small, wings sculptured, keel obtuse to ± rostrate, calyx lobes triangular. Pods long-stipitate, ± oblong. Aug.–Jan. Mountain fynbos, sandveld, stony, loamy soil, sometimes limestone flats, 250–1 100 m, NW, SW (Bokkeveld Mtns to Malmesbury).•

globosa G.J.Campbell & B.-E.van Wyk Erect shrublet to 60 cm. Leaves unifoliolate, opposite on flowering branches, elliptic to orbicular. Flowers clustered in globose pseudoracemes, wings smooth, keel ± rostrate, slightly subapically lobed, calyx lobes often recurved in fruit. Pods ± oblong. Sept.–Dec. Mountain fynbos, sandstone slopes, 300–700 m, NW (Cedarberg: Algeria).•

schlechteriana Schinz Erect shrublet to 60 cm. Leaves unifoliolate, opposite on flowering branches, broadly elliptic to orbicular, sometimes acuminate. Flowers clustered in large, conical pseudoracemes, wings smooth, keel truncate. Pods sessile, subtriangular, upper suture broadly winged. Sept.–Jan. Mountain fynbos, stony slopes, 300–1 400 m, NW (Clanwilliam to Ceres and Piketberg).•

spicata Thunb. Procumbent, clump-forming shrublet to 30 cm. Leaves unifoliolate, subopposite to opposite on flowering branches, narrowly lanceolate to ovate, sometimes bright green. Flowers in spike-like pseudoracemes, small, wings sometimes sculptured, keel truncate to ± rostrate, calyx lobes triangular. Pods narrowly oblong. Sept.–Mar. Mountain fynbos, sandy soil, rocky slopes, 450–1 700 m, NW (Cedarberg and Swartruggens to Tulbagh).•

A.' Calyx equally lobed; keel rostrate; wing petals sculptured
B. Leaves cordate and clasping

acuminata (E.Mey.) G.J.Campbell & B.-E.van Wyk (= *Rafnia perfoliata* auct.) Prostrate, trailing shrublet to 30 cm and 1 m diam. Leaves unifoliolate, opposite on flowering branches, cordate to oblong-cordate, reticulately veined, often clasping. Flowers solitary, keel rostrate, calyx lobes as long as or much longer than tube, upper lobes broader and falcate. Pods oblong, upper margin convex. Sept.–Feb. Mountain and coastal fynbos, stony slopes, 50–1 250 m, NW, SW, AP (Cedarberg to Bredasdorp Mtns).•

amplexicaulis (L.) Thunb. SOETHOUTBOSSIE Erect shrub to 2.5 m. Leaves unifoliolate, opposite on flowering branches, reniform to cordate, reticulately veined, clasping. Flowers solitary, keel long-rostrate, calyx lobes shorter than or as long as tube, upper lobes broader and falcate. Pods obliquely ovate, upper margin convex above. Sept.–Feb. Mountain and coastal fynbos, renosterveld, stony slopes, sandy soils, 300–1 550 m, NW, SW (Bokkeveld Mtns to Caledon).•

inaequalis G.J.Campbell & B.-E.van Wyk Erect shrublet to 40 cm. Leaves unifoliolate, opposite on flowering branches, oblong-cordate to orbicular-cordate, young leaves rolled over backwards. Flowers solitary, keel rostrate, calyx lobes much longer than tube, upper lobes broader and falcate, lower lobe very narrow, shorter than the others, with wing-like extension on tube between upper lobes. Pods stipitate, stipe curved, oblong. Oct.–Jan. Mountain fynbos, deep sands, 600–700 m, NW (Piketberg).•

B.' Leaves lanceolate to orbicular but not cordate nor clasping
C. Calyx deeply cleft below (lower sinus deeper than 9 mm) and ridged or winged above

alata G.J.Campbell & B.-E.van Wyk Procumbent, clump-forming shrublet to 40 cm. Leaves unifoliolate, subopposite to opposite on flowering, lanceolate to obovate. Flowers solitary, keel rostrate, calyx lobes longer than tube, upper lobes broader and falcate, tube winged between lobes.

Pods obliquely lanceolate. Oct.–Jan. Mountain and coastal fynbos, stony slopes, moist sandy soil, 0–1 850 m, AP, KM, SE (Cape Infanta, Swartberg and Outeniqua Mtns).•

crassifolia Harv. Erect shrublet to 60 cm. Leaves unifoliolate, subopposite to opposite on flowering branches, lanceolate, bright green, margins red. Flowers solitary on elongate pedicels, keel rostrate, calyx lobes much longer than tube, upper lobes slightly broader and falcate. Pods obliquely lanceolate to oblong. Oct.–Mar. Mountain and coastal fynbos, sandstone slopes, moist sandy soil, 20–250 m, SW (Cape Peninsula to Caledon).•

elliptica Thunb. Erect shrublet to 90 cm. Leaves unifoliolate, subopposite to opposite on flowering branches, lanceolate to elliptic. Flowers solitary, sometimes 3, large, keel rostrate, calyx lobes longer than tube, upper lobes broader, falcate. Pods obliquely lanceolate. Sept.–May. Renosterbos-fynbos scrub, coastal fynbos, sandy soil, 0–900 m, SW, KM, LB, SE, (Hermanus to KwaZulu-Natal).

vlokii G.J.Campbell & B.-E.van Wyk Erect shrub to 2 m. Leaves unifoliolate, subopposite to opposite on flowering branches, lanceolate-elliptic. Flowers solitary, large, buds leaf-like, keel rostrate, calyx lobes much longer than tube, upper lobes broader and falcate, lower lobe very narrow, shorter than the others. Pods large, obliquely oblong, upper margin asymmetrically convex. Mainly June–Sept. Fynbos-renosterbos scrub, sandy, clayey soils, 550–750 m, SE (Outeniqua Mtns: Doringrivier to Moerasrivier).•

C.' Calyx less deeply cleft below and not ridged or winged above

angulata Thunb. Virgate or procumbent shrublet to 2.2 m. Leaves unifoliolate, alternate, sometimes opposite on flowering branches, ericoid or linear or obovate. Flowers solitary, sometimes to 6 in pseudoracemes, keel rostrate, calyx lobes triangular to narrowly triangular, ± as long as or longer than tube. Pods obliquely oblanceolate or obliquely lanceolate. Mainly Sept.–Mar. Fynbos, sandy, rocky slopes, river valleys, 0–2 200 m, NW, SW, KM, LB (Bokkeveld to Swartberg).•

crispa C.H.Stirt. Procumbent shrublet to 40 cm. Leaves unifoliolate, subopposite to opposite on flowering branches, lanceolate, margins markedly cartilaginous. Flowers solitary, pedunculate, keel long-rostrate, calyx lobes triangular, lower lobe shorter than the others. Mainly Dec. Renosterveld, stony flats, 200 m, SW (Elandskloof Mtns: Kluitjieskraal).•

lancea (Thunb.) DC. Procumbent shrublet to 30 cm. Leaves unifoliolate, alternate on flowering branches, lanceolate. Flowers solitary, pedunculate, keel rostrate, calyx with upper and lateral lobes fused in pairs. Pods obliquely oblong, curved below. Sept.–Nov. Coastal Renosterveld, clay flats, 50–250 m, NW, SW (Clanwilliam to Paarl).•

lebeckioides Boatwr. & B.-E.van Wyk Resprouting shrublet to 30 cm. Leaves unifoliolate, markedly secund, linear to subspathulate, acute. Flowers 9–13, keel slightly rostrate, calyx lobes awl-shaped, shorter than tube, sinus between upper two lobes deeper than the others. Pods subsessile, linear, indehiscent. Dec. Mountain fynbos, stony, slightly marshy areas, after fire, 1 500–1 800 m, NW, SW (Hex River and Du Toitskloof Mtns).•

ovata E.Mey. Erect shrublet to 1.2 m. Leaves unifoliolate, subopposite to opposite on flowering branches, broadly elliptic to orbicular, acuminate. Flowers solitary, sometimes to 4, large, keel rostrate, calyx lobes triangular, shorter than tube, upper lobes broader than the others. Pods short-stipitate, obliquely lanceolate, upper suture broadly winged. Aug.–Jan. Mountain fynbos, stony slopes, sandy flats, 600–1 550 m, NW, SW, KM (Bokkeveld Mtns to Sir Lowry's Pass and Witteberg).•

racemosa Eckl. & Zeyh. Erect or procumbent, clump-forming shrub or shrublet to 1.5 m. Leaves unifoliolate, alternate on flowering branches, lanceolate to elliptic. Flowers 2–19, wings sculptured, keel rostrate, calyx lobes triangular or narrowly triangular. Pods obliquely lanceolate. Mainly Oct.–Jan. Mountain fynbos, Renosterveld, stony slopes, flat sandy plains, 300–1 700 m, SW, KM, SE (Worcester to Uniondale).•

rostrata G.J.Campbell & B.-E.van Wyk Erect or procumbent shrublet to 40 cm. Leaves unifoliolate, alternate to opposite on flowering branches, lanceolate to obovate. Flowers 1–5, keel rostrate or long-rostrate, calyx lobes longer than tube, upper lobes broader and falcate. Pods obliquely lanceolate. Oct.–Mar. Fynbos, sand dunes, shale flats, sandy or rocky mountain slopes, 800–1 800 m, NW, KM (Swartruggens to Swartberg).•

triflora (L.) Thunb. Erect shrub or shrublet to 2 m. Leaves unifoliolate, subopposite to opposite on flowering branches, broadly elliptic to orbicular. Flowers solitary but in threes, keel rostrate, calyx lobes as long as or longer than tube, upper lobes broader and falcate, lower lobe shorter than the others. Pods obliquely lanceolate. Sept.–Mar. Mountain and coastal fynbos, stony slopes, river banks, 0–600 m, NW, SW, AP, LB, SE (Clanwilliam to Humansdorp).•

RHYNCHOSIA Lour. VAAL-ERTJIE ± 200 spp., pantropical

A. Plants climbing; flowers in axillary umbels or solitary

chrysoscias Benth. ex Harv. Climbing, resprouting shrub to 1 m. Leaves pinnately 3-foliolate, leaflets lanceolate-oblong. Flowers yellow, large, upper calyx lobes separate almost to base. July–Dec. Sandstone slopes, 200–640 m, SW, AP, LB, SE (Caledon to E Cape).

leucoscias Benth. ex Harv. BLINK-ERTJIE Climbing shrub. Leaves pinnately 3-foliolate, shortly petiolate, leaflets linear to lanceolate, white-felted beneath. Flowers yellow, bracts broadly oblong, obtuse. Sept.–Dec. Sandstone slopes and flats, 15–1 030 m, SW, LB, SE (Hermanus to Uitenhage).•

microscias Benth. ex Harv. (incl. **R. parviflora** (E.Mey.) Druce) Like **R. leucoscias** but flowers smaller and bracts ovate-lanceolate, acute. July–Sept. Sandstone slopes, 160–400 m, LB, SE (Riversdale to Humansdorp).•

A.' Plants erect, sprawling or climbing; flowers in racemes
B. Leaflets broad, ovate-rhomboid

argentea (Thunb.) Harv. Woody, climbing shrub. Leaves pinnately 3-foliolate, leaflets broadly ovate, leathery, densely grey-hairy beneath. Flowers yellow. Oct.–Mar. Coastal forest margins, 360–1 200 m, SE (Knysna to E Cape).

arida C.H.Stirt. Sprawling, willowy, deciduous shrub to 1 m. Leaves pinnately 3-foliolate, leaflets ovate-elliptic, discolorous, glandular. Flowers yellow. Sept.–Oct. Shale band in fynbos, 260–450 m, NW (Gifberg and Matsikamma Mtns).•

caribaea (Jacq.) DC. Prostrate or climbing shrublet. Leaves pinnately 3-foliolate, leaflets ovate-rhomboid. Flowers yellow with purple venation outside of standard petal. Dec.–Apr. Coastal forests, below 600 m, SE (George to tropical Africa).

harmsiana Schltr. ex Zahlbr. Slender, climbing shrub. Leaves pinnately 3-foliolate, leaflets ovate-rhomboid, shortly hairy, discolorous. Flowers yellow. Feb.–May. Sandstone slopes, 400–980 m, SE (Humansdorp to KwaZulu-Natal).

viscidula Steud. Erect or straggling shrublet to 30 cm. Leaves pinnately 3-foliolate, leaflets ovate to subrotund, glandular. Flowers yellow. Aug.–Nov. Sandstone slopes, 1 220 m, NW (Namaqualand to Tulbagh). **gce**

B.' Leaflets narrow, linear to elliptic

angustifolia (Jacq.) DC. Woody, climbing shrub. Leaves pinnately 3-foliolate, leaflets narrowly lanceolate, shortly stalked, tomentose below. Flowers yellow. Oct. Fynbos, SW (Caledon).•

bullata Benth. ex Harv. Sprawling shrublet to 30 cm. Leaves pinnately 3-foliolate, leaflets small, oblong, glandular. Flowers yellow. July–Dec. Sandstone slopes, 600–1 160 m, NW, SW (Namaqualand to Hex River Mtns). **gce**

capensis (Burm.f.) Schinz Decumbent, resprouting, prostrate to twining shrub. Leaves pinnately 3-foliolate, conspicuously stipulate, leaflets oblong-elliptic. Flowers yellow. Aug.–Mar. River banks, below 660 m, SW, AP, KM, LB, SE (Cape Peninsula to E Cape).

ciliata (Thunb.) Schinz Sprawling, resprouting shrublet or dwarf shrub to 30 cm. Leaves pinnately 3-foliolate, leaflets elliptic. Flowers yellow. Oct.–Mar., May–June. Sandstone slopes and flats, 230–1 330, LB, SE (Heidelberg to E Cape).

ferulifolia Benth. ex Harv. (incl. **R. pinnata** Harv.) Prostrate to sprawling, woody subshrub to 10 cm. Leaves pinnately 5–9-foliolate or decompound, leaflets linear to lanceolate. Flowers yellow. July–Jan. Sandy flats and lower slopes, below 300 m, NW, SW, AP, SE (Piketberg to Humansdorp).•

totta (Thunb.) DC. Trailing or climbing shrub. Leaves pinnately 3-foliolate, leaflets oblong-lanceolate, hispidulous. Flowers yellow. Sept.–Mar. Grassland, 240–1 080 m, AP, SE (Gansbaai to Limpopo).

***ROBINIA** L. ± 10 spp., America, Europe

***pseudoacacia** L. BLACK LOCUST, WITAKASIA Deciduous tree, 3–25 m. Leaves imparipinnate, leaflet pairs 4–6, stipules paired, spinose. Flowers in pendulous panicles, white, fragrant. Pods thin, straight, reddish brown, constricted between seeds, dehiscent; remaining on tree over winter. Sept.–Nov. River banks, dongas, roadsides, SW, KM, SE (invasive weed from N America, Cape Peninsula, eastern southern Africa).

SCHOTIA Jacq. BOERBOON ± 18 spp., tropical and southern Africa

afra (L.) Thunb. Much-branched shrub or tree, 3–7 m. Leaves pinnate, leaflet pairs 6–18. Flowers in congested panicles, red or pink, filaments free. Aug.–Oct. Karroid scrub, often along dry watercourses, KM, LB, SE (Little Karoo to Port Elizabeth and E Cape).

latifolia Jacq. BOSBOERBOON Small, slender tree, 3–5 m. Leaves pinnate, leaflet pairs 3–5. Flowers in open panicles, pink to red, filaments united below. Nov.–Jan. Forest scrub, AP, SE (Vleesbaai to E Cape).

SENEGALIA Raf. THORN TREE, DORINGBOOM ± 200 spp., mainly pantropical and subtropical

caffra (Thunb.) P.J.H.Hurter & Mabb. (= *Acacia caffra* (Thunb.) Willd.) KATDORING, GEWONE HAAKDORING Armed shrub or tree to 14 m, spines hooked. Leaves bipinnate. Flowers in cylindrical spikes, creamy yellow. Pods flat, constricted between seeds. Dec.–Mar. Karroid scrub, stream banks, NW, KM, SE (Clanwilliam, Oudtshoorn to Limpopo).

*__SESBANIA__ Scop. SESBANIA, RATTLEPOD ± 50 spp., widespread in tropics and subtropics

*__punicea__ (Cav.) Benth. RED SESBANIA Deciduous shrub to 4 m. Leaves pinnate, leaflets oblong. Flowers in axillary racemes, red and orange. Pods 4-winged, pungent. Throughout the year. Disturbed and marshy places, SW, AP, LB, SE (S American weed).

*__SPARTIUM__ L. 1 sp., Mediterranean region and SW Europe.

*__junceum__ L. SPANISH BROOM, SPAANSE BESEM Unarmed shrub to 4 m, with long, slender, cylindrical, almost leafless branches. Leaves simple, blue-green, silky below, Flowers in terminal racemes, yellow. Pods flattened, initially white, silky hairy, glabrescent, dehiscent. Aug.–Nov. Roadsides, urban open spaces, wasteland, fynbos, NW, SW, AP, KM, LB, SE (Cape Peninsula to E Cape and Gauteng).

STIRTONANTHUS B.-E.van Wyk & A.L.Schutte• 3 spp., SW Cape

chrysanthus (Adamson) B.-E.van Wyk & A.L.Schutte Single-stemmed, reseeding shrub to 4 m. Leaves 1-foliolate, subrotund, finely felted. Flowers crowded at branch tips, yellow, bracts 6–8 mm, clasping base of calyx. Pods inflated. Aug.–Sept. Mountain fynbos, stream banks, 800–1 500 m, KM (Klein Swartberg).•

insignis (Compton) B.-E.van Wyk & A.L.Schutte Multistemmed, resprouting shrub to 2 m. Leaves 1-foliolate, broadly obovate, closely felted. Flowers crowded at branch tips, yellow, bracts 10–13 mm, not clasping base of calyx. Pods compressed. Oct.–Nov. Arid fynbos, 800–1 200 m, KM (Kwadouwsberg and Waboomsberg).•

taylorianus (L.Bolus) B.-E.van Wyk & A.L.Schutte Like **S. chrysanthus** but leaves obovate to elliptic and bracts 3 mm, not clasping base of calyx. Sept. Mountain fynbos, stream banks, 700–1 500 m, KM (Groot Swartberg).•

SUTHERLANDIA R.Br. ex W.T.Aiton = **LESSERTIA**

TEPHROSIA Pers. ± 400 spp., pantropical, mostly Africa

capensis (Jacq.) Pers. Straggling subshrub, thinly hairy; bracts minute, triangular, persistent. Leaves pinnate, leaflets linear-elliptic; stipules small, triangular, 1–3-veined. Flowers scattered in slender, pedunculate racemes, pink or purple, 8–10 mm long. Aug.–June. Sandy or grassy slopes and flats, below 860 m, SW, AP, KM, LB, SE (Cape Peninsula to E Cape).

grandiflora (Aiton) Pers. ROOI-ERTJIE Resprouting shrub to 1.5 m, thinly hairy; bracts large, ovate, deciduous. Leaves pinnate, leaflets elliptic-obovate; stipules large, ovate, many-veined. Flowers crowded or subumbellate in pedunculate racemes, pink or magenta, 15–20 mm long. Aug.–Oct. Scrub and forest margins, 450–1 000 m, SE (Humansdorp to KwaZulu-Natal).

stricta (L.f.) Pers. Like **T. capensis** but flowers crowded on very short peduncles. Sept.–Oct. Sandy slopes, LB, SE (Swellendam to Uitenhage).•

TRIFOLIUM L. WILD CLOVER ± 250 spp., nearly worldwide but mainly N temperate

burchellianum Ser. Prostrate perennial rooting at nodes, 30–60 cm. Leaves 3-foliolate, leaflets obcordate, finely toothed. Flowers subsessile in pedunculate heads, purple, calyx rupturing in fruit. Sept.–Mar. Grasslands and forest margins, 60–1 830 m, KM, LB, SE (Swellendam to tropical Africa).

stipulaceum Thunb. Softly hairy annual, 8–15 cm. Leaves 3-foliolate, leaflets obovate, finely toothed, sparsely hairy. Flowers sessile in shortly pedunculate heads, white or red, calyx persistent and enclosing fruit, lobes awn-like. Oct.–Nov. Coastal sands and grasslands, SW, SE (Saldanha Bay and Uitenhage to Port Elizabeth).•

VACHELLIA Wight & Arn. THORN TREE, DORINGBOOM ± 160 spp., mainly pantropical and subtropical

karroo (Hayne) Banfi & Galasso (= *Acacia karroo* Hayne) SWEET THORN, SOETDORING Armed shrub or small tree to 12 m, spines straight. Leaves bipinnate. Flowers in globose heads, bright yellow. Pods flat, falcate, constricted between seeds. Nov.–Dec. Karroid scrub, sandy soil, NW, SW, KM, LB, SE (throughout southern Africa).

VIGNA Savi WILD SWEET PEA ± 150 spp., pantropical, mostly palaeotropical

vexillata (L.) A.Rich. (incl. **V. debilis** Fourc.) Sprawling, usually twining, retrorsely hairy or glabrescent subshrub. Leaves pinnately 3-foliolate, leaflets linear-oblong (sometimes sublanceolate) to ovate. Flowers 2–4 on elongate peduncles, greenish white tinged magenta. Oct.–Mar. Grasslands, SE (Knysna to pantropical).

VIRGILIA Poir. KEURBOOM 2 spp., W and E Cape

divaricata Adamson Small tree to 16 m. Leaves pinnate, leaflets glabrescent, oblong, obtuse to emarginate. Flowers in axillary racemes, violet with dark purple keel tip, bracts small, caducous before buds 5 mm long. Aug.–Nov. Forest margins, streamsides, below 1 200 m, KM, SE (Klein Swartberg, Kammanassie Mtns, George to E Cape; naturalized on Cape Peninsula).

oroboides (P.J.Bergius) Salter Small tree to 20 m. Leaves pinnate, leaflets finely hairy beneath, oblong, obtuse to acute. Flowers in axillary racemes, pale pink or white with pale pink, yellowish green or dark purple keel tip, bracts large, persistent until buds 10 mm long. Mainly Jan.–Apr. Forest margins, streamsides, below 1 200 m, SW, LB, SE (Cape Peninsula to George).•

WIBORGIA Thunb. PENNY POD 10 spp., N and W Cape **gce**

A. Branches glabrous

fusca Thunb. Erect or spreading, somewhat thorny shrub, 0.6–1.5 m, branches glabrous, greyish. Leaves 3-foliolate, leaflets oblanceolate-apiculate. Flowers in terminal racemes, pale greenish yellow. Fruit with an upper wing, 12–30 × 9–15 mm. Aug.–Oct. Mountain and lowland fynbos, below 1 400 m, NW, SW (Namaqualand to Malmesbury). **gce**

mucronata (L.f.) Druce Erect, woody shrub to 1.5 m, with strong, rigid, somewhat thorny, young branches, usually reddish or yellow. Leaves 3-foliolate, leaflets lanceolate, glabrous. Flowers in terminal racemes, pale yellow. Fruit with >2 mm wide upper wing, no lateral wing. Aug.–Oct. Renosterbos-fynbos scrub, karroid scrub, river valleys, sandy or clayey soil, 160–1 260 m, NW, SW, KM (Namaqualand to Montagu). **gce**

tenuifolia E.Mey. Like **W. tetraptera** but flowers pinkish or mauve. Sept.–Nov. Renosterbos-fynbos scrub, 160–1 000 m, SW, KM, LB (Bredasdorp to Riversdale, Little Karoo).•

tetraptera E.Mey. Erect, thorny shrub, 0.4–1.5 m, branches glabrous. Leaves 3-foliolate, leaflets obovate. Flowers in terminal racemes, cream-coloured to pale greenish yellow. Fruit with con-

spicuous dorsal, ventral and lateral wings, papery, 15–20 × 10–14 mm. Sept.–Nov. Renosterbos-fynbos scrub, 160–1 000 m, NW, SW (Bokkeveld Mtns to Malmesbury and Hex River Valley).•

sp. 1 Like **W. mucronata** but shrub small, spreading, woody, up to 50 cm, branches strong, thorny, leaves sparsely hairy, greyish green and flowers pale yellow with a pink standard back. July–Aug. Karroid scrub, KM (Anysberg).•

A.' Branches pubescent, at least when young

leptoptera R.Dahlgren Rigid, thorny shrublet, 0.3–1.2 m, branches pubescent. Leaves 3-foliolate, leaflets oblanceolate-obovate, densely grey-silky. Flowers in thorny, terminal racemes, pale yellow. Fruit with a dorsal crest, reticulate, 7–12 × 6–9 mm. July–Sept. Renosterbos-fynbos scrub, 130–250 m, NW, SW (Cedarberg to Darling).•

monoptera E.Mey. Like **W. leptoptera** but leaves sparsely hairy or glabrous and fruit with a well-developed dorsal wing 4–5 mm broad. July–Sept. Karroid scrub, renosterbos-fynbos scrub, 500–1 160 m, NW (Namaqualand to Clanwilliam). **gce**

obcordata (P.J.Bergius) Thunb. Slender, stiff or willowy shrub, 1.5–3 m, branches pubescent. Leaves 3-foliolate, leaflets oblanceolate-obcordate, sparsely hairy beneath. Flowers in terminal racemes, bright yellow. Fruit with narrow dorsal crest, 7–12 × 4–7 mm. Aug.–Oct. Sandy flats and slopes, 50–800 m, NW, SW, LB (coastal northern Namaqualand and Bokkeveld Mtns to Mossel Bay). **gce**

sericea Thunb. Like **W. leptoptera** but fruit with reticulate coalescing into a lateral ridge or wing. May–Sept. Renosterbos-fynbos scrub, arid fynbos, 660–1 330 m, NW, KM (Namaqualand to Cedarberg and Witteberg). **gce**

WIBORGIELLA Boatwr. & B.-E.van Wyk 9 spp., mainly winter-rainfall S Africa

A. Short-lived pyrophytes with green branches

inflata (Bolus) Boatwr. & B.-E.van Wyk (= *Lebeckia inflata* Bolus) Small, erect or decumbent, short-lived herb to 30 cm. Leaves 3-foliolate, petiole not tuberculate. Flowers yellow, turning purple, calyx short, standard petal upright. Pods oblong, inflated, dehiscent. Sept.–Nov. Mountain fynbos, recently burnt vegetation, 40–750 m, SW (Cape Peninsula to Hermanus).•

vlokii Boatwr. & B.-E.van Wyk Small, erect or decumbent, short-lived herb to 15 cm. Leaves 3-foliolate, petiole not tuberculate. Flowers yellow, turning orange, calyx short, standard petal upright. Pods oblong, laterally compressed, dehiscent. Nov. Deep, peaty soil in recently burnt vegetation, LB (Langeberg).•

A.' Rigid shrubs or resprouting shublets with brown branches

bowieana (Benth.) Boatwr. & B.-E.van Wyk (= *Lebeckia bowieana* Benth.) Erect, rigid shrub to 1.5 m. Leaves 3-foliolate, petiole tuberculate. Flowers bright yellow, calyx relatively long, standard petal upright. Pods ovate to lanceolate, inflated, dehiscent. May–July. Renosterbos-fynbos scrub, 250 m, SW, LB (Robertson to Bredasdorp).•

dahlgrenii Boatwr. & B.-E.van Wyk Rigid shrublet to 1 m. Leaves 3-foliolate, petiole tuberculate. Flowers pinkish blue, calyx short, wings much longer than keel, down curved, standard petal upright. Pods narrowly ovate, inflated, dehiscent. Aug. Saldanha limestone strandveld, SW (Jacobsbaai to Hoedjies Bay, Langebaan and Hopefield)•

fasciculata (Benth.) Boatwr. & B.-E.van Wyk (= *Lebeckia fasciculata* Benth.) Erect, rigid shrub to 1 m. Leaves 3-foliolate, petiole tuberculate. Flowers yellow, calyx short, standard petal reflexed, keel petal strongly upcurved apically. Pods linear, inflated, dehiscent. Sept.–Nov. Lowland fynbos and renosterveld, 260 m, LB (Albertinia to Mossel Bay).•

humilis (Thunb.) Boatwr. & B.-E.van Wyk (= *Lebeckia humilis* (Thunb.) R.Dahlgren) Erect or decumbent shrublet to 50 cm. Leaves 3-foliolate, petiole tuberculate. Flowers yellow, calyx short, standard petal reflexed. Pods elliptic to obovate, distinctly stipitate, inflated, indehiscent. Sept.–Nov. Sandy, rocky soils, often near streams, fynbos, 480–800 m, NW (Gifberg and Nieuwoudtville).•

leipoldtiana (Schltr. ex R.Dahlgren) Boatwr. & B.-E.van Wyk (= *Lebeckia leipoldtiana* Schltr. ex R.Dahlgren) Erect, rigid shrub to 1.2 m. Leaves 3-foliolate, petiole tuberculate. Flowers bright yellow, calyx short, standard petal reflexed. Pods oblanceolate to elliptic, inflated, dehiscent. Aug.–Oct. Renosterbos-fynbos scrub, 600–850 m, NW (Namaqualand to Sutherland). **gce**

mucronata (Benth.) Boatwr. & B.-E.van Wyk (= *Lebeckia leptophylla* Benth., *L. mucronata* Benth.) Resprouting, erect shrublet to 1.5 m. Leaves 3-foliolate, petiole not tuberculate. Flowers yellow, calyx short, standard petal brown or orange on back, upright. Pods linear, inflated, dehiscent. Sept.–Nov. Mountain fynbos, 300–750 m, LB, SE (Swellendam to Grahamstown).

sessilifolia (Eckl. & Zeyh.) Boatwr. & B.-E.van Wyk (= *Lebeckia sessilifolia* (Eckl. & Zeyh.) Benth.) Erect, rigid shrub to 1.5 m. Leaves 3-foliolate, petiole tuberculate. Flowers bright yellow, turning orange, calyx relatively long, standard petal upright. Pods linear-oblong to lanceolate, inflated, dehiscent. Sept.–Nov. Limestone hills, 50–200 m, AP (De Hoop to Still Bay).•

XIPHOTHECA Eckl. & Zeyh.• SILVER PEA 10 spp., N and W Cape

A. Inflorescences shortly pedunculate

canescens (Thunb.) A.L.Schutte & B.-E.van Wyk Single-stemmed, reseeding, tree-like shrub to 2.5 m. Leaves 1-foliolate, narrowly elliptic, flat, silky. Flowers in pedunculate pairs at tips of lateral branchlets, yellow, calyx lobes shorter than tube, ovules 5–8. Aug.–Sept. Mountain fynbos, 660–780 m, NW (Bokkeveld Mtns).•

cordifolia A.L.Schutte & B.-E.van Wyk Single-stemmed, reseeding, tree-like shrub to 2.5 m. Leaves opposite, 1-foliolate, cordate, shortly hairy beneath. Flowers in pedunculate pairs at tips of lateral branchlets, yellow, calyx intrusive, lobes slightly longer than tube, ovules 4–6. ? Mountain fynbos, streamsides, 1 330–1 660 m, NW (Hex River Mtns: Milner Kloof).•

elliptica (DC.) A.L.Schutte & B.-E.van Wyk Multistemmed, resprouting shrub to 1 m like **X. canescens** but leaves elliptic with margins slightly revolute. Oct.–Dec. Mountain fynbos, 360–1 400 m, SW (Wemmershoek Mtns to Caledon Swartberg).•

phylicoides A.L.Schutte & B.-E.van Wyk Multistemmed, resprouting shrub to 1.2 m. Leaves 1-foliolate, elliptic to narrowly elliptic, margins recurved, glabrescent above, densely silky hairy beneath. Flowers in pedunculate pairs crowded along branches, yellow, calyx lobes ± as long as tube, ovules 2. May, after fire. Mountain fynbos, 500–800 m, SE (Outeniqua Mtns).•

rosmarinifolia A.L.Schutte Like **X. phylicoides** but leaves narrower, flowers smaller and peduncle, pedicel and bracts shorter. Aug. Renosterveld, silcrete hills, 240 m, AP (Bredasdorp).•

A.' Inflorescences sessile

fruticosa (L.) A.L.Schutte & B.-E.van Wyk Single-stemmed, reseeding, tree-like shrub to 2 m or multistemmed, resprouting shrub to 70 cm. Leaves 1-foliolate, elliptic, densely silvery silky. Flowers crowded in sessile, head-like, terminal clusters nested among leaves, yellow, calyx lobes shorter than tube, ovules 2 or 3. June–Sept. Sandstone slopes in fynbos, 100–1 200 m, NW, SW, KM (Hex River Mtns, Cape Peninsula to Touwsberg).•

guthriei (L.Bolus) A.L.Schutte & B.-E.van Wyk Single-stemmed, reseeding shrub to 30 cm like **X. fruticosa** but leaves narrowly elliptic and thinly velvety. July. Renosterveld and lowland fynbos, below 250 m, SW (Botrivier Mtns to Potberg).•

lanceolata (E.Mey.) Eckl. & Zeyh. Single-stemmed, reseeding shrublet to 60 cm like **X. fruticosa** but calyx lobes longer than tube. July–Sept. Renosterveld, 60–200 m, SW (Kalbaskraal and Paardeberg to Stellenbosch).•

reflexa (Thunb.) A.L.Schutte & B.-E.van Wyk Multistemmed, prostrate to straggling, resprouting shrub to 50 cm. Leaves often reflexed, 1-foliolate, ovate-lanceolate, silvery silky. Flowers in sessile clusters crowded at branch tips, yellow, calyx lobes longer than tube, ovules 5–7. Aug.–Nov. Lowland fynbos, below 300 m, NW, SW, AP (Piketberg to Elim).•

tecta (Thunb.) A.L.Schutte & B.-E.van Wyk Multistemmed, resprouting shrub to 1 m. Leaves 1-foliolate, elliptic to suborbicular, silky hairy. Flowers in sessile pairs clustered along branches, yellow, calyx lobes shorter than tube, wing petals with a pocket-like fold, ovules 5–8. May–Sept. Mountain fynbos, 500–1 400 m, NW, SW (Clanwilliam to Stellenbosch).•

ZORNIA J.F.Gmel. ± 80 spp., pantropical and warm temperate

capensis Pers. Slender, wiry, glandular-punctate subshrub. Leaves 2- or 4-foliolate, leaflets elliptic; stipules leafy, peltate. Flowers in interrupted spikes, concealed by large, peltate bracts, yellow. Pods segmented and fragmenting, reticulate-tuberculate. Nov.–Feb. Grasslands, 400–1 000 m, SE (Knysna to Mpumalanga).

FLACOURTIACEAE = ACHARIACEAE

FRANKENIACEAE

FRANKENIA L. SEA-HEATH, SANDANGELIER ± 75 spp., cosmopolitan in saline habitats

pulverulenta L. Spreading annual or perennial. Leaves shortly petiolate, ovate, flat or revolute. Flowers numerous, solitary in branch forks, lilac. Sept.–Jan. Salt pans and brackish places, NW, SW, AP, KM, LB, SE (widespread).

repens (P.J.Bergius) Fourc. Prostrate perennial. Leaves subsessile, subterete with revolute margins. Flowers in congested apical cymes, pink. Sept.–Jan. Salt pans and brackish places, NW, SW, AP, LB, SE (Namaqualand to Port Elizabeth). **gce**

FUMARIACEAE

1. Leaves not tendrilliferous; fruiting pedicels suberect, thickened; fruit a subglobose nutlet with woody endocarp ..... **Fumaria**
1.' Some or all leaves tendrilliferous; fruiting pedicels recurved, not thickened; fruit a capsule or achene, without woody endocarp:
2. Ovules and seeds 2 or more; fruit a capsule; spur on upper petal ± as long as wide or shorter ..... **Cysticapnos**
2.' Ovules and seeds solitary; fruit a pubescent or scabridulous achene; spur on upper petal ± twice as long as wide:
3. Pedicels ± 1.5 mm long; achene disciform, sparsely puberulous ..... **Discocapnos**
3.' Pedicels 3–4 mm long; achene obovate-trigonous, densely scabridulous ..... **Trigonocapnos**

CYSTICAPNOS Mill. (= *PHACOCAPNOS*) AFRICAN FUMITORY 3 spp., S Africa

cracca (Cham. & Schltdl.) Lidén (= *Phacocapnos cracca* (Cham. & Schltdl.) Bernh.) Glaucous, straggling annual to 1 m. Leaves bipinnate, often tendrillous, segments cuneate, trifid. Flowers in racemes, petals connivent, upper shortly saccate at base, pink with purple tips. Fruits compressed-lanceolate, drooping. Sept.–Nov. Damp slopes, NW, SW, AP, KM, LB, SE (Kamiesberg, Bokkeveld Mtns to Port Elizabeth). **gce**

vesicaria (L.) Fedde (= *Cysticapnos grandiflora* Bernh., *Phacocapnos burmanii* (Eckl. & Zeyh.) Hutch.) KLAPPERTJIES Glaucous, straggling annual to 1 m. Leaves bipinnate, often tendrillous, segments cuneate, trifid. Flowers in racemes, bilabiate, petals broadly winged and flaring, upper shortly saccate, pink. Fruits inflated-ovoid, nodding. Aug.–Oct. Sandy flats and slopes, NW, SW, AP, KM (Namaqualand to De Hoop). **gce**

DISCOCAPNOS Cham. & Schltdl.• 1 sp., SW Cape

mundii Cham. & Schltdl. Glaucous, straggling annual to 1 m. Leaves bipinnate, often tendrillous, segments cuneate, incised. Flowers in racemes, petals connivent, upper spurred at base, pink with purple tips. Fruits discoid with peripheral wing, nodding. Aug.–Dec. Forest margins, SW, SE (Cape Peninsula, Hottentots Holland and Outeniqua Mtns).•

***FUMARIA** L. FUMITORY ± 55 spp., E Africa and Europe to India

***muralis** Sond. ex W.D.J.Koch DUIWELSKERWEL Sprawling annual to 1 m. Leaves bipinnate, segments cuneate, incised. Flowers in racemes, petals connivent, upper with a globose spur at base, pink with purple tips. Fruits globose, erect. May–Oct. Weed of waste places, NW, SW, AP, KM, LB, SE (widespread European weed).

TRIGONOCAPNOS Schltr. HEKELTJIES 1 sp., W and N Cape **gce**

lichtensteinii (Cham. & Schltdl.) Lidén (= *Trigonocapnos curvipes* Schltr.) Glaucous, straggling annual to 1 m. Leaves bipinnate, often tendrillous, segments elliptic. Flowers in racemes, petals connivent, upper spurred at base, pink with purple tips. Fruits asymmetric, boat-shaped, nodding on incurved pedicels. Aug.–Sept. Rocky slopes, NW (W Karoo and Bokkeveld Mtns to Biedouw Mtns). **gce**

GEISSOLOMATACEAE•

GEISSOLOMA Lindl. ex Kunth• 1 sp., SW Cape

marginatum (L.) Juss. Densely leafy shrub to 1 m, thinly woolly on young parts. Leaves decussate, subsessile, ovate, margins revolute. Flowers solitary in axils, pink. June–Sept. Moist sandstone slopes, 600–1 200 m, LB (Langeberg: Swellendam to Riversdale).•

GENTIANACEAE

1. Flowers yellow or white; ovary 2-locular:
 2. Stamens inserted at base of tube, included; style without stigmatic swelling ..... **Lagenias**
 2.' Stamens inserted midway in tube or above, usually exserted; style with stigmatic swelling .... **Sebaea**
1.' Flowers pink; ovary 1-locular:
 3. Calyx keeled; plants glabrous ..... **Chironia**
 3.' Calyx rounded; plants pubescent ..... **Orphium**

CHIRONIA L. CENTAURY, BITTERWORTEL ± 30 spp., Africa and Madagascar

A. Ovary and fruits obtuse

arenaria E.Mey. Like **C. linoides** but typically stouter with prominent nodes, to 25 cm, and corolla lobes suborbicular. Dec.–Jan. Sandy slopes, NW, KM (Clanwilliam to Anysberg).•

baccifera L. CHRISTMAS BERRY, AAMBEIBOSSIE Shrublet to 1 m. Leaves linear, spreading. Flowers pink, corolla tube 3–5 mm long, constricted above ovary, ovary and fruits rounded, stigma truncate. Fruits berry-like. Nov.–Feb. Sandy flats and slopes, NW, SW, AP, LB, SE (Namaqualand to KwaZulu-Natal).

linoides L. Shrublet to 90 cm. Leaves linear, erect or spreading. Flowers pink, corolla tube 3–5 mm long, ovary and fruits rounded, stigma truncate. Oct.–Jan. Sandy or marshy flats and slopes, NW, SW, KM, LB (Namaqualand to Cape Peninsula to Oudtshoorn and Bredasdorp). **gce**

A.' Ovary and fruits acute
B. Plants straggling; leaves spreading, ovate-lanceolate, cordate

melampyrifolia Lam. Somewhat sticky, straggling shrublet. Leaves ovate-lanceolate, cordate at base, spreading, tips hooked. Flowers pink, corolla tube 7–12 mm long, ovary and fruits acuminate and glutinous, style truncate. Sept.–Jan. Shady, damp, sandstone slopes, SW, LB, SE (Hottentots Holland Mtns to E Cape).

peduncularis Lindl. Straggling perennial to 1 m. Leaves ovate-lanceolate, cordate at base. Flowers pink, corolla tube ± 16 mm long with a long, narrow neck, ovary and fruits acuminate, stigma broadly peltate. Oct.–Dec. Damp, shaded places, SE (Knysna to E Cape).

serpyllifolia Lehm. Wiry shrublet to 50 cm. Leaves ovate, small, 2–7 mm long, flexed upward and hooked at tips, Flowers pink, corolla tube constricted at neck, ± 8 mm long, ovary and fruits acuminate, stigma bifid. Dec.–Jan. Damp places, SE (Humansdorp to E Cape).

B.' Plants ± erect; leaves suberect, linear-elliptic

decumbens Levyns Decumbent perennial rooting at nodes. Leaves linear to elliptic. Flowers pink, corolla tube ± 13 mm long, ovary and fruits acuminate, stigma broadly peltate. Oct.–Jan. Coastal flats and vleis, SW, AP, LB, SE (Cape Peninsula to E Cape).

jasminoides L. Erect perennial to 90 cm. Leaves linear to elliptic, erect. Flowers pink, corolla tube 9–14 mm long, calyx lobed to near base, sepals attenuate, ovary and fruits acuminate, stigma truncate. Aug.–Jan. Marshy slopes, SW, AP, LB (Bain's Kloof to Langeberg).•

stokoei I.Verd. Like **C. jasminoides** but flowers conspicuously bibracteate below ovary and calyx lobes acute (not acuminate). Sept.–Oct. Sandstone slopes at high alt., SW (Hottentots Holland to Kleinrivier Mtns).•

tetragona L.f. Sticky, willowy annual or biennial to 60 cm. Leaves linear to oblong. Flowers sticky, pink, corolla tube 6–10 mm long, thickened in throat, calyx lobed to halfway, strongly ribbed or winged, ovary and fruits acuminate, stigma truncate. Oct.–Jan. Coastal sands and limestone, SW, AP, LB, SE (Cape Peninsula to E Cape).

LAGENIAS E.Mey.• 1 sp., SW Cape

pusillus (Eckl. ex Cham.) E.Mey. (= *Sebaea pusilla* Eckl. ex Cham. Sub-succulent annual to 10 cm. Leaves linear-lanceolate. Flowers mostly 5-lobed, yellow, small, lobes erect, calyx lobes keeled, stamens included, inserted at base of tube, style without swelling. Sept.–Dec. Sandstone slopes in seeps, NW, SW (Bokkeveld Mtns to Houwhoek Mtns).•

ORPHIUM E.Mey.• SEA-ROSE, TERINGBOS 1 sp., SW Cape

frutescens (L.) E.Mey. Pubescent shrublet to 80 cm. Leaves oblanceolate, margins revolute. Flowers 1 or 2 terminal and in upper axils, shining deep pink, anthers twisted, porose. Nov.–Feb. Coastal sands and pans, NW, SW, AP, LB, SE (Lambert's Bay to George).•

SEBAEA Sol. ex R.Br. YELLOWWORT, NAELTJIESBLOM ± 40 spp., mainly Africa, also India and Australasia

A. Filaments inserted below corolla sinuses

exacoides (L.) Schinz Annual to 30 cm. Leaves ovate. Flowers 5-lobed, yellow or cream-coloured with orange streaks in throat, calyx lobes strongly winged, stamens inserted below sinuses, style swelling below middle. Aug.–Oct. Sandy flats and slopes, NW, SW, AP, LB (Bokkeveld Mtns to Riversdale).•

membranacea A.W.Hill Like **S. rara** but to 15 cm, anthers with 3 glands. Dec. Sandstone slopes, NW (Namaqualand to Hex River Pass). **gce**

micrantha (Cham. & Schltdl.) Schinz Annual to 20 cm. Leaves ovate. Flowers 5-lobed, yellow, calyx lobes strongly winged, stamens inserted below sinuses, style swelling confluent with stigma. Sept.–Nov. Flats and slopes, NW, SW, AP, LB, SE (Clanwilliam to Port Elizabeth).•

rara Wolley-Dod Annual to 6 cm. Leaves lanceolate. Flowers 5-lobed, yellow, calyx lobes keeled, stamens inserted below sinuses, style swelling below or confluent with stigma. Oct. Sandy flats, SW, AP, LB (Cape Peninsula to Albertinia).•

A.' Filaments inserted in corolla sinuses
B. Petals 4

albens (L.f.) Roem. & Schult. Like **S. aurea** but calyx lobes rounded on back. Aug.–Nov. Damp, sandy, coastal flats, NW, SW, AP, LB (Piketberg to Albertinia).•

ambigua Cham. Annual to 20 cm. Leaves ovate. Flowers 4-lobed, yellow, calyx lobes keeled at tips, corolla tube longer than lobes, 3.5–6 mm long, style with a swelling. Sept.–Dec. Sandy coastal flats, SW, AP (Cape Peninsula to Agulhas).•

amicorum I.M.Oliv. & Beyers Annual to 50 cm. Leaves narrowly lanceolate. Flowers 4-lobed, yellow, calyx lobes slightly keeled, corolla tube shorter than lobes, ± 4 mm long. Oct.–Dec. Sheltered, S-facing, sandstone ledges, KM, SE (Klein Swartberg, Great Winterhoek Mtns).•

aurea (L.f.) Roem. & Schult. Annual to 30 cm. Leaves ovate. Flowers 4-lobed, yellow or white, calyx lobes keeled, corolla tube shorter than lobes, 2–6 mm long. Oct.–Dec. Sandy flats and slopes, NW, SW, AP, LB, SE (Pakhuis Mtns to Cape Peninsula to Humansdorp).•

capitata Cham. & Schltdl. Like **S. aurea** but flowers larger, calyx 6–10 mm long and petals 6.5–10 mm long. Oct.–Jan. Sandstone slopes, SW, LB, SE (Cape Peninsula to Great Winterhoek Mtns).•

laxa N.E.Br. Like **S. aurea** but delicate with numerous leaves scattered along thin, wiry stems and longer filaments, 2–2.5 mm. Sept.–Oct. Shaded sandstone slopes, LB (Langeberg: Swellendam to Riversdale).•

minutiflora Schinz Like **S. ambigua** but flowers white, smaller, petals 1–2.5 mm long and style without a swelling. Oct.–Dec. Damp, sandy, coastal flats, SW, AP, LB, SE (Cape Peninsula to E Cape).

schlechteri Schinz Like **S. ambigua** but flowers yellow or white and calyx lobes strongly keeled throughout. Aug.–Nov. Damp, sandy slopes, SW (Cape Peninsula to Botrivier).•

B.' Petals 5 or 6

elongata E.Mey. Tufted annual or biennial to 70 cm. Leaves in a basal rosette, ovate. Flowers 5-lobed, yellow, calyx lobes keeled, stamens inserted in sinuses, style swelling absent or below middle. Oct.–Dec. Sandstone slopes, SW, LB, SE (Riviersonderend Mtns to Humansdorp).•

fourcadei Marais Like **S. grisebachiana** but anthers with 3 glands. Oct.–Nov. Sandy slopes, LB, SE (Knysna to Humansdorp).•

grisebachiana Schinz Annual to 15 cm. Leaves ovate. Flowers 5-lobed, yellow, calyx lobes winged, stamens inserted in sinuses, style swelling below middle. July–Jan. Sandy flats and slopes, LB, SE (Swellendam to E Cape).

macrophylla Gilg Perennial to 75 cm. Leaves ovate. Flowers 5- or 6-lobed, yellow, calyx lobes keeled or winged, membranous, stamens inserted in sinuses, anthers with 3 glands or without glands, style swelling below middle. June–Dec. Mountain seeps, LB, SE (George to E Cape).

scabra Schinz Annual to 20 cm. Leaves ovate. Flowers 5-lobed, yellow, calyx lobes with strongly veined scabrid wings, stamens inserted in sinuses, style swelling below middle base. Sept. Sandy flats, SW, LB (Cape Peninsula to Riversdale).•

stricta (E.Mey.) Gilg Perennial to 60 cm. Leaves ovate, reflexed. Flowers 5-lobed, yellow, calyx lobes keeled, stamens inserted in sinuses, anthers with 2 basal glands, style swelling absent or small. Mar.–Oct. Sandstone slopes, LB, SE (Riversdale to E Cape).•

sulphurea Cham. & Schltdl. Like **S. fourcadei** but stigmas ligulate. Sept.–Nov. Sandstone slopes, SW, LB (Cape Peninsula to Riversdale).•

zeyheri Schinz Annual to 25 cm. Leaves ovate. Flowers 5-lobed, yellow, calyx lobes winged, stamens inserted in sinuses, style swelling confluent with stigma. Sept.–Nov. Sandy coastal flats, SW, AP, LB, SE (Cape Peninsula to KwaZulu-Natal).

GERANIACEAE

Pelargonium by P.J. Vorster

1. Flowers zygomorphic; upper sepal with nectariferous spur fused to pedicel; stamens 10 but only 2–7 with anthers ..... **Pelargonium**
1.' Flowers actinomorphic; nectariferous spur absent; stamens 10–15, all fertile or alternate ones without anthers:
2. Stamens 10 ..... **Geranium**
2.' Stamens 15 ..... **Monsonia**
a. Stems soft or slightly woody; petioles not spinescent ..... ***Monsonia* group**
a.' Stems thick and ± succulent; petioles spinescent ..... ***Sarcocaulon* group**

GERANIUM L. GERANIUM, CRANE'S-BILL ± 260 spp., cosmopolitan

caffrum Eckl. & Zeyh. Diffuse perennial. Leaves 3–5-lobed to base, long-petioled, finely adpressed-hairy. Flowers 1 or 2 on long, axillary peduncles, 20–30 mm diam., white or sometimes pale pink. Sept.–Jan. Damp places, NW, SW, LB, SE (Cold Bokkeveld to KwaZulu-Natal).

canescens L'Hér. Diffuse perennial, sprawling or suberect. Leaves 3–5-lobed three-quarters to base, long-petioled, finely adpressed-hairy. Flowers 1 or 2 on long axillary peduncles, 15–20 mm diam., white. Sept.–Oct. Dry slopes and stream banks, NW, SW, KM, LB (Grootwinterhoek Mtns and Cape Peninsula to Kammanassie Mtns).•

incanum Burm.f. Diffuse perennial with thickened taproot. Leaves 3–7-lobed to base with lobes pinnatisect to bipinnatisect, long-petioled, glabrous or sparsely hairy above, densely white-hairy beneath. Flowers 1 or 2 on axillary peduncles, 15–30 mm diam., white with dark veins or pink

to mauve. Mainly Aug.–Oct. Damp, mostly coastal sands, SW, AP, KM, LB, SE (Cape Peninsula to Port Alfred).

ornithopodon Eckl. & Zeyh. Clump-forming perennial with thick, woody rootstock. Leaves 5-lobed > halfway to base, sparsely hairy above. Flowers usually 2, on long, axillary peduncles, 15–20 mm diam., pale pink with darker veins or white. Oct.–Feb. Damp ground in scrub or forest margins, SW, LB, SE (Cape Peninsula to E Cape).•

MONSONIA L. (= *SARCOCAULON*) PARASOL, BOESMANSKERS ± 40 spp., Africa, Madagascar, SW Asia

Monsonia group

emarginata (L.f.) L'Hér. Sprawling or scrambling perennial with tuberous roots. Leaves entire, ovate to obovate, hairy. Flowers solitary on slender peduncles, cup-shaped, 15–20 mm diam., white, cream-coloured or pink. Mainly Sept.–Mar. Bushveld or scrubby grasslands SW, LB, SE (Cape Peninsula to E Cape).

speciosa L. SAMBREELTJIE Sprawling perennial with annual stems from a woody rhizome. Leaves subentire to digitately compound, subglabrous. Flowers solitary on long, stout peduncles, rotate, 25–65 mm diam., white to pink, deep pink beneath. Aug.–Nov. Clay and granite slopes and flats, mostly in renosterveld, NW, SW (Clanwilliam to Gordon's Bay).•

Sarcocaulon group

crassicaulis (Rehm) F.Albers (= *Sarcocaulon crassicaule* Rehm) NOERAP Spiny stem succulent to 50 cm, branches thicker than 10 mm, grey or greyish yellow. Leaves ovate to obovate, irregularly pinnatifid with margins crenate to dentate, usually tomentose. Flowers to 55 mm diam., pale to bright yellow, sepals with mucro > 2 mm. May–June. Rocky places, NW, KM (S Namibia to Cedarberg and Little Karoo). **gce**

salmoniflora (Moffett) F.Albers (= *Sarcocaulon salmoniflorum* Moffett) PINK CANDLE BUSH Spiny stem succulent to 40 cm, branches thinner than 4 mm, olive-green to grey. Leaves elliptic, entire. Flowers to 30 mm diam., pink to orange, petals twice as long as wide, sepals with mucro < 0.5 mm. Mainly Oct.–Dec. Stony flats and slopes, often on quartz patches, NW, KM (Namibia to Swartruggens and Swartberg). **gce**

spinosa L'Hér. (= *Sarcocaulon l'heritieri* Sweet) YELLOW CANDLE BUSH Spiny stem succulent to 80 cm, branches thinner than 10 mm, pale olive-green to grey. Leaves long- and short-petioled, obovate to round, emarginate, glaucous. Flowers to 35 mm diam., yellow, sepals with mucro > 2 mm. Aug.–Sept. Rocky slopes, NW (Richtersveld to Olifants River Valley). **gce**

PELARGONIUM L'Hér. PELARGONIUM, STORK'S-BILL, MALVA ± 250 spp., Africa, Madagascar, Middle East, Australia

A. Annuals or apparently so

chamaedryfolium Jacq. Sprawling annual. Leaves cordate, variously incised, ± 2.5 × 2 cm. Flowers 3–8 on short, axillary peduncles, ± 7 mm diam., pink, regular; hypanthium 2–3 mm long, ± as long as pedicel. Aug.–Jan. Disturbed places, mainly after fire, NW, SW (Clanwilliam to Caledon).•

columbinum Jacq. Prostrate annual. Leaves cordate with margins variously incised, silky hairy. Flowers 2–5 on wiry, axillary peduncles, ± 7 mm diam., purple; hypanthium 1.5–2.5(–5) mm long, much shorter than pedicel. Throughout the year. Cool disturbed places in mountains, NW, SW (Bokkeveld Mtns to Cape Peninsula).•

grossularioides (L.) L'Hér. Dwarf, ± prostrate annual. Leaves cordate or somewhat digitately lobed, often purplish, 5 × 4 cm. Flowers to 50, ± 8 mm diam., purple; hypanthium ± 3 mm long, shorter than pedicel. Throughout the year. Damp places, NW, SW, AP, KM, LB, SE (Kamiesberg and W Karoo to KwaZulu-Natal).

minimum (Cav.) Willd. Prostrate perennial with tuberous roots. Leaves silvery, simple to pinnatisect with linear segments, to 2 cm diam. Flowers to 8, ± 6 mm diam., white to very pale pink or purple; hypanthium very shallow and swollen. Aug.–Nov. Dry, open places, KM (Namibia and S Africa).

nanum L'Hér. Prostrate annual. Leaves cordate and variously lobed, 1.5–2 cm diam. Flowers to 6 on short, axillary peduncles, ± 8 mm diam., typically bicoloured with upper petals pink and lower whitish; hypanthium 1–3(–8) mm long, shorter than pedicel. Aug.–Dec. Dry, open places, NW, SW, LB, SE (?Namibia, Namaqualand to E Cape).

senecioides L'Hér. Annual to 40 cm, branching mainly from base. Leaves 2- or 3-pinnatifid, to 7 × 6 cm. Flowers 2–4 on short, axillary peduncles, 8–18 mm diam., white with purple marks on upper petals and purple-veined beneath; hypanthium 6–9 mm long, longer than the very short pedicel. Sept.–Nov. Deep sand, NW, SW, KM (Namaqualand to Cape Peninsula and Witteberg). **gce**

A.' Perennials, shrubs or geophytes
B. Tuberous geophytes without well-developed stems; leaves mostly in a basal tuft
C. Tubers with leathery, cracked bark; leaves in a basal tuft and on short branches, usually green at flowering; petals equal, obovate, sometimes fimbriate

anethifolium (Eckl. & Zeyh.) Steud. Geophyte with large, woody tuber. Leaves 2- or 3-pinnatisect, to 15 × 10 cm. Flowers 6–10 on long, stout, branching peduncles, 15–20 mm diam., yellowish pink; hypanthium 25–50 mm long, much longer than pedicel. Oct.–Dec. Sandstone slopes and flats, NW, SW (Bokkeveld Mtns to Cape Peninsula).•

caffrum (Eckl. & Zeyh.) Harv. Geophyte with large, woody tuber. Leaves deeply digitate with linear segments, ± 10 cm diam. Flowers to 27 on a stout peduncle, ± 25 mm diam., yellow-green to dark maroon, petals finely dissected; hypanthium 17–32 mm long, usually slightly longer than pedicel. Oct.–Mar. Grasslands, SE (Knysna to Grahamstown).

lobatum (Burm.f.) L'Hér. KANEELBOL Geophyte with hard, woody tuber. Leaves prostrate, ovate, ± lobed, softly hairy, to 30 cm diam. Flowers to 20 on a stout peduncle, 15–18 mm diam., usually black with yellow margins to petals, clove-scented at night; hypanthium 25–35 mm long, much longer than pedicel. Sept.–Nov. Clay and sandy flats and slopes, NW, SW, AP, LB, SE (Graafwater to Knysna).•

luridum (Andrews) Sweet Geophyte with large, woody tuber, to 80 cm. Leaves variously subdigitately divided, usually sparsely hairy, to ± 30 cm diam. Flowers to 60 on a stout peduncle, 25–40 mm diam., white, pale yellow, or pink; hypanthium 40–80 mm long, much longer than pedicel. Sept.–Apr. Grasslands, LB, SE (George to central Africa).

multiradiatum J.C.Wendl. Geophyte with large, woody tuber. Leaves 2- or 3-pinnatisect, segments ribbon-shaped, shortly hairy, margins slightly revolute, to 45 cm diam. Flowers to 30 on stout, branching peduncles, 15–18 mm diam., petals almost black with narrow, pale yellow margins, subsessile; hypanthium 25–35 mm long. Sept.–Mar. Open, usually sandy places, NW, SW (Clanwilliam to Cape Peninsula).•

pillansii Salter Geophyte with large, woody tuber. Leaves dry at flowering, variously pinnatifid, glaucous, to 12 × 8 cm. Flowers to 17 on long subterminal peduncles, open at night and scented, ± 20 mm diam., dirty yellow, subsessile; hypanthium to 60 mm long. Feb.–Apr. Rock crevices, NW, SW, KM, LB, SE (Gifberg to Langkloof).•

pulverulentum Colvill ex Sweet Geophyte with large, woody tuber. Leaves cordate and often quite deeply incised, glaucous, leathery, sparsely softly hairy. Flowers to 14, 15–20 mm diam., black or maroon with pale yellow margins on petals, subsessile; hypanthium 20–50 mm long. Sept.–Feb. Coastal grasslands, SE (Jeffreys Bay to KwaZulu-Natal).

radulifolium (Eckl. & Zeyh.) Steud. Geophyte with large tuber. Leaves bipinnatisect, flaccid, to 30 × 15 cm. Flowers to 20 on stout, branching peduncles, ± 20 mm diam., yellow to pinkish, subsessile; hypanthium 20–55 mm long. Aug.–May. Open places on well-drained soils, NW, SW, KM, LB, SE (S Namaqualand to Port Elizabeth). **gce**

schizopetalum Sweet MUISHONDBOSSIE Geophyte with large, woody tuber. Leaves pinnatifid, softly hairy, to 15 × 7 cm. Flowers to 20, 30–40 mm diam., pale yellow and variously tinged with purple, petals finely dissected; hypanthium 30–70 mm long, longer than pedicel. Oct.–Feb. Grasslands, SE (Humansdorp to Uitenhage).•

triste (L.) L'Hér. KANEELTJIE Geophyte with large, woody tuber. Leaves prostrate, 2- or 3-pinnatisect with linear segments, softly hairy, to 30 cm diam. Flowers to 20 on a stout peduncle, 15–18 mm diam., pale yellow with dark maroon to black centres, clove-scented at night; hypanthium 25–35 mm long, much longer than pedicel. Aug.–Feb. Sandy flats and slopes, NW, SW, AP (Namaqualand to Albertinia). **gce**

C.' Tubers with paper-like bark; leaves only in a basal tuft, usually dry at flowering; petals often narrow or unequal
D. Petals 2

asarifolium (Sweet) Louden Tuberous geophyte to 25 cm. Leaves dry at flowering, cordate, white-woolly below, to 10 × 8 cm. Flowers to 12 on branching peduncles, ± 10 mm diam., dark wine-red, subsessile, only 2 upper petals present; hypanthium 7–12 mm long. Nov.–May. Scrub, NW, SW (Piketberg to Sir Lowry's Pass).•

dipetalum L'Hér. Tuberous geophyte to 35 cm. Leaves dry at flowering, sometimes bipinnatisect with linear segments, to ± 12 × 5 cm. Flowers to 12 on branching peduncles, ± 15 mm diam., pink, petals spoon-shaped, only upper 2 present, subsessile; hypanthium 7–18(–50) mm long. Feb.–Apr. Coastal plains, SW, AP, SE (Betty's Bay to Keurboomsrivier).•

elandsmontanum E.M.Marais ex J.C.Manning & Goldblatt Tuberous geophyte to 15 cm. Leaves dry at flowering, trifoliolate, *Oxalis*-like, 1–2 cm diam. Flowers up to 4 on branching peduncles, ± 15 mm diam., pink with darker veins, only upper 2 petals present, somewhat spoon-shaped, subsessile; hypanthium 7–10 mm long. Apr.–May. Alluvial flats, SW (Bo-Hermon: Elandsberg Nature Reserve).•

ellaphiae E.M.Marais Tuberous geophyte to 30 cm. Leaves dry at flowering, mostly narrowly elliptic, to 12 × 2 cm. Flowers to 15 on branching peduncles, ± 12 mm diam., dark wine-red, only upper 2 petals present, subsessile; hypanthium 9–15 mm long. Nov.–Feb. Sandy soil in fynbos, NW, SW (Ezelsbank to Cape Peninsula).•

leipoldtii R.Knuth Tuberous geophyte to 30 cm. Leaves trifoliolate, to 20 cm diam. Flowers to 14 on branching peduncles, ± 12 mm diam., white, only 2 upper petals present, subsessile; hypanthium 7–14 mm long. Aug.–Nov. Dry outcrops in succulent vegetation, NW, KM (Namaqualand to Touws River). **gce**

saxatile J.C.Manning & Goldblatt Tuberous geophyte to 15 cm. Leaves present at flowering, many in a rosette, small, ovate to lyrate-pinnatisect. Flowers to 7 on branching peduncles, ± 15 mm diam., pink, only upper 2 petals present, subsessile, hypanthium 10–12 mm long. Nov.–Dec. Sandstone pavements, SW (Elandskloof Mtns).•

ternifolium Vorster Tuberous geophyte to 25 cm. Leaves dry at flowering, trifoliolate, ± 3 cm diam. Flowers to 7 on branching peduncles, ± 15 mm diam., white to pink, only upper 2 petals present, somewhat spoon-shaped, subsessile; hypanthium 7–10 mm long. Dec.–Apr. Coastal plains, SW (Moorreesburg to Stellenbosch).•

D.' Petals 4

triandrum E.M.Marais Tuberous geophyte to 20 cm. Leaves dry at flowering, ovate, to 5 cm diam. Flowers to 30 on branching peduncles, 25–30 mm diam., pale yellow, petals 4 with upper larger and somewhat spoon-shaped, subsessile; hypanthium 23–32 mm long. Oct.–Nov. Succulent veld and dry fynbos, NW (Clanwilliam to Tanqua Karoo). **gce**

D." Petals 5
E. Lower petals concealing stamens

gracillimum Fourc. Tuberous geophyte to 27 cm. Leaves dry at flowering, palmately compound, ± 6 cm diam. with segments 2–4 mm wide. Flowers to 16 on branching peduncles, ± 10 mm diam., white to pink, subsessile, 3 lower petals enclosing stamens; hypanthium (15–)22–35 mm long. Jan.–Mar. Rocky sandstone slopes, KM, SE (Swartberg to Baviaanskloof Mtns).•

luteolum N.E.Br. Tuberous geophyte to 30 cm. Leaves dry at flowering, palmate, ± 4 cm diam. with segments to 5 mm wide. Flowers to 16 on branching peduncles, ± 15 mm diam., pale yellow, subsessile, 3 lower petals enclosing stamens; hypanthium 13–24 mm long. Nov.–Mar. Diverse habitats, NW, SW, KM, LB, SE (Namaqualand to Steytlerville). **gce**

rapaceum (L.) L'Hér. Tuberous geophyte to 40 cm. Leaves sometimes dry at flowering, bipinnatisect, to 25 cm long with segments 1–3 mm wide. Flowers to 50 on branching peduncles, ± 25 mm diam., white, yellow, or pink, 3 lower petals forming a keel; hypanthium 12–55 mm long, much longer than pedicel. Oct.–Feb. Stony slopes and flats, NW, SW, AP, KM, LB, SE (Namaqualand to Grahamstown).

E.' Stamens exposed
F. All stamens shorter than sepals

attenuatum Harv. Tuberous geophyte to 30 cm. Leaves dry at flowering, trifoliolate, to 13 cm long with segments 2–8 mm wide. Flowers to 7 on branching peduncles, ± 35 mm diam., subsessile,

pale yellow, petals conspicuously ribbon-shaped; hypanthium (16–)22–31 mm long. Nov.–Jan. Sandy flats, NW (Graafwater).•

caledonicum L.Bolus Tuberous geophyte to 20 cm. Leaves simple to pinnate, to 8 × 3 cm. Flowers to 7 on branching peduncles, 15–20 mm diam., pink, subsessile; hypanthium 6–16 mm long. Dec.–Jan. Sandstone or clay soils, SW (Greyton to Napier).•

chelidonium (Houtt.) DC. Tuberous geophyte to 18 cm. Leaves trifoliolate or 5-lobed, to 3 × 2.5 cm. Flowers to 9 on branching peduncles, ± 15 mm diam., bright pink, subsessile; hypanthium 9–16 mm long. Sept.–Oct. Clay flats in renosterveld, NW, SW (Clanwilliam to Riebeek-Kasteel).•

fergusoniae L.Bolus Tuberous geophyte to 22 cm. Leaves dry at flowering, palmate, to 4 cm diam., with segments ± 1.5 mm wide. Flowers to 8 on branching peduncles, 15–20 mm diam., white, pale yellow, or pale pink, subsessile; hypanthium (15–)20–42 mm long. Nov.–Jan. Loose sandy soil, NW, SW, AP, LB (Hex River Valley to Riversdale).•

fissifolium (Andrews) Pers. Tuberous geophyte to 14 cm. Leaves simple to bipinnatifid, to 7 cm long with segments 1–3 mm wide. Flowers to 14 on branching peduncles, ± 20 mm diam., cream-yellow, subsessile; hypanthium 28–65 mm long. Oct.–Nov. Succulent karoo, NW, SW, KM (W Karoo to Worcester). **gce**

leptum L.Bolus Tuberous geophyte up to 30 cm. Leaves pinnatisect to bipinnatisect, to 4 × 2 cm with segments 1–10 mm wide. Flowers to 12 on branching peduncles, ± 25 mm diam., white, pale yellow or pale pink, petals conspicuously ribbon-shaped, subsessile; hypanthium 12–30 mm long. Dec.–Feb. Sandy soil, NW, SW (Citrusdal and Malmesbury to Cape Flats).•

longiflorum Jacq. Tuberous geophyte to 30 cm. Leaves usually green at flowering, lanceolate, to 160 × 25 mm. Flowers to 15 on branching peduncles, ± 30 mm diam., pale yellow or pale pink, petals narrowly ribbon-shaped, subsessile; hypanthium (10–)15–44 mm long. Oct.–Nov. Sandy or stony places, NW, SW (Namaqualand to Darling and Worcester). **gce**

longifolium (Burm.f.) Jacq. Tuberous geophyte to 25 cm. Leaves sometimes bipinnatisect, to 120 × 18 mm. Flowers to 9 on branching peduncles, 20–25 mm diam., white, pale yellow, or pink, subsessile; hypanthium 8–22 mm long. Oct.–Dec. Sandy places, NW, SW (Citrusdal to Bredasdorp).•

nervifolium Jacq. Tuberous geophyte to 13 cm. Leaves simple to trifoliolate, to 3.5 × 2.5 cm. Flowers to 17 on branching peduncles, ± 18 mm diam., white to pale yellow, subsessile; hypanthium 30–45 mm long. Sept.–Oct. Open karoo vegetation, NW, KM (W Karoo to Karoopoort and Matjiesfontein).•

petroselinifolium G.Don Tuberous geophyte to 18 cm. Leaves pinnatisect, to 6 cm long with segments 2–3 mm wide. Flowers to 10 on branching peduncles, ± 12 mm diam., pink, subsessile; hypanthium 13–25 mm long. Oct.–Nov. Mountain fynbos or karoo vegetation, NW (Cold Bokkeveld to Karoopoort).•

pilosellifolium (Eckl. & Zeyh.) Steud. Tuberous geophyte to 32 cm. Leaves often green at flowering, rarely pinnatisect, to 10 × 2.5 cm. Flowers to 10 on branching peduncles, ± 15 mm diam., white to pale pink with conspicuous wine-red markings on each petal, subsessile; hypanthium 8–13 mm long. Oct.–Dec.(–Mar.). Fynbos, SW, LB, SE (Kamiesberg and Genadendal to Avontuur). **gce**

pinnatum (L.) L'Hér. Tuberous geophyte to 30 cm. Leaves often green at flowering, pinnate, to 7 cm long. Flowers to 8 on branching peduncles, ± 18 mm diam., white, pale yellow, pink, or purple, subsessile; hypanthium 11–35(–45) mm long. Nov.–Mar. Clay or sandstone slopes and flats, NW, SW, AP, LB (Cedarberg to Albertinia).•

proliferum (Burm.f.) Steud. Tuberous geophyte to 32 cm. Leaves often green at flowering, simple to pinnatisect, to 8 × 2 cm. Flowers to 9 on branching peduncles, ± 12 mm diam., white, pale yellow, or pink, subsessile; hypanthium 6–12 mm long. Mainly Oct.–Dec. Fynbos or renosterveld, NW, SW, AP, LB (Bokkeveld to Langeberg).•

reflexum (Andrews) Pers. Tuberous geophyte to 15 cm. Leaves usually dry at flowering, palmate with segments 1 mm wide, ± 8 cm diam. Flowers to 5 on branching peduncles, ± 15 mm diam., white, subsessile; hypanthium 13–22 mm long. Dec.–Jan. Open places, NW (Nieuwoudtville).•

undulatum (Andrews) Pers. Tuberous geophyte to 25 cm. Leaves trifoliolate, pinnate or pinnatisect, to 12 × 10 cm with segments ± 5 mm wide. Flowers to 13 on branching peduncles, 25–30 mm diam., white, pale yellow, or pale pink, petals ribbon-shaped with wavy margins, subsessile; hypanthium 6–12(–25) mm long. Sept.–Oct. Karoo vegetation, NW, KM (Worcester to Swartberg).•

viciifolium DC. Tuberous geophyte to 30 cm. Leaves dry at flowering, pinnate, to 12 cm long. Flowers to 20 on branching peduncles, ± 30 mm diam., pale yellow, petals conspicuously ribbon-shaped, subsessile; hypanthium (15–)20–38 mm long. Oct.–Jan. Shale slopes, SW (Malmesbury to Stellenbosch).•

violiflorum (Sweet) DC. Tuberous geophyte to 25 cm. Leaves trifoliolate, pinnate or irregularly bipinnatisect, to 12 × 10 cm with segments 3–12 mm wide. Flowers 7–14 on branching peduncles, ± 10 mm diam., white, subsessile; hypanthium 8–11 mm long. Sept.–Oct. Open places, NW, SW (Worcester to Stormsvlei).•

F.' Some stamens as long as or longer than sepals

aciculatum E.M.Marais Tuberous geophyte to 30 cm. Leaves dry at flowering, pinnatisect, to 14 × 6 cm with segments 6–12 mm wide. Flowers to 40 on branching peduncles, ± 12 mm diam., pale yellow, subsessile; hypanthium 12–16 mm long. Nov.–Dec. Clay slopes in renosterveld, NW, SW (Olifants River Mtns to Langebaan).•

appendiculatum (L.f.) Willd. Tuberous geophyte to 30 cm. Leaves 2- or 3-pinnatisect, to 10 cm long, softly hairy; stipules well developed, ovate. Flowers to 15 on a peduncle, ± 40 mm diam., pale yellow with red marks on upper tepals, subsessile; hypanthium 60–100 mm long. Sept.–Oct. Deep coastal sand, NW (S Namaqualand to Leipoldtville). **gce**

auritum (L.) Willd. Tuberous geophyte to 25 cm. Leaves pinnatisect with elliptic pinnae, to 13 × 5 cm. Flowers to 25 on branching peduncles, ± 15 mm diam., purple-black, white to pale pink, subsessile, petals ribbon-shaped; hypanthium 8–20 mm long. Sept.–Feb. Wide range of habitats, NW, SW, KM, LB, SE (Clanwilliam to Port Elizabeth).•

campestre (Eckl. & Zeyh.) Steud. Tuberous geophyte to 14 cm. Leaves entire to pinnate, to 5 × 3.5 cm. Flowers to 9 on branching peduncles, ± 30 mm diam., white, subsessile; hypanthium 12–22 mm long. Oct.–Dec. Shales in grasslands or scrub, SE (Port Elizabeth to Grahamstown).

carneum Jacq. Tuberous geophyte to 40 cm. Leaves dry at flowering, pinnate or bipinnate with linear segments, to 5 × 3 cm. Flowers to 13 on branching peduncles, ± 45 mm diam., white, yellow or pinkish, subsessile; hypanthium 30–75 mm long. Nov.–Mar. Stony slopes, NW, SW, AP, LB, SE (Worcester to Gamtoos River).•

curviandrum E.M.Marais Tuberous geophyte to 30 cm. Leaves ovate, to 8 × 6 cm. Flowers to 30 on branching peduncles, 25–30 mm diam., white to pale yellow, subsessile, petals ribbon-shaped; hypanthium 18–30 mm long. Oct.–Nov. Sandstone or clay slopes, KM (Montagu to Oudtshoorn).•

fasciculaceum E.M.Marais Tuberous geophyte to 50 cm. Leaves dry at flowering, bipinnate, to 27 × 12 cm with segments 4–8 mm wide. Flowers to 40 on branching peduncles, ± 15 mm diam., pale yellow, subsessile; hypanthium 40–60 mm long. Dec.–Jan. Sandy places, NW (Olifants River Valley).•

fumariifolium R.Knuth Tuberous geophyte to 23 cm. Leaves dry at flowering, pinnate to bipinnatisect, to ± 13 cm diam. Flowers to 25 on branching peduncles, 15–18 mm diam., pale yellow, subsessile, hypanthium 24–35 mm long. Oct.–Nov. Rocky, karroid scrub or renosterveld, NW, KM (S Namibia to Whitehill). **gce**

heterophyllum Jacq. Tuberous geophyte to 17 cm. Leaves dry at flowering, simple to 3-foliolate, to 2.5 cm diam. Flowers to 11 on branching peduncles, 20–25 mm diam., white or pale pink, margins of petals conspicuously wavy, subsessile; hypanthium 9–15 mm long. Oct.–Nov. Renosterveld, SW (Darling to Paarl).•

incrassatum (Andrews) Sims Tuberous geophyte to 35 cm. Leaves barely green at flowering, pinnate to pinnately lobed, to ± 11 × 7 cm. Flowers to 60 on branching peduncles, ± 25 mm diam., magenta, upper petals markedly larger; hypanthium 27–42 mm long, much longer than the very short pedicel. Aug.–Oct. Rocky slopes, NW (Namaqualand to Nardouw Mtns). **gce**

luteum (Andrews) G.Don Tuberous geophyte to 20 cm. Leaves sometimes dry at flowering, pinnatisect or to bipinnatisect, to 12 × 4 cm with segments ± 2 mm wide. Flowers to 20 on branching peduncles, 15–20 mm diam., yellow, subsessile; hypanthium 20–33 mm long. Oct.–Nov. Rocky places in karoo vegetation, NW (W Karoo and Bokkeveld Mtns). **gce**

moniliforme E.Mey. ex Harv. Tuberous geophyte to 40 cm. Leaves simple to tripartite, to 6 cm diam. Flowers to 50 on branching peduncles, ± 30 mm diam., cream-coloured to yellow, subsessile; hypanthium 20–77 mm long. Sept. Karoo vegetation, NW, KM (Namaqualand to Karoopoort and Matjiesfontein). **gce**

nephrophyllum E.M.Marais Tuberous geophyte to 12 cm. Leaves dry at flowering, kidney-shaped and shallowly lobed, ± 2.5 cm diam. Flowers to 7 on branching peduncles, ± 20 mm diam., pink, subsessile; hypanthium 20–30 mm long. Feb.–Apr. Stony lower slopes and sandy flats in succulent karoo, NW (Matsikamma Mtns).•

nummulifolium Salisb. Tuberous geophyte to 15 cm. Leaves ovate to cordate, obtuse, to 3 × 2 cm. Flowers to 5 on branching peduncles, ± 30 mm diam., bright pink to salmon, subsessile; hypanthium 25–40 mm long. Dec.–Mar. Rocky slopes at high alt., SW (Du Toitskloof Mtns).•

ochroleucum Harv. Tuberous geophyte to 25 cm. Leaves oblong or variously lobed or lacerate, sparsely hairy beneath, dry at flowering, stipules small, dry. Flowers subsessile in dense heads, forming a pseudanthium, lower 3 three petals white, upper petals broader, yellow, obovate. Mainly Oct. Shale flats in dry thickets, KM (Little Karoo: Oudtshoorn to Grahamstown and Somerset East).

parvipetalum E.M.Marais Tuberous geophyte to 30 cm. Leaves pinnatisect or bipinnatisect, to 1.5 cm long. Flowers to 18 on branching peduncles, ± 10 mm diam., white, subsessile; hypanthium 8–16 mm long. Sept. Sandy soils, NW (Namaqualand to Pakhuis Pass). **gce**

punctatum (Andrews) Willd. Tuberous geophyte to 30 cm. Leaves sometimes dry at flowering, ovate, to 9 cm diam. Flowers to 60 on branching peduncles, ± 25 mm diam., pale yellow, upper petals somewhat spoon-shaped and larger, subsessile; hypanthium 20–30 mm long. Oct.–Nov. Dry fynbos and karoo vegetation, NW (Bokkeveld to Cedarberg).•

radiatum (Andrews) Pers. Tuberous geophyte to 25 cm. Leaves partly dry at flowering, mostly ovate, obtuse, to 4.5 × 3.5 cm. Flowers to 8 on branching peduncles, ± 40 mm diam., pale yellow or pink, subsessile; hypanthium 30–62 mm long. Oct.–Jan. Rocky sandstone slopes, SW (Du Toitskloof to Riviersonderend Mtns).•

radicatum Vent. Tuberous geophyte to 30 cm. Leaves sometimes dry at flowering, narrowly elliptic, acute, to ± 14 × 4 cm. Flowers to 35 on branching peduncles, ± 25 mm diam., pale yellow, subsessile; hypanthium 40–60 mm long. Oct.–Dec. Sandy soils, NW, SW (Namaqualand to Hopefield). **gce**

reflexipetalum E.M.Marais Tuberous geophyte to 15 cm. Leaves pinnatisect, sometimes pinnatilobed, lobes obovate, glandular-hairy beneath. Flowers on branching peduncles, bright pink, upper petals feathered with red; hypanthium 7–12 mm long, much longer than pedicel. Sept.–Nov. Rocky sandstone slopes, NW (Pakhuis Mtns).•

tenellum (Andrews) G.Don Tuberous geophyte to 20 cm. Leaves dry at flowering, simple to 3-foliolate, to 3.5 × 2.5 cm. Flowers to 10 on branching peduncles, ± 25 mm diam., white or pale pink, petals ribbon-shaped with margins conspicuously wavy, subsessile; hypanthium 10–19(–32) mm long. Nov.–Jan. Grassy slopes or renosterveld, SW (Malmesbury to Hottentots Holland Mtns).•

trifoliolatum (Eckl. & Zeyh.) E.M.Marais Tuberous geophyte to 25 cm. Leaves dry at flowering, pinnate, to 17 cm long. Flowers to 20 on branching peduncles, ± 20 mm diam., pale yellow or pink, margins of petals conspicuously wavy, subsessile; hypanthium 10–15(–25) mm long. Oct.–Jan. Clay or sand in fynbos or renosterveld, NW, SW (Cold Bokkeveld to Cape Peninsula).•

triphyllum Jacq. Tuberous geophyte to 18 cm. Leaves mostly dry at flowering, simple or trifoliolate, ± 3 cm diam. Flowers to 10 on branching peduncles, ± 20 mm diam., pink, subsessile; hypanthium 7–19 mm long. Oct.–Dec. Shallow soil in mountain fynbos, NW, SW (Bokkeveld to Riviersonderend Mtns).•

B.' Shrubs or shrublets; leaves cauline
G. Stems and branches clearly succulent
H. Leaves ± suborbicular, often with purplish zonal marking

acetosum (L.) L'Hér. Semisucculent shrublet to 60 cm. Leaves round, leathery to succulent, glaucous to 5 cm diam. Flowers 2–7, ± 40 mm diam., beige to salmon-pink, upper petals veined red in lower part; hypanthium 17–25 mm long, pedicel very short. Throughout the year. Flats, KM, SE (central Little Karoo and Kouga Mtns to Grahamstown).

articulatum (Cav.) Willd. Semigeophyte with moniliform rhizome, stem conspicuously bracteate. Leaves round and shallowly incised, silky hairy, often with reddish zonal marking, ± 5 cm diam. Flowers 2–5 on stout peduncle, 40–50 mm diam., white to cream-coloured, subsessile, stamens exserted; hypanthium to 70 mm long. Oct.–Dec. Rocky slopes, often rock crevices in part shade, NW, SW, KM (Namaqualand to Worcester and Witteberg). **gce**

inquinans (L.) L'Hér. Semisucculent shrub to 2 m. Leaves round, velvety hairy, to 8 cm diam. Flowers 5–30, 25–30 mm diam., red, subsessile; hypanthium ± 40 mm long. Throughout the year. Coastal scrub and valley bushveld, SE (Gamtoos River to Umtata).

peltatum (L.) L'Hér. Scrambling vine to 4 m. Leaves round, sometimes peltate, often 5–7-lobed, leathery-succulent and with reddish zonal marking. Flowers 2–9, 40–50 mm diam., pale pink to purple, subsessile; hypanthium 30–50 mm long. Mainly Sept.–Dec. Coastal or succulent scrub, NW, SW, KM, LB, SE (Bain's Kloof and Worcester to East London).

tetragonum (L.f.) L'Hér. Sprawling, often leafless shrublet with angular green branches ± 7 mm diam. Leaves often palmatifid, sometimes with red zonal markings, to 4 cm diam. Flowers 2,

cream-coloured to pale pink with reddish veins, ± 40 mm diam., markedly asymmetric, stamens exserted; hypanthium 25–60 mm long, much longer than pedicel. Sept.–Dec. Rock outcrops, NW, SW, KM, LB, SE (Worcester to Grahamstown).

zonale (L.) L'Hér. Shrub with somewhat succulent branches, 1–2 m. Leaves round with margins shallowly lobed and usually with a reddish zonal marking, very sparsely hairy. Flowers to 70, ± 35 mm diam., pink, subsessile; hypanthium 25–45 mm long. Mainly Sept.–Dec. Stony slopes and forest margins, NW, SW, KM, LB, SE (Piketberg to E Cape).

H.' Leaves pinnate, lobed or wedge-shaped

alternans J.C.Wendl. Woody, subsucculent shrublet to 40 cm. Leaves pinnate, conspicuously hairy, 2–6 × 1–2 cm. Flowers 1–4 on a short and nonpersistent peduncle, ± 15 mm diam., white or very pale pink, subsessile, stamens exserted; hypanthium 5–9 mm long. Apr.–Jan. Rocky slopes, NW, SW, KM (Bokkeveld Mtns to Prince Albert).•

carnosum (L.) L'Hér. Sparsely branched stem succulent to 1 m. Leaves pinnate to bipinnate, to 20 cm long. Flowers 4–6, 10–15 mm diam., white or pinkish with purple anthers; hypanthium ± 10 mm long, longer than pedicel and usually conspicuously dilated. Sept.–Nov. Flats and slopes, NW, SW, KM (Vanrhynsdorp and Bokkeveld Mtns to Swellendam). **gce**

crassipes Harv. Nearly unbranched stem succulent, ± 15 cm, stem covered with hardened remains of stipules. Leaves bipinnate, coarsely hairy, ± 4 cm long. Flowers 2–10, ± 15 mm diam., pink; hypanthium 8–10 mm long, ± as long as pedicel. July–Sept. Flats, often under bushes, NW (S Namaqualand to Clanwilliam). **gce**

crithmifolium Sm. DIKBASMALVA Stem succulent to 1 m, with persistent, branched, spine-like remains of inflorescences. Leaves bipinnatifid with almost terete segments, succulent, to 12 cm long. Flowers 4–6, ± 20 mm diam., white; hypanthium ± 5 mm long, much shorter than pedicel. Mar.–May and Sept.–Nov. Flats and rocky hills, NW, KM (S Namibia and W Karoo to N Cedarberg). **gce**

dasyphyllum E.Mey. ex R.Knuth Like **G. alternans** but smaller, to 20 cm, with larger flowers, ± 25 mm diam. on short and semipersistent peduncles; hypanthium 5–8 mm long, usually shorter than pedicel. Aug.–Dec. Rocky slopes in succulent karoo, NW (Namaqualand to Clanwilliam). **gce**

echinatum Curtis Sparsely branched stem succulent to 40 cm, stem covered with persistent, thorny stipules. Leaves often somewhat lobed, cordate, sparsely hairy above but densely white-hairy below, to 4 × 3 cm. Flowers 3–8, white or pink or purple; hypanthium 30–40 mm long, much longer than pedicel. July–Nov. Granite hills, NW (Namaqualand and W Karoo to Clanwilliam). **gce**

fulgidum (L.) L'Hér. ROOIMALVA Succulent-stemmed shrublet to 40 cm. Leaves pinnatifid, densely silky hairy, to 10 × 7 cm, stipules large and broad. Flowers 4–9, 15–20 mm diam., red, subsessile; hypanthium 20–40 mm long. June–Nov. Rocky slopes, often coastal, NW, SW (Richtersveld to Yzerfontein). **gce**

gibbosum (L.) L'Hér. DIKBEENMALVA Sprawling shrublet with conspicuously swollen nodes, to 40 cm when unsupported. Leaves pinnatifid, leathery, glaucous, to 13 × 7.5 cm. Flowers 3–14, ± 15 mm diam., greenish yellow, subsessile; hypanthium 20–25 mm long. Nov.–Apr. Rock outcrops near coast, NW, SW (Namaqualand to Cape Peninsula). **gce**

grandicalcaratum R.Knuth Shrublet to 50 cm. Leaves somewhat succulent, wedge-shaped, aromatic, 1–1.5 cm diam. Flowers to 5 on very short peduncles near branch tips, ± 14 mm diam., not opening widely, white streaked reddish; hypanthium 5–17 mm long, swollen and longer than pedicel. Mainly Oct. Rocky, granitic outcrops, NW, KM (Namibia to Matjiesfontein). **gce**

hirtum (Burm.f.) Jacq. Somewhat succulent shrublet, often with persistent remains of petioles. Leaves bipinnate with linear segments 40 × 2 mm, thinly hairy. Flowers 3–8, ± 15 mm diam., dark pink; hypanthium ± 5 mm long, ± as long as pedicel. July–Nov. Granite or sandstone slopes, SW (Velddrif to Stellenbosch).•

hystrix Harv. Stem succulent to 20 cm, branches covered with stipular spines. Leaves bipinnatisect, to 3.5 × 2 cm. Flowers to 13 on stout, branching peduncles, ± 25 mm diam., cream-coloured, subsessile; hypanthium 30–45 mm long. Oct.–Nov. Karroid scrub, often in shelter of shrubs, KM (W Karoo to Nougaspoort). **gce**

keeromsbergense M.Becker & F.Albers Single-stemmed stem succulent to 1 m, branched apically. Leaves pinnate, leathery, to 30 cm long, leaflets crenate. Flowers 15–20 on branching peduncles, white or pale pink, markedly zygomorphic with exserted stamens and hairy auricles occluding tube; hypanthium 3–18 mm long, much shorter than pedicel. Mar.–Apr. Open karoo, SW (Worcester: Keeromsberg).•

laxum (Sweet) G.Don Stem succulent, ± 30 cm. Leaves pinnatisect, somewhat leathery with pale margins, to 12 × 6.5 cm. Flowers to 18 on branching peduncles, white or pale pink, markedly zygomorphic with exserted stamens; hypanthium 3–18 mm long, much shorter than pedicel. July–Jan. and Mar.–Apr. Open valley bushveld or karoo, KM, SE (Little and Great Karoo to E Cape).

oreophilum Schltr. Stem succulent armed with persistent stipules, ± 30 cm. Leaves crowded, pinnatisect with linear segments, sparsely hairy, ± 1.5 × 1 cm. Flowers 2 or 3, ± 25 mm diam., pink, on branching peduncles; hypanthium 5–12 mm long, longer than pedicel. Aug.–Oct. Rock crevices on mountains, NW (Bokkeveld to Cedarberg).•

stipulaceum (L.f.) Willd. Stem succulent to 30 cm, stem covered with persistent and broad stipules. Leaves crowded, cordate and variously incised, aromatic, ± 4 × 3 cm. Flowers 2–5 on branching peduncles, ± 25 mm diam., cream-coloured, subsessile; hypanthium 40–60 mm long. Oct. Shade in karroid bush, NW, KM (Kamieskroon to Matjiesfontein). **gce**

G.' Stems and branches twig-like and somewhat woody

Group 1:
Leaves leathery, glabrous and glaucous, often with a purplish zonal marking, variously shaped, not conspicuously aromatic; flowers purple, large (> 25 mm diam.) and showy; plants low or sprawling but sometimes erect and up to 1 m high

fruticosum (Cav.) Willd. Shrub to 1 m. Leaves trifoliolate with narrow segments, ± 15 mm diam., somewhat fleshy or leathery. Flowers mostly 1, on short, axillary peduncles, ± 25 mm diam., pink; hypanthium 10–20 mm long, longer than pedicel. Throughout the year. Dry S-facing slopes, KM, LB, SE (Ladismith to Willowmore).•

grandiflorum (Andrews) Willd. Straggling shrublet to 80 cm. Leaves digitately lobed, leathery, glaucous and often with a reddish zonal marking. Flowers to 5, 40–50 mm diam., pinkish purple, stamens long and exserted; hypanthium 8–10 mm long, shorter than pedicel. Oct.–Mar. Sandstone slopes, NW (Bokkeveld Mtns to Tulbagh).•

incarnatum (L'Hér.) Moench (= *Erodium incarnatum* L'Hér.) Weak-stemmed perennial to 30 cm, branching from a persistent rootstock. Leaves on long, slender petioles, palmate to digitately lobed. Flowers few on elongate peduncles, petals subequal, spreading, pale pink but reddish below; hypanthium reduced to a shallow depression, much shorter than pedicel. Oct.–Nov. Rocky sandstone slopes, SW (Kogelberg to Riviersonderend Mtns).•

laevigatum (L.f.) Willd. Lax shrublet to 50 cm. Leaves trifoliolate, segments terete, somewhat succulent, ± 3 × 2 cm. Flowers solitary or rarely to 5, ± 25 mm diam., pink, on short, axillary peduncles; hypanthium 13–38 mm long, much longer than pedicel. Throughout the year. Sandy slopes, KM, SE (Swartberg and Outeniqua Mtns to E Cape and Karoo Mtns).

lanceolatum (Cav.) Kern (= *Pelargonium glaucum* (L.f.) L'Hér.) Shrublet to 30 cm. Leaves narrowly ovate, glaucous, to 8 × 3 cm. Flowers 1 or 2 on short, lateral peduncles, ± 30 mm diam., white to pale yellow, subsessile; hypanthium 30–50 mm long. Throughout the year. Dry places, NW (Worcester to Montagu).•

patulum Jacq. Shrublet to 30 cm. Leaves cordate to round with margin variously incised, leathery, glaucous and usually with a reddish zonal marking, ± 3 cm diam. Flowers 2 or 3, ± 25 mm diam., pink, on short, branching peduncles; hypanthium 15–20 mm long, slightly longer than pedicel. Sept.–Mar. Sandstone slopes in fynbos, NW, SW (Cedarberg to Langeberg).•

praemorsum (Andrews) F.Dietr. Woody perennial with thin branches to 2 m from a massive, partly exposed, tuberous base. Leaves round and deeply 3–5-lobed, leathery, to 3 cm diam. Flowers 1 or 2, 15–50 mm diam., cream-coloured to purple, petals 4, upper much larger; hypanthium 10–40 mm long, much longer than pedicel. Aug.–Apr. Rocky slopes and flats, NW (S Namibia to Olifants River Valley). **gce**

setulosum Turcz. Tufted perennial to 15 cm. Leaves on long petioles, cordate, acute, leathery with red margins, ± 2.5 cm diam. Flowers to 5 on branching peduncles, ± 25 mm diam., white or pale pink with dark centres; hypanthium 10–15 mm long, somewhat shorter than pedicel. Sept.–Jan. Sandstone slopes, NW, SW (Houwhoek Pass to Montagu).•

tabulare (Burm.f.) L'Hér. Shrublet to 30 cm. Leaves variously incised, almost round, leathery, glaucous, often with a reddish zonal marking, ± 4 cm diam. Flowers 2 or 3 on axillary peduncles, ± 20 mm diam., purple; hypanthium 4–8 mm long, slightly shorter than pedicel. Sept.–Jan. Cool slopes, NW, SW (Clanwilliam to Somerset West).•

ternatum (L.f.) Jacq. Shrublet to 60 cm. Leaves dimorphic, petiolate and sessile, trifoliolate, leathery or somewhat succulent, 2–3 cm diam. Flowers solitary or to 3 on short, axillary peduncles, ± 20 mm diam., white to pink; hypanthium 10–20 mm long, longer than pedicel. Apr.–Dec. Scrub, LB (Montagu to Riversdale).•

Group 2:
Leaves conspicuously aromatic, often hairy; flowers purple (rarely white), large (> 30 mm diam.) and showy; plants often erect and up to 1 m high

betulinum (L.) L'Hér. Shrublet to 50 cm. Leaves ovate to elliptic, somewhat leathery, ± 20 mm long. Flowers to 6 on axillary peduncles, ± 5 cm diam., white to pink; hypanthium 3–8 mm long, somewhat shorter than pedicel. Aug.–Jan. Coastal dunes, SW, AP, SE (Yzerfontein to Knysna).•

capitatum (L.) L'Hér. KUSMALVA Sprawling shrublet to 50 cm. Leaves cordate, margins lobed and crisped, aromatic, ± 5 cm diam. Flowers to 20 on stout, axillary peduncles, 15–25 mm diam., purple, subsessile; hypanthium 3–8 mm long. Sept.–Oct. Coastal dunes and flats, NW, SW, AP, SE (Lambert's Bay to KwaZulu-Natal).

citronellum J.J.A.van der Walt Erect shrub to 1 m. Leaves palmatifid, roughly hairy, strongly lemon-scented, ± 8 cm diam. Flowers 5–8 on branching peduncles, ± 25 mm diam., pinkish purple; hypanthium 3–8 mm long, shorter than pedicel. Aug.–Jan. Near streams on clay, KM (Ladismith).•

cordifolium (Cav.) Curtis Shrub to 1 m. Leaves cordate, white-hairy beneath, aromatic, ± 5 cm diam. Flowers to 12 on short, axillary peduncles, ± 40 mm diam., purple, lower petals much wider than upper; hypanthium 2–12 mm long, shorter than pedicel. Aug.–Jan. Sheltered places near streams, AP, LB, SE (Bredasdorp to E Cape).

crispum (P.J.Bergius) L'Hér. Shrublet to 70 cm. Leaves often distichous, fan-shaped, rough, margins crisped, lemon-scented, to 1 cm diam. Flowers 1–3 on short peduncles, ± 25 mm diam., pinkish purple; hypanthium 5–8 mm long, slightly longer than pedicel. Aug.–Apr. Sandy lower slopes, NW, SW, KM (Worcester to Bredasdorp).•

cucullatum (L.) L'Hér. WILDEMALVA Shrub to 2 m. Leaves ± round, ± 70 mm diam. Flowers to 13, ± 4 cm diam., pinkish purple, with wide and overlapping petals; hypanthium 5–12 mm long, slightly longer than pedicel. Sept.–Feb. Sandy and granite slopes along coast, SW, AP (Saldanha Bay to Baardskeerdersbos).•

denticulatum Jacq. Aromatic shrub to 1 m. Leaves finely 2- or 3-pinnatisect, sticky, hard, ± 8 cm diam. Flowers to 9 on short, axillary peduncles, ± 20 mm diam., pinkish purple, subsessile; hypanthium 4–9 mm long. Apr.–Nov. Ravines near streams, LB (Langeberg: Herbertsdale).•

englerianum R.Knuth Shrub to 1 m. Leaves cordate, margins crisped and variously incised, roughly hairy, camphor-scented. Flowers 2–5 on short, axillary peduncles, 15–20 mm diam., pale purple; hypanthium 1–10 mm long, shorter than pedicel. Aug.–Apr. Dry, rocky fynbos, NW, KM (Bokkeveld to Swartberg).•

glutinosum (Jacq.) L'Hér. Erect shrub to 1.8 m. Leaves sticky, cordate but deeply 3–5-lobed, aromatic with a balm-like scent, 5–8 cm diam. Flowers to 8 on short, axillary peduncles, ± 18 mm diam., pale purple, subsessile; hypanthium 3–10 mm long. Sept.–Nov. Near watercourses on sandstone slopes, SW, KM, LB, SE (Piketberg to E Cape, Limpopo: Soutpansberg).

graveolens L'Hér. Shrub to 1 m. Leaves palmatifid, shortly hairy, strongly rose-scented, ± 4 cm diam. Flowers to 7 on short, axillary peduncles, ± 30 mm diam., white to pinkish purple; hypanthium 4–15 mm long, longer than pedicel. Aug.–Jan. Moist and semishaded places, LB, SE (George to E Cape, Limpopo: Soutpansberg and Zimbabwe: Chimanimani Mtns).

hermanniifolium (P.J.Bergius) Jacq. Shrublet to 1 m, aromatic. Leaves distichous, wedge-shaped, 3-palmatifid, hard, rough. Flowers 1–3 on very short peduncles, ± 40 mm diam., pinkish purple; hypanthium 6–8 mm long, slightly longer than pedicel. Sept.–Apr. Upper sandstone slopes, SW (Wemmershoek to Riviersonderend Mtns).•

hispidum (L.f.) Willd. Aromatic shrub to 1 m. Leaves digitately lobed, shortly hairy, to 12 cm diam. Flowers 6–12 on a branched, apical system of short peduncles, ± 20 mm diam., pinkish purple, upper petals markedly larger; hypanthium 3–4 mm long, slightly shorter than pedicel. Sept.–Apr. Shady ravines on lower slopes, NW, SW, KM (Piketberg to Bredasdorp and Swartberg).•

panduriforme Eckl. & Zeyh. Aromatic shrub to 1.2 m. Leaves cordate and deeply lobed, velvety hairy, balm-scented, ± 6 × 5 cm. Flowers to 20 on short but stout, axillary peduncles, ± 40 mm diam., pink, subsessile; hypanthium 6–13 mm long. Aug.–Jan. Lower foothills and ravines, KM, SE (Willowmore to E Cape).

papilionaceum (L.) L'Hér. Foetid shrub to 1 m. Leaves cordate with margins very shallowly lobed, 8 cm or more diam. Flowers to 20 on branching peduncles at branch tips, ± 30 mm diam., pink with conspicuous darker markings on much larger upper petals; hypanthium 2–5 mm long, much shorter than pedicel. Aug.–Jan. Forest margins near streams, SW, LB, SE (Somerset West to Humansdorp).•

pseudoglutinosum R.Knuth Shrub to 1 m. Leaves ovate with margins deeply lobed, sticky, ± 3 cm diam. Flowers 1 or 2 on short, axillary peduncles, ± 40 mm diam., pinkish purple, subsessile; hypanthium 6–10 mm long. Sept.–Jan. Along watercourses in ravines, SE (Uniondale to Keurboomsrivier).•

quercifolium (L.f.) L'Hér. Aromatic shrub to 1.5 m. Leaves pinnatifid, roughly hairy, balm-scented, to 8 × 7 cm. Flowers to 6 on fairly short but stout, axillary peduncles, ± 30 mm diam., purple, subsessile; hypanthium 6–11 mm long. Aug.–Jan. Dry rocky slopes, KM, SE (Oudtshoorn to Willowmore).•

radens H.E.Moore Aromatic shrub to 1.5 m. Leaves bipinnatisect with ribbon-shaped segments ± 3 mm wide, rose-scented, 6 cm diam. Flowers to 8 on short, axillary peduncles, ± 20 mm diam., purple; hypanthium 2–8 mm long, ± as long as pedicel. Aug.–Jan. Damp slopes, SW, LB, SE (Tulbagh: Elandskloof Mtns to E Cape).

ribifolium Jacq. Aromatic shrub to 1.2 m. Leaves palmate, roughly hairy, ± 5 cm diam. Flowers to 12 on short, axillary peduncles, ± 20 mm diam., white, upper petals many times wider; hypanthium 6–8 mm long, ± as long as pedicel. Sept.–Nov. Sandstone slopes, often along forest margins, KM, SE (Swartberg to Katberg).

scabroide R.Knuth Shrub to 70 cm. Leaves cordate and lobed, roughly hairy, ± 4 × 3 cm. Flowers to 5 on short, axillary peduncles, ± 18 mm diam., white to pale pinkish purple; hypanthium 6–10 mm long, ± as long as pedicel. Nov.–Feb. Sheltered places among rocks, NW, KM (Cold Bokkeveld Mtns to Bonteberg).•

scabrum (Burm.f.) L'Hér. HOENDERBOS Aromatic shrub to 1.2 m. Leaves palmatisect, roughly hairy, lemon-scented, ± 5 cm diam. Flowers to 6 on short, axillary peduncles, ± 20 mm diam., white to purplish; hypanthium 3–12 mm long, ± as long as pedicel. Aug.–Jan. Rocky sandstone slopes, NW, SW, KM, LB, SE (Namaqualand to E Cape).

sublignosum R.Knuth Shrub to 1 m. Leaves cordate and shallowly lobed with dentate margins, ± 4 cm diam. Flowers to 9 on short peduncles near branch tips, ± 25 mm diam., purplish pink; hypanthium 5–14 mm long, usually somewhat longer than pedicel. Oct.–Feb. Moist, rocky places in mountain ravines, NW (Piketberg to Ceres).•

tomentosum Jacq. Sprawling aromatic shrub to 50 cm. Leaves 3–5-palmatilobed, soft, velvety, ± 7 cm diam. Flowers to 15 on branching peduncles, ± 18 mm diam., white, upper petals several times wider; hypanthium ± 2 mm long, much shorter than pedicel. Oct.–Jan. Forest margins in mountains, SW, LB (Somerset West to Langeberg).•

vitifolium (L.) L'Hér. Shrub to 1 m. Leaves cordate and shallowly lobed, velvety hairy, aromatic, ± 8 cm diam. Flowers to 12 on short, axillary peduncles, ± 18 mm diam., pinkish purple; hypanthium 2–4 mm long, usually somewhat longer than pedicel. Aug.–Jan. Shady ravines on lower slopes, SW, SE (Bain's Kloof to Bredasdorp, Outeniqua Mtns).•

Group 3:
Leaves soft-textured, often hairy, variously shaped, usually not conspicuously aromatic (but see P. odoratissimum); flowers purple, pink, yellow, or white; plants usually low or sprawling (but see P. antidysentericum)

abrotanifolium (L.f.) Jacq. Erect, much-branched shrublet to 50 cm. Leaves small, feather-like, aromatic. Flowers 1–5, ± 20 mm diam., white to pink or purple; hypanthium ± 18 mm long, much longer than pedicel. Almost throughout the year. Flats, NW, SW, KM, LB, SE (Namaqualand to E Cape and Free State).

alchemilloides (L.) L'Hér. Sprawling perennial to 20 cm from woody rootstock. Leaves round, usually lobed, 7 cm diam., often with reddish zonal marking, usually with sparse, silky hairs. Flowers 3–6(–15), 15–20 mm diam., white or yellow or pink; hypanthium 12–35 mm long, much longer than pedicel. Sept.–Nov. Open, moist places, SW, AP, LB, SE (Saldanha Bay to Limpopo).

alpinum Eckl. & Zeyh. Procumbent, softly woody perennial to 20 cm with small tubers. Leaves on long petioles, cordate with margin variously incised, ± 5 × 4 cm, softly hairy, sometimes with reddish zonal markings. Flowers usually 2 on subterminal peduncles, ± 30 mm diam., salmon-

pink; hypanthium 15–70 mm long, longer than pedicel. Nov.–Jan. Near streams at high alt., NW (Grootwinterhoek to Hex River Mtns).•

antidysentericum (Eckl. & Zeyh.) Kostel. Deciduous shrub to 1.5 m, with twiggy and brittle branches from a massive and partly exposed tuber. Leaves round, margin shallowly incised, roughly hairy, 1.5–2 cm diam. Flowers 3–5 on very short peduncles, ± 20 mm diam., purple; hypanthium ± 5 mm long, shorter than pedicel. Mar.–May. Rocky places, NW (S Namibia to Tanqua Karoo). **gce**

caespitosum Turcz. Tufted perennial to 15 cm. Leaves elliptic to almost linear, 4–5 × 0.2–1.5 cm. Flowers up to 9, ± 20 mm diam., pale pink to purple; hypanthium reduced to a shallow cavity and much shorter than pedicel. Oct.–Jan. Open places at high alt., NW (Cedarberg).•

candicans Spreng. Procumbent shrublet to 30 cm. Leaves simple or rarely 3-foliolate, cordate with margins variously lobed, silvery velvety, ± 2 cm diam. Flowers to 4 on axillary peduncles, ± 15 mm diam., white to pink, petals 4, upper larger than lower, subsessile; hypanthium 5–8 mm long, much longer than pedicel. Mainly Sept.–Nov. Open places, SW, AP, KM, LB, SE (Cape Peninsula to Plettenberg Bay).•

capillare (Cav.) Willd. Tufted, rhizomatous perennial to 20 cm. Leaves pinnatifid, ± 4 × 2 m. Flowers to 3 on branching peduncles, ± 20 mm diam., salmon-pink; hypanthium 9–22 mm long, shorter than pedicel. Aug.–Jan. Open places at high alt., NW (Cold Bokkeveld Mtns).•

caucalifolium Jacq. Sprawling shrublet to 50 cm. Leaves 1- or 2-pinnatilobed, ± 2 × 1.5 cm. Flowers 1, sometimes 2 on long, erect peduncles, 25–30 mm diam., white to pinkish purple, subsessile, petals 4 with upper much larger than lower; hypanthium 10–50 mm long, much longer than pedicel. Oct.–Apr. Open places, SW, AP, KM, LB, SE (Pringle Bay to Humansdorp).•

coronopifolium Jacq. Tufted, rhizomatous perennial to 20 cm. Leaves linear to narrowly elliptic, roughly hairy, slightly toothed sometimes entire, ± 60 × 1–10 mm. Flowers to 4 on an unbranched peduncle, 20–25 mm diam., white to pink or purple; hypanthium 2–8 mm long, much shorter than pedicel. Sept.–Mar. Open places, NW (Bokkeveld Mtns to Worcester).•

divisifolium Vorster Lax, scrambling perennial. Leaves well-spaced, 2- or 3-pinnatisect with linear segments, ± 5 cm diam. Flowers to 5, ± 25 mm diam., pink or white; hypanthium 14–32 mm long, slightly longer than pedicel. Oct.–Jan. Lower slopes, SW (Riviersonderend Mtns).•

elegans (Andrews) Willd. Tufted, rhizomatous perennial to 45 cm. Leaves elliptic, glabrous to pubescent, somewhat leathery, ± 3 × 2.5 cm. Flowers to 7 on branching peduncles, ± 50 mm diam., pink; hypanthium 10–15 mm long, shorter than pedicel. Sept.–Jan. Coastal fynbos, SW, AP, SE (Hermanus to Still Bay, Port Elizabeth to Grahamstown).

elongatum (Cav.) Salisb. Soft shrublet to 25 cm. Leaves cordate, roughly hairy, often with a reddish zonal marking, 4–5 cm diam. Flowers to 6, ± 15 mm diam., cream-coloured to whitish, subsessile; hypanthium 10–15 mm long. Throughout the year. Stony slopes, NW, SW, LB, SE (Bokkeveld Mtns to Uniondale).•

exstipulatum (Cav.) L'Hér. Shrublet to 50 cm. Leaves variously incised, ± 1.5 cm diam. Flowers 1–5, ± 15 mm diam., pink, subsessile; hypanthium 8–9 mm long. June–Dec. Rocky places, KM (Ladismith to De Rust).•

hypoleucum Turcz. Prostrate or scrambling perennial. Leaves cordate, aromatic, ± 4 cm diam. Flowers to 14, ± 10 mm diam., white to pink; hypanthium 6–7 mm long, longer than pedicel. Oct.–Dec. Cool slopes, SW, AP, KM, LB, SE (Hottentots Holland to Kouga Mtns).•

iocastum (Eckl. & Zeyh.) Steud. Perennial to 15 cm. Leaves cordate, sparsely hairy, to 3 cm diam. Flowers to 7, ± 15 mm diam., pale purple; hypanthium 2–8 mm long, shorter than pedicel. Sept.–Jan. Mostly high alt., SW (Piketberg to Caledon).•

karooicum Compton & P.E.Barnes Tufted shrublet ± 40 cm. Leaves digitately compound with segments ± 1 mm wide, rarely simple, somewhat succulent, 1.5–2 cm diam. Flowers 2 on a short and apparently terminal peduncle, ± 20 mm diam., white or pale yellow or pink, subsessile; hypanthium 9–14 mm long. Jan.–Apr. Rocky slopes, NW, SW, KM (Namaqualand to Oudtshoorn). **gce**

longicaule Jacq. Procumbent shrublet. Leaves pinnatisect, ± 4 × 3 cm. Flowers to 6, either ± 30 mm diam. and white to pale pink with red veins or ± 60 mm diam. and yellow with pinkish veins, on well-developed peduncles at ends of branches, subsessile; hypanthium 30–55 mm long. Aug.–Jan. Sandy soils, NW, SW, AP (Olifants River Mouth to Still Bay).•

magenteum J.J.A.van der Walt Rounded, twiggy shrub to 1 m. Leaves rotund-cordate, velvety, shallowly lobed, to 1.5 cm diam. Flowers to 9, ± 20 mm diam., magenta, subsessile; hypanthium ± 30 mm long. May–Oct. Rock outcrops, NW, KM (W Karoo and Botterkloof to Calitzdorp). **gce**

multicaule Jacq. Shrublet to 30 cm. Leaves pinnatisect or bipinnatisect, ± 4 × 3 cm. Flowers 3–5, ± 20 mm diam., pinkish purple, 4-petalled with upper petals markedly larger, subsessile; hypanthium 8–14 mm long. Throughout the year. Rocky places, SW, KM, LB, SE (Worcester to Limpopo).

myrrhifolium (L.) L'Hér. Sprawling shrublet ± 30 cm. Leaves bipinnatisect, segments linear to ribbon-shaped, ± 5 × 3 cm. Flowers to 5, 20–25 mm diam., white to pink or pinkish purple, upper 2 petals markedly wider, subsessile; hypanthium 4–10 mm long. Aug.–Feb. Open places on stony sands, NW, SW, AP, SE (Kamiesberg to Uitenhage). **gce**

odoratissimum (L.) L'Hér. Aromatic shrublet to 20 cm. Leaves cordate to round, velvety hairy, 3–12 cm diam. Flowers 3–10, ± 15 mm diam., white; hypanthium 5–10 mm long, ± as long as pedicel. Almost throughout the year, AP, KM, LB, SE (Waboomsberg to KwaZulu-Natal).

oenothera (L.f.) Jacq. Shrublet to 20 cm. Leaves densely crowded, oblong, tomentose, ± 4.5 × 1 cm. Flowers 1–4 on stout, branching peduncles, ± 15 mm diam., pink; hypanthium 2–7 mm long, ± as long as or slightly shorter than pedicel. Sept.–Dec. Open sandy places, NW, SW (Clanwilliam to Franschhoek).•

ovale (Burm.f.) L'Hér. Tufted, rhizomatous shrublet to 30 cm. Leaves elliptic, toothed, densely hairy, ± 4 × 1–3 cm. Flowers to 7 on well-developed, branching peduncles, 25–40 mm diam., white to pink, upper petals overlapping and much larger; hypanthium 2–13 mm long, shorter than pedicel. July–Mar. Open places on mountains, SW, KM, LB, SE (Tulbagh: Elandskloof to Great Winterhoek Mtns).•

plurisectum Salter Deciduous shrublet to 30 cm. Leaves palmatisect to pinnatisect with linear segments, ± 8 mm diam. Flowers 1 or 2 on short peduncles, ± 12 mm diam., yellowish to pinkish, subsessile; hypanthium 20–33 mm long, much longer than pedicel. Mar.–May. Renosterveld, SW (Cape Peninsula to Bredasdorp).•

reniforme Curtis Shrublet to 40 cm, with tuberous roots. Leaves reniform, usually shortly hairy, 3–7 cm diam. Flowers to 15, ± 20 mm diam., bright pink; hypanthium 15–45 mm long, much longer than pedicel. Throughout the year. Dry flats and open grasslands, KM, SE (Kammanassie and Outeniqua Mtns to E Cape).

sidoides DC. Tufted perennial with swollen roots. Leaves cordate with margins somewhat lobed and crenate, silvery velvety. Flowers to 14 on limp, branching peduncles, ± 15 mm diam., almost black; hypanthium 15–37 mm long, longer than pedicel. Mainly Oct.–Jan. Dry and stony places in short grasslands, SE (Uniondale to Gauteng).

suburbanum Clifford ex D.A.Boucher Sprawling shrublet to 30 cm. Leaves pinnatisect to bipinnatisect, 3–7 cm diam. Flowers to 6 on stout peduncles near branch tips, 30–40 mm diam., cream-coloured to purple, 2 upper petals much wider, subsessile; hypanthium 8–50 mm long. June–Jan. Coastal dunes, SW, AP, SE (Cape Peninsula to Port Elizabeth).•

tricolor Curtis Rhizomatous shrublet to 30 cm. Leaves crowded, elliptic, roughly hairy, ± 2.5 × 1 cm. Flowers to 3 on short, branching peduncles, ± 25 mm diam., 2- or 3-coloured with white, pink and often bright red, petals wide; hypanthium 1–2 mm long, much shorter than pedicel. Sept.–Jan. Open places on clay, KM, LB, SE (Swartberg to Langeberg and Outeniqua Mtns).•

trifidum Jacq. (= *Pelargonium fragile* (Andrews) Willd.) Sprawling, aromatic shrublet with brittle branches. Leaves almost trifoliolate, to 4 cm diam. Flowers 3–6, ± 30 mm diam., cream-yellow, subsessile; hypanthium 20–30 mm long. Sept.–Jan. Dry stony slopes and flats, NW, KM, SE (Worcester to Peddie).

[**Species excluded** No authentic material seen and probably conspecific with one of the above: **P. gilgianum** Schltr. ex R.Knuth; **P. sulphureum** R.Knuth]

SARCOCAULON (DC.) Sweet = **MONSONIA**

GESNERIACEAE

STREPTOCARPUS Lindl. WILD GLOXINIA ± 120 spp., Africa and Madagascar

meyeri B.L.Burtt Rosulate perennial to 20 cm. Leaves elliptic, shaggy, margins toothed. Flowers several on glandular-hairy peduncles, trumpet-shaped, tube cylindric, violet with white lobes. Jan.–Apr. Shaded, rocky banks, SE (Baviaanskloof Mtns to E Cape and Mpumalanga).

rexii (Bowie ex Hook.) Lindl. TWIN SISTERS Rosulate perennial to 20 cm. Leaves strap-shaped, velvety, margins toothed. Flowers mostly 1 or 2 on glandular-hairy peduncles, funnel-shaped, tube flaring, whitish with purple streaks in throat. Oct.–Apr. Forest floors, LB, SE (George to S KwaZulu-Natal).

GOODENIACEAE

SCAEVOLA L. SEE-PLAKKIE ± 130 spp., mainly Australia

plumieri (L.) Vahl (= *Scaevola thunbergii* Eckl. & Zeyh.) Sprawling perennial to 40 cm. Leaves fleshy, obovate. Flowers sessile in axillary cymes, whitish, tube slit above and woolly within. Nov.–Apr. Coastal fore dunes, AP, LB, SE (Indo-Pacific coasts to Agulhas).

GRUBBIACEAE•

GRUBBIA P.J.Bergius• 3 spp., SW Cape

rosmarinifolia P.J.Bergius Erect, shortly hairy, ericoid shrublet to 1.5 m. Leaves spreading to reflexed, linear-lanceolate, margins revolute, 5–30 × 1–1.5 mm. Flowers 2 or 3 in axils, woolly, white. Aug.–Nov. Damp sandstone slopes, NW, SW, AP, LB, SE (Cold Bokkeveld Mtns to Tsitsikamma Mtns).•

rourkei Carlquist Like **G. tomentosa** but single-stemmed at base with leaves linear, roughly hairy and somewhat spreading. Sept.–Mar. Damp sandstone slopes, SW (Kogelberg).•

tomentosa (Thunb.) Harms Erect, shortly hairy shrublet to 1.5 m, multistemmed from a lignotuber. Leaves ascending, narrowly elliptic, margins revolute, 25–65 × 5–7 mm. Flowers several in cone-like, axillary clusters, shortly hairy, pinkish. Dec.–Jan. Damp sandstone slopes, NW, SW, AP, LB (Wolseley to George).•

GUNNERACEAE

GUNNERA L. RIVER PUMPKIN ± 50 spp., worldwide in the tropics and subtropics

perpensa L. Monoecious, dioecious or polygamous, rhizomatous perennial to 1 m, thinly hairy. Leaves tufted, round or kidney-shaped on long petioles, toothed. Flowers sessile in spike-like racemes, greenish. Oct.–Jan. Marshes and seeps, NW, SW, KM, LB, SE (Swartruggens to Cape Peninsula and Little Karoo, to N Africa).

HALORAGACEAE

1. Plants mainly in marshes, rooted in soil; leaves opposite or alternate, small ..... **Laurembergia**
1.' Plants floating aquatics; leaves in whorls of 3 or 4, with filiform segments ..... **Myriophyllum**

LAUREMBERGIA P.J.Bergius 4 spp., widespread tropics and subtropics

repens P.J.Bergius Monoecious or dioecious, prostrate, leafy perennial to 10 cm, stems red, glabrescent. Leaves oblanceolate, often coarsely toothed. Flowers in axillary clusters, pink, female sessile, male on filiform pedicels. Nov.–Apr. Marshes and seeps, NW, SW, AP, LB, SE (southern and tropical Africa).

MYRIOPHYLLUM L. WATER MILFOIL ± 45 spp., cosmopolitan

***aquaticum** (Vell.) Verdc. Like **M. spicatum** but leaves emergent, densely papillose with deciduous, awl-shaped, stipule-like outgrowths and flowers solitary in axils. ?. Weed in rivers and ponds, SW (S American weed naturalized from Berg River to Cape Peninsula and elsewhere in S Africa).

spicatum L. Monoecious or polygamous, rhizomatous, submerged, aquatic perennial to 2 m. Leaves whorled, feathery pinnatisect, lobes filiform. Flowers in terminal, emergent spikes, yellow. Sept.–Feb. Streams and pools, NW, SW, KM (Velddrif to Montagu, and throughout Africa and Europe).

HAMAMELIDACEAE

TRICHOCLADUS Pers. BLACK WITCH-HAZEL ± 6 spp., southern and tropical Africa

crinitus (Thunb.) Pers. Monoecious or dioecious, small tree to 4 m, brown-felted on young parts. Leaves opposite, elliptic, acuminate, shortly peltate at base, felted beneath. Flowers in congested, terminal spikes, cream-coloured. Oct.–Feb. Coastal forests, LB, SE (Grootvadersbos and George to KwaZulu-Natal).

HYPERICACEAE

HYPERICUM L. ST JOHN'S WORT ± 400 spp., widespread, especially N hemisphere

aethiopicum Thunb. Perennial to 30 cm with terete or flattened stems from a woody rootstock. Leaves spreading, ovate, margins often revolute. Flowers 1–many in a cyme, gland-dotted, yellow; sepals often glandular-haired. Sept.–Dec. Damp clay flats and slopes, KM, LB, SE (Riversdale to Zimbabwe).

lalandii Choisy Perennial to 40 cm with 4-angled stems from a woody rootstock. Leaves ascending, linear to elliptic. Flowers 1–many in a loose cyme, yellow; sepals glabrous. Nov.–Mar. Damp clay flats and slopes, SW, LB, SE (Somerset West to N Africa).

ICACINACEAE

1. Leaves opposite; inflorescence repeatedly forked; spiny shrub or tree ..... **Cassinopsis**
1.' Leaves alternate; plants unarmed:
  2. Calyx and corolla present; flowers bisexual, in terminal panicles; style filiform; shrub or small tree ..... **Apodytes**
  2.' Calyx absent; flowers unisexual, in spikes; stigma sessile; stems twining ..... **Pyrenacantha**

APODYTES E.Mey. ex Arn. WITPEER ± 20 spp., Old World tropics, mainly Africa

dimidiata E.Mey. ex Arn. UMCANDATHAMBO Small or large tree to 20 m. Leaves ovate-elliptic, obtuse, margins undulate, glossy above. Flowers many in loose, mainly terminal panicles, white, fragrant. Fruits black with red aril. Nov.–Jan. Rocky slopes and forests, SW, AP, LB, SE (Cape Peninsula to tropical Africa).

geldenhuysii A.E.van Wyk & Potgieter KAAPSE WITPEER Like **A. dimidiata** but flowers few in axillary racemes, ovary hairy and aril green. Throughout the year. Sheltered sandstone slopes, SW (Jonkershoek to Kleinrivier Mtns).•

CASSINOPSIS Sond. LEMOENDORING 4 spp., Africa and Madagascar

ilicifolia (Hochst.) Kuntze ICEGCEYA Scrambling shrub or small tree to 5 m, often with single interpetiolar thorns. Leaves opposite, elliptic-ovate, margins revolute and sharply toothed. Flow-

ers few in interpetiolar cymes, white. Sept.–Nov. Damp forests and kloofs, SW, LB, SE (Riviersonderend Mtns to Zimbabwe).

PYRENACANTHA Wight BLOUBOKTOUTJIE ± 20 spp., Old World tropics

scandens Planch. ex Harv. Dioecious, roughly hairy, scandent shrub or climber. Leaves elliptic to ovate or lobed, toothed. Flowers in supra-axillary spikes, male elongate, female capitate, greenish. Sept.–Feb. Coastal forests, LB, SE (Swellendam to tropical Africa).

KIGGELARIA see **ACHARIACEAE**

LAMIACEAE

1. Corolla 1-lipped; stamens 4, completely exserted from between 2 small upper lobes; ovary shortly 4-lobed; leaves 3-lobed to 3-partite (subfamily AJUGOIDEAE) ..... **Teucrium**
1.' Corolla 2-lipped or nearly regularly lobed; upper lobe ± hooded over stamens; stamens 2 or 4; ovary deeply 4-lobed; leaves seldom lobed:
2. Flowers in open or condensed, terminal inflorescences, sometimes verticillate but without large, leaf-like bracts; calyx often 2-lipped; stamens declinate, ascending or spreading; plants ± aromatic; pollen 6-colpate (subfamily NEPETOIDEAE):
3. Stamens directed downwards upon lower side of corolla tube or lower lip, at length upcurved ..... **Plectranthus**
3.' Stamens ascending or spreading:
4. Fertile stamens 2; anther thecae separated by a long connective; calyx 2-lipped ..... **Salvia**
4.' Fertile stamens 4; calyx not or obscurely 2-lipped:
5. Leaves simple; stamens spreading; filaments straight, with 2 directed upwards and 2 downwards; corolla small, 2–5 mm long, subequally 4- or 5-lobed ..... **Mentha**
5.' Leaves 3(–5)-foliolate; stamens ascending; corolla 2-lipped ..... **Cedronella**
2.' Flowers in verticils with lower bracts mostly large and leaf-like; stamens ascending; plants rarely aromatic; pollen 3-colpate (subfamily LAMIOIDEAE):
6. Calyx funnel-shaped, hairy within, 10- or more-toothed, limb eventually spreading ..... **Ballota**
6.' Calyx ± tubular, glabrous within, up to 10-toothed, limb not spreading:
7. Calyx subequally 5-toothed; upper lip of corolla glabrous or pubescent but not with stiff, brush-like hairs, usually shorter than lower lip; bracts usually reduced ..... **Stachys**
7.' Calyx 5–10-toothed; upper lip of corolla with stiff, brush-like hairs, subequal or larger than lower lip; bracts leaf-like ..... **Leonotis**

BALLOTA L. HOREHOUND, KATTEKRUIE ± 33 spp., mostly Mediterranean and Eurasia, also Africa

africana (L.) Benth. Aromatic, soft, greyish shrublet to 1.2 m. Leaves softly hairy, cordate, toothed. Flowers in axillary verticils, pink to purple. May–Nov. Rocky or disturbed places, NW, SW, AP, KM, LB, SE (S Namibia to E Cape and Free State).

*__CEDRONELLA__ Moench BALM-OF-GILEAD 1 sp., Madeira and Canary Islands

*__canariensis__ (L.) Webb & Berthel. Perennial to 2.5 m. Leaves digitately 3(–5)-foliolate, leaflets lanceolate, toothed. Flowers crowded in terminal verticils, purplish. Nov.–Jan. Weed along streams in forest clearings, SW (Canary Island weed naturalized on the Cape Peninsula).

LEONOTIS (Pers.) R.Br. (= *LEUCAS* in part) MINARET FLOWER, WILD DAGGA ± 65 spp., Africa and Arabia

A. Flowers 12–14 mm long, white, both lips subequal

capensis (Benth.) J.C.Manning & Goldblatt (= *Leucas capensis* (Benth.) Engl.) Aromatic, greyish, twiggy shrub to 1.5 m. Leaves oblanceolate, rarely coarsely toothed above. Flowers in few-flowered verticils, white with red anthers, 12–14 mm long. Oct.–Jan. Dry grasslands, SE (Uitenhage to Botswana and Namibia).

A.' Flowers 24–50 mm long, orange or cream-coloured, upper lip much longer than lower lip

leonurus (L.) R.Br. Roughly hairy shrub to 500 cm. Leaves narrowly lanceolate, toothed. Flowers in axillary verticils, calyx subequally toothed, corolla with lower lobes reflexed, velvety orange, 40–49 mm long. Nov.–July. Forest margins or rough grasslands, NW, SW, AP, KM, LB, SE (Clanwilliam to Gauteng).

ocymifolia (Burm.f.) Iwarsson Like **L. leonurus** but leaves ovate, calyx bilabiate with larger upper tooth and corolla 24–45 mm long with lower lobes spreading. Mar.–May. Rocky slopes, NW, SW, AP, KM, LB, SE (Clanwilliam to tropical Africa).

MENTHA L. MINT ± 25 spp., cosmopolitan, mainly temperate

aquatica L. WATER MINT Trailing, mint-scented perennial to 80 cm. Leaves usually petiolate, ovate, toothed. Flowers in distant verticils, pink to purple. Feb.–May. In marshes and wet places, NW, SW, AP, LB, SE (Clanwilliam to Knysna and to Europe).

longifolia (L.) Huds. WILDEKRUISEMENT Straggling, aromatic shrublet to 150 cm, usually coarsely hairy. Leaves sessile, lanceolate, sometimes sparsely toothed. Flowers crowded in spike-like, terminal verticils, white to mauve. Nov.–Apr. Along rivers or seeps, NW, SW, AP, KM, LB, SE (southern and N Africa to Europe).

PLECTRANTHUS L'Hér. FOREST SAGE, SPOORSALIE ± 350 spp., Africa to Asia and Australia

ciliatus E.Mey. ex Benth. Soft, straggling, roughly hairy perennial with purplish stems to 60 cm. Leaves ovate, toothed. Flowers in verticils, calyx hairy, corolla saccate at base, whitish speckled with purple. Feb.–Apr. Forest glades and moist places, SE (Knysna to Mpumalanga).

fruticosus L'Hér. Soft, sparsely hairy shrub to 2 m. Leaves ovate, toothed. Flowers in panicles, calyx glandular-hairy, corolla saccate at base, mauve, blue or pink with darker speckling. Nov.–Apr. Forests and shaded, rocky places, SW, LB, SE (Caledon to Limpopo).

laxiflorus Benth. Soft, citrus-scented, glandular-hairy perennial to 1.5 m. Leaves, ovate-deltoid, toothed. Flowers in racemes, calyx glandular-hairy, corolla sigmoid, whitish to mauve. Feb.–Apr. Forest margins and stream banks, SE (Humansdorp to Limpopo).

madagascariensis (Pers.) Benth. Sprawling, shortly hairy perennial to 1 m. Leaves leathery, broadly ovate, obscurely toothed. Flowers in verticils, bracts caducous, calyx swollen below in fruit, glandular, corolla sigmoid, white or mauve to purple. Oct.–Apr. Dry woodlands, SE (Knysna to Mpumalanga).

spicatus E.Mey. ex Benth. Sprawling, succulent perennial to 60 cm. Leaves subsessile, obovate, coarsely toothed above. Flowers subspicate, bracts caducous, calyx subequally toothed in fruit, corolla sigmoid, purple. Mar.–May. Rocky woodlands, SE (Humansdorp to Mpumalanga).

strigosus Benth. Sprawling, roughly hairy, semisucculent perennial to 30 cm. Leaves rounded, obscurely toothed. Flowers in verticils, calyx sparsely hairy, corolla swollen below and narrowed above, whitish to mauve. Dec.–June. Rocky outcrops in woodlands, SE (Uitenhage to Mpumalanga).

verticillatus (L.f.) Druce Sprawling, semisucculent perennial to 30 cm. Leaves ovate, toothed. Flowers in verticils, calyx glabrous, corolla slightly swollen below, white to mauve. Dec.–June. Rocky outcrops in woodlands, SE (Knysna to Limpopo).

SALVIA L. SAGE, SALIE 800–900 spp., cosmopolitan

A. Calyx campanulate, bilabiate, accrescent

africana-caerulea L. BLOUBLOMSALIE Grey-hairy shrub to 2 m with stems almost terete. Leaves obovate, sometimes toothed. Flowers in verticils, calyx glandular-silky, corolla mauve to blue or pink with darker spots, 16–28 mm long, upper lip hooded. June–Jan. Sandy or clay flats and slopes, NW, SW, KM (Namaqualand to Cape Peninsula to Montagu and Botrivier). **gce**

africana-lutea L. BRUINSALIE, STRANDSALIE Aromatic, grey shrub to 2 m. Leaves grey-hairy, obovate, sometimes toothed. Flowers mostly paired, calyx shortly hairy and gland-dotted, corolla

golden-brown, 30–50 mm long, upper lip hooded, ± 25 mm long. June–Dec. Alkaline coastal sands and granite outcrops, NW, SW, AP, LB, SE (Namaqualand to E Cape).

albicaulis Benth. Loose, white-velvety shrublet to 60 cm. Leaves leathery, oblanceolate, glabrescent above, coarsely toothed. Flowers in panicles, calyx densely silky, corolla purplish, 18–24 mm long. Nov.–May. Sandstone slopes, NW, SW (Clanwilliam to Paarl).•

chamelaeagnea P.J.Bergius BLOUBLOMSALIE Like **S. africana-caerulea** but stems tetragonal, leaves glabrescent and gland-dotted and calyx shortly hairy and gland-dotted. Nov.–May. Sandy slopes, NW, SW, AP (Bokkeveld Mtns to Breede River).•

dentata Aiton Like **S. africana-caerulea** and **S. chamelaeagnea** but leaves usually grey-hairy and toothed to pinnatifid and calyx shortly hairy and gland-dotted. June–Jan. Rocky hillsides, NW (Namaqualand to Pakhuis). **gce**

lanceolata Lam. Like **S. africana-lutea** but bracts caducous and corolla dull rose to grey-blue, 25–35 mm long, upper lip ± 17 mm long. Sept.–June. Mainly coastal or acid sands and rocky outcrops, NW, SW, KM (Namaqualand to Cape Peninsula and Montagu). **gce**

A.' Calyx cylindrical-campanulate, not accrescent
*B. Upper corolla lip distinctly falcate (see also **S. verbenacea**)*

disermas L. GROOTBLOUSALIE Soft, glandular-hairy shrub to 1.2 m. Leaves often crowded below, roughly hairy, ovate, toothed. Flowers in verticils, calyx glandular-hairy, corolla whitish to mauve, 15–30 mm long, upper lip deeply hooded. Aug.–May. Sandy slopes and limestone, NW, SW, LB, SE (Namibia and W Karoo to NW Province).

granitica Hochst. Stoloniferous perennial to 60 cm. Leaves linear, hairy beneath. Flowers in pairs, calyx glandular-silky, corolla mauve-pink, ± 20 mm long, upper lip hooded. Nov.–Dec. Sandstone slopes, NW, SW (Cold Bokkeveld Mtns and Babilonstoring).•

thermarum Van Jaarsv. Stoloniferous perennial to 1 m. Leaves linear-lanceolate, toothed. Flowers in verticils in a short raceme, calyx shortly hairy, corolla reddish, 40–50 mm long. Dec.–Jan. Sandstone slopes, SW (Slanghoek Mtns: Badsberg).•

B.' Upper corolla lip ± straight

aurita L.f. OOGSEERBOSSIE Straggling, hairy perennial to 1 m. Leaves often lyrate-pinnatifid. Flowers in verticils, calyx hairy, corolla white, pinkish or mauve, 16–20 mm long. Oct.–June. Stream banks and grasslands, SE (Mossel Bay to Mpumalanga).

muirii L.Bolus Shortly hairy, twiggy shrublet to 60 cm. Leaves leathery, grey-velvety, oblanceolate. Flowers mostly paired, calyx shortly hairy and gland-dotted, corolla blue with white throat, to 26 mm long, upper lip hooded. Apr.–June. Dry clay slopes, LB (Riversdale to Great Brak).•

namaensis Schinz Aromatic, sticky, velvety shrub to 1.2 m. Leaves leathery, lyrate-pinnatifid, roughly hairy. Flowers in verticils, calyx roughly glandular-hairy, corolla white, mauve or blue, 8–12 mm long. Sept.–May. Rocky slopes, KM, LB, SE (Namibia, Oudtshoorn to Willowmore and Karoo).

obtusata Thunb. Like **S. aurita** but stems and leaves almost glabrous above, corolla 20–25 mm long, blue, mauve or reddish. ?. Grasslands, SE (Uitenhage to E Cape).

repens Burch. ex Benth. KRUIPSALIE Shortly hairy perennial to 80 cm from a creeping rhizome. Leaves usually crowded below, obovate to lyrate, toothed. Flowers in verticils, calyx shortly hairy, corolla pale blue to purple, rarely white, 10–26 mm long. Oct.–May. Grasslands or woodlands, LB, SE (George to Limpopo).

runcinata L.f. HARDESALIE, WILDESALIE Shortly hairy perennial to 70 cm from a woody rootstock. Leaves usually lyrate. Flowers in verticils, calyx roughly hairy and gland-dotted, corolla white or mauve to purplish, 7–14 mm long. Oct.–Apr. Clay slopes, grasslands or woodlands, SW, LB, SE (Bredasdorp to Zimbabwe).

scabra L.f. Like **S. aurita** but roughly hairy and corolla tubular and 25–40 mm long, mauve to purple. Throughout the year. Streamsides, SE (Humansdorp to E Cape).

stenophylla Burch. ex Benth. Like **S. runcinata** but leaves often pinnatifid or pinnatisect with narrow segments and stems almost glabrous. Oct.–Apr. Sandy, often brackish soils, SE (Humansdorp to Limpopo, Botswana and Namibia).

triangularis Thunb. Like **S. aurita** but leaves ovate-triangular, 20–40 mm long and calyx bilabiate in fruit. Aug.–Oct. Wooded grasslands, SE (Humansdorp to E Cape).

verbenaca L. Like **S. runcinata** but upper lip of calyx with teeth connivent. Sept.–May. Stony flats and drier slopes, NW, KM, SE (Bokkeveld Escarpment to Riversdale, widespread through drier parts of southern Africa into Mediterranean).

STACHYS L. WOUNDWORT, TEEBOS ± 450 spp., cosmopolitan, mainly temperate and subtropical

A. Pubescence stellate and velvety or felted

aurea Benth. GEELTEEBOSSIE Aromatic, yellowish felted shrub to 1 m. Leaves subsessile, small, obovate, coarsely toothed above. Flowers in verticils, calyx yellowish woolly, corolla yellow. Sept.–Feb. Clay slopes, NW (Pakhuis and W Karoo). **gce**

flavescens Benth. GEELTEEBOSSIE Aromatic, yellowish felted shrub to 1 m. Leaves subsessile, oblong-lanceolate. Flowers in verticils, calyx yellowish stellate-pubescent, corolla yellow. Sept.–Feb. Rock outcrops, NW (Namaqualand, Bokkeveld Mtns to Matsikamma). **gce**

linearis Burch. ex Benth. BOESMANTEE Grey-felted shrublet to 40 cm. Leaves sessile, linear, folded. Flowers mainly in pairs, calyx grey-felted, corolla pink to mauve. Dec.–Feb. Clay flats, NW (Pakhuis Mtns and W Karoo to Great Karoo).

rugosa Aiton VAALTEE Grey-felted shrub to 1.2 m. Leaves sessile, lanceolate, slightly toothed. Flowers in verticils, calyx grey-felted, corolla yellow to pink or purple, often mottled. Sept.–Dec. Rocky, clay slopes, NW (S Namibia and W Karoo to Piketberg to Lesotho).

A.' Pubescence simple and often sparse

aethiopica L. KATBOSSIE Glandular-hairy, sprawling perennial to 50 cm. Leaves petiolate, ovate, toothed. Flowers in 2–6-flowered verticils, calyx roughly and often glandular-hairy, corolla white, pink or mauve with darker spots. Aug.–Sept. Scrub or grasslands, NW, SW, AP, KM, LB, SE (Bokkeveld Mtns to Swaziland).

***arvensis** L. Hairy annual to 40 cm. Leaves petiolate, broadly ovate, toothed. Flowers in verticils, calyx softly hairy, corolla scarcely longer than calyx, mauve or white. Throughout the year. Weed of cultivation, NW, SW, SE (Eurasian weed).

bolusii Skan Like **S. grandifolia** but upper bracts exceeding corolla. Aug.–Sept. Rock outcrops, SW, AP (Saldanha to Stanford).•

graciliflora C.Presl Sparsely hairy, sprawling perennial to 40 cm. Leaves petiolate, ovate, toothed. Flowers in sparse verticils, calyx softly to shortly hairy, corolla white, sometimes with mauve spots. Oct.–Mar. Moist places in scrub or forest margins, SE (Knysna to S KwaZulu-Natal).

grandifolia E.Mey. ex Benth. Softly hairy, straggling perennial to 1 m. Leaves petiolate, ovate, finely toothed, densely soft-hairy beneath. Flowers in 4–6-flowered verticils, calyx softly hairy, longer than upper bracts, corolla white with mauve spots. Dec.–Apr. Forest margins and streamsides, SE (Knysna to Mpumalanga).

humifusa Burch. ex Benth. Like **S. scabrida** but leaves sessile or subsessile and shallowly toothed. Oct.–Jan. Grasslands, SE (Knysna to E Cape).

scabrida Skan Like **S. graciliflora** but roughly hairy and leaves thicker in texture with bulbous-based hairs on upper surface. Sept.–Dec. Grasslands or scrub, SE (Knysna to E Cape and Karoo).

sublobata Skan Sparsely hairy, spreading perennial to 30 cm. Leaves shortly petiolate, narrowly triangular and often folded, coarsely lobed. Flowers mostly in pairs, calyx thinly glandular-hairy, corolla mauve. Sept.–Mar. Sandstone slopes, SW, KM, LB (Robertson and Caledon to Mossel Bay).•

thunbergii Benth. Prickly, sprawling perennial to 2 m. Leaves petiolate, ovate, finely toothed. Flowers in sparse verticils, calyx roughly hairy, corolla tubular and twice as long as calyx, red to purple. Sept.–Mar. Bush and forest margins, SW, SE (Cape Peninsula and George to Humansdorp).•

TEUCRIUM L. WOOD SAGE ± 200 spp., worldwide, mainly Eurasia

africanum Thunb. PADDAKLOU Greyish shrublet to 30 cm. Leaves thinly hairy, tripartite. Flowers usually solitary in upper axils, white. Nov.–Apr. Dry areas, often among rocks, AP, KM, LB, SE (De Hoop and Little Karoo to Grahamstown and Great Karoo).

trifidum Retz. AKKEDISPOOT, KAATJIEDRIEBLAAR Soft, willowy, greyish undershrub to 1 m. Leaves thinly hairy, 3–5-partite. Flowers several in axillary cymes, white. Nov.–Apr. Dry woodlands, SE (Humansdorp to Botswana).

LENTIBULARIACEAE

UTRICULARIA L. BLADDERWORT 215 spp., cosmopolitan

A. Plants terrestrial with simple leaves; upper corolla lip much smaller than lower

bisquamata Schrank (= *Utricularia capensis* Spreng.) Annual to 12 cm. Leaves linear. Flowers 1–few, bracteate, white to lilac (rarely yellowish) with smooth, yellow palate obscuring mouth, lower lip 3–5-crenate, upper lip much smaller, emarginate, purple-streaked, spur ± as long as lower lip. Fruits erect. Sept.–Jan. Boggy, acid soils, NW, SW, AP, KM, LB, SE (throughout southern Africa).

brachyceras Schltr. Annual to 5 cm. Leaves linear. Flowers solitary, bracteate, white with small yellow palate not obscuring mouth, lower lip crenate, upper lip much smaller, bifid, purple-streaked, spur saccate, obsolete. Fruits erect. Sept. Rock flushes on sandstone pavement, NW (N Cedarberg).•

A.' Plants aquatic with dissected leaves; corolla lips subequal

gibba L. Submerged, aquatic annual or perennial to 20 cm. Leaves sparsely dissected. Flowers in an ebracteolate, emergent raceme, yellow, lips subequal, broadly ovate, palate obscuring mouth, spur ± as long as or longer than lower lip. Fruits erect. Nov.–Feb. Boggy or shallow water, SE (Uitenhage and throughout the tropics).

inflexa Forssk. Free-floating, submerged, aquatic annual or perennial to 1 m. Leaves finely dissected, fennel-like. Flowers in an ebracteolate, emergent raceme with a basal whorl of spongy floats, white, mauve or yellow, hairy outside, lips subequal, broadly ovate, notched, palate obscuring mouth, spur ± as long as lower lip. Fruits nodding. Jan.–Mar. Shallow or deep water, SE (Uitenhage through Old World tropics).

LIMEACEAE

LIMEUM L. LIZARD'S FOOT, KOGGELMANDERVOET 26 spp., W Cape to tropical Africa and India

aethiopicum Burm.f. AARBOSSIE Stunted, woody shrublet with annual shoots, to 15 cm. Leaves oblong to elliptic, margins revolute. Flowers in terminal and axillary clusters on erect peduncles, green and white. Feb.–Mar. Dry, rocky slopes, NW, KM (subtropical Africa and Namibia to Worcester, Little Karoo Mtns and Swartberg).

africanum L. Sprawling annual or perennial with long, trailing branches. Leaves obovate to oblanceolate, margins sometimes revolute. Flowers in crowded, terminal cymes on prostrate peduncles, green and white. Mainly Aug.–Nov. Dry, rocky slopes and flats, NW, SW (Namaqualand and W Karoo to Cape Peninsula). **gce**

subnudum Friedrich Stiffly erect, sparsely leafy shrublet to 40 cm, with rod-like branches. Leaves adpressed, subsessile, linear-elliptic. Flowers in terminal umbels on short, naked peduncles soon appearing axillary, yellow. Sept.–Oct. Sandstone slopes, NW (Olifants River Mtns and Piketberg).•

telephioides E.Mey. ex Fenzl Like **L. aethiopicum** but branches often trailing, leaves broadly obovate, flat. Nov.–May. Dry, stony slopes, AP, KM, LB, SE (Robertson to Oudtshoorn, Still Bay to E Cape—probably not distinct from **L. aethiopicum**).

LINACEAE

LINUM L. FLAX 200 spp., pantemperate and subtropics

*A. Styles partly united (see also **L. esterhuyseniae**)*

acuticarpum C.M.Rogers Subshrub with slender stems from persistent base, to 50 cm. Leaves opposite, sessile, linear-lanceolate, with stipular glands on lower leaves only. Flowers in panicles,

yellow, styles united for > half their length. Mainly Dec.–Mar. Sandstone slopes, SW (Kogelberg to Hermanus).•

adustum E.Mey. ex Planch. Subshrub with slender stems from persistent base, to 50 cm. Leaves opposite, sessile, linear-lanceolate, with stipular glands throughout. Flowers in panicles, yellow, styles united almost entirely. Mainly Nov.–Jan. Sandstone slopes, NW (Gifberg to Piketberg).•

aethiopicum Thunb. Like **L. gracile** but stems leafy to tips and flowers congested at branch tips. Sept.–Feb. Stony and grassy slopes, AP, LB, SE (Danger Point to E Cape).

africanum L. Subshrub with slender stems from persistent base, to 50 cm. Leaves opposite, sessile, linear-lanceolate, with stipular glands throughout. Flowers in panicles, yellow, styles united for up to half their length. Mainly Nov.–Jan. Sandstone and limestone slopes and flats, SW, AP, LB, SE (Hopefield to Knysna).•

comptonii C.M.Rogers Like **L. africanum** but flowers heterostylous. Nov.–Feb. Sandstone slopes, NW, SW (Cedarberg to Hermanus).•

gracile Planch. Like **L. adustum** but leaves elliptic-lanceolate and capsules obtuse. Mainly Sept.–Feb. Sandstone slopes, SW, LB, SE (Hermanus to Humansdorp).•

heterostylum C.M.Rogers Like **L. acuticarpum** but flowers heterostylous, and styles united for up to half their length. Oct.–Mar. Sandstone and limestone slopes, NW, SW, AP, KM (Worcester to Little Karoo).•

A.' Styles separate to base

brevistylum C.M.Rogers Like **L. thunbergii** but outer sepals fringed and petals < 10 mm. Oct.–Dec. Sandy slopes, SW (Cape Peninsula to Caledon).•

esterhuyseniae C.M.Rogers Like **L. thunbergii** but stems velvety below, leaves somewhat crowded below, lanceolate-elliptic and styles free or basally united. Oct.–Dec. Sandstone slopes, KM, SE (Ladismith to Humansdorp).•

pungens Planch. Like **L. thunbergii** but outer sepals conspicuously glandular-toothed. Dec.–Jan. Sandstone slopes, NW (Gifberg to Hex River Mtns).•

quadrifolium L. Slender shrublet with willowy branches, to 50 cm. Leaves opposite, sessile, elliptic to broadly ovate, in whorls of 4, with stipular glands throughout. Flowers in lax panicles, yellow, styles free. Sept.–Nov. Damp sandstone slopes, SW, LB, SE (Cape Peninsula to Knysna).•

thesioides Bartl. Like **L. thunbergii** but stipular glands only on lower leaves, outer sepals pectinate and pedicels sparsely hairy. Oct.–Jan. Stony slopes, SW, LB (Cape Peninsula to Swellendam).•

thunbergii Eckl. & Zeyh. Subshrub with slender stems from persistent base, to 50 cm. Leaves opposite below, sessile, linear to elliptic, sometimes ovate, with stipular glands sometimes only below. Flowers in panicles, yellow, styles free. Mainly Oct.–Jan. Mostly sandstone slopes, SW, AP, KM, LB, SE (Cape Peninsula to tropical Africa).

villosum C.M.Rogers Subshrub to 50 cm, with softly hairy, sprawling branches leafy to tips. Leaves opposite, sessile, elliptic-obovate, stipular glands throughout. Flowers few, clustered at branch tips, yellow, styles free. Nov.–Dec. Damp sandstone slopes, SE (Outeniqua Mtns).•

LINDERNIACEAE

LINDERNIA All. ± 50 spp., tropics and subtropics

parviflora (Roxb.) Haines (= *Ilysanthes dubia* auct., misapplied name) Diffuse annual to 20 cm. Leaves opposite, elliptic, somewhat glossy. Flowers in axils of upper leaves, white or pale blue. Capsules deflexed. Dec.–Apr. Marshes seeps and streamsides, SW, LB, SE (Cape Peninsula to Mpumalanga).

LOBELIACEAE (= *CAMPANULACEAE* in part)

by P.B. Phillipson

1. Petals separate, free or partly cohering by their claws above base; capsule 2-locular, many-seeded; often with twining stems, growing from an underground tuber ..... **Cyphia**
1.' Petals united; capsule 1- or 2-locular, few- to many-seeded; never twining or tuberous:

2. Ovary 1-locular; capsule prismatic, elongate, 3-valved; plants usually in damp places ..... **Grammatotheca**
2.' Ovary 2-locular; capsule diverse, often short, 2-valved:
3. Corolla tube not cleft down one side; delicate herbs ..... **Wimmerella**
3.' Corolla tube cleft down one side, usually to base; delicate or robust herbs and subshrubs:
4. Stigmatic lobes elongate, filiform; flowers not resupinate (corolla cleft at base of flower) .... **Monopsis**
4.' Stigmatic lobes short, subrotund or oval; flower resupinate (corolla cleft at top of flower) .... **Lobelia**

CYPHIA P.J.Bergius BAROE ± 60 spp., Africa, mainly S Africa

A. Stems erect or weakly twining

bulbosa (L.) P.J.Bergius (incl. **C. kerastes** E.Wimm., **C. stephensii** E.Wimm.). Glabrescent, tuberous geophyte to 30 cm. Leaves mostly basal but grading into bracts, palmatisect, sometimes palmatifid, paler beneath, margins slightly revolute. Flowers in terminal or axillary racemes, showy, bilabiate, laterally slit, white to mauve, 8–13 mm long, stamens ± 6 mm long, 2 anthers bearded. Aug.–Nov., often after fire. Sandy and stony flats and slopes, NW, SW (Cedarberg to Cape Peninsula).•

campestris Eckl. & Zeyh. (= *Cyphia linarioides* auct.) Erect, sometimes weakly twining, tuberous geophyte to 30 cm. Leaves linear-lanceolate but often highly reduced, sometimes shallowly lobed at base. Flowers in slender, secund, terminal racemes, bilabiate, laterally slit, white to mauve, 7–9 mm long, stamens 5–6 mm long, 2 anthers bearded. Apr.–Sept. Moist, sandy ground, NW, LB, (Hex River Valley and Worcester to Riversdale).•

georgica E.Wimm. Like **C. campestris** but flowers ± erect, on long, 10–12 mm, puberulous pedicels, flowers slightly larger, 9–10 mm long, stamens 5 mm long. Mar. Stony slopes, SE (George).•

incisa (Thunb.) Willd. (incl. **C. cardamines** (Thunb.) Willd.) Thinly hairy, tufted, tuberous geophyte to 30 cm. Leaves rosulate, oblanceolate, toothed to pinnatisect. Flowers in a scapose raceme, scape ebracteate, bilabiate, laterally slit, white to mauve, 10–14 mm long, stamens ± 6 mm long, all anthers bearded. Sept.–Oct. Sandy and stony flats and slopes, NW, SW (Bokkeveld Mtns to Cape Peninsula).•

linarioides C.Presl ex Eckl. & Zeyh. (incl. **C. bulbosa** (L.) P.J.Bergius var. **orientalis** E.Phillips) Erect, sometimes weakly twining, tuberous geophyte to 30 cm. Leaves often reduced, linear-lanceolate, sometimes shortly lobed below. Flowers in slender, secund, terminal racemes, bilabiate, laterally slit, white to mauve and variously spotted, 7–9 mm long, stamens 5–6 mm long, 2 anthers bearded. Generally Jan.–Mar. Clay soils, valley bushveld, SE (Humansdorp to E Cape: Grahamstown).

phyteuma (L.) Willd. Glabrescent, tufted, tuberous geophyte to 40 cm. Leaves rosulate, oblanceolate, slightly toothed. Flowers in a scapose, spiralling spike-like raceme, subsessile, scape minutely bracteate, bilabiate, laterally slit, whitish to brown or mauve, 16–20 mm long, stamens ± 6 mm long, all anthers bearded. Sept.–Oct. Sandy and stony flats and slopes, NW, SW, LB (Bokkeveld Mtns to Riversdale).•

A.' Stems twining
B. Corolla ± equally 5-lobed, tube not completely split at sides

eckloniana C.Presl ex Eckl. & Zeyh. Twining, tuberous geophyte. Leaves linear-lanceolate, sometimes 3-lobed, short, at most very shallowly toothed. Flowers in upper axils, arcuate-hypocrateriform, not laterally slit, inconspicuous, cream-coloured inside, dull reddish outside, 10–12 mm long, stamens ± 3 mm long, anthers glabrous. Aug.–Oct. Sandstone slopes, NW, SW (Cedarberg to Bain's Kloof).•

longilobata E.Phillips Twining, tuberous geophyte. Leaves linear, 50–60 × 2–3 mm, minutely toothed. Flowers in upper axils, slightly arcuate-hypocrateriform, not laterally slit, magenta?, 16–18 mm long, Calyx lobes erect, stamens ± 4.5 mm long, anthers glabrous. Apr. Sandy ground, KM (Oudtshoorn).•

ranunculifolia E.Wimm. Twining, tuberous geophyte. Leaves digitate, lobes lanceolate, slightly toothed. Flowers numerous in upper axils, slightly bilabiate and with a straight tube, showy, not laterally slit, magenta with purple marks in mouth, 10–14 mm long, Calyx lobes patent or slightly recurved, stamens ± 4.5 mm long, anthers glabrous. Aug.–Sept. Rock crevices, NW (Cedarberg).•

subtubulata E.Wimm. Twining, tuberous geophyte. Leaves linear-lanceolate, toothed. Flowers in upper axils, showy, incompletely bilabiate, not completely laterally slit, white to mauve, 15–18 mm long, stamens ± 6 mm long, all anthers bearded. Aug.–Oct. Stony, often clay flats, NW, SW (Mamre and Tulbagh to Worcester).•

zeyheriana C.Presl ex Eckl. & Zeyh. Twining, tuberous geophyte. Leaves narrowly lanceolate, sometimes digitately lobed, slightly toothed. Flowers in upper axils, arcuate-hypocrateriform, showy, not laterally slit, mauve, 16–18 mm long, stamens ± 5 mm long, anthers glabrous. July–Sept. Sandstone slopes, NW, SW, KM (Matsikamma to Riviersonderend Mtns and Little Karoo).•

B.' Corolla bilabiate, tube split completely at sides

angustiloba C.Presl ex Eckl. & Zeyh. (= *Cyphia volubilis* var. *longipes* E.Wimm.) Twining, tuberous geophyte. Leaves mostly ternate, lobes linear, shallowly toothed. Flowers numerous in upper axils, showy, bilabiate, laterally slit, magenta-purple with purple markings in mouth, 11–14 mm long, Calyx lobes patent to recurved, stamens 3–4 mm long, all anthers bearded. Aug.–Oct. Sandy flats and slopes, SW (Kogelberg and Houwhoek).•

crenata (Thunb.) C.Presl Twining, tuberous geophyte. Leaves linear-lanceolate to ovate, toothed, often shortly lobed below, usually ascending. Flowers 1–3 in upper axils, bilabiate, laterally slit, white to mauve, 9–11 mm long, calyx truncate below, divided almost to base, ovary ± superior, stamens 5–6 mm long, all anthers bearded. July–Sept. Sandy flats and slopes, often coastal, NW, SW (Namaqualand to Cape Peninsula). **gce**

dentariifolia C.Presl) Twining, tuberous geophyte. Leaves petiolate, ternate to biternate, lobes lanceolate, sometimes linear-lanceolate not toothed. Flowers copious in upper axils, bilabiate, laterally slit, white inside with purple markings, mauve outside, 10–12 mm long, stamens 6–7 mm, all or 2 anthers bearded. Mainly July–Oct. Sandy slopes, NW, SW, KM, LB, (Worcester through Little Karoo to Mossel Bay).•

dentata E.Wimm. Twining, tuberous geophyte. Leaves linear-lanceolate, markedly toothed. Flowers in upper axils, bilabiate, laterally slit, purple, 11–12 mm long, stamens ± 5 mm long, all anthers bearded. Aug.–Oct. Sandy flats and slopes, NW (Cedarberg).•

digitata (Thunb.) Willd. Twining, tuberous geophyte. Leaves sessile, 3–7-digitate, lobes linear, sometimes linear-lanceolate and obscurely toothed. Flowers in upper axils, bilabiate, laterally slit, white to pale mauve with conspicuous purple markings, 7–11 mm long, stamens 5–7 mm, all or 2 anthers bearded. Mainly July–Oct. Sandstone and clay slopes, NW, SW, AP, KM, LB, SE (Namaqualand and W Karoo to Port Elizabeth). **gce**

heterophylla C.Presl ex Eckl. & Zeyh. Twining, tuberous geophyte. Leaves ovate to sagittate, often 3-lobed below, toothed. Flowers in upper axils, bilabiate, laterally slit, white to mauve, with purple markings inside, 12–15 mm long, stamens 7–8 mm long, all anthers bearded. Sept.–Oct. Coastal bush, SE (George to Knysna).•

latipetala Eckl. & Zeyh. (= *Cyphia volubilis* var. *latipetala* (Eckl. & Zeyh.) E.Wimm.) Twining, tuberous geophyte. Leaves linear-lanceolate below and above, 3-lobed along midsection of stem, few-toothed. Flowers in upper axils, showy, hardly bilabiate; the 5 lobes subequal abruptly spreading from tube, laterally slit, white with a ring of dark purple spots around mouth, 15–23 mm long, stamens short, 3–5 mm long, all anthers bearded. Aug.–Sept. Rocky mountain slopes, SW (Cape Peninsula to Hermanus and Franschhoek).•

longipetala C.Presl (= *Cyphia volubilis* var. *intermedia* E.Wimm.) Twining, tuberous geophyte. Leaves digitate to triternate, with very narrow segments, the segments sometimes further divided. Flowers in upper axils, bilabiate, laterally slit, pale mauve with numerous, tiny, purple spots inside, 15–18 mm long, stamens 4–6 mm long, all anthers bearded. Sept.–Oct. Sandy slopes, NW, SW, KM, LB, SE (Cedarberg, to Caledon, Swellendam to Outeniqua Mtns).•

polydactyla C.Presl Twining, tuberous geophyte. Leaves digitate, with very narrow segments, the segments sometimes further divided. Flowers in upper axils, bilabiate, laterally slit, white with numerous, tiny, purple spots inside, 15–18 mm long, stamens 10–12 mm long, all anthers bearded. Sept.–Oct. Sandy slopes, NW, SW (Ceres to Worcester and Grabouw).•

psilostemon E.Wimm. Twining, tuberous geophyte. Leaves linear, simple below, upper leaves and bracts 3-lobed. Flowers in upper axils, bilabiate, laterally slit, white, ± 16 mm long, stamens short, < half as long as corolla, anthers glabrous. Aug.–Sept. Sandy flats inland, NW, SW (Clanwilliam to Stellenbosch).•

schlechteri E.Phillips (incl. **C. salteri** E.Wimm.) Twining, tuberous geophyte. Leaves linear to lanceolate, slightly toothed. Flowers in upper axils, bilabiate, laterally slit, pedicels and calyx pu-

bescent to woolly white to mauve, 7–12 mm long, stamens 6–7 mm long, all anthers bearded. July–Sept. Stony slopes, NW (Namaqualand and W Karoo to Clanwilliam). **gce**

sylvatica Eckl. (incl. **C. tortilis** N.E.Br.) Like **C. schlechteri** but pedicels and calyx glabrous. Mainly Sept.–Oct. Stony slopes, KM, SE (Swartberg to E Cape: Grahamstown).

undulata Eckl. Twining, tuberous geophyte. Leaves linear to lanceolate, slightly toothed. Flowers in upper axils, bilabiate, laterally slit, deep mauve, 10–12 mm long, stamens 6–7 mm long, all anthers bearded. Mainly June–July Stony ground near the coast on limestone, SE (near Port Elizabeth).•

volubilis (Burm.f.) Willd. Twining, tuberous geophyte. Leaves linear-lanceolate, toothed (not lobed). Flowers in upper axils, showy, bilabiate, laterally slit, white to pale grey-mauve with small, dark indigo spots ± hidden in mouth, 14–20 mm long, stamens 3–4 mm long, all anthers bearded. Aug.–Sept. Sandy flats and mountain slopes, NW, SW, LB (widespread, Clanwilliam to Cape Peninsula, Worcester Swellendam).•

sp. 1 (*Cyphia volubilis* var. *banksiana* E.Wimm.) Twining, tuberous geophyte. Leaves linear-lanceolate or 3-lobed, entire. Flowers copious along upper parts of stem, bilabiate, laterally slit, lobes deep mauve-pink, mouth white sometimes with purple markings, 8–12 mm long, stamens ± 3–5 mm, all anthers bearded. Sept.–Oct. Sandy soil on mountain slopes, NW (Clanwilliam to Ceres).•

[**Species excluded** No authentic material found and probably conspecific with one of the above: **C. angustifolia** Eckl. & Zeyh., **C. longipedicellata** E.Wimm., **C. tenera** Diels, **C. tricuspis** E.Wimm.]

GRAMMATOTHECA C.Presl. WATER LOBELIA 2 spp., W Cape to KwaZulu-Natal

bergiana (Cham.) C.Presl Creeping perennial, stems to 60 cm. Leaves linear-oblanceolate, sparsely toothed. Flowers sessile or pedicellate in upper axils, pink or blue. Fruits glabrous. Nov.–Apr. Marshy flats, SW, LB, SE (Bain's Kloof to KwaZulu-Natal).

LAURENTIA Michx. ex Adans. = **WIMMERELLA**

LOBELIA L. (= *UNIGENES*) LOBELIA ± 300 spp., cosmopolitan

A. Anthers all with an apical brush-like tuft of straight, white hairs; flowers usually in a terminal raceme of 1 to several flowers, often on a long peduncle, sometimes peduncles leaf-opposed and vegetative growth continuing from a lateral bud or flowers axillary and solitary

ardisiandroides Schltr. Sprawling, pubescent perennial. Leaves ovate-orbicular, with cordate base, coarsely toothed. Flowers white or dull mauve. Nov.–Jan. Sheltered rocks at high alt., SW, SE (Riviersonderend Mtns and Langkloof).•

barkerae E.Wimm. Erect, rigid shrublet to 30 cm, branches densely leafy below. Leaves up to 6 mm long, pinnately divided with segments filiform, Flowers blue. May–June. Limestone hills, AP (Agulhas coast).•

capillifolia (C.Presl) A.DC. Broom-like perennial to 50 cm. Leaves sparse, narrowly linear, up to 25 mm long, entire or with scattered minute teeth. Flowers blue and white. Sept.–May. Sandstone slopes, NW, SW, AP, LB (Cedarberg to Langeberg).•

chamaepitys Lam. Shrublet branching from base, stems to 30 cm. Leaves linear or pinnatifid. Flowers violet-blue. Sept.–Apr. Sandstone slopes at low to middle alt., SW, AP, KM, LB (Stellenbosch to Klein Swartberg and Bredasdorp).•

comptonii E.Wimm. (incl. **L. esterhuyseniae** E.Wimm.) Sprawling perennial to 35 cm. Leaves cordate-orbicular, margins with 1 or 2 crenate lobes. Flowers blue or white. Nov.–Dec. Sheltered rocks at medium to high alt., NW (Cedarberg).•

coronopifolia L. Tufted shrublet branching from base, stems to 30 cm. Leaves linear to lanceolate, margins pinnatifid-dentate. Flowers large, dark blue, pink or white. Oct.–Apr. Sandy and stony flats and lower slopes, NW, SW (Gifberg to Kleinrivier Mtns).•

dasyphylla E.Wimm. Low, tufted perennial to 20 cm. Basal leaves ovate-orbicular with cordate bases, margins crenate, upper leaves lanceolate. Flowers blue. Jan.–Feb. Middle to upper sandstone slopes, LB (Langeberg: Swellendam to Heidelberg).•

dichroma Schltr. Shrublet to 40 cm. Leaves oblanceolate, margins dentate, pubescent. Flowers large, bright blue or rose. Nov.–Jan. High rocky slopes, SE (George to Langkloof).•

linearis Thunb. (incl. **L. lasiantha** (C.Presl) A.DC., **L. spartioides** (C.Presl) D.Dietr.) Erect, broom-like shrublet to 70 cm. Leaves narrowly linear, scattered, entire. Flowers blue to purple. Mainly Sept.–Mar. Dry, stony, lower slopes, NW, SW, AP, KM, LB, SE (Cedarberg to Langkloof).•

neglecta Roem. & Schult. Trailing shrublet to 50 cm. Leaves ovate-elliptic, entire or with 1–3 rounded teeth halfway along each margin. Flowers blue. Throughout the year. Mountain slopes and coastal grasslands and bush, AP, LB, SE (Mossel Bay to Grahamstown).

patula L.f. (= *Lobelia fourcadei* Schönland *ms*.; incl. **L. genistioides** (C.Presl) A.DC.) Sprawling perennial with whorled branches to 40 cm. Leaves sparse or lacking, lower ovate-triangular margins with a few, pointed teeth, lower leaves lanceolate. Flowers blue, pink or white. Oct.–Dec. Mountain slopes and forests, AP, KM, LB, SE (Bredasdorp to Ladismith to Uniondale).•

pinifolia L. (incl. **L. capillipes** Schltr.) Erect shrublet to 50 cm. Leaves dense, rigid, acicular, margins entire and revolute. Flowers blue. Mainly Dec.–Apr. Rocky slopes and flats, NW, SW, AP, LB (Ceres and Cape Peninsula to Riversdale).•

setacea Thunb. (incl. **L. glaucoleuca** Schltr.) Tufted, erect or sprawling perennial to 60 cm. Leaves filiform to narrowly linear, margins entire or pinnatifid. Flowers blue or violet and white. Nov.–Apr. Sandstone slopes and sandy flats, SW, AP, LB (Cape Peninsula to Langeberg).•

thermalis Thunb. Sprawling perennial with trailing stems to 50 cm. Leaves elliptic-obovate, sharply toothed. Flowers scattered, axillary, shortly pedicellate, pale blue. Fruits retrorsely hairy. Feb.–Mar. Marshy slopes, NW (Bokkeveld Mtns to Angola and Zimbabwe).

tomentosa L.f. (incl. **L. caerulea** Hook.) Shrublet to 40 cm, woody below and branching from base. Leaves oblanceolate, toothed near apex. Flowers 1–several on long peduncles, blue, violet or pink. Nov.–June. Stony lower slopes, SW, AP, LB, SE (Cape Peninsula to S Mozambique).

sp. 1 (*Lobelia eurypoda* var. *fissurarum* E.Wimm.) Tufted annual to 15 cm. Leaves with broadly winged petiole and elliptic to ovate blade, coarsely dentate throughout. Flowers blue with purple and yellow markings. Dec.–Jan. High rocky slopes, KM (Klein Swartberg).•

A.' Only lower 2 anthers with an apical brush-like tuft of straight white hairs, upper 3 either sparsely puberulous or with single scale-like appendages; flowers solitary in axils of upper leaves, sometimes in a dense, terminal, many-flowered inflorescence

B. Plants very small with tiny flowers < 8 mm long, mostly prostrate or decumbent and mostly not over 10 cm high; leaves rarely over 10 mm long

eckloniana (C.Presl) A.DC. Slender, trailing annual. Lower leaves spathulate, grading to narrowly oblanceolate above, margin with 1 to several, acute teeth. Flowers small, mauve. Dec.–Apr. Damp rocks on sandstone slopes, SW (Cape Peninsula).•

humifusa (A.DC.) Phillipson *ined*. (incl. **L. disperma** E.Wimm., **Unigenes humifusa** (A.DC.) E.Wimm.) Slender, sprawling annual to l5 cm. Leaves broadly ovate to elliptic, margins with 1–3 coarse teeth. Flowers pale blue. Nov.–Dec. Shady, damp, coastal and inland slopes, NW, SW, KM (Cape Peninsula to Swartberg).•

jasionoides (A.DC.) E.Wimm. Erect or sprawling perennial to 50 cm. Leaves spathulate to linear, margins serrate. Flowers lilac and white. Oct.–Feb. Shady upper slopes, NW, SW, AP, LB (Gifberg to Swellendam).•

laurentioides Schltr. Sprawling annual, stems to 10 cm. Leaves ovate-orbicular, narrowing above, margins appressed dentate. Flowers tiny, lilac or reddish. Dec. Rocky slopes, SW (Bain's Kloof to Caledon).•

limosa (Adamson) E.Wimm. (= *Lobelia depressa* auct.; incl. **L. capensis** E.Wimm.) Sprawling perennial rooting at nodes, stems to 10 cm. Leaves minute, suborbicular-ovate to elliptic, entire. Flowers white or mauve. Oct.–Feb. Marshy flats, SW (Cape Peninsula to Stellenbosch).•

muscoides Cham. Minute, tufted annual to 5 cm. Leaves suborbicular, palmately lobed. Flowers lilac. Nov.–Feb. Damp, upper mountain slopes, LB (Langeberg: Swellendam).•

nugax E.Wimm. Spreading annual, stems to 30 cm long. Leaves elliptic to lanceolate, margins with a few acute teeth. Flowers very small, pink. Jan. High sandstone slopes, NW (Ceres).•

quadrisepala (R.D.Good) E.Wimm. (= *Lobelia depressa* auct.) Sprawling perennial rooting at nodes, stems to 10 cm. Leaves minute, ovate to elliptic, entire. Flowers white or mauve. Oct.–Feb. Marshy flats and slopes, NW, SW, SE (Bokkeveld Mtns to Port Elizabeth).•

zwartkopensis E.Wimm. Spreading annual, stems to 10 cm. Leaves lanceolate, margins entire. Flowers minute, white or blue. Mainly Oct. Pools on limestone, SE (Uitenhage).•

B.' Plants larger with flowers > 8 mm long, mostly at least with erect or ascending flowering parts and generally over 10 cm high; leaves generally over 10 mm

anceps L.f. (= *Lobelia alata* auct.) Erect or sprawling perennial to 50 mm. Stems conspicuously winged. Leaves ovate-elliptic, entire or remotely denticulate. Flowers blue, mauve, or white. Nov.–June. Damp places usually near the coast, SW, AP, LB, SE (Cape Peninsula to KwaZulu-Natal).

boivinii Sond. Prostrate perennial, usually softly pubescent. Leaves ovate to obovate, margins crenulate-dentate. Flowers blue, mauve, or white. Nov.–Feb. Coastal rocks, SW (Cape Peninsula).•

comosa L. Soft, annual herb to 50 cm, branching from base. Leaves oblanceolate to linear, margins acutely dentate towards apex. Flowers bright blue. Mainly Aug.–Jan. Sandy coastal slopes, SW, AP (Cape Peninsula to Caledon).•

cuneifolia Link & Otto Sprawling to prostrate or decumbent perennial, branches to 40 cm. Leaves broadly ovate, margins sinuate to crenate-dentate. Flowers pale blue or white. Oct.–Dec. Forests, LB, SE (Swellendam to Humansdorp).•

erinus L. (incl. **L. acutangula** (C.Presl) A.DC., **L. bicolor** Sims, **L. montaguensis** E.Wimm.) Erect or spreading annual or perennial to 10 cm. Leaves ovate-elliptic, margins dentate. Flowers blue, violet, pink or white usually with white centre. Sept.–Dec. Lower mountain slopes and coastal flats, NW, SW, KM, LB, SE (Bokkeveld Mtns to tropical Africa).

flaccida (C.Presl) A.DC. Erect or sprawling perennial to 30 cm. Leaves ovate-elliptic to oblanceolate, margins crenate-dentate. Flowers pale to dark blue with white markings in throat. Oct.–Apr. ?, SE (George to southern tropical Africa).

hypsibata E.Wimm. Annual to 12 cm. Leaves ovate below, lanceolate above, margins with a few, pointed teeth. Flowers white. Jan. Rocky sandstone slopes, LB (Langeberg: Swellendam).•

pubescens Dryand. ex Aiton Spreading annual or perennial, stems to 50 cm. Leaves markedly pubescent, ovate, margins serrate. Flowers white. Mainly Oct.–Mar. Rocky slopes and damp rocks near the coast, SW, AP, LB, SE (Cape Peninsula to Storms River Mouth).•

stenosiphon (Adamson) E.Wimm. (incl. **L. isotomoides** E.Wimm.) Tufted to sprawling perennial to 20 cm. Leaves spathulate below, grading to oblanceolate above, margins serrate. Flowers rose-pink to purple. Jan.–Apr. High rocky slopes, SW ((Paarl to Caledon).•

valida L.Bolus GALJOENBLOM Soft, leafy shrublet to 60 cm. Leaves obovate to oblanceolate, margins irregularly dentate. Flowers deep blue. Nov.–Apr. Coastal hills, AP (De Hoop to Still Bay).•

[**Species excluded** No authentic material found and probably conspecific with one of the above: **L. cyphioides** Harv.]

MONOPSIS Salisb. 13 spp., tropical and southern Africa

A. Flowers subsessile or shortly pedicellate, yellow

flava (C.Presl ex Eckl. & Zeyh.) E.Wimm. Glabrous or shortly hairy perennial, 20–50 cm. Leaves linear-oblanceolate, sharply toothed. Flowers crowded in pseudoracemes, bilabiate, yellow, pedicels bracteate at base. Oct.–Dec. Mountain slopes, NW (Kamiesberg to Ceres). **gce**

lutea (L.) Urb. (incl. **M. arenaria** E.Wimm.) YELLOW LOBELIA Decumbent to prostrate perennial, stems to 60 cm. Leaves often secund, linear to elliptic, toothed. Flowers crowded at branch tips in pseudospikes, subsessile, bilabiate, yellow, pedicels bracteate at base. Nov.–Apr. Damp flats and lower slopes, NW, SW, AP, LB, SE (Grootwinterhoek Mtns to Humansdorp).•

variifolia (Sims) Urb. Closely leafy perennial to 10 cm. Leaves imbricate, linear, sharply toothed. Flowers few, terminal, nested in leaves, sessile, bilabiate, yellow, pedicels bracteate at base. Nov.–Dec. Damp flats, NW, SW (Porterville to Romans River and Paarl).•

A.' Flowers on long, slender pedicels, white, purple or yellow

acrodon E.Wimm. Thinly silky, trailing perennial to 20 cm. Leaves elliptic to obovate, sharply toothed. Flowers bilabiate, yellow, without bracteoles at base of pedicels. Oct.–Feb. Damp and sheltered sandstone slopes, NW (Pakhuis and Cedarberg).•

alba Phillipson Prostrate to decumbent perennial, 3–15 cm but often with long trailing stems. Leaves subopposite, ovate to elliptic, sparsely toothed. Flowers bilabiate, white with purple centre, pedicels bracteate at base. Nov.–Mar. Shady rock crevices and seeps on sandstone slopes, KM, SE (Swartberg to Great Winterhoek Mtns).•

debilis (L.f.) C.Presl (= *Monopsis campanulata* (Lam.) Sond., *M. simplex* auct.) Loosely erect or tufted annual to 25 cm. Leaves elliptic-oblanceolate, slightly toothed. Flowers purple, subactinomorphic, petals subrotund, without bracteoles. Mostly Sept.–Nov. Damp, sandy slopes and flats, NW, SW, AP, LB (Namaqualand to Langeberg). **gce**

simplex (L.) E.Wimm. (= *Monopsis aspera* auct.) Prostrate or ascending annual or perennial to 50 cm. Leaves narrowly elliptic to oblanceolate, sparsely toothed. Flowers bilabiate, purple with a darker centre, pedicels bracteate at base. Nov.–Apr. Damp coastal slopes and forest margins, SW, AP, LB, SE (Cape Peninsula to E Cape: Grahamstown).

unidentata (Dryand. ex Aiton) E.Wimm. (= *Monopsis scabra* auct., *M. stricta* (C.Presl) E.Wimm.) WILD VIOLET Erect or decumbent perennial, stems to 60 cm. Leaves linear to elliptic, entire to coarsely toothed. Flowers bilabiate, purple or brown with a darker centre. Oct.–Jan. Damp sandy flats and rocky slopes at low elevations SW, LB, SE (Riviersonderend to KwaZulu-Natal).

WIMMERELLA L.Serra, M.B.Crespo & Lammers (=*LAURENTIA* in part)
10 spp., S Africa

A. Plants sprawling, leaves scattered along stems

frontidentata (E.Wimm.) L.Serra, M.B.Crespo & Lammers (= *Laurentia frontidentata* E.Wimm.). Sprawling to prostrate perennial, stems to 20 cm long. Leaves suborbicular, toothed at tips. Flowers axillary on short, slender pedicels, minute, white. Jan.–May. Shady rocks, 1 000–1 600 m, NW, KM (Hex River Mtns and Anysberg).•

hederacea (Sond. in Harv. & Sond.) L.Serra, M.B.Crespo & Lammers (= *Laurentia hederacea* Sond. in Harv. & Sond.). Decumbent perennial to 5 cm, densely but shortly hairy all over. Leaves cordate-reniform, broadly 5–9-lobed, base subcordate. Flowers axillary on long, slender, pubescent pedicels, white. Sept.–Mar. Damp, shady rocks and caves on sandstone slopes, SE (Knysna to E Cape: Grahamstown).

hedyotidea (Schltr.) L.Serra, M.B.Crespo & Lammers (= *Laurentia hedyotidea* Schltr.) Decumbent perennial to 5 cm, stems and leaves shortly hairy. Leaves suborbicular, with broad triangular lobes, base rounded. Flowers axillary on long, slender, mostly glabrous pedicels, white. Sept.–Mar. Damp, shady rocks and caves on sandstone slopes, SW (Bain's Kloof).•

pygmaea (Thunb.) L.Serra, M.B.Crespo & Lammers (= *Laurentia pygmaea* (Thunb.) Sond.) Glabrous or sparsely hairy, decumbent perennial to 5 cm. Leaves suborbicular, broadly toothed or lobed, base truncate on cuneate. Flowers axillary on long, slender, glabrous pedicels, blue or white. Sept.–Mar. Damp, shady rocks and caves on sandstone slopes, KM, SW (Cape Peninsula to Franschhoek Mtns and, Little Karoo).

A.' Plants tufted, leaves basal

arabidea (C.Presl) L.Serra, M.B.Crespo & Lammers (= *Laurentia arabidea* (C.Presl) A.DC.) Tufted perennial to 30 cm, glabrous or sparsely puberulous. Leaves mostly basal, oblanceolate-linear, entire or very shallowly toothed. Flowers in ascending racemes in axils of linear, sometimes oblanceolate, entire bracts, white, pink or blue with white markings. Sept.–Apr. Marshes, stream banks and seeps, NW, SW, KM, LB, SE (Bokkeveld Mtns to Cape Peninsula to KwaZulu-Natal).

bifida (Thunb.) L.Serra, M.B.Crespo & Lammers (= *Laurentia bifida* (Thunb.) Sond.; incl. **W. giftbergensis** (E.Phillips) L.Serra, M.B.Crespo & Lammers) Tufted perennial to 20 cm, puberulous especially below. Basal leaves oblanceolate-spathulate, margins toothed, upper leaves similar but narrower. Flowers in ascending racemes in axils of linear, sometimes oblanceolate and toothed bracts, blue with white markings, tube < 10 mm long. Sept.–Apr. Marshes, stream banks and seeps, NW (Bokkeveld Mtns and Gifberg).•

longituba (E.Wimm.) L.Serra, M.B.Crespo & Lammers (= *Laurentia longituba* E.Wimm.) Like **W. bifida** but flowers with a longer tube, ± 18 mm long. Nov.–Dec. Sandstone slopes, LB (Langeberg: Riversdale).•

mariae (E.Wimm.) L.Serra, M.B.Crespo & Lammers (= *Laurentia mariae* E.Wimm., *L. minuta* auct.) Minute, acaulescent perennial to 2 cm, sometimes with weak, trailing stems. Leaves spathulate. Flowers in leaf axils, blue to lilac. Dec.–Jan. Shale bands at high alt., NW (Hex River Mtns).•

secunda (L.f.) L.Serra, M.B.Crespo & Lammers (= *Laurentia secunda* (L.f.) Kuntze) Like **W. bifida** but racemes sprawling to trailing and flowers secund, in axils of leafy, slightly toothed bracts. Nov.–Apr. Near water, mainly at low elevations, NW, SW, AP (Cold Bokkeveld to Agulhas).•

LOGANIACEAE

NUXIA see STILBACEAE

STRYCHNOS L. MONKEY-ORANGE ± 400 spp., pantropical and subtropical

decussata (Pappe) Gilg UMHLAMAHLAHLA Slender tree with waxy branchlets to 12 m. Leaves glossy, obovate to elliptic, 3–5-veined from base. Flowers in axillary, racemose cymes, often appearing before leaves, whitish, calyx lobes ovate, 1 mm long. Fruits turning red, 16 mm diam. Oct.–Dec. Lowland thickets, SE (Knysna to Limpopo).

spinosa Lam. GREEN MONKEY-ORANGE, GROENKLAPPER, UMHLALA Usually thorny tree with corky bark to 9 m. Leaves ovate to suborbicular, 5–7-veined from base. Flowers in terminal cymes, greenish white, calyx lobes awl-shaped, 5 mm long. Fruits turning yellow, 60–90 mm diam. Oct.–Jan. Wooded, rocky slopes, SE (Knysna to tropical Africa).

LORANTHACEAE

1. Corolla 4-lobed, stellate-pubescent; filaments straight at anthesis ..... **Septulina**
1.' Corolla 5-lobed, glabrous; filaments inflexed at anthesis ..... **Moquiniella**

MOQUINIELLA Balle VUURHOUTJIES 1 sp., S Africa

rubra (A.Spreng.) Balle Glabrescent stem parasite to 1 m. Leaves subsessile, elliptic-lanceolate. Flowers in axillary umbels, glabrous, tubular with a basal swelling, 5-lobed, mostly orange but red below and with a black tip. Mar.–June. Parasitic on various trees including *Acacia*, *Diospyros, Euclea* and *Searsia*, NW, KM, LB, SE (Namaqualand and Karoo to E Cape).

SEPTULINA Tiegh. CANDLES, KERSIES 2 spp., southern Africa

glauca (Thunb.) Tiegh. Stellate-pubescent stem parasite to 50 cm. Leaves grey, subsessile, elliptic. Flowers few in axils, tubular with a slight basal swelling, 4-lobed, greyish green flushed red. Feb.–Sept. Frequently parasitic on *Lycium*, NW, SW, KM (S Namibia and Karoo to Cape Peninsula and Swartberg).

*LYTHRACEAE

*LYTHRUM L. LOOSESTRIFE ± 35 spp., cosmopolitan

***hyssopifolium** L. HYSSOP-LEAVED LOOSESTRIFE Sprawling, woody annual to 40 cm. Leaves elliptic. Flowers solitary in axils, pink. Nov.–Jan. Weed of disturbed, damp places especially around dams, SW, LB, SE (European weed).

MALVACEAE (= *STERCULIAEAE, TILIACEAE*)

1. Filaments numerous, free or almost so (subfamily GREWIOIDEAE):
2. Fruit indehiscent, without bristles; filaments smooth, all stamens fertile; flowers mauve .... **Grewia**

2.' Fruit dehiscent and densely bristly; filaments nodose, outer stamens sterile; flowers white ..... **Sparrmannia**
1.' Filaments few to many, ± united below into a short or long tube or into groups of 2 or 3:
3. Anthers 2-thecous:
4. Petals absent; flowers unisexual; stamens numerous with anthers capitate on apex of staminal column; small trees (subfamily STERCULIOIDEAE) ..... **Sterculia**
4.' Petals present; flowers bisexual; stamens 5 with or without staminodes:
5. Staminodes 0; herbs or shrubs (subfamily BYTTNERIOIDEAE) ..... **Hermannia**
5.' Staminodes present; shrubs or trees (subfamily DOMBEYOIDEAE) ..... **Melhania**
3.' Anthers 1-thecous (subfamily MALVOIDEAE):
6. Fruit a loculicidally, dehiscent capsule; style simple or 5-branched:
7. Style capitate, 5-grooved; epicalyx of 12 linear bracts ..... **Radyera**
7.' Style 5-branched; epicalyx of 5–20 bracts ..... **Hibiscus**
6.' Fruit of dehiscent follicles, achenes or pseudoachenes arranged around a central collumella and sometimes separating from it; style 5- or more-branched:
8. Style branches twice as many as carpels; epicalyx of 4–12 ovate to filiform bracts ..... **Pavonia**
8.' Style branches as many as carpels:
9. Epicalyx present, of 3(–5) bracts; flowers white, pink or magenta:
10. Style branches with capitate or clavate stigmas; epicalyx bracts free; shrubs or subshrubs ..... **Anisodontea**
10.' Style branches with longitudinally extended stigmas; epicalyx bracts fused below into a cup; robust, single-stemmed woody annual ..... **Lavatera**
9.' Epicalyx absent; flowers white, yellow or orange:
11. Locules containing 1 ovule each; mericarps up to 10 (rarely more), 1-seeded, not dehiscing by apical slits ..... **Sida**
11.' Locules containing 5 or more ovules each; mericarps 10 or more (rarely fewer), (1–)3(–8)-seeded, dehiscing by apical slits ..... **Abutilon**

ABUTILON Mill. WILDEMALVA ± 100 spp., cosmopolitan

sonneratianum (Cav.) Sweet Velvety shrubby perennial to 2 m. Leaves heart-shaped, obscurely lobed, toothed or crenate, pale beneath. Flowers on long axillary pedicels, pink to yellow or orange. Nov.–Jan. Forest margins and bush, especially disturbed places, SW, AP, KM, LB, SE (Bredasdorp and Little Karoo to Zimbabwe).

ANISODONTEA C.Presl. AFRICAN MALLOW, BERGROOS ± 20 spp., southern Africa

A. Carpels 4–10 mm long, with 2–6 ovules

anomala (Link & Otto) Bates Velvety felted, spreading shrub to 1 m. Leaves shallowly to deeply 3–5-palmatifid, coarsely crenate. Flowers 1–5 in upper axils, 30–60 mm diam., pink to magenta, epicalyx of 3 ovate lobes, adnate below to calyx. Mainly Sept.–Dec. Stony slopes, often near streams, NW, SW, KM (Namaqualand and W Karoo to Hopefield and Witteberg). **gce**

elegans (Cav.) Bates Twiggy, white-pubescent shrublet to 1.5 m. Leaves 3–5-palmate to -palmatisect, segments variously lobed. Flowers 1–few in axils, 20–40 mm diam., white to deep pink, epicalyx of 3 linear to oblanceolate lobes. Mainly Sept.–Oct. Stony clay slopes, NW, SW, LB (Hex River Valley to Swellendam).•

pseudocapensis Bates Glabrescent shrublet to 50 cm. Leaves small, 3-lobed, toothed. Flowers 1 or 2 in upper axils, white to deep pink, epicalyx of 3 linear to oblanceolate lobes. Aug.–Oct. Stony clay slopes, LB (Riversdale to Gourits River).•

theronii Bates Like **A. elegans** but leaves broadly ovate to heart-shaped and obscurely lobed, and toothed and flowers 1 or 2 in upper axils. Aug.–Sept. Stony slopes, KM (Little Karoo: Calitzdorp).•

A.' Carpels 2–6 mm long, with 1 ovule
B. Staminal column glabrous, to 5 mm long

alexandri (Baker f.) Bates Like **A. biflora** but leaves deeply3-lobed and flowers pink with darker lines. Sept. –Nov. Sandstone slopes in renosterveld, after fire, KM (N slopes of Swartberg).•

biflora (Desr.) Bates Thinly hairy, prostrate or sprawling subshrub to 1 m. Leaves 3–5-lobed to the middle, sometimes not lobed, toothed. Flowers 1–4 in upper axils, white to pink, staminal

column glabrous, epicalyx of 3 linear lobes. Aug.–Nov. Stony lower slopes and coastal flats, NW, SW (Velddrif and Ceres to Cape Peninsula).•

dissecta (Harv.) Bates Like **A. biflora** but leaves small, deeply 2-palmatisect, flowers solitary in upper axils. Sept.–Oct. Stony clays on lower slopes, SW, LB (Bredasdorp to Kogmanskloof and Potberg).•

B.' Staminal column mostly hairy, > 5 mm long
C. Carpel whorl 4–6 mm diam., walls ± smooth

fruticosa (P.J.Bergius) Bates Glabrous or glabrescent, somewhat twiggy shrub to 2 m. Leaves often in fascicles, narrowly cuneate or sometimes 3-lobed, toothed. Flowers 1 or 2 in axils, sometimes nodding, white to pink, petals narrow and spreading to reflexed, epicalyx of 3 narrowly lanceolate lobes. Apr.–Nov. Stony slopes, NW, LB (Worcester to Riversdale).•

gracilis Bates Glabrescent shrub to 1 m. Leaves deeply 3-palmatisect and coarsely toothed. Flowers 1–4 in lax, axillary cymes forming loosely pseudopanicles, pink, epicalyx of lanceolate lobes. Nov.–Jan. Rocky slopes, NW (E Cedarberg).•

setosa (Harv.) Bates Shrub to 1.5 m with long, stiff hairs on young branches. Leaves 3-lobed and toothed. Flowers 1–few in upper axils in loose racemes, white to pink, petals narrow, spreading, epicalyx of 3 lanceolate to elliptic lobes. Mainly Sept.–Dec. Stony clay or sandy slopes, NW, SW (Piketberg to Stellenbosch).•

C.' Carpel whorl 6–8 mm diam., wall transversely ridged

bryonifolia (L.) Bates Densely rough-hairy shrublet to 2 m. Leaves thick, deeply 3–5-lobed, central lobe largest, coarsely crenate. Flowers 1–few in tight, axillary clusters, white to pink, epicalyx of 3 linear to oblanceolate lobes. Mainly Aug.–Oct. Stony slopes, NW (Namaqualand to Tulbagh).

racemosa (Harv.) Bates Slender, densely glandular-hairy subshrub to 50 cm. Leaves deeply 3-lobed and often pinnate-toothed. Flowers 1–few in axils and racemose, pink, epicalyx of 3 lanceolate lobes. Nov.–Dec. Stony flats and slopes, NW (Hantam to Cedarberg). **gce**

reflexa (J.C.Wendl.) Bates Densely rough-hairy shrublet to 2 m. Leaves thick, shallowly 5-lobed, toothed. Flowers 1–few in axillary or terminal clusters, petals narrow and reflexed, epicalyx of 3 lanceolate lobes. Mainly Aug.–Nov. Stony slopes, KM, SE (Witteberg and Swartberg to Uniondale).•

scabrosa (L.) Bates SANDROOS Thinly to densely glandular-hairy shrub to 2 m. Leaves mostly obscurely 3-lobed or elliptic and toothed. Flowers 1–few in axils on slender pedicels, pink, epicalyx of 3 linear to lanceolate lobes. Mainly Sept.–Dec. Mostly coastal sands, SW, AP, SE (Saldanha to KwaZulu-Natal).

triloba (Thunb.) Bates Shortly hairy to velvety shrub to 1.5 m. Leaves often thick, broad, shallowly 3–5-lobed. Flowers 1–4 in axils, pink, epicalyx of linear to lanceolate lobes. Mainly Sept.–Oct. Rocky slopes, NW, KM (Namaqualand to Oudtshoorn). **gce**

[**Species excluded** No specimens seen from the area: **A. capensis** (L.) Bates]

GREWIA L. CROSS-BERRY, KRUISBESSIE 400+ spp., Africa, Asia and Australia

occidentalis L. Shrub or small tree to 3 m. Leaves glabrescent, lanceolate, toothed. Flowers usually solitary opposite leaves, purple and pink or white. Fruits 4-lobed, reddish. Oct.–Nov. Forest margins and bush, SW, LB, SE (Cape Peninsula to Zimbabwe).

robusta Burch. KAROOKRUISBESSIE Shrub to 3 m, grey-velvety when young. Leaves discolorous, grey-velvety beneath, often clustered on short shoots, ovate, finely toothed. Flowers solitary opposite leaves, pink. Fruits 4-lobed, purplish. Sept.–Dec. Dense scrub, KM, LB, SE (George and Oudtshoorn to E Cape).

HERMANNIA L. DOLL'S-ROSE, POPROSIE ± 120 spp., dry tropics and subtropics, mostly southern Africa

A. Filaments cruciform, anther base not overlapping expanded portion
*B. Bracts connate into an amplexicaul cup (see also **H. heterophylla**)*

lacera (E.Mey. ex Harv.) Fourc. Glabrescent and viscous, prostrate shrublet to 10 cm. Leaves petiolate, ovate, pinnatisect. Flowers 2 or 3 on axillary and terminal peduncles, white or pink to

violet, bell-shaped, bracts connate into a large cup. Capsules large, oblong and inflated. Mainly Aug.–Sept. Coastal sands, LB, SE (Gourits River Mouth to E Cape).

saccifera (Turcz.) K.Schum. Glabrescent and viscous, sprawling shrublet to 40 cm. Leaves elliptic-oblong, regularly toothed. Flowers usually 2, on short, axillary peduncles, bell-shaped, yellow, bracts connate into a small cup. Aug.–Oct. Stony, clay slopes, usually disturbed sites SW, KM, LB, SE (Riviersonderend Mtns and Bredasdorp to E Cape).

scabricaulis T.M.Salter Glandular-hairy, prostrate shrublet to 10 cm. Leaves petiolate, ovate, irregularly lacerate. Flowers 2 or 3 on axillary and terminal peduncles, orange to red, bell-shaped, bracts connate into a large cup. Capsules large, oblong and inflated. Mainly Aug.–Sept. Coastal sands on limestone, SW, AP (Cape Peninsula to De Hoop).•

sp. 1 Sparsely hairy, prostrate shrublet to 10 cm. Leaves oblanceolate, irregularly lobed to toothed, stipules large, leafy, divided to base. Flowers 2, subsessile on elongate, axillary peduncles, enclosed in a leafy, lobed cup, pale yellow, with narrow throat and petals spreading above. July–Sept. Sandy, limestone slopes, SW (Saldanha).•

B.' Bracts not connate

coccocarpa (Eckl. & Zeyh.) Kuntze Glabrescent, twiggy shrublet to 30 cm. Leaves linear-oblanceolate, toothed. Flowers 1 or 2 on slender, axillary peduncles, purple. Capsules oblong, 2 or 3 times longer than calyx. Sept.–May. Karroid bush, KM (dry parts of southern Africa to Swartberg).

diffusa L.f. Sprawling to prostrate, thinly glandular-hairy shrublet to 15 cm. Leaves 2-pinnatisect, with leafy, lobed stipules. Flowers 1 or 2 on slender peduncles, yellow, orange or pink, bell-shaped, bracts scarcely united. Sept.–Oct. Rocky sandstone or granite slopes, NW, SW, AP, KM, LB, SE (Elands Bay to Port Elizabeth).•

grossularifolia L. Sprawling to prostrate, roughly hairy subshrub to 15 cm. Leaves oblanceolate-cuneate, toothed to lobed above. Flowers few, in terminal clusters, yellow, petals with stellate hairs, tightly furled. Capsules large, globose, scabrid and inflated. Sept.–Oct. Sandy flats and slopes, mostly after fire, SW, LB (Cape Peninsula to Garcia's Pass).•

heterophylla (Cav.) Thunb. (= *Hermannia humifusa* Hochr.) Sprawling to prostrate, slightly viscid shrublet to 50 cm. Leaves oblanceolate, petiolate, toothed above, with leafy stipules. Flowers 1 or 2 on slender, axillary and terminal peduncles, mauve, petals tightly furled, with bracts partly united in a cup. Sept.–Oct. Sandy, often coastal flats, NW, SW (Brand-se-Baai and Lambert's Bay to Cape Peninsula). **gce**

pinnata L. (incl. **H. linifolia** Burm.f.) Sprawling, glabrescent, mat-forming shrublet to 15 cm. Leaves often spuriously whorled, linear to 3-lobed above, with stipules divided into 2 or 3 linear lobes. Flowers on axillary peduncles, yellow, petals furled, with linear bracts. Aug.–Oct. Sandy coastal flats and dunes, SW (Velddrif to Cape Peninsula).•

sisymbriifolia (Turcz.) Hochr. Sprawling, thinly hairy to scabrid and viscous shrublet to 40 cm, coppicing from base. Leaves sessile pinnatifid to trifid. Flowers 1 or 2 on slender, axillary and terminal peduncles, white to cream-coloured fading to mauve, bell-shaped. June–Oct. Sandstone rocks, NW, KM (Gifberg to Barrydale).•

sp. 2 (*Hermannia bodkinii* Pillans *ms*., *H. glabripedicellata* De Winter *ms*.) Glabrescent, twiggy shrublet to 60 cm. Leaves oblong-lanceolate, petiolate, sparsely toothed. Flowers 1 or 2 on slender, axillary peduncles, white to yellow, fragrant. Aug.–Oct. Rocky slopes and sandy flats, NW (Namaqualand to Clanwilliam). **gce**

A.' Filaments oblanceolate, anther base overlapping expanded portion
C. Stems prostrate with flowers on erect, axillary and terminal peduncles

decumbens Willd. ex Spreng. Sprawling shrublet with prostrate branches and short, erect branchlets to 20 cm. Leaves ovate, toothed, roughly felted, with large stipules. Flowers in terminal clusters, yellow, with inflated papery calyx. Aug.–Oct. Mostly coastal sands and limestones, SW, AP, LB, SE (Mamre to Knysna).•

linifolia Burm.f. Sprawling shrublet with prostrate branches and short, erect branchlets to 10 cm. Leaves subsessile, oblanceolate and slightly lobed, with prominent leafy stipules. Flowers in terminal cymes, yellow to orange, bell-shaped. Aug.–Sept. Sandy and granite soils, NW, SW (Elands Bay to Cape Peninsula).•

myrrhifolia Thunb. Sprawling shrublet to 15 cm with long, trailing branches from woody base. Leaves pinnatisect, subsecund. Flowers few at branch tips on nearly naked peduncles, red and

yellow, tightly furled. Sept.–Oct. Granite rocks and coastal sands, NW, SW (Lambert's Bay to Mamre hills).•

prismatocarpa E.Mey. ex Harv. Sprawling shrublet to 40 cm, with scabrid ascending branches. Leaves ovate, slightly toothed, discolorous, paler beneath. Flowers in terminal clusters, yellow, bell-shaped, with elongate capsules. Aug.–Nov. Sandy and clay flats and slopes, NW, SW (Namaqualand to Tygerberg and Breede River Valley). **gce**

procumbens Cav. Sprawling shrublet to 15 cm with long, trailing branches from woody base. Leaves oblanceolate, toothed to shallowly lobed, subsecund. Flowers few at branch tips on nearly naked peduncles, tightly furled. Sept.–Oct. Coastal sands, SW (Bokbaai to Cape Peninsula).•

scordifolia Jacq. Like **H. prismatocarpa** but shortly and roughly hairy, lower leaf surfaces soft-velvety, stipules caducous and capsules shorter and subglobose. Aug.–Oct. Sandy coastal flats, NW, SW (Namaqualand and Bokkeveld Mtns to Saldanha). **gce**

C.' Erect or rounded shrubs with stems erect or sprawling
D. Flowers with narrow throat and petals abruptly spreading distally

althaeoides Link Like **H. rugosa** but leaves not crisped. Oct.–Dec. Rocky slopes, SE (Humansdorp to Queenstown).

angularis Jacq. Like **H. rudis** but leaves oblanceolate-cuneate and calyx lobes glabrous except along margins. Sept.–Oct. Dry stony slopes, SW, KM, LB, SE (Hottentots Holland to Plettenberg Bay).•

concinnifolia I.Verd. Erect, closely leafy shrublet to 90 cm. Leaves cuneate to oblanceolate, with recurved mucro, subsessile, with large stipules. Flowers in terminal clusters, yellow, throat narrow and petals spreading, calyx large and roughly hairy, usually reddish. Aug.–Oct. Coastal limestones, AP (Agulhas to Gouritsmond).•

diversistipula C.Presl ex Harv. Like **H. velutina** but leaves tapering below into petiole and apparently subsessile, flowers yellow, orange or red. July–Oct. Clay slopes in renosterveld, NW, SW, AP, KM, LB, SE (Malmesbury to Uniondale).•

flammea Jacq. Sparsely branched, often glabrescent shrublet to 80 cm. Leaves oblanceolate to cuneate, subsessile, usually sparsely toothed above. Flowers small clusters on slender peduncles, dark red, throat narrow and petals spreading, calyx lobes spreading and papery. Mainly Sept.–Oct. Mostly clay flats and slopes, SW, AP, LB, SE (Wellington to E Cape).

flammula Harv. Like **H. flammea** but leaves smaller, narrow and folded on midline, roughly golden-hairy. Mainly Aug.–Oct. Sandy, rocky clay or limestone soils, SW, AP, KM, LB, SE (Caledon to Langkloof).•

gracilis Eckl. & Zeyh. Like **H. velutina** but flowers in slender, terminal racemes and calyx not deeply lobed and flared. Mainly Aug.–Nov. Karroid slopes, KM, SE (Calitzdorp to E Cape and S Karoo).

holosericea Jacq. Grey-mealy, twiggy shrub to 1.5 m. Leaves grey-velvety, obovate to oblanceolate, toothed above. Flowers small, in crowded, secund, spreading, racemose clusters, yellow. Mainly July–Oct. Clay, sandy and limestone soils, NW, SW, AP, KM, LB, SE (Stormsvlei to E Cape and S Karoo).

hyssopifolia L. Stiffly erect, twiggy shrub to 2 m. Leaves mealy, oblanceolate to cuneate, toothed above. Flowers in dense, terminal clusters, cream-coloured to pale yellow, throat narrow and petals spreading, calyx much inflated and urn-shaped. Sept.–Oct. Stony granite and clay slopes, NW, SW, KM, LB, SE (Malmesbury and Ceres to Grahamstown).

incana Cav. Grey-mealy shrub to 2 m. Leaves ovate to elliptic, toothed above. Flowers in small, terminal clusters, yellow. July–Oct. Mainly karroid, clay slopes, NW, AP, KM, LB (Worcester to Albertinia and S Karoo). **gce**

joubertiana Harv. Like **H. flammea** and **H. flammula** but calyx lobes attenuate, half as long as corolla, and flowers small in tight clusters. Sept.–Oct. Limestone slopes, SW, AP (Hermanus to Mossel Bay).•

lavandulifolia L. Grey-mealy, diffusely twiggy shrub to 60 cm. Leaves grey-velvety, oblanceolate. Flowers few, in small clusters, yellow, throat narrow and petals spreading, calyx deeply lobed and flaring. Mainly Sept.–Oct. or Feb.–Apr. Clay slopes on renosterveld, NW, SW, AP, LB, SE (Worcester to Robinson Pass and Plettenberg Bay).•

mucronulata Turcz. Like **H. hyssopifolia** but leaves grey-green-velvety, oblanceolate, margins usually entire and flowers often deep yellow. Sept.–Oct. Mostly clay slopes, SE (Langkloof to E Cape).

rudis N.E.Br. Sprawling shrublet with branches ascending to 60 cm. Leaves obovate-cuneate, in tufts. Flowers in rounded, terminal clusters, yellow to red, throat narrow and petals spreading, calyx lobes large, flat, ovate and papery. Sept.–Oct. Mainly coastal sands, SW, AP (Cape Peninsula to Potberg).•

rugosa Adamson Slightly mealy, sprawling shrublet to 60 cm. Leaves ovate, margins crisped and toothed. Flowers in terminal and axillary clusters, yellow fading red. Aug.–Oct. Granite and clay slopes, SW (Vredenburg to Cape Peninsula).•

salviifolia L.f. Coarsely velvety, erect, twiggy shrub to 2 m. Leaves densely hairy, obovate to oblong, scarcely toothed above. Flowers in dense, terminal clusters, yellow or orange, throat narrow and petals spreading, calyx inflated and tubular. Mainly Sept.–Oct. and Dec.–Apr. Stony, granite and clay slopes, SW, AP, KM, LB, SE (Cape Peninsula to Grahamstown).

sulcata Harv. Like **H. velutina** but calyx narrowly tubular and ribbed. June–Sept. Rocky slopes, often in dry bush, SE (Humansdorp to E Cape).

ternifolia C.Presl ex Harv. Grey-mealy, closely leafy sprawling shrublet with ascending branches, to 20 cm. Leaves cuneate, usually with large, leafy stipules. Flowers in terminal clusters, orange to red, throat narrow and petals spreading, calyx inflated and papery. Aug.–Sept. Coastal sands and limestones, SW, AP (Saldanha to Agulhas).•

trifoliata L. Like **H. ternifolia** but stiffly erect, leaves often sessile, ascending and overlapping. Sept.–Oct. Coastal limestone soils, SW, AP (Hermanus to Mossel Bay).•

velutina DC. Like **H. lavandulifolia** but usually more robust, to 3 m, with large, leafy stipules. Capsules umbonate. Aug.–Oct. Stony slopes, SE (Humansdorp to S KwaZulu-Natal).

D.' Flowers bell-shaped to narrow with furled or spreading petals

alnifolia L. Rounded, grey-mealy shrub to 1 m, with pubescent branches. Leaves cuneate to ovate, toothed above, pale mealy beneath. Flowers small, in many-flowered, elongate, terminal clusters, yellow. July–Oct. Shale or rocky slopes, NW, SW, KM, LB, SE (Bokkeveld Mtns to George).•

althaeifolia L. Softly hairy, mealy, grey-green shrublet to 50 cm, sometimes erect and single-stemmed. Leaves long-petiolate, ovate to elliptic, toothed and crisped, with broad, leafy stipules. Flowers in terminal and axillary clusters, yellow, calyx reddish fading to cream-coloured, inflated. Aug.–Oct. Clay, granite and limestone slopes, NW, SW, AP, KM, LB, SE (W Karoo to Langkloof). **gce**

aspera J.C.Wendl. Stiffly hairy, erect shrublet to 1 m. Leaves oblanceolate to obovate, coarsely toothed, margins revolute. Flowers in dense, terminal clusters, yellow fading reddish. Mainly Sept.–Oct. Sandstone slopes, NW, KM (Kamiesberg and Bokkeveld Mtns to Montagu). **gce**

confusa T.M.Salter Sparsely twiggy shrublet to 60 cm. Leaves pinnatifid to pinnatisect. Flowers few at branch tips on nearly naked, branched peduncles, yellow. Aug.–Oct. Mainly clay slopes in renosterveld, NW, SW, KM, LB (Clanwilliam to Riversdale).•

conglomerata Eckl. & Zeyh. Shrublet to 60 cm. Leaves subrotund, conspicuously petiolate, margins crenate. Flowers in congested clusters, yellow, calyx with conspicuous golden hairs. Aug.–Oct. Mainly clay soils, LB, SE (Riversdale to E Cape).

cordifolia Harv. Robust, densely velvety shrub with stiffly erect branches to 1 m. Leaves ovate, crenulate. Flowers in tight, terminal clusters, ?yellow. July–Oct. Rocky slopes, NW (Piketberg).•

cuneifolia Jacq. Roughly scaly, twiggy shrub to 1 m. Leaves cuneate, coarsely toothed above, sometimes appearing fascicled. Flowers on subsecund racemes, yellow often fading reddish. Mainly Aug.–Oct. Clay and granitic slopes, NW, SW, AP, KM, LB, SE (Namaqualand to E Cape and Lesotho).

denudata L.f. (incl. **H. erecta** N.E.Br.) Glabrous, stiffly erect shrub to 2 m. Leaves ascending, oblanceolate, toothed above, stipules leafy. Flowers in elongate, terminal branches, few per node, pale yellow. Sept.–Oct. Sandstone slopes, often near streams, NW, LB (W Karoo to Cedarberg and Langeberg near Robinson Pass). **gce**

disticha Schrad. Prickly hairy, single-stemmed, erect shrub to 1 m. Leaves broadly ovate, sometimes slightly deflexed, shortly petiolate to subsessile, margins crenate, densely woolly beneath. Flowers in elongate, terminal clusters on lateral branches, yellow. Aug.–Sept. Rocky slopes, KM (W Little Karoo).•

filifolia L.f. Glabrescent, twiggy shrublet to 1 m. Leaves and stipules subequal, often in tufts, linear, margins revolute. Flowers on slender, elongated branches, few per node, orange to red, calyx lobes usually spreading and papery. Capsules knobbed. Aug.–Oct. Sandy or clay slopes, NW, AP, KM, LB, SE (Cold Bokkeveld to Port Elizabeth and Karoo to Free State).

helicoidea I.Verd. Like **H. muricata** but flowers fewer and more diffuse on axillary and terminal branchlets. Aug.–Nov. Sandstone slopes, NW (Pakhuis and Olifants River Mtns).•

hispidula Rchb.f. Coarsely hairy shrub to 60 cm. Leaves rhomboid, mucronate, margins coarsely toothed, slightly revolute, discolorous, greyish beneath. Flowers in diffuse, terminal panicles, yellow. Sept.–Nov. Sandstone slopes, NW (Piketberg).•

involucrata Cav. (incl. **H. decipiens** E.Mey. ex Harv.) Coarsely velvety, erect, twiggy shrub to 1.2 m. Leaves densely hairy, oblong to cuneate, subsessile, often scarcely toothed above, stipules and bracts attenuate. Flowers in small, terminal clusters, yellow or orange, calyx golden-velvety. Aug.–Oct. Stony sandstone slopes, KM, SE (Swartberg to Baviaanskloof Mtns).•

micrantha Adamson Rounded shrublet to 30 cm. Leaves cuneate to ovate, toothed above. Flowers small, in elongate, few-flowered clusters, yellow. Sept.–Oct. Dry, rocky slopes, SW (Cape Peninsula).•

muirii Pillans Coarsely hairy, spreading shrublet with erect branchlets, to 20 cm. Leaves oblong, sessile, with leafy stipules as long as leaves. Flowers in terminal clusters, white to pink. Oct.–Feb. Sandy soils on limestone, AP (Still Bay to Gouritsmond).•

multiflora Jacq. Rounded, grey-mealy shrub to 75 cm. Leaves cuneate, toothed above, pale-mealy beneath. Flowers in small clusters, yellow, calyx brownish velvety. Aug.–Oct. Sandy and rocky flats and slopes, NW, SW (Bokkeveld Mtns to Cape Peninsula).•

muricata Eckl. & Zeyh. (incl. **H. repetenda** I.Verd.) Stiffly hairy shrublet to 50 cm, often much branched from base. Leaves narrowly oblong, slightly toothed, white-tomentose beneath. Flowers in lax, terminal clusters on wiry branches, yellow. Sept.–Nov. Dry, clay and granite slopes, NW, KM (Namaqualand and S Karoo to Olifants River Valley and George).

odorata Aiton Grey-mealy, erect shrub to 1.5 m. Leaves grey-velvety, oblanceolate to elliptic, with linear stipules. Flowers in loose, terminal clusters, yellow to orange, calyx prominently ribbed. Capsules umbonate. Mainly July–Oct. Rocky sandstone slopes, NW, KM, SE (Cedarberg to Baviaanskloof Mtns).•

pillansii Compton Like **H. stipulacea** but plants compact, leaves obovate, closely hairy to woolly. Sept.–Nov. Rocky sandstone slopes, KM (Witteberg).•

pulverata Andrews Grey-mealy, gnarled shrublet from woody base, mostly to 40 cm. Leaves 1- or 2-pinnatisect. Flowers few, on slender, naked peduncles, yellow to red, tightly furled. Mainly Sept.–Nov. Dry, karroid slopes, NW, KM (Worcester to Port Elizabeth and Karoo).

rigida Harv. Like **H. muricata** but flowers in racemes on short, stiff pedicels. Mainly Aug.–Sept. Clay or rocky, sandstone slopes, NW (Namaqualand to Ceres). **gce**

scabra Cav. Sprawling, roughly hairy shrub to 60 cm. Leaves shortly petiolate, cuneate to linear, coarsely toothed above, terminal tooth recurving. Flowers in small clusters along elongate, raceme-like, terminal branches, yellow. July–Sept. Mostly sandstone slopes, sometimes granite or limestone, NW, SW (Gifberg to Durbanville).•

spinosa E.Mey. ex Harv. Spinescent, twiggy shrublet to 40 cm, with wiry branches. Leaves obovate, slightly toothed. Flowers solitary in axils, dark pink to red, bell-shaped, peduncles stiff and becoming woody and thorn-like. Capsules horned. Mainly Aug.–Sept. but erratically after rain. Stony slopes and flats, KM (Namibia and Karoo to Little Karoo).

stipulacea Lehm. ex Eckl. & Zeyh. Densely hairy shrublet to 40 cm. Leaves ovate to cuneate, sessile, ascending and imbricate, crenate to toothed, with large, leafy stipules. Flowers mostly few in terminal clusters, yellow, calyx golden-velvety. Sept.–Nov. Rocky sandstone slopes, KM, LB, SE (Ladismith and Riversdale to Port Elizabeth).•

trifurca L. Roughly hairy shrublet to 1.5 m. Leaves oblong, 3-toothed above. Flowers solitary in upper axils, secund on horizontal racemes, bell-shaped, mauve with dark venation. Aug.–Oct. Stony soils, NW, SW (S Namibia to Darling and Breede River Valley). **gce**

sp. 3 Softly hairy, erect shrub to 1 m. Leaves broadly ovate to rotund, long-petiolate, margins slightly toothed, pale beneath, with cordate, amplexicaul stipules. Flowers in slender, flexuose, axillary clusters, yellow. Sept.–Oct. Rocky slopes, NW (Pakhuis Mtns).•

HIBISCUS L. HIBISCUS, WILDESTOKROOS ± 300 spp., cosmopolitan

A. Annuals or robust shrubs; flowers yellow with dark eye; seeds glabrous

diversifolius Jacq. Erect, prickly perennial to 2.5 m. Leaves 3–5-palmate, coarsely toothed, on long, prickly petioles. Flowers shortly pedicellate in terminal racemes, large, pale yellow with dark eye, epicalyx of 10–12 linear lobes, staminal tube to 20 mm long; seeds concentric-scaly. Mainly Dec.–Apr. Forest margins and bush, SE (Plettenberg Bay to tropical Africa).

ludwigii Eckl. & Zeyh. Stiffly hairy shrub to 3 m, with stiffly erect branches. Leaves long-petiolate, shallowly 3–5 palmate, toothed. Flowers on short pedicels in upper axils, large, yellow with purple eye, epicalyx of 5 broad lobes, staminal tube 30 mm long; seeds glabrous. Mainly Dec.–Feb. Coastal forests and bush, SE (George to tropical Africa).

***trionum** L. Stiffly hairy annual. Leaves mostly 3–5-palmatisect, toothed. Flowers pedunculate in upper axils, whitish or pale yellow with dark eye, epicalyx of 10–12 linear lobes, calyx bell-shaped, purple-veined, swollen in fruit, staminal tube 3–4 mm long; seeds tuberculate. Sept.–Feb. Stony slopes and forest margins, SW, AP, KM, LB, SE (Cape Peninsula to Port Elizabeth, introduced from Old World tropics).

A.' Slender shrubs or subshrubs; flowers pink, white or yellow, with or without dark eye; seeds hairy

aethiopicus L. Roughly hairy subshrub to 30 cm, from woody rootstock. Leaves ovate-elliptic, toothed above, 3–5-veined from base, glabrescent above. Flowers on axillary peduncles, cream-coloured to yellow, often without dark eye, epicalyx of 10–12 lanceolate to linear lobes, staminal tube ± 10 mm long; seeds velvety. Mainly Aug.–Dec. Stony sandstone or clay slopes, SW, AP, LB, SE (Tulbagh: Elandskloof Mtns to tropical Africa).

pedunculatus L.f. Slender, shortly hairy shrublet to 1.2 m. Leaves mostly 3–5-lobed, toothed. Flowers axillary, on long peduncles, mostly pink, epicalyx of 10–12 linear-oblanceolate lobes, staminal tube 20–30 mm long; seeds with silky floss. Aug.–Apr. Bush and forest margins, SE (George to tropical Africa).

pusillus Thunb. (= *Hibiscus atromarginatus* Eckl. & Zeyh.) Glabrescent subshrub with slender branches to 60 cm, from woody rootstock. Leaves 3–5-palmatisect, lobes linear-oblong, usually toothed. Flowers axillary, on long peduncles, cream-coloured to yellow or pink, sometimes with dark eye, calyx lobes attenuate, epicalyx of 10–12 linear lobes, staminal tube 4–8 mm long; seeds with silky floss. Aug.–May. Stony flats and slopes in bush and grasslands, SW, AP, KM, LB, SE (Caledon and Little Karoo to tropical Africa).

*LAVATERA L. TREE MALLOW ± 25 spp., Eurasia

***arborea** L. Glabrescent, thick-stemmed annual or short-lived perennial to 2 m. Leaves velvety, 3–5-lobed, toothed. Flowers in axillary clusters, mauve, epicalyx cup-shaped and 3-lobed, accrescent in fruit. Mainly Sept.–Nov. Waste places, dunes, NW, SW, AP, LB (Eurasian weed).

MELHANIA Forssk. ± 60 spp., Afr*i*ca to India

didyma Eckl. & Zeyh. Roughly hairy shrublet to 1 m. Leaves ovate-lanceolate, shallowly toothed, softly hairy above, grey-felted beneath. Flowers mostly in pedunculate pairs in axils, yellow, epicalyx 3-lobed, cordate. Dec.–Apr. Drier grassland and open scrub, SE (Baviaanskloof to Mpumalanga).

PAVONIA Cav. ± 200 spp., pantropical and subtropical

burchellii (DC.) R.A.Dyer (= *Pavonia columella* auct.) Softly hairy, shrubby perennial to 1 m. Leaves long-petiolate, shallowly palmately lobed, slightly toothed or crenate. Flowers axillary on long pedicels, yellow or orange, with epicalyx of 5 ovate lobes. Nov.–Apr. Forest margins and bush, SE (Humansdorp to Ethiopia).

praemorsa (L.f.) Cav. Shortly velvety, shrubby perennial to 2 m. Leaves broadly cuneate to emarginate, toothed, rough above, pale beneath. Flowers solitary in axils, often on short shoots, yellow veined red, with epicalyx of 8–12 filiform lobes. Mainly Dec.–Mar. Bush and thickets, SE (Humansdorp to E Cape).

RADYERA Bullock 2 spp., one each in Australia and southern Africa

urens (L.f.) Bullock KAROO PUMPKIN, PAMPOENBOSSIE Coarse, roughly hairy perennial with trailing stems from a woody rootstock. Leaves long-petiolate, suborbicular-cordate, crispulate, paler beneath. Flowers axillary on the ground, concealed beneath leaves, deeply cup-shaped, reddish orange with a dark centre, epicalyx of 12 linear lobes. (Oct.–)Dec.–Mar. Dry karroid flats along roadsides and waste places, KM (dry parts of southern Africa).

SIDA L. MALLOW ± 200 spp., pantemperate and tropical

ternata L.f. Glabrescent, erect or sprawling perennial to 30 cm. Leaves shallowly to deeply palmatisect, toothed. Flowers axillary on filiform pedicels, white. Oct.–Mar. Grassy slopes, SE (George to E Cape).

SPARRMANNIA L.f. CAPE HOLLYHOCK ± 7 spp., Africa and Madagascar

africana L.f. Shrub or small tree to 7 m, stiffly hairy when young. Leaves coarsely hairy, cordate, toothed. Flowers drooping in umbels, white. Capsules bristly. June–Nov. Forest margins and outcrops, LB, SE (Riversdale to E Cape).

STERCULIA L. STERCULIA, STERKASTAIING ± 200 spp., pantropical

alexandri Harv. KAAPSE STERKASTAIING Tree to 8 m, with smooth, silvery bark, gregarious by suckering. Leaves 3–7-digitate, leaflets elliptic. Flowers in axillary cymes, mostly male by abortion, yellow with reddish cup. June–July. Coastal and riverine forests, SE (Van Staden's and Great Winterhoek Mtns).•

MELIACEAE

1. Fruit a drupe or berry; leaves pinnate; filaments connate to apex ..... **Ekebergia**
1.' Fruit an inflated, membranous capsule; leaves simple; filaments fused at base ..... **Nymania**

EKEBERGIA Sparrm. CAPE ASH, ESSENHOUT 4 spp., Africa

capensis Sparrm. Dioecious tree to 20 m. Leaves opposite, imparipinnate, leaflets lanceolate, asymmetric at base. Flowers in axillary, cymose panicles, whitish. Aug.–Sept. Forests, SE (George to tropical Africa).

NYMANIA Lindb. CHINESE LANTERNS 1 sp., S Africa and Namibia

capensis (Thunb.) Lindb. Rigid shrub to 5 m. Leaves leathery, oblanceolate, tufted on short shoots. Flowers solitary and axillary, dull red. Capsules inflated, papery. Oct.–Dec. Karroid scrub, NW, KM, SE (Namibia to N Cape and Worcester to E Cape).

MELIANTHACEAE

MELIANTHUS L. TURKEY BUSH, KALKOENTJIEBOS 6 spp., southern Africa

comosus Vahl Like **M. elongatus** but leaves also thinly hairy above, margins not revolute and flowers solitary at nodes in pendulous racemes. Aug.–Oct. Stony slopes and stream banks, KM, SE (Namibia and W Karoo to Montagu through Little Karoo to E Cape).

elongatus Wijnands (= *Melianthus minor* L.) Shrub to 2 m. Leaves imparipinnate, leaflets toothed, margins revolute, white-felted beneath. Flowers in axillary racemes, 2–4 at nodes, red, petals longer than sepals, ovary and fruits velvety. July–Sept. Sandstone or granite slopes and flats, NW, SW (Namaqualand to Langebaan). **gce**

major L. KRUIDJIE-ROER-MY-NIE Foetid shrub to 2 m. Leaves glaucous, imparipinnate, leaflets toothed. Flowers in terminal racemes, 2–4 at nodes, red, petals shorter than sepals, ovary glabrous. Aug.–Sept. Sandstone and clay slopes, often along streams, NW, SW, AP, LB, SE (Bokkeveld Plateau to E Cape).

MENISPERMACEAE

1. Sepals and petals in female flowers 2 ..... **Antizoma**
1.' Sepals and petals in female flowers 1 ..... **Cissampelos**

ANTIZOMA Miers 2 spp., southern Africa

miersiana Harv. Dioecious, greyish, rigid, twiggy shrublet to 1 m. Leaves discolorous, oblanceolate, often tufted. Flowers axillary, green, male cymose, female 1 or 2. July–Dec. Dry, rocky slopes, NW (Richtersveld and W Karoo to Gifberg and Biedouw). **gce**

CISSAMPELOS L. DAVIDJIES ± 30 spp., pantropical

capensis L.f. Dioecious, glabrescent, sprawling or climbing shrublet. Leaves ovate or trowel-shaped. Flowers axillary, velvety hairy, green, male cymose, female 1 or 2. Feb.–May. Sandy slopes in scrub, NW, SW, AP, KM, LB, SE (S Namibia and W Karoo to Port Elizabeth). **gce**

torulosa E.Mey. ex Harv. Dioecious, glabrescent, wiry vine. Leaves glaucous, discolorous, reniform on long petioles. Flowers supra-axillary above a hairy gland, green, male cymose, female solitary or spicate. Oct.–Dec. Forest margins, SE (George to tropical Africa).

MENYANTHACEAE

1. Terrestrial in marshy places; leaves radical, blades longer than broad; flowers in cymes; capsule 4-valvate ..... **Villarsia**
1.' Emergent aquatics; leaves cauline, orbicular and deeply cordate; flowers in fascicles; capsule rupturing irregularly ..... **Nymphoides**

NYMPHOIDES Ség. GEELWATERUINTJIE ± 20 spp., cosmopolitan

indica (L.) Kuntze Rhizomatous, aquatic perennial. Leaves floating, orbicular-cordate. Flowers 2 to several in fascicles at nodes, heterostylous, petals fringed, white or yellow. Dec.–Feb. Permanent pools, NW, SW, LB, SE (Clanwilliam to E Cape and throughout Africa, India and Australasia).

VILLARSIA Vent.• YELLOW BOGBEAN ± 3 spp., SW Cape

capensis (Houtt.) Merr. CAPE BOGBEAN Tufted, aquatic perennial, mostly 20–50 cm. Leaves with petioles to 230 mm, blades ovate-oblong, attached subbasally, largest 50–90 mm long. Flowers in paniculate cymes, heterostylous, petals fringed, yellow; ovules 2 per locule. Capsules with up to 4 smooth or papillate seeds. Oct.–Feb. Marshy sandstone, NW, SW, SE (Cold Bokkeveld Mtns to Cape Peninsula and Worcester, Outeniqua and Tsitsikamma Mtns).•

goldblattiana Ornduff Like **V. capensis** but more robust, to 60 cm, petioles of longest leaves 200–300 mm long; ovules ± 6 per locule. Capsules with up to 8 warty seeds. Oct.–Dec. Marshy sandstone flats, SW (southern Cape Peninsula).•

manningiana Ornduff Like **V. capensis** but mostly 15–25 cm, petioles 20–170 mm long, largest leaf blades 25–50 mm long. Mainly Sept.–Dec. Marshy sandstone, SW, SE (Tulbagh: Elandskloof Mtns to Riviersonderend Mtns, Table Mt and Outeniqua Mtns: Hoërberg).•

MOLLUGINACEAE (see also LIMEACEAE)

1. Ovules basal, solitary in each carpel:
 2. Carpel 1; fruit indehiscent. ..... **Adenogramma**
 2.' Carpels 2 or more; fruit capsular and dehiscent:
  3. Ovary 2-locular; sepals fimbriate; leaves reduced and imbricate; stipules large, fimbriate, adnate to base ..... **Polpoda**
  3.' Ovary 3–5-locular; sepals entire; leaves various; stipules small or 0 ..... **Psammotropha**
1.' Ovules axile, many in each carpel:
 4. Calyx (or perianth) segments united; stamens attached to perianth ..... **Coelanthum**
 4.' Calyx (or perianth) segments free or nearly so; stamens attached to receptacle:
  5. Stipules small, entire, free from leaf base, often caducous ..... **Mollugo**
  5.' Stipules attached to leaf base, persistent:
   6. Inflorescence a simple umbel; stipules entire ..... **Hypertelis**
   6.' Inflorescence a compound cyme; stipules lacerate:

7. Hypogynous disc present ..... **Pharnaceum**
7.' Hypogynous disc absent ..... **Suessenguthiella**

ADENOGRAMMA Rchb. MUGGIESGRAS 10 spp., Namibia to W Cape **gce**

A. Perennials or subshrubs

lichtensteiniana (Schult.) Druce (incl. **A. capillaris** (Eckl. & Zeyh.) Druce) Spreading, diffuse shrublet to 30 cm, with wiry stems. Leaves whorled, linear to oblong, apiculate. Flowers in small, axillary clusters, white. Fruits subglobose, minutely pitted. Aug.–Dec. Sandstone slopes, NW, SW, AP, LB, SE (Cedarberg to Grahamstown).

rigida (Bartl.) Sond. Sprawling perennial with slender, annual shoots to 60 cm. Leaves alternate and imbricate below, whorled above, linear, ascending, pungent. Flowers in small, axillary clusters on thread-like peduncles, green or brown. Fruits ovoid, minutely pitted. Oct. Sandy flats, SW (Mamre to Houwhoek).•

sylvatica (Eckl. & Zeyh.) Fenzl Like **A. lichtensteiniana** but leaves ovate, softly aristate, pedicels longer, often as long as leaves. Sept.–Dec. Shady, sheltered, upper slopes, SW, KM, SE (Wemmershoek Mtns to Uitenhage).•

teretifolia (Thunb.) Adamson Divaricately branched shrublet to 30 cm, with stiffly erect, brittle, pustulate branches from base. Leaves whorled, terete, apiculate. Flowers in small, axillary clusters, white and green. Fruits top-shaped, minutely pitted. Sept.–Oct. Granite or sandy slopes, NW, SW (S Namaqualand to St Helena Bay). **gce**

A.' Annuals

glomerata (L.f.) Druce Diffusely branched, sprawling, wiry-stemmed annual, mostly 10–15 cm. Leaves whorled, linear, sometimes elliptic, mucronate. Flowers in small, axillary clusters, white. Fruits obliquely top-shaped, minutely pitted. Aug.–Oct. Sandy slopes, NW, SW, AP, KM, LB, SE (S Namibia to Humansdorp). **gce**

littoralis Adamson Prostrate, much-branched, soft annual to 5 cm. Leaves closely whorled, oblanceolate, rounded at tip. Flowers in small, axillary clusters, white. Fruits top-shaped, minutely pitted. Oct.–Dec. Deep sands, NW, SW (Namaqualand to False Bay). **gce**

mollugo Rchb.f. (incl. **A. congesta** Adamson) Like **A. glomerata** but stems stiff and suberect, perianth accrescent and ultimately caducous and fruits depressed-globose, abruptly narrowed into a prominent, rough, compressed beak. Sept.–Oct. Damp sand, NW, SW, AP (Kamiesberg, Bokkeveld Mtns to Still Bay). **gce**

natans J.C.Manning & Goldblatt Diffusely branched, wiry-stemmed, aquatic annual with leafy, floating stem tips. Leaves in whorls of 3, ovate-elliptic, mucronulate. Flowers 1 or 2 in upper axils, white and green. Fruits compressed, granular-rugulose. Aug.–Oct. Seasonal streams, SW (Bo-Hermon: Elandsberg Nature Reserve).•

physocalyx Fenzl Like **A. glomerata** but perianth accrescent with prominent keels, fruits globose, gradually elongating into a beak as long as body. Sept.–Oct. Damp flats, NW, SW (Paarl to Kleinmond).•

COELANTHUM E.Mey. ex Fenzl 2 spp., W Cape to Namibia **gce**

semiquinquefidum (Hook.f.) Druce (incl. **C. grandiflorum** E.Mey. ex Fenzl) Delicate, tufted annual mostly 8–12 cm, with wiry stems swollen at base. Leaves in a basal tuft and whorled on branches; basal leaves oblanceolate to obovate-spathulate, mucronate, upper leaves linear, in sets of 1 or 2 whorls. Flowers in lax, branched cymes, white. Oct.–Nov. Sandy flats, NW, SW (Namibia to Cape Peninsula and Worcester). **gce**

verticillatum Adamson Like **C. semiquinquefidum** but basal leaves soon withering, upper leaves in sets of 4–8 whorls, flowers in more condensed cymes. Oct.–Mar. Coastal sands, NW, SW (S Namaqualand to Bokbaai). **gce**

HYPERTELIS E.Mey. ex Fenzl 7 spp., Africa and St Helena

arenicola Sond. Prostrate annual to 5 cm. Leaves terete, fleshy. Flowers in axillary umbels on peduncles shorter than leaves, whitish, stamens 3–5. Dec.–Apr. Saline coastal flats, SW, AP, SE (Cape Peninsula to Port Elizabeth).•

salsoloides (Burch.) Adamson BRAKSURING Dwarf, tufted, blue-glaucous shrublet to 30 cm, often much grazed. Leaves terete, fleshy. Flowers in umbels on slender, glandular peduncles, white to pink, sepals reflexed, pedicels deflexed on fading, stamens 12–15. Sept.–Mar. Dry, calcareous and saline flats, NW, KM, SE (Namibia to Clanwilliam, Little Karoo to Zimbabwe).

trachysperma Adamson Like **H. arenicola** but peduncles longer than leaves and seeds tubercled. Jan.–Apr. Muddy or sandy, saline flats, SW (Cape Flats and Cape Peninsula).•

MOLLUGO L. 20 spp., cosmopolitan

cerviana (L.) Ser. ex DC. Delicate, tufted annual to 20 cm, with wiry stems. Leaves in a basal tuft and whorled on branches; basal leaves short-lived, linear to spathulate. Flowers in terminal and axillary cymes on wiry pedicels, white and green. Jan.–Mar. Sandy flats and slopes, NW, SW (Namibia and Botswana to False Bay).

namaquensis Bolus Dwarf, tufted annual to 5 cm. Leaves basal, oblanceolate. Flowers in short pseudoracemes on slender peduncles, green. Aug.–Sept. Sandy flats and slopes, NW, SW (Namaqualand to Velddrif). **gce**

pusilla (Schltr.) Adamson (incl. **M. tenella** Bolus) Delicate, tufted annual to 8 cm. Leaves oblanceolate to oblong-ovate, pseudopetiolate, prostrate. Flowers in elongate pseudoracemes on thread-like peduncles, whitish. Aug.–Sept. Sandy flats and slopes, NW, SW (S Namibia to Riviersonderend). **gce**

PHARNACEUM L. SNEEUVYGIE 25 spp., southern Africa

A. Shrublets or perennials woody at base

albens L.f. Like **P. aurantium** but stipules shorter, to 2 mm long, leaves often reflexed. Aug.–Oct. Rocky slopes, NW (Namibia and W Karoo to Olifants River Mtns). **gce**

aurantium (DC.) Druce Sprawling or erect shrublet to 80 cm, woody at base. Leaves scattered and alternate mostly near base, linear, stipules sheathing at base. Flowers in lax cymes on long, purplish, white-glaucous peduncles, 3–4 mm long, white. Sept.–Oct. Stony, gravel slopes and flats, NW, SW, KM, LB (Namibia to Gourits River).

ciliare Adamson Like **P. incanum** but stipules small and opaque. Sept.–Oct. High sandstone slopes, KM, LB (Montagu and Ladismith to Langeberg: Swellendam).•

confertum (DC.) Eckl. & Zeyh. Like **P. incanum** but with sprawling branches to 1.2 m, stipules larger, floral disc red to orange. Aug.–Oct. Stony slopes and flats, NW, SW (Namibia to Malmesbury and Worcester). **gce**

dichotomum L.f. Erect or sprawling shrublet to 30 cm, woody at base. Leaves mostly in a basal tuft, also distant along stem in whorls, linear. Flowers in terminal and axillary cymes on long peduncles, white, ± 3 mm long. July–Nov. Dry slopes, NW, SW, KM, LB, SE (Namaqualand and Karoo to E Cape).

elongatum (DC.) Adamson Like **P. incanum** but stipules cut to base into hair-like lobes and floral disc red to yellow. Aug.–Oct. Dry slopes, NW, SW, LB, SE (Namaqualand to E Cape).

incanum L. Sprawling or erect shrublet, woody at base with whitish branches to 40 cm. Leaves crowded near base, linear-filiform, stipules sheathing at base. Flowers in long-pedunculate cymes, 3–4 mm long, white. Aug.–Oct. Rocky slopes, NW, SW (Namaqualand to Hopefield and Worcester). **gce**

lanatum Bartl. Like **P. aurantium** but stipular hairs curled and forming a woolly mass. Aug.–Oct. Sandy flats and slopes, NW, SW (Namaqualand and Karoo to Cape Peninsula).

lanuginosum J.C.Manning & Goldblatt (= *Pharnaceum lanatum* var. *albens* Adamson) Low, often tangled, closely leafy shrublet to 25 cm. Leaves erect-ascending, imbricate, ovate, stipules white-membranous with ragged margins, exceeding leaves. Flower in small, umbellate cymes on elongate, terminal peduncles, white, ± 3 mm long. Sept.–Nov. Rocky sandstone slopes, NW (Cedarberg to Cold Bokkeveld).•

microphyllum L.f. DROËDASKRUIE Tangled shrublet mostly to 20 cm, appearing grey-woolly. Leaves oblong, fleshy, stipules prominent, imbricate, curled and forming a woolly mass hiding young leaves. Flowers in umbellate cymes on short, terminal peduncles, white, 3–4 mm long, bracts woolly. Sept.–Oct. Coastal sands and limestones, NW, SW (Namaqualand to Saldanha Bay). **gce**

rubens Adamson Like **P. aurantium** but peduncles reddish, flowers smaller, 2–3 mm long. ? Sheltered rock ledges, NW (Cedarberg).•

trigonum Eckl. & Zeyh. Dwarf shrublet to 10 cm, branches sprawling. Leaves crowded basally, squarrose, linear, mucronate, stipules inconspicuous, firm, opaque. Flowers in lax, umbel-like cymes on slender peduncles, white ± 3 mm long. May–Aug. Rocky slopes, NW, LB, SE (Hex River Mtns to Karoo and Lesotho).

A.' Non-woody annuals or perennials
*B. Leaves distantly whorled (see also **P. dichotomum**)*

cordifolium L. Perennial with prostrate, annual stems to 50 cm. Leaves leathery, whorled, oblanceolate-spathulate, rounded at tip, with short, fringed stipules. Flowers in pedunculate cymes, white, 3–4 mm long. Mainly May–Nov. Dunes, SW (Cape Peninsula to Stanford).•

lineare L.f. Sprawling perennial to 10 cm, with elongate internodes. Leaves in whorls, terete. Flowers in lax, branched, axillary cymes on long peduncles, white, 5–8 mm long. June–Nov. Sandy slopes and flats, NW, SW (Namaqualand to Bredasdorp). **gce**

serpyllifolium L.f. Soft, cushion-like perennial to 5 cm, with thread-like branches. Leaves 2- or 3-whorled, obovate, pseudopetiolate. Flowers 1–3 in lax, axillary cymes, white, ± 1.5 mm long. Sept.–Dec. Cool, shady places at high elevations, NW (Cedarberg to Cold Bokkeveld).•

thunbergii Adamson Sprawling perennial with prostrate, annual branches to 60 cm. Leaves whorled, linear to oblanceolate, acute, with long stipules cut to base. Flowers in lax, axillary cymes on long peduncles, green and white, 3–4 mm long. Mainly Nov.–Jan. Coastal bush, AP, SE (Still Bay to KwaZulu-Natal).

B.' Leaves basally crowded

croceum E.Mey. ex Fenzl Tufted annual to 10 cm. Leaves mostly basal, subterete, succulent. Flowers in long-pedunculate cymes, pink, yellow or white, sepals reflexed, 3–4 mm long. Aug.–Sept. Sandy flats, especially coastal, NW, SW, SE (Namibia to George). **gce**

exiguum Adamson Tufted annual sometimes to 30 cm. Leaves crowded basally, linear. Flowers in lax cymes, green and white, to 2 mm long. Aug.–Sept. Sandy flats, NW, SW (Namibia to Cape Peninsula). **gce**

fluviale Eckl. & Zeyh. Subshrub with sprawling, annual branches, 5–15 cm. Leaves in a basal tuft and whorled above, linear. Flowers in lax, terminal and axillary cymes, white, ± 3 mm long. Aug.–Nov. Sandy slopes, often damp sites, NW, SW, AP, SE (Grootwinterhoek Mtns to Somerset East).

subtile E.Mey. Tufted annual, 3–8 cm. Leaves in a basal rosette, oblanceolate. Flowers in long, flexuose raceme-like cymes, whitish, to 1.5 mm long. Fruits shorter than perianth. Sept.–Oct. Rock outcrops, NW, KM (Worcester and Little Karoo).•

POLPODA C.Presl. 2 spp., Namaqualand to W Cape **gce**

capensis C.Presl Silvery, *Lycopodium*-like shrublet to 50 cm. Leaves ovate, adpressed, imbricate, with fringed, papery stipules longer than leaves. Flowers solitary in upper axils, minute, 4-merous, whitish. Mainly Apr.–July. Sandstone and gravel slopes, NW, SW, AP, LB (Namaqualand to Mossel Bay). **gce**

stipulacea (F.M.Leight.) Adamson Like **P. capensis** but leaves yellow-green, oblong-incurved, margins revolute, longer than stipules, flowers 5-merous, filaments fused at base. Nov.–Dec. Stony sandstone slopes, NW (Matsikamma to Wolseley).•

PSAMMOTROPHA Eckl. & Zeyh. 11 spp., southern to tropical Africa

anguina Compton Like **P. quadrangularis** but leaves smaller, closely adpressed and flower clusters subsessile, with conspicuous bracts. Sept.–Oct. Rocky sandstone slopes, NW (Cedarberg and Cold Bokkeveld).•

diffusa Adamson Diffuse, sprawling, slender shrublet 30 cm. Leaves scattered and tufted in axils, with minute, papery stipules, linear-oblanceolate. Flowers in terminal, subumbellate clusters, greenish. Nov.–Dec. Shale slopes, NW (Cedarberg).•

frigida Schltr. Tufted, cushion-forming perennial to 2 cm, often purplish, with wiry branches. Leaves crowded at branch tips, incurved-obovate, margins whitish. Flowers in clusters on thread-like peduncles, greenish. Sept.–Dec. Sandstone rock on shallow soil, NW, KM (Cedarberg and W Karoo to Swartberg). **gce**

quadrangularis (L.f.) Fenzl Closely leafy, gnarled, *Lycopodium*-like shrublet to 30 cm, mostly branching from base. Leaves exstipulate, 4-ranked, linear-attenuate, spine-tipped, ascending, imbricate, margins revolute. Flowers in dense clusters on wiry peduncles, greenish cream-coloured to pinkish. Sept.–Oct. Stony slopes, NW, SW, KM (Namaqualand to Villiersdorp and Willowmore). **gce**

spicata Adamson Like **P. diffusa** but leaves with revolute margins, stipules long, flowers in spike-like tufts. Oct.–Nov. Sandstone slopes, NW (Gifberg).•

SUESSENGUTHIELLA Friedrich 1 sp., Namibia to W Cape

scleranthoides (Sond.) Friedrich Prostrate, mat-forming annual with wiry branches. Leaves whorled, linear-subterete, apiculate, fleshy. Flowers crowded at nodes, green and white. July–Sept. Sandy flats, NW (Namibia and Karoo to Clanwilliam).

MONTINIACEAE

MONTINIA Thunb. PEPERBOS 1 sp., southern Africa

caryophyllacea Thunb. Dioecious, erect glaucous shrub to 1.5 m. Leaves oblanceolate, sometimes tufted. Flowers terminal, white, male cymose, female 1 or 2. May–Oct. Rocky slopes, NW, SW, AP, KM, LB, SE (S Angola to Cape Peninsula to E Cape).

MORACEAE

FICUS L. FIG ± 1 000 spp., pantropical and warm temperate

burtt-davyi Hutch. VELD FIG Monoecious shrub or liane to 5 m, bark greyish. Leaves elliptic, lateral veins ± 5. Figs axillary, pedunculate, 5–7 mm diam., yellowish. Aug.–Mar. Rock outcrops and woodlands, KM, SE (Oudtshoorn to KwaZulu-Natal).

cordata Thunb. NAMAQUA FIG Monoecious tree to 17 m, bark ash grey. Leaves ovate. Figs axillary, sessile, 5–7 mm diam., yellowish green. June–Dec. Rock outcrops and cliffs, NW (Grootwinterhoek Mtns northwards throughout Africa).

ilicina (Sond.) Miq. LAUREL FIG Monoecious shrub or small tree to 5 m, roots usually flattened and plastered over rocks, bark white. Leaves elliptic. Figs axillary, pedunculate, 5–8 mm diam. June–Dec. Rock outcrops, NW (Namibia to Clanwilliam).

ingens (Miq.) Miq. ROCK FIG Monoecious tree to 15 m, bark grey. Leaves ovate, lateral veins ± 8. Figs axillary, pedunculate, 9–12 mm diam., pink. June–Dec. Rock outcrops and woodlands, SE (Humansdorp northwards throughout Africa).

sur Forssk. (= *Ficus capensis* Thunb.) CAPE FIG Monoecious tree to 11 m, bark dark grey. Leaves elliptic to ovate, broadly toothed. Figs in panicles on trunk and main branches, 20–40 mm diam., red. Oct.–Mar. Along streams and ravines, SE (Knysna northwards to Senegal and Arabia).

MYRICACEAE

MORELLA Lour. (= *MYRICA* in part) WASBESSIE ± 50 spp., cosmopolitan

cordifolia (L.) Killick (= *Myrica cordifolia* L.) CANDLE BERRY, GLASHOUT Dioecious shrub to 3 m. Leaves imbricate, sessile, broadly ovate-cordate, toothed, margins revolute, gland-dotted. Flowers in axillary spikes. Fruits warty, 5–8 mm diam. May–Aug. Coastal sands and limestones, SW, AP, LB, SE (Langebaan to E Cape).

diversifolia (Adamson) Killick (= *Myrica diversifolia* Adamson) (?**M. quercifolia** × **M. kraussiana**) Dioecious shrub to 1 m. Leaves obovate, tapered below, ± toothed, margins mostly revolute, gland-dotted. Flowers in axillary spikes. Fruits warty, ± 3 mm diam. Aug.–Sept. Sandstone slopes, SW (Cape Peninsula).•

humilis (Cham. & Schltdl.) Killick (= *Myrica humilis* Cham. ex Schltdl.) Like **M. kraussiana** but spikes not robust, with smaller bracts. July–Nov. Sandstone slopes, KM, LB, SE (Swellendam and Warmwaterberg to E Cape).

integra (A.Chev.) Killick (= *Myrica integra* (A.Chev.) Killick) BASTERWATEROLIER Dioecious shrub or tree to 3 m. Leaves narrowly elliptic, attenuate below, sometimes toothed. Flowers in axillary spikes. Fruits warty, ± 3 mm diam. Sept.–Apr. Rocky streamsides, NW, SW (Pakhuis to Kleinmond Mtns).•

kraussiana (Buchinger ex Meisn.) Killick (= *Myrica kraussiana* Buchinger ex Meisn.) Dioecious shrub to 1 m. Leaves elliptic, rounded below, sometimes toothed above, margins revolute, gland-dotted. Flowers in robust, axillary spikes with large, imbricate bracts. Fruits warty, 2–3 mm diam. Aug.–Oct. Sandstone slopes, SW, AP, LB (Cape Peninsula to Swellendam).•

quercifolia (L.) Killick (= *Myrica quercifolia* L.) MAAGPYNBOSSIE Dioecious spreading shrub to 60 cm. Leaves obovate, attenuate below, usually pinnatifid, gland-dotted. Flowers in axillary spikes. Fruits warty, 3–4 mm diam. July–Sept. Mostly coastal sandy and limestone flats and slopes, NW, SW, AP, LB, SE (Namaqualand to E Cape).

serrata (Lam.) Killick (= *Myrica serrata* Lam.) WATEROLIER Like **M. integra** but leaves mostly toothed, conspicuously reticulate-veined above, usually gland-dotted beneath and with margins ± revolute. Aug.–Dec. Rocky streamsides, NW, SW, KM, LB, SE (Bain's Kloof to Mpumalanga and Caprivi).

MYRSINACEAE

1. Filaments developed (sometimes short), united at base by membrane; twigs thin and woody; leaves usually 10–40 mm long ..... **Myrsine**
1.' Filaments obsolete; twigs thickish and soft; leaves up to 120 mm long ..... **Rapanea**

MYRSINE L. CAPE MYRTLE 7 spp., Africa and Asia

africana L. Dioecious or polygamodioecious shrub to 3 m. Leaves obovate, toothed above, margins revolute, 5–20 mm long. Flowers in axillary fascicles, cream-coloured, anthers exserted, pink to purple. Throughout the year. Sandy slopes and flats in scrub, NW, SW, AP, KM, LB, SE (Bokkeveld Mtns to Cape Peninsula to tropical Africa and Azores).

pillansii Adamson LARGE CAPE MYRTLE, GROOTMIRTING Dioecious or polygamodioecious shrub to 4 m. Leaves elliptic, finely toothed, margins revolute, 20–50 mm long. Flowers in axillary fascicles, cream-coloured, anthers included, brown. May–Oct. Forest margins, SW, SE (Cape Peninsula to Hermanus, Knysna, KwaZulu-Natal and Mpumalanga).

RAPANEA Aubl. CAPE BEECH, KAAPSEBOEKENHOUT ± 200 spp., pantropical and subtropical

gilliana (Sond.) Mez DWARF CAPE BEECH, DWERGBOEKENHOUT Dioecious or polygamodioecious shrub or small tree to 4 m. Leaves leathery, subsessile, oblanceolate, margins revolute. Flowers in axillary fascicles, cream-coloured. Fruits ellipsoid, 7–9 mm diam., black. May–July. Coastal dune scrub, SE (Humansdorp to E Cape).

melanophloeos (L.) Mez Dioecious or polygamodioecious tree to 20 m. Leaves oblong-elliptic. Flowers in axillary fascicles, cream-coloured. Fruits globose, 4–5 mm diam., purple. Oct.–Dec. Forests, SW, AP, LB, SE (Cape Peninsula to tropical Africa).

MYRTACEAE

1. Flowers in pedunculate cymes; stamens much longer than petals; leaves mostly opposite .... **Metrosideros**
1.' Flowers solitary, subsessile; stamens much shorter than petals; leaves alternate ..... **Leptospermum**

***LEPTOSPERMUM** J.R.Forst. & G.Forst. AUSTRALIAN MYRTLE 79 spp., Australasia

***laevigatum** (Gaertn.) F.Muell. COAST TEATREE Shrub or small tree to 8 m with bark shedding in strips. Leaves oblanceolate, leathery, glaucous, apex often incurved, 15–30 × 5–8 mm. Flowers mostly paired in axils, white. Capsules not persistent, 7–8 mm diam. July–Oct. Weed of coastal sands, NW, SW, AP, SE (Australian weed, Elands Bay to Port Elizabeth).

***micromyrtus** Miq. Shrub to 3 m with bark flaking. Leaves aromatic, obovate, leathery, glaucous, apiculate, mostly 10–15 × 5–10 mm. Flowers solitary or paired in axils, white. Capsules woody, persistent and often submerged in stem, 5–8 mm diam. Jan.–Feb. Coastal flats, SW (Australian native, recorded at Betty's Bay).

***scoparium** J.R.Forst. & G.Forst. MANUKA, PINK TEATREE Shrub to 2 m with smooth, firm bark. Leaves spreading-recurved, lanceolate, margins incurved, firm-textured, pungent, mostly 7–15 × 2–6 mm. Flowers solitary on short shoots, pink or white. Capsules woody, persistent, 8–12 mm diam. Mostly Mar.–Apr. Sandstone slopes, SW (Australasian ornamental, escaping on Hottentots Holland Mtns).

METROSIDEROS Bank ex Gaertn. SMALBLAD ± 50 spp., Malaysia and Pacific, 1 sp., W Cape

angustifolia (L.) Sm. Shrub or small tree to 4(–7) m. Leaves opposite, narrowly elliptic, margins revolute. Flowers in dense, axillary cymes, white. Dec.–Feb. Sandstone slopes often along watercourses, NW, SW, LB (Matsikamma Mtns to Langeberg: Riversdale).•

NEURADACEAE

GRIELUM L. SAND-PRIMROSE, DUIKERWORTEL 4 spp., dry and winter-rainfall southern Africa

grandiflorum (L.) Druce Sprawling, white-woolly perennial, often mat-forming. Leaves pinnatisect or bipinnatisect, lobes mucronate. Flowers yellow with a green eye. Fruits depressed-pentagonal with a peripheral wing and central spines. Mainly Sept.–Oct. Sandy and stony coastal flats, NW, SW (Namaqualand to Cape Peninsula). **gce**

humifusum Thunb. PIETSNOT Prostrate, thinly white-woolly annual, often mat-forming. Leaves pinnatisect, glabrescent above, lobes rounded. Flowers yellow with a pale eye. Fruits depressed-pentagonal with a peripheral wing and central spines. Mainly July–Oct. Sandy lower slopes and flats, NW, SW, KM (S Namibia to Robertson and W Karoo).

OCHNACEAE

OCHNA L. MICKY MOUSE PLANT, ROOIHOUT ± 86 spp., palaeotropical and subtropical

arborea Burch. ex DC. KAAPSE ROOIHOUT Semideciduous tree with flaking bark to 12 m. Leaves elliptic, finely toothed. Flowers several in clusters or panicles, scented, yellow. Sept.–Nov. Forest understorey, SE (George to Zimbabwe).

serrulata (Hochst.) Walp. FYNBLAARROOIHOUT Semideciduous shrub or small tree with warty bark to 2 m. Leaves narrowly elliptic, toothed. Flowers 1 or 2 on short shoots, yellow. Apr.–Oct. Forest margins and scrub, SE (George to Mpumalanga).

OLEACEAE

1. Fruit a membranous capsule; virgate shrublet with reduced leaves and yellow flowers . . . . . **Menodora**
1.' Fruit a drupe or berry; flowers white:

2. Corolla tube long and slender, lobes abruptly spreading; scramblers or bushy shrubs .... **Jasminum**
2.' Corolla tube short or absent; shrubs or small trees:
3. Calyx deeply lobed; inflorescence few-flowered; leaves usually with acarodomatia (pockets in axils of veins on underside); ovules basal ..... **Chionanthus**
3.' Calyx toothed or shallowly lobed; inflorescence many-flowered; leaves without acarodomatia; ovules pendulous ..... **Olea**

CHIONANTHUS L. IRONWOOD ± 120 spp., pantropical and temperate

foveolatus (E.Mey.) Stearn POKYSTERHOUT Tree to 30 m. Leaves ovate to oblong, minutely scaly beneath, with acarodomatia. Flowers in lax, axillary, cymose panicles, white or tinged pink, fragrant. Mar.–June. Coastal bush and rocky slopes, SW, AP, LB, SE (Cape Peninsula to Mpumalanga).

JASMINUM L. JASMINE ± 450 spp., palaeotropical and subtropical

angulare Vahl Scrambling shrub to 7 m, hairy on young parts. Leaves 3-foliolate, leaflets ovate, often with acarodomatia. Flowers few in terminal cymes, 5-lobed, white. Nov.–Jan. Coastal and inland bush, KM, SE (Ladismith to KwaZulu-Natal).

glaucum (L.f.) Aiton Glaucous shrub. Leaves lanceolate-elliptic. Flowers usually 3 in cymes, 5–8-lobed, white, fragrant. Oct.–Dec. River banks and rocky slopes or deep, acid sands, NW, SW (Gifberg to Riviersonderend Mtns).•

multipartitum Hochst. Shrub to 3 m, twigs shortly hairy. Leaves ovate-lanceolate. Flowers 1(–3), terminal, ± 11-lobed, white flushed red outside. Oct.–Nov. Scrub and rocky slopes, SE (Uitenhage to Limpopo).

tortuosum Willd. Like **J. angulare** but leaflets linear-lanceolate, without acarodomatia. Flowers 3–5 in cymes, 6-lobed, white. Nov.–Dec. Forest margins, SW, KM, LB (Caledon, Calitzdorp, Mossel Bay).•

MENODORA Humb. & Bonpl. ± 25 spp., America and southern Africa

juncea Harv. Stiffly erect shrublet with silvery hairy branches to 1.6 m. Leaves sessile, linear, adpressed. Flowers 1–few in terminal cymes, yellow. Jan. Rocky arid slopes, KM (Namaqualand and Karoo to Rooiberg).

OLEA L. OLIVE ± 35 spp., Old World

capensis L. YSTERHOUT Shrub or tree to 12 m. Leaves elliptic-ovate. Flowers in terminal panicles, white. Feb.–Dec. Forests and scrub, NW, SW, AP, LB, SE (Olifants River Mtns to E Cape and to tropical Africa).

europaea L. WILD OLIVE Tree to 14 m with warty branchlets. Leaves narrowly elliptic, discolorous, pale-scaled beneath. Flowers in axillary and terminal panicles, white. Oct.–Mar. Forests and rocky slopes, NW, SW, AP, KM, LB, SE (Bokkeveld Mtns to E Cape and to N Africa).

exasperata Jacq. DUNE OLIVE Shrub or small tree to 7 m with warty branchlets. Leaves linear-oblong. Flowers in terminal panicles, white. Aug.–Oct. Coastal scrub on sand and limestone, SW, AP, LB, SE (Melkbosstrand to E Cape).

OLINIACEAE

OLINIA Thunb. HARD PEAR, HARDEPEER ± 8 spp., southern and tropical Africa

capensis (Jacq.) Klotzsch Like **O. ventosa** but cymes with 9 flowers at the tip of each axis, flowers smaller with hypanthium 1.5–2 mm long and bracts persistent. May–July. Coastal forests, SW, LB, SE (Vredenburg to E Cape).

ventosa (L.) Cufod. Tree to 15 m. Leaves opposite, obovate, smelling of almonds when crushed. Flowers in crowded axillary cymes with 3 flowers at the tip of each axis, creamy white, fragrant, hypanthium 3–8 mm long; bracts caducous. May–July. Coastal forests, SW, AP, LB, SE (Cape Peninsula and Wolseley to E Cape).

ONAGRACEAE

1. Calyx limb persistent on capsule; capsule septicidal; calyx tube not produced beyond ovary; seeds keeled, without hairs (subfamily LUDWIGIOIDEAE) ..... **Ludwigia**
1.' Calyx limb deciduous; capsule loculicidal (subfamily ONAGROIDEAE):
2. Calyx tube not produced beyond ovary; seeds with tuft of hairs ..... **Epilobium**
2.' Calyx tube much produced beyond ovary; seeds without hairs ..... **Oenothera**

EPILOBIUM L. WILLOWHERB ± 220 spp., pantemperate and tropical mountains

capense Buchinger ex Hochst. CAPE WILLOWHERB Thinly hairy perennial to 1.2 m, rhizomes with fleshy scales. Leaves ovate to lanceolate, shortly petiolate, toothed. Flowers solitary in upper axils, pink to white, stigma deeply 4-cleft. Dec.–Mar. Damp places, NW, SW, SE (Cold Bokkeveld Mtns to tropical Africa).

hirsutum L. GREAT WILLOWHERB Softly velvety perennial to 2.5 m. Leaves lanceolate, sessile, finely toothed. Flowers solitary in upper axils, pink, stigma deeply 4-cleft. Damp places, NW, SW, AP, KM, LB, SE (Clanwilliam to Cape Peninsula to W Asia).

***tetragonum** L. SQUARE-STALKED WILLOWHERB Glabrescent perennial to 1.8 m, producing leafy basal rosettes in autumn. Leaves narrowly lanceolate, sessile, finely toothed. Flowers solitary in upper axils, pink, stigma club-shaped. Nov.–Jan. Damp places, SW, KM, LB, SE (European weed, Cape Peninsula to Mpumalanga).

***LUDWIGIA** L. ± 85 spp., worldwide, mainly S America

***octovalvis** (Jacq.) P.H.Raven Softly woody shrub to 4 m, shortly hairy on branches. Leaves linear to lanceolate. Flowers solitary in upper axils, yellow, sepals 4. Oct.–Jan. Wet places and river banks, NW (pantropical but probably naturalized in the Olifants River Valley)*

***OENOTHERA** L. EVENING PRIMROSE ± 125 spp., N and S America

[Several species of **Oenothera** have been introduced in the CCR but none are naturalized]

OROBANCHACEAE

1. Plants with reduced scale-like leaves, fully parasitic:
2. Ovary 1-locular with parietal placentas; flowers bilabiate, lobes separated by prominent folds; filaments usually thickened or flattened near base ..... **Orobanche**
2.' Ovary 2-locular with axile placentas; flowers 3- or 5-lobed; filaments linear:
3. Anthers 1-thecous; flowers 3-lobed ..... **Hyobanche**
3.' Anthers 2-thecous with 1 fertile and 1 barren theca; flowers 5-lobed ..... **Harveya**
1.' Plants ± leafy, not fully parasitic:
4. Calyx 4-lobed; corolla bilabiate ..... **Bartsia**
4.' Calyx 5-lobed or 5-toothed:
5. Anthers with 2 fertile, equal thecae; flowers yellow or orange:
6. Calyx enlarged and inflated in fruit ..... **Melasma**
6.' Calyx not enlarged in fruit ..... **Alectra**
5.' Anthers 1-thecous or with 1 fertile theca and 1 variously modified theca; flowers pink or red:
7. Anthers 2-thecous with 1 fertile theca and 1 barren theca; flowers pink:
8. Undershrubs; corolla tube funnel-shaped, longer than lobes ..... **Graderia**
8.' Herbs; corolla tube campanulate, shorter than lobes ..... **Sopubia**
7.' Anthers 1-thecous; flowers variously coloured:
9. Corolla tube rather sharply curved at or above middle and often dilated at curve ..... **Striga**
9.' Corolla tube cylindric, straight or only slightly curved:
10. Petals equal or nearly equal; capsule dry, dehiscent; flowers usually blue or mauve .. **Buchnera**
10.' Corolla with upper lobes united and smaller than lower; capsule fleshy, indehiscent; flowers white or pink ..... **Cycnium**

ALECTRA Thunb. YELLOW WITCHWEED ± 40 spp., Africa, Asia

capensis Thunb. Hemiparasitic perennial to 50 cm. Leaves overlapping, entire, ascending. Flowers crowded in dense, often subglobose spikes, yellow to orange, stamens nearly equal, filaments bearded. Nov. Rocky slopes, NW, KM, LB, SE (Montagu to Mpumalanga).

lurida Harv. Hemiparasitic perennial to 30 cm. Leaves minute, slightly toothed. Flowers in spikes or racemes, cream-coloured to orange, stamens equal, filaments glabrous. Sept.–Dec. Stony slopes and flats, SW, SE (Cape Peninsula to Knysna).•

sessiliflora (Vahl) Kuntze Hemiparasitic perennial to 25 cm. Leaves coarsely toothed below, spreading, longer than flower buds. Flowers in spikes or racemes, yellow to orange, stamens unequal, filaments glabrous. Mainly Nov.–Apr. Damp flats and lower slopes, NW, SW, AP, KM, LB, SE (Gifberg to tropical Africa and Madagascar).

*__BARTSIA__ L. ± 60 spp., N temperate and tropical mountains

*__trixago__ L. Erect, glandular, hemiparasitic annual to 50 cm. Leaves coarsely lobed. Flowers sessile, bilabiate, cream-coloured with a red lip. Oct.–Jan. Streamsides and damp places, NW, SW, KM, LB, SE (Eurasian weed, Namaqualand to tropical Africa).

BUCHNERA L. FALSE VERBENA ± 100 spp., mostly Old World tropics

dura Benth. Hemiparasitic perennial to 60 cm. Leaves mostly basal, shortly scabrid. Flowers in spikes, blue-purple, corolla hairy. Oct.–Jan. Marshy slopes, NW, LB, SE (Ceres to tropical Africa).

simplex (Thunb.) Druce (= *Buchnera glabrata* Benth.) Hemiparasitic perennial to 30 cm. Leaves mostly basal, shortly scabrid. Flowers crowded in dense spikes, purple or white, corolla ± glabrous. Dec.–Apr. Marshy mountain slopes, SW, LB, SE (Franschhoek to Mpumalanga).

CYCNIUM E.Mey. ex Benth. MUSHROOM-FLOWER ± 40 spp., southern and tropical Africa

tubulosum (L.f.) Engl. Hemiparasitic perennial to 60 cm with erect branches. Leaves narrowly oblong, minutely notched. Flowers in racemes, on long pedicels, pink to mauve turning black on fading. Oct.–Dec. Grassy slopes and flats, SE (George to S tropical Africa).

GRADERIA Benth. WILD PENTSTEMON 5 spp., Africa

scabra (L.f.) Benth. Hemiparasitic perennial to 60 cm. Leaves shortly hairy, coarsely toothed. Flowers in lax racemes, pedicels short, pink to mauve. Oct.–Mar. Grasslands, LB, SE (Langeberg: Garcia's Pass to Mpumalanga).

HARVEYA Hook. INK FLOWER, INKBLOM ± 40 spp., Africa, Mascarene Islands

A. Flowers red to orange

bodkinii Hiern GROOT ROOI-INKBLOM Parasitic perennial to 20 cm. Flowers in dense racemes, elongate-tapering, red with yellow throat, calyx lobed for half its length, stigma oblong. Dec.–Mar. Rocky sandstone slopes, NW (Cedarberg to Hex River Mtns).•

bolusii Kuntze (= *Harveya hirtiflora* Schltr.) ROOI-INKBLOM Parasitic perennial to 25 cm. Flowers in dense racemes, narrowly funnel-shaped with short petals, red to orange with yellow throat, calyx lobed for ± half its length, stigma linear-oblong. Oct.–Feb. NW, SW, KM, LB, SE (Piketberg to Grahamstown).

squamosa (Thunb.) Steud. JAKKALSKOSINKBLOM Parasitic perennial to 15 cm. Flowers sessile in long spikes, tubular with short petals, orange with yellow throat, calyx shortly lobed, stigma subglobose. Sept.–Dec. Deep sandy soils, mostly coastal, NW, SW (Hondeklip Bay to Kleinmond). **gce**

stenosiphon Hiern SKARLAKEN-INKBLOM Parasitic perennial to 60 cm. Flowers in short racemes on long stems, narrowly funnel-shaped with broad petals, compressed in throat, red to

orange with yellow throat, calyx shortly lobed, stigma subglobose. Nov.–Feb. Rocky sandstone slopes, KM, LB, SE (Swellendam to Humansdorp and Kammanassie Mtns).•

A.' Flowers white, yellow, pink or purple

capensis Hook. WIT-INKBLOM Parasitic perennial to 40 cm. Flowers in loose racemes, narrowly funnel-shaped with large petals, compressed in throat, white or tinged pink with yellow throat, calyx shortly lobed, stigma subglobose. Nov.–Feb. Rocky sandstone slopes and flats, NW, SW, AP, KM, LB, SE (Namaqualand and Gifberg to Port Elizabeth). **gce**

hyobanchoides Schltr. ex Hiern. BONT-INKBLOM Parasitic perennial to 30 cm. Flowers sessile in dense spikes on thick stems, tubular with short, reflexed petals, green with yellow tube and red bracts, calyx shortly lobed, stigma subglobose. July–Sept. Deep sand, SE (Humansdorp to Transkei: Quolora Mouth).

pauciflora (Benth.) Hiern (= *Harveya coccinea* (Harv.) Schltr., *H. tubulosa* Harv. ex Hiern) Parasitic perennial to 60 cm. Flowers in long racemes, tubular with short petals, purple with white throat, upper petals projecting forward, calyx shortly lobed, stigma slender. Nov.–Mar. Rocky mountain slopes, NW, SW, LB, SE (S Namaqualand to Cape Peninsula to Swaziland).

purpurea (L.f.) Harv. ex Hook. (= *Harveya euryantha* Schltr., *H. laxiflora* Hiern, *H. sulphurea* Hiern) PERS-INKBLOM Parasitic perennial to 15 cm. Flowers in short or loose racemes, broadly funnel-shaped, white to pink or pale yellow with yellow blotches in throat, calyx deeply lobed, stigma subglobose. Sept.–Dec. Rocky sandstone slopes and flats, NW, SW, KM, LB, SE (Kamiesberg to S Namaqualand, Cedarberg to KwaZulu-Natal).

roseoalba J.C.Manning & Goldblatt Parasitic perennial to 20 cm, densely red woolly-viscid. Flowers sessile in dense spikes on thick stems, tubular with short reflexed petals, white with red bracts, calyx shortly lobed, stigma oblong. Sept.–Oct. Rocky sandstone slopes, KM (Gamkaberg and Attaquasberg).•

HYOBANCHE L. RED BROOMPRAPE, KATNAELS, WOLWEKOS 7 spp., southern Africa

atropurpurea Bolus Root parasite with scale-like, yellow leaves, bracteoles acuminate, blackish purple. Flowers dark purple to blackish, hooded, fragrant, tube inflated, stamens included. Sept.–Oct. Sandy and rocky slopes, NW, SW (S Namaqualand and Cedarberg to Cape Peninsula). **gce**

glabrata Hiern Root parasite with scale-like leaves. Flowers scarlet-red, sparsely hairy, tube subcylindrical, stamens exserted. July–Oct. Sandy slopes and flats, NW, SW, AP, KM (Namaqualand to Bredasdorp and W Karoo). **gce**

rubra N.E.Br. Like **H. sanguinea** but flowers dark red. July–Oct. Sandy slopes and flats, LB, SE (Gourits River to E Cape).

sanguinea L. Root parasite with scale-like leaves, bracteoles obtuse. Flowers crimson or pink, hooded, densely hairy, tube subcylindrical, stamens included. Aug.–Oct. Sandy slopes and flats, NW, SW, AP, LB, SE (S Namibia to E Cape).

MELASMA P.J.Bergius WITCH'S FOXGLOVE 5 spp., Africa, America

scabrum P.J.Bergius Shortly hairy, hemiparasitic perennial to 70 cm, sparsely branched above. Leaves narrow and slightly toothed. Flowers on long pedicels in lax racemes, pale yellow with purple throat. Nov.–Mar. Damp mountain slopes, SW, KM, LB, SE (Cape Peninsula to Mpumalanga).

***OROBANCHE** L. BROOMRAPE ± 150 spp., ± cosmopolitan

***minor** Sm. Yellowish, achlorophyllous, glandular-woolly root parasite to 40 cm. Leaves scale-like, imbricate at swollen base of stem. Flowers in a spike, dull brownish mauve and yellow, calyx split above and below, lobes thread-like. Aug.–Nov. Parasitic on various hosts, SW, SE (European weed, Cape Peninsula, Port Elizabeth, also tropical Africa).

***ramosa** L. BLOUDUIWEL Yellowish, achlorophyllous, thinly glandular-hairy root parasite to 30 cm, often branched. Leaves scale-like. Flowers in a spike, blue-mauve, calyx acutely 4-lobed, subtended by 2 thread-like bracteoles. July–Nov. Parasitic mostly on Asteraceae, NW, SW, AP, KM (European weed, Namaqualand to Riversdale, also tropical Africa).

SOPUBIA Buch.-Ham. ex D.Don. ± 60 spp., Old World tropics and subtropics

simplex (Hochst.) Hochst. Glabrescent, hemiparasitic perennial to 60 cm. Leaves linear, denticulate. Flowers in elongate racemes, pink to mauve. Mainly Nov.–Feb. Grasslands and marshes, SE (Knysna to tropical Africa).

STRIGA Lour. WITCHWEED ± 40 spp., Old World tropics and subtropics

bilabiata (Thunb.) Kuntze Slender, hairy, hemiparasitic perennial to 50 cm. Leaves linear. Flowers pink to mauve, calyx 5-ribbed. Nov.–May. Grasslands, SE (Knysna to tropical Africa).

elegans Benth. MIELIEGIF Slender, hairy, hemiparasitic perennial. Leaves linear. Flowers pink to red, lower lip enlarged, calyx 10-ribbed. Dec.–Mar. Grasslands, SE (Storms River to tropical Africa).

gesnerioides (Willd.) Vatke ex Engl. Sparsely hairy, hemiparasitic perennial, black on drying. Leaves scale-like. Flowers pink to mauve, calyx 5-ribbed. July–Oct. Dry grasslands, SE (Uitenhage to tropical Africa and India).

OXALIDACEAE

by B. Bayer

OXALIS L. ORREL, SURING ± 800 spp., cosmopolitan, chiefly S Africa and S America

*A. Peduncle more than 1-flowered (see also **O. anomala**)*

bowiei Lindl. Acaulescent geophyte. Leaves trifoliolate, leaflets suborbicular-obcordate, leathery. Flowers 3–12 per peduncle, pink with greenish tube. Mar.–May. 50–300 m, SE (Port Elizabeth to E Cape).

caprina Thunb. BOKSPOOTJIE, BOKSURING Small, weak geophyte, stem absent or very short. Leaves terminal, trifoliolate, bilobed to middle. Flowers 2–4 per peduncle, pale lilac or white with greenish tube. Apr.–June. 50–200 m. SW, LB, SE (frequent weed of cultivation, Cape Peninsula to Uitenhage and E Cape).

compressa Thunb. Like **O. pes-caprae** but petioles flattened and peduncles 3–6-flowered. Flowers yellow. July–Sept. Widely distributed, 100–200 m, NW, SW (Kamiesberg to Caledon). **gce**

***corniculata** L. RANKSURING, TUINSURING Low, branching annual with prostrate, leafy stem rooting at nodes. Leaves trifoliolate, leaflets cuneate-obcordate, ciliate and hairy beneath. Flowers 1–6 per peduncle, small, yellow. Mostly warmer months. Weed of cultivation, NW, SW, LB, SE (widespread cosmopolitan weed).

dichotoma T.M.Salter Slender, often branched geophyte to 15 cm, bulb beaked. Leaves trifoliolate, leaflets bilobed almost to base. Flowers 2–9 per peduncle, lilac. Mar.–Apr. Arid areas, 400–600 m, KM (Oudtshoorn).•

lindaviana Schltr. Glabrous, sometimes branched geophyte, 2–20 cm, bulb beaked. Leaves trifoliolate, leaflets bilobed to middle. Flowers 3 or 4 per peduncle, white with greenish tube. June. Rocky, S slopes, 250–350 m, NW (Worcester, Robertson).•

livida Jacq. (= *Oxalis dentata* Jacq., *O. lateriflora* Jacq.) STEENTJIESURING Caulescent geophyte with stem to 20 cm, often branched, bulb not beaked, scales with brown hairs at apex. Leaves trifoliolate, usually glabrous, leaflets deeply bilobed, purple beneath. Flowers 2–6 per peduncle, rose or lilac with yellowish tube. Apr.–May. Rocky slopes in shade, 80–350 m, NW, SW (Clanwilliam to Bredasdorp).•

pes-caprae L. GEELSURING Acaulescent geophyte. Leaves usually basal, trifoliolate, leaflets cuneate-obcordate, usually glabrous above, pubescent beneath. Flowers 3–20 per peduncle, yellow. June–Oct. Widespread and common, 50–500 m, NW, SW, AP, KM, LB, SE (Namaqualand to E Cape).

purpurata Jacq. Acaulescent geophyte to 20 cm. Leaves trifoliolate, leaflets cuneate-obcordate, leathery, pilose and purple beneath, with hairy petioles. Flowers 2–7 per peduncle, lilac with yellow tube. May–June. Sandstone crevices, NW (Bokkeveld Mtns).•

stellata Eckl. & Zeyh. Geophyte to 9 cm, bulb beaked. Leaves terminal, trifoliolate, leaflets deeply bilobed. Flowers 3–6 per peduncle, rosy or white with yellow tube. Apr.–June. Flats and lower slopes, 50–400 m, NW, SW, LB, SE (Cape Peninsula to Ceres and Port Elizabeth).•

tragopoda T.M.Salter Acaulescent geophyte to 20 cm, bulb shortly beaked with ridged tunics. Leaves trifoliolate, leaflets obcordate. Flowers 3–7 per peduncle, lilac with greenish tube. Dec.–May. Grassy flats, SE (Knysna to E Cape).

A.' Peduncle 1-flowered
B. Leaves unifoliolate

dregei Sond. Acaulescent, aquatic geophyte. Leaves unifoliolate, bilobed and kidney-shaped. Flowers shallowly campanulate, white with yellow cup. May–Sept. Seasonal ponds and streams, 300–500 m, NW, KM (Kamiesberg to Worcester, and Little Karoo). **gce**

monophylla L. Glandular-hairy, acaulescent geophyte, bulb with matted, fibrous tunics. Leaves unifoliolate, linear-obovate, glandular-ciliate. Flowers white or pale lilac with yellow tube. Apr.–May. Rocky slopes, 80–450 m, NW, SW (Clanwilliam to Cape Peninsula).•

nortieri T.M.Salter Acaulescent geophyte. Adult leaves unifoliolate, leathery, elliptic-obovate, sometimes hairy. Flowers magenta with yellow tube. June. Stony flats, 550–650 m, KM, SE (Oudtshoorn, Willowmore).•

simplex T.M.Salter Acaulescent, aquatic geophyte. Leaves unifoliolate, transversely oblong, with black marginal dots beneath. Flowers shallowly campanulate, white or pale rose. July–Aug. Marshes, 400 m, NW (Pakhuis Mtns: Brandewyn River).•

*B.' Leaves usually 4- or more-foliolate (see also **O. polyphylla**)*

amblyodonta T.M.Salter Caulescent geophyte with stem to 14 cm. Leaves terminal, leaflets 5–7, oblong, densely hairy beneath. Flowers lilac with yellow tube. May–June. Renosterveld, sandier soils, 250–500 m, NW, SW (Clanwilliam to Tulbagh).•

burtoniae T.M.Salter Caulescent geophyte with stem to 10 cm. Leaves terminal, leaflets 5–7, linear with apical calli. Flowers yellow. June. Granite and limestone outcrops, 100–200 m, SW (Paternoster to Saldanha Bay).•

engleriana Schltr. (= *Oxalis henrici* F.Bolus) Caulescent geophyte with wiry, brown stem to 15 cm. Leaves crowded apically, leaflets 5–8, linear-oblong, ciliate and hairy beneath. Flowers rose with yellow tube. May–June. Shady, southern slopes, 150–300 m, NW, SW (Hex River Valley to Caledon).•

flava L. (= *Oxalis fabifolia* Jacq.) BOBBEJAANSURING, VINGERSURING Acaulescent geophyte. Leaves trifoliolate, leathery, glaucous, petioles articulated and with large, brown stipules, leaflets (1)2–12, linear to obovate, conduplicate. Flowers yellow, white or lilac. May–June. Flats and lower slopes, 50–600 m, NW, SW, LB (Namaqualand to Riversdale). **gce**

saltusbelli Dreyer & Roets Clumped, acaulescent geophyte to 25 cm. Leaves 6–11-foliolate, leaflets radiate, oblong-linear, glabrescent. Flowers lilac with yellow tube. June. Sandstone flats, NW (Bokkeveld Mtns: Oorlogskloof).•

tomentosa Thunb. VINGERSURING Densely silky hairy, acaulescent geophyte. Leaves trifoliolate, silky hairy, leaflets 10–20, oblong-cuneate. Flowers white with yellow tube. Apr.–June. Grassy flats and slopes, 75–150 m, NW, SW (Clanwilliam to Cape Peninsula).•

variifolia Steud. Like **O. amblyodonta** but leaflets 3–5, linear. Flowers white or lilac. May–June. Lower slopes, 100–250 m, NW (Clanwilliam to Piketberg).•

zeyheri Sond. Shortly caulescent geophyte with stem to 3 cm, bulb tunic vertically grooved. Leaves terminal, 7–15 foliolate, linear-cuneate, thinly glandular-hairy beneath. Flowers rose to lilac with yellow tube. Apr.–May. Arid flats and slopes, 300–650 m, NW, KM (Ceres to Montagu and W Karoo). **gce**

*B." Leaves trifoliolate (see also **O. flava**, **O. variifolia**)*
C. Peduncular bracts at an articulation
D. Leaves bifurcate to middle or below

bifida Thunb. Caulescent geophyte with branched stem to 30 cm. Leaves trifoliolate, leaflets bilobed to middle. Flowers rose with greenish tube, peduncle articulated. Mar.–July. Shady sites, 150–200 m, NW, SW (Ceres to Cape Peninsula and Caledon).•

heterophylla DC. Caulescent geophyte with stem to 30 cm, often branching, bulb with hairy scales. Leaves trifoliolate, often subsessile, leaflets bilobed to middle, often silky beneath. Flowers

red to purple with yellow tube, peduncle articulated. Aug.–Oct. S slopes and mountains, 150–400 m, NW, SW, KM, LB (Namaqualand to Riversdale). **gce**

orthopoda T.M.Salter Caulescent geophyte with leafy stem to 15 cm, bulb beaked. Leaves trifoliolate, leaflets bilobed almost to base. Flowers rosy purple or white with yellowish tube, peduncle articulated. June. Lower slopes, 100–250 m, AP, LB (Swellendam to Mossel Bay).•

D.' Leaves not bifurcate

duriuscula Schltr. Caulescent geophyte with slender stem to 19 cm, bulb pointed. Leaves terminal, trifoliolate, leaflets linear-conduplicate. Flowers rosy purple with yellow tube, peduncle articulated. Mar.–May. Clay flats, 100–500 m, SW (Botrivier to Bredasdorp).•

imbricata Eckl. & Zeyh. Acaulescent geophyte with shallow, contorted bulb. Leaves trifoliolate, numerous, leaflets obcordate, densely pubescent. Flowers white with greenish tube, peduncle articulated. Apr.–June. Flats and lower slopes, 50–300 m, LB, SE (Swellendam to E Cape).

incarnata L. Caulescent geophyte with slender, branched stem, 10–30 cm. Leaves trifoliolate, leaflets obcordate. Flowers white or pale lilac with greenish tube, peduncle articulated. Jan.–Apr. Shady sites, 50–300 m, SW, LB, SE (Cape Peninsula to Uitenhage).•

ioeides T.M.Salter & Exell Small, acaulescent geophyte. Leaves trifoliolate, leaflets cuneate-obcordate, purplish beneath with reddish brown marginal dots. Flowers rose-red, peduncle articulated. May–June. Upper slopes, 600 m, KM, LB (Outeniqua Mtns: Robinson Pass and Kammanassie Mtns).•

lanata Thunb. Caulescent geophyte with stem to 10 cm. Leaves terminal, trifoliolate, leaflets obcordate, densely hairy. Flowers white or pink with yellow tube, peduncle articulated. May–Oct. Slopes and screes, 50–300 m, SW (Cape Peninsula to Caledon).•

luteola Jacq. Acaulescent geophyte, bulbs large and gummy. Leaves trifoliolate, leaflets cuneate-rotund. glabrous or hairy, conspicuously veined and often purple beneath. Flowers yellow, peduncle articulated. May–June. Flats and lower slopes, 100–300 m, NW, SW, KM, LB (Namaqualand to Albertinia). **gce**

obtusa Jacq. GEELOOGSURING Acaulescent geophyte with deeply pitted bulb. Leaves trifoliolate, leaflets cuneate-obcordate, hairy. Flowers pink, brick-red, yellow or white, with darker veins and yellow tube, peduncle articulated. June–Oct. Mostly clay and granite, 50–600 m, NW, SW, KM, LB, SE (Namaqualand, Bushmanland and W Karoo to Port Elizabeth). **gce**

orbicularis T.M.Salter Acaulescent geophyte. Leaves large, trifoliolate, leaflets suborbicular, veined and often purple beneath. Flowers pale lilac with yellow tube, peduncle articulated. June. Damp shady sites, 200–600 m, KM, LB (Caledon to Ladismith and Swellendam).•

pendulifolia T.M.Salter Caulescent geophyte to 30 cm. Leaves terminal, trifoliolate, leaflets narrowly oblong-conduplicate, pendulous, sparsely hairy beneath, punctate. Flowers brick-red with greenish tube, viscid, peduncle articulated. Mar.–Apr. Lower slopes, grassy areas, 100–200 m, LB, SE (Swellendam to Plettenberg Bay).•

psilopoda Turcz. Acaulescent geophyte. Leaves trifoliolate, leaflets obcordate, densely silky beneath. Flowers white or lilac with yellow tube, peduncle articulated. Mar.–June. Flats and lower slopes, 150–300 m, LB, SE (Riversdale to Port Elizabeth).•

strigosa T.M.Salter Acaulescent geophyte, bulb with long, curved beak. Leaves trifoliolate, leaflets obcordate, roughly hairy. Flowers rose-red with purple margins and yellowish streaked tube, peduncle articulated. Apr.–May. Lower slopes, 250–300 m, SW (Tygerberg, Kanonkop, Hercules Pillar).•

truncatula Jacq. Robust acaulescent geophyte. Leaves trifoliolate, leaflets cuneate-obovate, dark green, leathery, purple and densely silky beneath. Flowers lilac with yellow tube, peduncle articulated. Apr.–June. Lower and middle slopes, 75–250 m, SW (Paarl to Bredasdorp).•

zeekoevleyensis R.Knuth Acaulescent geophyte. Leaves trifoliolate, leaflets obcordate, sparsely hairy beneath. Flowers rosy lilac with yellow tube, peduncle articulated. June–Aug. Flats, 150–250 m, SW, LB (Caledon to Riversdale).•

C.' Peduncular bracts not at an articulation or lacking
E. Plants caulescent with leafy stems; lower leaves at least subsessile or sessile; peduncles often cauline

giftbergensis T.M.Salter Caulescent geophyte with slender, leafy stem to 20 cm. Leaves trifoliolate, subsessile with scale-like petioles, leaflets linear-cuneate, glandular-ciliate, hairy beneath. Flow-

ers pink, violet or white with yellowish tube. May–June. Upper mountain slopes, 500 m, NW (Gifberg to Clanwilliam).•

hirta L. Softly hairy, caulescent geophyte with leafy stem, often branching, 5–30 cm, bulb scales unprotected. Leaves trifoliolate, grey-green, subsessile with scale-like petioles, leaflets linear-obovate, hairy beneath. Flowers mauve, magenta or white with sometimes elongate, yellow tube. Apr.–June. Flats and lower slopes, 50–300 m, NW, SW (Knersvlakte to Cape Peninsula). **gce**

leipoldtii Schltr. Like **O. viscosa** but pedicels slender and ebracteate and flowers purplish. June. Mountain slopes, 350 m, NW (Clanwilliam District).•

macra Schltr. Like **O. hirta** but leaflets linear. Flowers white or pink. June. 500 m, NW, SW (Piekeniers Kloof to Piketberg).•

meisneri Sond. Caulescent geophyte with leafy stem to 16 cm. Leaves trifoliolate, subsessile with scale-like petioles, leaflets linear-conduplicate, pubescent. Flowers yellow or lilac. Apr.–June. S slopes, 300–350 m, NW (Tulbagh to Robertson).•

multicaulis Eckl. & Zeyh. Caulescent geophyte with leafy stem to 10 cm. Leaves trifoliolate, lower subsessile with scale-like petioles, leaflets linear-cuneate, silky hairy beneath. Flowers white or pink with yellow tube and dark reddish margins. May–Aug. Seasonally flooded areas, 150–300 m, NW, SW (Cape Peninsula to Bredasdorp).•

pardalis Sond. (= *Oxalis camelopardalis* T.M.Salter, *O. capillacea* E.Mey. ex Sond., *O. confertifolia* (Kuntze) R.Knuth, *O. grammophylla* T.M.Salter, *O. heidelbergensis* T.M.Salter, *O. leptogramma* T.M.Salter, *O. lineolata* T.M.Salter, *O. massoniana* T.M.Salter, *O. robinsonii* T.M.Salter & Exell) Caulescent geophyte to 30 cm, bulb scales slender, many, with retrorse brown hairs. Leaves trifoliolate, linear-elliptic, glabrous or hairy, black linear-punctate. Flowers orange, red-purple, pink, yellow, white or cream-coloured, with yellow tube. May–June. Usually in heavier soils, 150–600 m, NW, SW, AP, KM, LB (Bokkeveld Mtns and W Karoo to Mossel Bay). **gce**

porphyriosiphon T.M.Salter Glandular-hairy, caulescent geophyte to 11 cm. Leaves trifoliolate, lower sessile, leaflets cuneate-conduplicate, sparsely glandular-ciliate and hairy beneath. Flowers red to purple with white ring and dark purple tube, viscid. May–July. Damp sites on shale bands, ± 500 m, NW (Pakhuis Pass).•

pseudo-hirta T.M.Salter Like **O. hirta** but slender with flexuose stem, dark, firm tunics and upper leaves shortly petiolate. Flowers lilac with yellow tube. May–June. Upper slopes, 600 m, SW (only Stettyn, Worcester).•

recticaulis Sond. Caulescent geophyte with sparsely leafy stem to 14 cm. Leaves trifoliolate, leaflets linear-cuneate, glandular-ciliate, often hairy beneath. Flowers white or pale rose with yellow tube. June–Oct. Mainly damp places, 150–300 m, NW, SW (Clanwilliam to Piketberg).•

subsessilis L.Bolus Caulescent geophyte with polished brown, leafy stem to 25 cm. Leaves trifoliolate, subsessile with scale-like petioles, leaflets linear-cuneate, hairy beneath. Flowers pale lilac with yellow tube and dark margins. May–June. Stony flats, 50 m, SW (Saldanha Bay).•

tenuifolia Jacq. Hairy, caulescent geophyte with leafy stem to 24 cm. Leaves trifoliolate, lower subsessile with scale-like petioles, fasciculate, leaflets linear-conduplicate, hairy beneath. Flowers white with yellow tube and purple margins. May–Aug. Slopes and flats, 50–400 m, SW (Paarl to Cape Peninsula).•

viscosa E.Mey. ex Sond. Glandular-hairy, caulescent geophyte with leafy stem to 17 cm. Leaves, trifoliolate, lower subsessile with scale-like petioles, leaflets linear-cuneate, hairy beneath. Flowers white with yellow tube. May–July. Shady rocky slopes, 200–250 m, NW (Clanwilliam to Tulbagh).•

E.' Plants acaulescent or caulescent but then leaves apically congested and distinctly petiolate; peduncles terminal
F. Leaflets linear-conduplicate

argyrophylla T.M.Salter Grey-silky, caulescent geophyte to 20 cm. Leaves terminal, trifoliolate, leaflets linear-cuneate, conduplicate, falcate, silky. Flowers white or lilac with yellow cup and darker veins beneath. May–July. 100–200 m, SW (Malmesbury to Cape Peninsula).•

burkei Sond. Caulescent geophyte with wiry stem to 10 cm. Leaves terminal, trifoliolate, leaflets linear-conduplicate, thinly hairy beneath. Flowers rose, lilac or white with yellow tube. May–June. Stony flats, 300–600 m, NW, KM (Ceres to Montagu and S Karoo).

clavifolia Sond. Caulescent geophyte to 20 cm, glandular-hairy. Leaves mostly terminal, trifoliolate, leaflets linear-cuneate, conduplicate, apically dilated. Flowers yellow. May–July. Stony slopes, NW (Namaqualand to Klawer), **gce**

falcatula T.M.Salter Caulescent geophyte to 20 cm. Leaves terminal, trifoliolate, leaflets linear-falcate, thinly silky beneath. Flowers pale pink with yellow tube. Apr.–June. Lower slopes, 75–200 m, SW (Cape Peninsula to Paarl).•

fragilis T.M.Salter Caulescent geophyte with slender stem to 10 cm. Leaves terminal, trifoliolate, leaflets linear-conduplicate. Flowers straw-coloured with yellow tube. May–July. Stony renosterveld, 170 m, SW (Moorreesburg).•

gracilipes Schltr. Like **O. pallens** but bulb larger, 15–20 mm diam., pitted. Flowers white with yellow tube. May–June. Sandstone slopes, 100–200 m, NW (Clanwilliam, Piketberg).•

gracilis Jacq. Caulescent geophyte with branched stem to 30 cm. Leaves mostly terminal, trifoliolate, leaflets linear-conduplicate, finely hairy beneath. Flowers apricot-pink or white with yellow tube. May–June. Sandy flats and slopes, 50–150 m, NW (Namaqualand to Clanwilliam). **gce**

involuta T.M.Salter Shortly caulescent geophyte. Leaves terminal, trifoliolate, leaflets linear-involute with flared tips. Flowers bright yellow. May–July. Damp, clay flats, 175 m, NW (Porterville).•

levis T.M.Salter Dwarf geophyte with stem to 3 cm. Leaves terminal, trifoliolate, leaflets linear-conduplicate, petioles dark brown. Flowers white or lilac with yellow tube. June. Clay soils, 120–160 m, SW (Malmesbury to Mamre).•

oligophylla T.M.Salter Acaulescent geophyte. Leaves 1 or 2, trifoliolate, leaflets linear-conduplicate. Flowers on elongate peduncles, white with yellow tube, with minute bracts at calyx. May–June. Rocky sandstone slopes, ± 500 m, NW (Gifberg).•

pallens Eckl. & Zeyh. Caulescent geophyte with slender stem to 20 cm, bulb smooth, shallow. Leaves mostly terminal, trifoliolate, leaflets linear-conduplicate, minutely hairy beneath. Flowers white with yellow tube. May–June. Flats and slopes, 150–200 m, NW (Clanwilliam to Piketberg).•

perineson T.M.Salter & Exell Caulescent geophyte to 15 cm. Leaves terminal, trifoliolate, leaflets linear-conduplicate, with black, marginal calli. Flowers mauve or white with yellow tube and dark margins. May–June. 175 m, SW (Moorreesburg).•

phloxidiflora Schltr. Shortly caulescent geophyte to 10 cm. Leaves terminal, trifoliolate, leaflets linear-spathulate, sometimes thinly hairy beneath. Flowers purple with dull purple ring and yellow tube. May–Aug. Upper slopes, 650 m, NW (Clanwilliam).•

polyphylla Jacq. VINGERSURING Caulescent geophyte to 20 cm, bulb often gummy. Leaves terminal, 3(–7)-foliolate, leaflets linear-conduplicate, sometimes thinly hairy beneath. Flowers rose, lilac or white with yellow tube and often darker margins. Mar.–June. Usually on flats, light or heavy soils, 100–300 m, SW, LB, SE (Malmesbury to Port Elizabeth).•

stenopetala T.M.Salter Caulescent geophyte with slender stem to 14 cm. Leaves terminal, trifoliolate, leaflets linear-conduplicate, often black-punctate, sometimes hairy beneath. Flowers white with yellowish tube. May–July. Stony flats, 600 m, NW (Bokkeveld Mtns to Clanwilliam and W Karoo). **gce**

tenuipes T.M.Salter Caulescent geophyte with slender stem to 45 cm. Leaves terminal, trifoliolate, leaflets linear-conduplicate. Flowers rosy lilac with dark purple ring and yellow tube. June. Shady slopes, 200–500 m, NW (Gifberg to Citrusdal).•

tenuis T.M.Salter Glandular-hairy, caulescent geophyte to 10 cm, rarely branching. Leaves terminal, trifoliolate, leaflets linear-conduplicate, glabrescent beneath. Flowers white with yellow tube. May–June. Shady slopes, 500 m, NW (Gifberg).•

versicolor L. CANDYCANE SORREL Caulescent geophyte with partly leafy stem to 20 cm, sometimes branching. Leaves mostly terminal, linear-conduplicate, often with marginal calli. Flowers white with yellow tube and reddish purple margins. May–Nov. Flats and slopes, 50–250 m, NW, SW (Clanwilliam to Hermanus).•

xantha T.M.Salter Caulescent geophyte with slender stem to 15 cm. Leaves terminal, trifoliolate, leaflets linear-conduplicate, thinly hairy beneath. Flowers bright yellow. July. Clay soils on flats, 400 m, NW (N Pakhuis Mtns).•

F.' Leaflets oblong to obcordate
G. Leaflets fleshy, often small, epidermal cells large

algoensis Eckl. & Zeyh. Acaulescent geophyte to 12 cm. Leaves trifoliolate, fleshy, leaflets oblanceolate-subrotund, ciliate and hairy beneath, with large epidermal cells. Flowers lilac or white with yellow tube. June–Sept. Stony flats, KM, SE (Ladismith to Port Elizabeth).•

annae F.Bolus Acaulescent geophyte to 6 cm. Leaves trifoliolate, leaflets rotund-obcordate, glabrous or hairy. Flowers yellow, copper-pink or white with yellow tube. June–Aug. Arid areas, 400–600 m, NW, KM (Namaqualand and W Karoo to Swartberg). **gce**

attaquana T.M.Salter Caulescent geophyte to 13 cm. Leaves congested apically, trifoliolate, fleshy, leaflets obreniform, sparsely ciliate, with large epidermal cells. Flowers rose with yellow tube. June. Stony slopes, 600 m, LB (Attaquas Mtns).•

convexula Jacq. Usually caulescent geophyte to 14 cm, with shallow bulb. Leaves trifoliolate, small, fleshy, forming an umbrella-like rosette, leaflets subrotund, with large epidermal cells. Flowers salmon-pink with yellow tube. June–Sept. Shale slopes, 150–350 m, NW, AP, KM, LB (Ceres to Riversdale).•

depressa Eckl. & Zeyh. Acaulescent geophyte with shallow bulb. Leaves trifoliolate, succulent, leaflets cuneate-suborbicular, with large epidermal cells. Flowers white, lilac or pink with yellow tube. Mar.–Apr. Flats and slopes on clay or sands, NW, SW, AP, KM, LB, SE (Widespread, Cold Bokkeveld and Karoo to Zimbabwe).

dilatata L.Bolus Acaulescent geophyte with shallow bulb. Leaves trifoliolate, succulent, leaflets cuneate-rotund, with large epidermal cells. Flowers yellow or reddish, sepals swollen at base. Apr.–May. Stony slopes, 200–400 m, NW, SW, KM, LB, SE (Ceres to Port Elizabeth).•

fergusoniae T.M.Salter Small, acaulescent geophyte with shallow bulb. Leaves trifoliolate, leaflets rotund, glandular-ciliate and with marginal, black calluses, with large epidermal cells. Flowers rose or white with yellow tube. Sept.–Oct. Dry flats and slopes, 300–600 m, NW, KM (W Karoo and Cold Bokkeveld Mtns to Little Karoo). **gce**

fourcadei T.M.Salter Acaulescent geophyte with shallow bulb. Leaves trifoliolate, leaflets linear-oblong, ciliate and hairy, orange-punctate on margins. Flowers white with yellow tube. Oct. Dry upper slopes, KM, SE (Kammanassie to Humansdorp).•

oreithala T.M.Salter Dwarf, acaulescent geophyte. Leaves trifoliolate, fleshy, leaflets rotund, purple beneath, with large epidermal cells. Flowers white with yellow tube. July. Rocky sandstone slopes, ± 800 m, NW (Gifberg).•

pocockiae L.Bolus Like **O. depressa** but often short-stemmed and bulb 4-angled. May–June. Varied habitats, 350–600 m, NW, SW, KM (Vanrhynsdorp to Cape Peninsula and W Karoo). **gce**

pulchella Jacq. Acaulescent geophyte, bulb, large, gummy, shallow. Leaves trifoliolate, fleshy, leaflets suborbicular, hairy beneath, with large epidermal cells. Flowers salmon or rose. May–June. Sandy lower slopes and flats, 250–450 m, NW, SW, LB (S Namibia to Swellendam). **gce**

punctata Thunb. Dwarf, acaulescent geophyte, bulb small, sharply angled and pitted. Leaves trifoliolate, fleshy, leaflets cuneate-rotund, with large epidermal cells. Flowers white or lilac with yellowish tube. Apr.–June. Widespread, 150–300 m, SW, KM, LB, SE (Cape Peninsula to E Cape).

G.' Leaflets not as above

adspersa Eckl. & Zeyh. Like **O. pillansiana** but flowers pale lilac, red or occasionally white with yellow tube. May–June. Renosterveld, clay flats and slopes, 200–400 m, NW, SW (Clanwilliam to Stellenbosch).•

amblyosepala Schltr. Shortly caulescent geophyte with stem to 5 cm. Leaves terminal, trifoliolate, leaflets cuneate-obcordate, glandular-hairy beneath. Flowers white with yellow tube. Aug.–Oct. Renosterveld, 300 m, NW (Clanwilliam).•

anomala T.M.Salter Acaulescent geophyte, 12–18 cm, bulb beaked. Leaves trifoliolate, leaflets obcordate, sparsely hairy and purple beneath. Flowers 1 or 2 per peduncle, lilac with greenish tube. May–June. Stony slopes, 500–600 m, KM, LB (Ladismith to Swellendam).•

argillacea F.Bolus Like **O. pillansiana** but shorter, to 9 cm and outer filaments obtusely toothed at base. May–July. Renosterveld, hard gravelly soils, 200–500 m, NW (S Namaqualand to Clanwilliam). **gce**

aridicola T.M.Salter Caulescent geophyte to 13 cm, thinly glandular-hairy. Leaves terminal, trifoliolate, leaflets cuneate-obovate, ciliate, sometimes hairy beneath. Flowers lilac with elongate, yellow tube. May–July. Stony flats, 400–500 m, NW (Pakhuis Mtns).•

aurea Schltr. Acaulescent geophyte. Leaves trifoliolate, leaflets cuneate-rotund, often hairy beneath. Flowers golden-yellow. May. Clay slopes, 200–300 m, NW (Clanwilliam to Citrusdal).•

callosa R.Knuth Acaulescent or shortly caulescent geophyte to 10 cm. Leaves terminal, trifoliolate, leaflets elliptic-conduplicate, hairy beneath. Flowers rose-red with purple ring and yellow tube. May–June. Gravelly soils, 500 m, NW (Bokkeveld Mtns and W Karoo). **gce**

ciliaris Jacq. Caulescent geophyte to 20 cm. Leaves mostly terminal, trifoliolate, leaflets linear-elliptic, ciliate, obscurely pustulate. Flowers pink, rose, lilac or white with yellow tube. Apr.–July. Stony flats, 300–600 m, NW, SW, KM, LB, SE (Ceres to Alexandria).

commutata Sond. Small, acaulescent geophyte. Leaves trifoliolate, leaflets rotund, with large epidermal cells. Flowers rose, lilac or white with yellow tube. Apr.–June. Damp places, mainly streamsides, 50–300 m, NW, SW (Cold Bokkeveld to Cape Peninsula and Caledon).•

comptonii T.M.Salter Caulescent geophyte with slender stem to 12 cm. Leaves terminal, trifoliolate, leaflets linear-elliptic, glabrescent beneath. Flowers white or pale rose with greenish yellow tube. May–June. Damp, mossy ledges on sandstone. NW (Gifberg).•

disticha Jacq. (incl. **O. dines** Ornduff) Robust, glabrescent aquatic with branching, leafy stems to 40 cm. Leaves trifoliolate, floating, with large, papery stipules, leaflets obcordate. Flowers shallowly campanulate, pale yellow or white with yellow cup, scented. June–Aug. Seasonal ponds, 180–400 m, NW, SW (Bokkeveld Mtns to Mamre).•

droseroides E.Mey. ex Sond. Glandular-hairy, caulescent geophyte to 15 cm. Leaves crowded terminally, trifoliolate, leaflets oblong-ovate, glandular-ciliate. Flowers deep rose. May. Clay slopes, 300–500 m, NW, SW (Tulbagh to Paarl and Worcester).•

ebracteata Savign. Glandular-hairy, caulescent geophyte with slender stem to 7 cm. Leaves mostly terminal, trifoliolate, leaflets cuneate-obcordate, hairy beneath. Flowers pink or white with yellow tube. Apr.–June. Shaded places, 300–500 m, NW (Clanwilliam to Tulbagh).•

eckloniana C.Presl Acaulescent geophyte with shallow bulb. Leaves trifoliolate, leaflets elliptic-obovate, ciliate, often purple beneath. Flowers yellow, white or pink to orange with yellow tube, anthers spreading, arrow-shaped. May–July. Usually damp situations, 50–200 m, NW, SW (Clanwilliam to Caledon).•

fibrosa F.Bolus Acaulescent, glandular-hairy geophyte. Leaves trifoliolate, leaflets cuneate-obovate, glandular-hairy. Flowers lilac or mauve with yellow tube, anthers spreading, arrow-shaped. Apr.–June. Arid areas, 400–600 m, KM, LB (Montagu to Ladismith and S Karoo).

glabra Thunb. TAPYTSURING Caulescent geophyte with stem partly leafy, 5–20 cm, conspicuously stoloniferous and forming carpets. Leaves mostly terminal, trifoliolate, leaflets linear-cuneate. Flowers with long, narrow sepals, red, pink or white with yellow tube. Apr.–Nov. Sandy flats and slopes, 50–300 m, NW, SW, KM (Piketberg to Montagu).•

goniorrhiza Eckl. & Zeyh. (= *Oxalis callimarginata* Weintroub, *O. urbaniana* Schltr.) Caulescent geophyte with slender stem to 20 cm, partly leafy below, bulb small with 3–5 vertical ridges. Leaves trifoliolate, lower sessile, leaflets linear-cuneate. Flowers white or rose with yellow tube. May–July. Marshy flats, 50–300 m, SW (Tulbagh to Caledon).•

hygrophila Dreyer Acaulescent geophyte to 7 cm. Leaves trifoliolate, leaflets elliptic. Flowers white with yellow tube. Oct.–Nov. Seepages on shale bands, NW (Pakhuis Mtns: Groot Kliphuis).•

laxiuscula R.Knuth Lax, acaulescent geophyte. Leaves trifoliolate, pilose. Flowers white. Sept. Sandy slopes, 140 m, NW (Clanwilliam District).•

leptocalyx Sond. Like **O. glabra** but bulb larger, 15–25 mm diam., without stolons. Flowers rosy, sometimes white with yellow tube and darker margin. May–June. Flats and slopes, 130 m, NW, SW (Piketberg to Malmesbury).•

melanosticta Sond. Acaulescent geophyte. Leaves trifoliolate, leaflets cuneate-obcordate, ciliate, black-dotted when dry. Flowers yellow. May–Aug. Dry mountain slopes, 500–600 m, NW, KM (Bokkeveld Escarpment and W Karoo to Montagu). **gce**

microdonta T.M.Salter Acaulescent geophyte. Leaves trifoliolate, leaflets linear-elliptic with bristly margins. Flowers lilac with yellow tube, anthers spreading, arrow-shaped. May. Flats, under bush, 350 m, KM (Montagu).•

minuta Thunb. Acaulescent geophyte. Leaves trifoliolate, leaflets elliptic-obovate, sometimes with long, marginal hairs. Flowers white with yellow tube, anthers spreading, arrow-shaped. May–July. Usually in damp places, 50–200 m, SW (Paarl to Cape Peninsula).•

natans Thunb. WATERKLAWER, WATERSURING Aquatic geophyte with slender, flexuose, branching stems. Leaves tufted and terminal, trifoliolate. Flowers shallowly campanulate, white with yellow tube. Sept.–Nov. Seasonal pools, 50–200 m, NW, SW (Piketberg to Cape Peninsula and Worcester).•

nidulans Eckl. & Zeyh. Acaulescent geophyte. Leaves trifoliolate, leaflets suborbicular-emarginate with widely spaced, marginal hairs. Flowers white or lilac with yellow tube, anthers spreading, arrow-shaped. July–Aug. Flats and lower slopes, 150–450 m, NW, SW (Clanwilliam to Caledon).•

oculifera E.G.H.Oliv. Acaulescent geophyte. Leaves trifoliolate, glaucous, leaflets oblong, obliquely peltate, petioles and peduncles glandular-hairy. Flowers violet-pink, with a white centre and dark eye. May–June. Seeps and rock flushes on sandstone pavements, ± 600 m, NW (Gifberg).•

oreophila T.M.Salter Shortly silky hairy, caulescent geophyte with slender stem to 16 cm. Leaves terminal, trifoliolate, leaflets linear-conduplicate, red-punctate above, silky hairy beneath. Flow-

ers white with yellow tube and purple margins. May–June. Rocky slopes in fynbos, ± 800 m, NW (Pakhuis Mtns).•

petiolulata F.Bolus Small, acaulescent geophyte. Leaves trifoliolate, leaflets broadly ovate, with dark marginal calli. Flowers deep pink with purple ring and yellow tube. Mainly Sept.–Oct. Rocky upper slopes, 1 000–1 500 m, NW (Cedarberg).•

pillansiana T.M.Salter & Exell Caulescent geophyte to 16 cm, with soft, multicellular hairs. Leaves terminal, trifoliolate, leaflets linear-cuneate, thinly hairy beneath. Flowers yellow with purple margins. May–June. Stony lower slopes, 350 m, NW (Clanwilliam).•

purpurea L. Acaulescent geophyte, bulb large, gummy. Leaves trifoliolate, leaflets transversely obovate, ciliate, hairy and purple beneath, black-streaked when dry. Flowers purple, yellow or white with yellow tube. May–Sept. Flats and slopes, 50–500 m, NW, SW, KM, LB, SE (Namaqualand and W Karoo to Port Elizabeth). **gce**

pusilla Jacq. Like **O. glabra** but bulbils sessile, leaves terminal and sepals more obtuse. Flowers white or pale rose with yellowish tube, sometimes with purple ring. May–July. Flats and dampish places, 50–200 m, SW (Hopefield to Cape Peninsula).•

smithiana Eckl. & Zeyh. KLAWERSURING, ROOISURING Acaulescent geophyte. Leaves trifoliolate, leaflets bilobed to near base. Flowers lilac or white with greenish tube, peduncle articulated. Jan.–Aug. Forests and bush, SE (George to Mpumalanga).

sonderiana (Kuntze) T.M.Salter Acaulescent geophyte. Leaves trifoliolate, prostrate, leaflets suborbicular, glaucous. Flowers yellow. May–June. Rocky sandstone slopes, 150 m, NW (Namaqualand to Graafwater). **gce**

stictocheila T.M.Salter Caulescent geophyte with slender stem to 12 cm. Leaves terminal, trifoliolate, leaflets oblanceolate-conduplicate, with orange marginal calli. Flowers white with yellow tube and dark margins. June–July. Loamy flats, ± 150 m, SW (Darling to Yzerfontein).•

stokoei Weintroub Dwarf, acaulescent geophyte. Leaves trifoliolate, leaflets subrotund to linear, with reddish brown, pubescent petioles, hairy beneath, brownish punctate. Flowers rosy purple with yellow tube and often purple eye. Apr.–June. Upper mountain slopes, 700–1 000 m, NW (Hex River Mtns).•

suavis R.Knuth Usually acaulescent geophyte to 8 cm. Leaves trifoliolate, leaflets cuneate-obcordate, glandular-ciliate, reddish brown-punctate. Flowers yellow or white with yellow tube. May–June. Granite and sandy slopes and flats, SW (Hopefield and Vredenburg).•

suteroides T.M.Salter Glandular-hairy, caulescent geophyte with rigid, branched stem to 25 cm, bulb long, tortuous. Leaves terminal on branches, trifoliolate, leaflets oblong-cuneate, glandular-ciliate, shortly hairy beneath. Flowers pale lilac with yellow tube streaked with purple. May–June. Shale and tillite flats, NW (S Namaqualand and Bokkeveld Plateau and Vanrhynsdorp flats). **gce**

tenella Jacq. Slender, caulescent geophyte to 10 cm. Leaves terminal, trifoliolate, leaflets cuneate-obovate, shortly ciliate and hairy beneath. Flowers sometimes sessile, yellow, white or pale lilac with yellow tube. May–July. Clay flats, ± 250 m, NW (Gifberg flats to Piketberg). **gce**

uliginosa Schltr. Acaulescent geophyte. Leaves trifoliolate, leaflets cuneate-obcordate, ciliate, reddish punctate. Flowers widely campanulate, yellow. June–Sept. Marshy places, 400 m, NW (Clanwilliam).•

viscidula Schltr. Acaulescent geophyte, bulb tunicated. Leaves trifoliolate, leaflets obcordate, glandular-hairy. Flowers red-purple with yellow tube. June. Often associated with *Euphorbia mauritanica* patches, 250–350 m, KM, LB (Worcester–Robertson Karoo).•

PAPAVERACEAE

PAPAVER L. POPPY ± 100 spp., mainly N temperate

aculeatum Thunb. WILD POPPY, WILDEPAPAWER Erect, tufted annual to 1 m, peduncles spreading-prickly. Leaves pinnatifid, toothed and prickly. Flowers pedunculate, orange, 20–40 mm diam. Capsule glabrous, terminal disc ± 8-rayed. Oct.–Dec. Disturbed ground and scree, KM, SE (E Little Karoo and George to Port Elizabeth and scattered throughout southern Africa).

***hybridum** L. ROUGH POPPY Erect, tufted annual to 60 cm, peduncles stiffly ascending-hairy. Mature leaves pinnate or bipinnate. Flowers pedunculate, red to purple with black blotch at base, 20–40 mm diam. Capsule with stiff, yellow, ascending bristles, terminal disc 5–8-rayed. Aug.–Sept. Weed of pastures and disturbed places, NW, SW (W Karoo, W Coast, Mediterranean weed).

***rhoeas** L. COMMON POPPY Erect, tufted annual to 60 cm, peduncles stiffly spreading-hairy. Mature leaves pinnate or pinnatisect. Flowers pedunculate, red, 70–100 mm diam. Capsule glabrous, terminal disc 10-rayed. Sept.–Dec. Weed of pastures and disturbed places, SW (W Coast, Mediterranean weed).

PEDALIACEAE

SESAMUM L. ± 19 spp., Africa to India

capense Burm.f. Erect, subglabrous, glandular annual to 1.5 m. Leaves mostly 3–7-digitate, leaflets narrowly elliptical. Flowers pink to mauve. Fruits erect, cylindrical, beaked; seeds 3-winged. Oct.–Nov. Riverbeds and disturbed places, KM (central Little Karoo throughout drier parts of southern Africa).

PENAEACEAE•

1. Style prominently 4-winged ..... **Penaea**
1.' Style terete or 4–8-angled or -ridged:
2. Anther thecae usually only half as long as connective body; flowers usually pale yellow .... **Stylapterus**
2.' Anther thecae more than half as long as connective body; flowers variously coloured:
3. Bracts and bracteoles partly denticulate to fimbriate, generally with apical gland, outer bracts broader than leaves, both broadly obovate or subrotund, truncate and closely imbricate:
4. Anthers subsessile, ± included; ovules 2 in each locule ..... **Sonderothamnus**
4.' Anthers on prominent, flattened filaments, exserted; ovules 4 in each locule ..... **Saltera**
3.' Bracts and bracteoles entire and without apical gland, often narrow and caducous:
5. Ovules 2 in each locule; flowers smaller, tube up to 15 mm long ..... **Brachysiphon**
5.' Ovules 4 in each locule, 2 ascending and 2 pendulous; flowers larger, tube 20–30 mm long:
6. Bracteoles of each flower 4 or 6, often caducous; flowers yellow to red ..... **Endonema**
6.' Bracteoles of each flower 2; flowers white and red ..... **Glischrocolla**

BRACHYSIPHON A.Juss.• 5 spp., SW Cape

acutus (Thunb.) A.Juss. Like **B. fucatus** but perianth tube 3–4 times as long as wide and flowers pale pink with reddish tube. Sept.–Dec. Rocky sandstone slopes, SW (Caledon Swartberg to Bredasdorp).•

fucatus (L.) Gilg SISSIES Compact, rounded shrub to 1 m. Leaves sessile, ascending, ovate-elliptic to orbicular, imbricate. Flowers crowded in upper axils, pink to reddish with darker tube up to twice as long as wide. Mainly May–Aug. Cool, rocky sandstone slopes, SW (Cape Peninsula).•

microphyllus Rourke Compact, twiggy shrublet to 50 cm. Leaves ascending, acicular, subterete. Flowers in 2–4-flowered, terminal cymes, pink. Aug.–Nov. Sandstone rocks, KM (Touwsberg and Klein Swartberg).•

mundii Sond. Like **B. rupestris** but leaves smaller, shorter than 7 mm, ovate and broadest about the middle, flowers yellow fading red, with persistent, reddish bracts. July–Aug. Limestone rocks and cliffs, AP (De Hoop).•

rupestris Sond. Compact, rounded shrublet mostly to 20 cm. Leaves subsessile, ascending, closely set, obovate. Flowers few to several in terminal clusters, pink to red, with caducous bracts. Sept.–Oct. Sandstone rocks, SW (Kleinrivier Mtns).•

ENDONEMA A.Juss.• 2 spp., SW Cape

lateriflora (L.f.) Gilg Densely leafy, sparsely branched shrub to 3 m. Leaves sessile, ovate-cordate, ascending and imbricate. Flowers solitary in upper axils, yellow. Mainly Jan.–Apr. Damp, rocky sandstone slopes, 700–1 100 m, SW (W Riviersonderend Mtns).•

retzioides Sond. Rounded shrub to 1 m, coppicing from a woody caudex. Leaves subsessile, linear-elliptic, margins revolute. Flowers solitary in upper axils, orange-red with yellow tube. Mainly Mar.–May. Rocky, southern, sandstone slopes, SW (Riviersonderend Mtns).•

GLISCHROCOLLA (Endl.) A.DC.• 1 sp., SW Cape

formosa (Thunb.) R.Dahlgren Densely leafy, sparsely branched shrub to 1 m. Leaves sessile, decussate, ovate-cordate, ascending and imbricate, margins thickened and slightly revolute. Flowers few in congested terminal, head-like racemes, creamy yellow ageing pinkish, subtended by large, red bracts. Mainly Jan.–Feb. Rocks and cliffs at high alt., SW (Victoria Peak to Hottentots Holland Mtns).•

PENAEA L.• NOUGHTS-AND-CROSSES 4 spp., SW Cape

acutifolia A.Juss. Sparsely branched shrub to 1.3 m. Leaves sessile, lanceolate to elliptic. Flowers few in terminal spikes, yellow, with perianth lobes narrowly triangular and acuminate apex, bracts lanceolate-ovate. Mainly Oct.–May. Mostly damp sandstone slopes, SE (Outeniqua Mtns: Robinson Pass to George).•

cneorum Meerb. Like **P. mucronata** but young stems glabrous, leaves elliptic to cordate. Mainly Sept.–Jan. Damp sandstone slopes and stream banks, SW, LB, SE (Kogelberg and Riviersonderend Mtns to Port Elizabeth).•

dahlgrenii Rourke Densely leafy, virgate shrub, sometimes to 2 m. Leaves shortly petiolate, decussate, ascending, broadly ovate. Flowers few, in short, terminal and axillary cymes, white ageing pinkish, with perianth lobes ovate, subacute. Mainly Aug.–Dec. Sandstone slopes along streams, LB (Langeberg: Barrydale to Riversdale).•

mucronata L. Ascending to erect shrub, sometimes to 1.3 m, with slightly hairy to papillate branches, coppicing from a woody caudex. Leaves sessile, cordate to lanceolate, often imbricate. Flowers in short, terminal spikes, yellow, with perianth lobes triangular, subobtuse, bracts rhombic-triangular, broadened below. Mainly Oct.–Dec. Rocky sandstone slopes and flats, NW, SW, AP, LB (Robertson and Cape Peninsula to Bredasdorp and Langeberg).•

SALTERA Bullock• CHRISTMAS CANDLES, VLIEËBOS 1 sp., SW Cape

sarcocolla (L.) Bullock Closely leafy, few-branched shrub to 1.5 m, coppicing from a woody base. Leaves ascending, imbricate, opposite and decussate, obovoid to rhombic. Flowers few in congested, head-like spikes, pink. Mainly Aug.–Dec. Rocky sandstone slopes, SW, AP (Cape Peninsula to Agulhas).•

SONDEROTHAMNUS R.Dahlgren• 2 spp., SW Cape

petraeus (W.F.Barker) R.Dahlgren Sparsely branched, closely leafy shrublet to 35 cm, coppicing from a woody caudex. Leaves sessile, broadly ovate to obovate, ascending and imbricate, margins of especially upper leaves denticulate to fimbriate. Flowers several in terminal heads, pink with darker tube, tepals ± 5 mm long. Mainly Oct.–Dec. Sandstone rock and cliffs, SW (Hottentots Holland Mtns to Kleinmond).•

speciosus (Sond.) R.Dahlgren Like **S. petraeus** but taller, to 60 cm and tepals ± 8 mm long. Aug.–Oct. Rocky sandstone slopes, SW (Babilonstoring and Kleinrivier Mtns).•

STYLAPTERUS A.Juss.• 8 spp., SW Cape

A. Ovary tapering into style, stigma lobes prominent

dubius (Stephens.) R.Dahlgren Laxly branched shrub to 50 cm. Leaves lanceolate to ovate. Flowers axillary, subsessile, in short, terminal racemes, pale pink ageing white. Mainly Sept.–Oct. Damp, upper sandstone slopes, LB (Langeberg: Swellendam to Koodkisberg).•

ericifolius (A.Juss.) R.Dahlgren Laxly branched shrub to 1 m. Leaves linear, acicular, margins rolled upward. Flowers axillary, in short, terminal racemes, pale yellow. Sept.–Oct. Sandstone slopes, LB (Langeberg: Swellendam).•

A.' Ovary truncate and style slender, stigma lobes small

barbatus A.Juss. Erect shrub to 60 cm. Leaves narrowly lanceolate, grooved beneath in lower half, with axillary hairs to 2 mm long. Flowers in short, terminal spikes, pale yellow. Oct.–Nov. High, damp, sandstone slopes, SW (Hottentots Holland Mtns: Landdrostkop).•

candolleanus (Stephens.) R.Dahlgren Compact, densely branched shrublet. Leaves ascending, imbricate, ovate and acute. Flowers in short, terminal spikes, ?yellow. Flowering time and distribution unknown, ?SW.•

ericoides A.Juss. Erect, sparsely branched shrub to 1.5 m. Leaves linear, with a prominent median groove beneath. Flowers in short spikes, pale yellow, sometimes purplish, with bracts lanceolate, caducous. Sept.–Oct. Mountain streams at low elevation, SW (Tulbagh: Elandskloof Mtns to Du Toitskloof).•

fruticulosus (L.f.) A.Juss. Closely leafy, sprawling shrublet to 60 cm, coppicing from a woody caudex. Leaves obovate to oblanceolate, often obtuse. Flowers in short, terminal spikes, pale yellow, upper floral bracts broadly obovate with denticulate margins. Mainly July–Nov. Acid, sand flats, SW (Mamre to Cape Peninsula and Cape Flats).•

micranthus R.Dahlgren Like **S. ericoides** but perianth tube shorter, to 3 mm long and bracts acicular, persistent. Sept.–Oct. Stream banks on rocky, upper sandstone slopes, SW (Kogelberg).•

sulcatus R.Dahlgren Like **S. fruticulosus** but plants erect with leaves ovate to lanceolate, and floral bracts with plane margins. Sept.–Dec. Rocky sandstone slopes, SW (Drakenstein and Du Toitskloof Mtns).•

PHYLLANTHACEAE

1. Petals present in male flowers:
2. Plants monoecious; floral disc glabrous; slender shrub with small leaves ..... **Andrachne**
2.' Plants dioecious; floral disc villous; shrubs or small trees ..... **Lachnostylis**
1.' Petals absent from male flowers:
3. Leaves in whorls of 4, leathery; male flowers in dense, pedunculate or subsessile cymules; female flowers sessile, 1–3 in axils of leaves ..... **Hyaenanche**
3.' Leaves alternate; male flowers in axillary fascicles; female flowers solitary:
4. Male flowers with pistillode ..... **Flueggea**
4.' Male flowers without pistillode ..... **Phyllanthus**

ANDRACHNE BASTERBLIKSEMBOS ± 25 spp., pantropical and warm temperate

ovalis (E.Mey. ex Sond.) Müll.Arg. Monoecious shrub or small tree, 2–6 m. Leaves ovate-elliptic, glabrous, pale beneath, margins revolute. Flowers axillary, males few, females solitary. Nov.–Jan. Forest and bush, SE (George to Zimbabwe).

FLUEGGEA Willd. 14 spp., pantropical and warm temperate

verrucosa (Thunb.) G.L.Webster (= *Phyllanthus verrucosus* Thunb.) Monoecious shrub to 2.5 m with grey warty bark. Leaves broadly obovate, discolorous. Flowers solitary in axils, males with 4 or 5 free stamens, fruiting pedicels ± 10 mm long. Nov.–Dec. Dry bush and thickets, SE (Humansdorp to E Cape).

LACHNOSTYLIS Turcz.• KLIPKOOLHOUT 3 spp., SW Cape

bilocularis R.A.Dyer Dioecious shrub or small tree to 3 m, velvety on young parts. Leaves elliptic, leathery. Flowers in axillary clusters, nodding, greenish, females with ovary 2- (not 3-)locular, males with filaments free. Fruits ± 5 mm diam., on filiform pedicels ± 10 mm long, with accrescent calyx. Mainly July–Dec. Shale slopes in thickets, KM (Swartberg and Rooiberg).•

hanekomii R.H.Archer & J.C.Manning Dioecious, resprouting shrub or subshrub to 2 m, young stems reddish brown and glabrous. Leaves obovate to oblanceolate, leathery. Flowers in axillary clusters, nodding, greenish, males with filaments united in lower half. Fruits ± 17 mm diam., on stout pedicels 5–8 mm long. Oct.–Nov.(–Dec.). Sandy lower slopes in thickets, NW (Olifants River Valley: S of Citrusdal).•

hirta (L.f.) Müll.Arg. Dioecious shrub or small tree to 3 m, puberulous on young parts. Leaves elliptic to oblanceolate, leathery. Flowers in axillary clusters, nodding, greenish, males with filaments united in lower half. Fruits 8–10 mm diam., on stout pedicels 10–15(–25) mm long. Mainly Nov.–Feb. Coastal bush and forests, SW, LB, SE (Botrivier to Port Elizabeth).•

PHYLLANTHUS L. ± 700 spp., pantropical and subtropical

heterophyllus E.Mey. ex Müll.Arg Like **P. incurvus** but leaves elliptic-ovate, floral disc ± annular (not composed of separate rounded glands). Mainly Oct.–Jan. Coastal sands, limestones and clays, AP, LB, SE (De Hoop to KwaZulu-Natal).

incurvus Thunb. Monoecious, sometimes dioecious, twiggy perennial from woody base, with smooth, reddish bark. Leaves elliptic to lanceolate. Flowers axillary, females solitary, males few, stamens 3, with filaments united, fruiting pedicels to 5 mm long. Mainly Sept.–Dec. Dry slopes and flats, LB, SE (Riversdale to Port Elizabeth and dry parts of southern Africa).

PHYTOLACCACEAE

PHYTOLACCA L. ± 25 spp., worldwide in tropics and subtropics

heptandra Retz. Sprawling perennial to 50 cm. Leaves lanceolate, denticulate and slightly revolute, often apically notched. Flowers in lax racemes, greenish. Fruit in drooping racemes, thinly fleshy, deeply lobed, reddish. Mar.–May. Forest margins and clearings, SE (George to Mpumalanga).

***octandra** L. INKBERRY Subsucculent, tuberous shrublet to 2 m. Leaves lanceolate, sometimes denticulate and slightly revolute. Flowers in cylindrical, subspicate racemes, greenish but persistent and red in fruit. Fruit in stiffly erect racemes, fleshy, depressed-subglobose when fresh, glossy black. Sept.–July. Roadsides and disturbed sites, SW, AP, KM, LB, SE (tropical American weed widely naturalized in the tropics, Peninsula to tropical Africa).

PICRODENDRACEAE

HYAENANCHE Lamb. & Vahl • WOLWEGIFBOOM 1 sp., SW Cape

globosa (Gaertn.) Lamb. Dioecious shrub or small tree, sometimes to 5 m. Leaves leathery, in whorls of 4, lanceolate. Flowers axillary, males in crowded panicles, reddish, females 1–3. Nov.–Dec. Sandstone rocks, NW (Bokkeveld Mtns to Gifberg).•

PITTOSPORACEAE

PITTOSPORUM Banks ex Sol. PITTOSPORUM ± 150 spp., palaeotropical and warm temperate

viridiflorum Sims CHEESEWOOD, KASUUR Tree or shrub to 20 m, thinly hairy on young parts. Leaves leathery, oblanceolate, margins revolute. Flowers in terminal panicles, creamy, fragrant seeds red, sticky. Nov.–Dec. Coastal bush and forests, LB, SE (Swellendam to tropical Africa).

PLANTAGINACEAE

1. Leaves alternate or rosulate, usually entire, with parallel venation; flowers in dense spikes; calyx usually with membranous margins; stamens 4; capsule circumscissile ..... **Plantago**
1.' Leaves (at least lower) opposite, usually toothed; flowers solitary or in racemes; calyx foliose; stamens 2; capsule loculicidal or septicidal ..... **Veronica**

PLANTAGO L. PLANTAIN ± 265 spp., cosmopolitan

A. Annuals

cafra Decne. CAPE PLANTAIN Softly hairy annual to 15 cm, often forming tussocks. Leaves linear or filiform. Flowers in loose, oblong or subglobose spikes, whitish. Aug.–Sept. Clay slopes, NW, SW, KM (Richtersveld to Cape Peninsula through Little Karoo to Ladismith). **gce**

***coronopus** L. BUCK'S-HORN PLANTAIN Thinly grey-silky annual to 80 cm. Leaves lanceolate to oblanceolate, pinnatifid. Flowers in dense, narrowly cylindric spikes, whitish, corolla tube hairy. Oct.–Nov. Weed of sandy coastal flats, SW, AP (European weed, Cape Peninsula to De Hoop).

A.' Perennials

crassifolia Forssk. LESHY PLANTAIN Hairy, rhizomatous perennial to 30 cm. Leaves fleshy or leathery, usually woolly in axils, linear-oblanceolate, sometimes pinnatifid. Flowers in dense, narrowly cylindric spikes, whitish, corolla tube hairy. Nov.–Mar. Coastal sands and limestones, SW, AP, LB, SE (Saldanha Bay to tropical Africa).

***lanceolata** L. RIBWORT PLANTAIN Thinly hairy, tufted perennial to 60 cm. Leaves oblanceolate, ribbed, sometimes woolly in axils. Flowers in dense, cylindric spikes on grooved peduncles, whitish, bracts long-acuminate, lower 2 sepals fused. Mainly Oct.–Mar. Weed of waste places, NW, SW, AP, KM, LB, SE (European weed, cosmopolitan).

***major** L. GREAT PLANTAIN Thinly hairy, tufted perennial to 45 cm. Leaves ovate, petiolate, ribbed, sometimes woolly in axils. Flowers in elongate spikes, scattered below, whitish. Sept.–Feb. Weed of damp places, NW, SW, AP, LB, SE (European weed, cosmopolitan).

remota Lam. Glabrescent, tufted perennial to 50 cm. Leaves linear-oblanceolate, sparsely and minutely toothed, woolly in axils. Flowers scattered in elongate spikes on glabrous peduncles, whitish. Aug.–Jan.(–Mar.), after fire. Damp clay slopes and flats, SW, SE (Cape Peninsula, Paarl, George and E Cape).

***virginica** L. Dioecious, softly hairy or woolly, tufted perennial to 55 cm. Leaves oblanceolate, ribbed. Flowers in elongate spikes on softly hairy peduncles, female flowers with petals connivent to tips, brownish. Oct.–Dec. Clay slopes, SW, LB (American weed, Cape Peninsula, Jeffreys Bay).

VERONICA L. SPEEDWELL ± 180 spp., northern temperate

anagallis-aquatica L. WATER SPEEDWELL Brittle-stemmed, thinly glandular-hairy or glabrescent perennial to 50 cm, stem hollow, decumbent and rooting at lower nodes. Leaves opposite, sessile, ovate-lanceolate, serrate. Flowers in ascending, axillary racemes, white or pink to blue, 5–6 mm diam. Capsules on ascending pedicels, subglobose, ± 3 mm diam. Sept.-Jan. Stream banks seeps, marshes, NW, SW, KM, LB, SE (widespread in southern Africa, ± cosmopolitan).

***persica** Desf. Prostrate, pubescent annual to 10 cm. Leaves petiolate, ovate, toothed, upper alternate. Flowers solitary in axils, blue; calyx accrescent. Capsules on deflexed pedicels, transversely 2-lobed, ± 7 mm diam. Sept.–Oct. Weed of waste places, SW, AP (weed of western Asia).

PLUMBAGINACEAE

1. Calyx with long, often glandular hairs; inflorescence a terminal spike; styles connate (subfamily PLUMBAGINOIDEAE) ..... **Plumbago**
1.' Calyx papery and without hairs; inflorescence racemose, cymose or paniculate; styles free (subfamily STATICOIDEAE) ..... **Limonium**

AFROLIMON Lincz. = **LIMONIUM**

LIMONIUM Mill. (= *AFROLIMON*) SEA-PINK, PAPIERBLOM ± 100 spp., Old World maritime and arid regions

A. Calyx ± 10–20 mm diam. at maturity

amoenum (C.H.Wright) R.A.Dyer Pustulate-scurfy shrublet to 30 cm, leafy above. Leaves oblanceolate, 30–50 × 2–5 mm. Flowers in panicles, pink, calyx limbs 9–12 mm diam. Oct.–Dec. Shale slopes, NW (Bokkeveld Mtns to Worcester and W Karoo). **gce**

capense (L.Bolus) L.Bolus Rounded, densely leafy shrublet to 60 cm. Leaves ascending, oblanceolate, 18–25 × 3–4 mm, scurfy and minutely pitted. Flowers in spikes, pink, calyx limbs 17 mm diam. Nov.–Jan. Coastal limestone flats, SW (Dwarskersbos to Saldanha Bay).•

longifolium (Thunb.) R.A.Dyer Scurfy, tufted perennial to 60 cm. Leaves mostly basal, linear-oblanceolate, 60–200 × 5–10 mm. Flowers in scapose corymbs, pink to peach and white, calyx limbs 15–17 mm diam. Sept.–Jan. Sandy flats, NW, SW, AP, KM, LB (Cedarberg to Yzerfontein and Robertson, also Riversdale).•

perigrinum (P.J.Bergius) R.A.Dyer STRANDROOS, PAPIERBLOM Shrub to 1 m, branches leafy at tips. Leaves oblanceolate, 40–80 × 10–20 mm, rough, sometimes pitted. Flowers in scapose corymbs, magenta, calyx limbs 15–17 mm diam. Aug.–Jan. Coastal dunes, NW, SW (Namaqualand to Milnerton). **gce**

purpuratum (L.) F.T.Hubb. ex L.H.Bailey Like **L. perigrinum** but a tufted shrublet to 60 cm with leaves smooth on both surfaces and flowers mauve. Oct.–Feb. Sandy coastal flats, SW (Mamre to Durbanville).•

A.' Calyx ± 5 mm diam. at maturity

acuminatum L.Bolus Like **L. equisetinum** but inflorescence velvety hairy. Sept.–Jan. Coastal limestone and associated sands, NW, SW (Rocher Pan to Yzerfontein).•

anthericoides (Schltr.) R.A.Dyer BRAKBLOMMETJIE Roughly scurfy, tufted perennial to 30 cm. Leaves rosulate, obovate, 15–35 × 7–15 mm. Flowers in erect, open, divaricate corymbs, white to mauve, calyx limbs to 5 mm diam. with aristate lobes. Dec.–Feb. Seasonally moist flats and pans, AP (Botrivier and Gansbaai to Potberg).•

billardieri (Girard) Kuntze (= *Limonium depauperatum* (Boiss.) R.A.Dyer) Like **L. linifolium** but scapes developing tufts of leaves in upper axils. Aug.–Mar. Sandy coastal flats, SW, AP (Velddrif to Bredasdorp).•

dregeanum (C.Presl) Kuntze Like **L. scabrum** but older flowers in spikelets pedicellate. Dec.–May. Sandy flats, NW, KM, LB (S Namibia and Karoo to Worcester, Riversdale and Oudtshoorn). **gce**

equisetinum (Boiss.) R.A.Dyer (incl. **L. decumbens** (Boiss.) Kuntze) Roughly scurfy, often rhizomatous perennial to 10 cm. Leaves rosulate, oblanceolate to obovate 10–30 × 5–10 mm. Flowers in dense, prostrate inflorescences with many, sterile, axillary branchlets below, spikelets distichous on short branches, mauve, calyx limbs to 5 mm diam. Sept.–Jan. Coastal sand flats, NW, SW (Namaqualand to Bokbaai). **gce**

kraussianum (Buchinger ex Boiss.) Kuntze Mat-forming, dwarf perennial to 10 cm. Leaves crowded, linear-subulate, 10–15 × 0.5–1 mm. Flowers in prostrate corymbs with lower branchlets sterile, mauve. Sept.–Feb. Sandy, saline flats, SW, AP (Kalbaskraal to Wellington and Klapmuts, Elim to Potberg).•

linifolium (L.f.) Kuntze Like **L. scabrum** but leaves linear, 20–35 × 1 mm. Nov.–Jan. Coastal saline pans and estuaries, AP, LB, SE (Still Bay to E Cape).

scabrum (Thunb.) Kuntze SEA LAVENDER Roughly scurfy, tufted, dwarf perennial to 25 cm. Leaves basal, oblanceolate to obovate, to 80 × 10 mm. Flowers in dense, erect or spreading corymbs with lower branchlets often sterile, mauve, scapes sometimes developing tufts of leaves in lower axils, calyx limbs to 5 mm diam. Oct.–May. Coastal dunes and estuaries, SW, AP, LB, SE (Cape W Coast to E Cape).

PLUMBAGO L. PLUMBAGO ± 10 spp., ± cosmopolitan

auriculata Lam. SYSELBOS Shrub or scrambler to 20 m. Leaves oblong, 20–25 mm long. Flowers in terminal spikes, pale blue, calyx glandular-hairy above. Dec.–May. Bush and scrub, SE (George to Mpumalanga).

tristis Aiton Roughly glandular-hairy shrublet to 30 cm. Leaves obcordate-cuneate, 5–10 mm long. Flowers in terminal spikes, dark orange-red, calyx with long dark hairs. Oct.–Mar. Dry clay flats and slopes, KM (Great and Little Karoo).

POLYGALACEAE

1. Sepals subequal or unequal; stamens 7; fruit a horned capsule or fleshy drupe; mostly ericoid or thorny shrubs ..... **Muraltia**

1.' Sepals very unequal, laterals much larger than the others, often coloured and wing-like; stamens (4 or 5) 8 (9); fruit a compressed capsule without horns; unarmed herbs or shrubs ..... **Polygala**

MURALTIA DC. (= *NYLANDTIA*) PURPLE-GORSE, SKILPADBOS 118 spp., W Cape to Tanzania

A. Fruit a fleshy drupe; intricate, thorny shrubs

scoparia (Eckl. & Zeyh.) Levyns (= *Nylandtia scoparia* (Eckl. & Zeyh.) Goldblatt & J.C.Manning) DUINEBESSIE Erect shrub, sometimes tree-like, to 2.5 m. Leaves oblong, subsessile. Flowers solitary in upper axils, pinkish. Fruits red and fleshy. Mainly July–mid Sept. Sandy flats and plateaus, NW, SW (?Bokkeveld, Leipoldtville to Hopefield).•

spinosa (L.) F.Forest & J.C.Manning (= *Nylandtia spinosa* (L.) Dumort.) TORTOISE BERRY, SKILPADBESSIE Rounded, thorny shrub to 1 m, lateral branchlets short and pungent. Leaves oblong, subsessile. Flowers solitary in axils, purplish or pink and white. Fruits red or orange and fleshy or yellow and leathery. Mainly June–July. Sandy, clay or rocky flats and slopes, NW, SW, AP, KM, LB, SE (Namaqualand and W Karoo to E Cape).

A.' Fruit a dry capsule
B. Leaves solitary; flowers on distinct pedicels; capsules obtuse or shortly toothed

angulosa Turcz. Spreading shrub to 60 cm, with lax, rough, angled stems. Leaves sessile, linear, rigid, mucronate. Flowers 1–few in axils, white flushed with mauve. Aug.–Nov. Rocky sandstone slopes, NW (Cold Bokkeveld and Olifants River Mtns).•

bondii Vlok Erect, single-stemmed, closely leafy shrublet to 50 cm. Leaves subsessile, linear-lanceolate and semi-terete, mucronate. Flowers solitary in axils, white tipped purple. Aug.–Nov. Rocky sandstone slopes, KM (Little Karoo, Anysberg).•

brevicornu DC. Loosely branched, wand-like shrub to 1.2 m. Leaves sessile, linear to linear-lanceolate, apiculate. Flowers 1–4 in axils, pink. Mainly Oct.–Dec. Acid, sand flats, NW, SW (Piketberg to Cape Peninsula).•

carnosa E.Mey. ex Harv. Rounded shrublet to 50 cm. Leaves shortly petiolate, oblong, somewhat crowded near branch tips, fleshy, mucronate. Flowers 1 or 2 in axils, ?pink. Oct.–Nov. Rocky slopes, KM (Swartberg).•

crassifolia Harv. Diffuse, erect or sprawling subshrub to 15 cm, with angled, often gummy branches. Leaves sessile, oblong to orbicular, mucronate. Flowers 1–few in axils, pale pink or cream-coloured. Dec.–Jan. Rocky sandstone slopes, NW (Cedarberg to Hex River Mtns and Keeromsberg).•

elsiae Paiva Single-stemmed, closely leafy shrub to 1.5 m. Leaves shortly petiolate, linear-lanceolate, mucronate. Flowers solitary in axils, purple. Sept.–Oct. Rocky sandstone slopes, KM (Klein Swartberg).•

horrida Diels Twiggy shrublet to 60 cm, with rigid, spine-tipped branches. Leaves shortly petiolate, oblong, slightly fleshy, mucronate. Flowers 1–few in axils, pale pink. Oct.–Dec. Rocky slopes, NW (Bokkeveld to Cedarberg and W Karoo). **gce**

juniperifolia (Poir.) DC. Twiggy shrublet to 50 cm. Leaves sessile, rigid, needle-like, spine-tipped. Flowers 1 or 2 in axils, pink or white. May–Oct. Rocky slopes, KM, SE (Kammanassie Mtns to Loerie and S Karoo).

leptorhiza Turcz. Loosely branched, sparsely leafy shrub to 30 cm with scabridulous stems. Leaves sessile, linear, channelled above, mucronate. Flowers 1 or 2 in axils, pink. Nov.–Dec. Rocky sandstone slopes, LB, SE (Langeberg and Outeniqua Mtns).•

muraltioides (Eckl. & Zeyh.) Levyns Sprawling subshrub to 20 cm, with angled stems. Leaves sessile, linear to lanceolate, usually with reflexed mucro. Flowers solitary in axils, pale pink. Aug.–Dec. Rocky sandstone and gravel slopes, NW, SW, KM, LB, SE (Tulbagh and Riviersonderend Mtns to Port Elizabeth).•

oxysepala Schltr. Prostrate subshrub to 15 cm, with winged stems. Leaves sessile, linear-elliptic, mucronate. Flowers solitary in axils, pale mauve or white. Oct.–Nov. Moist, sandstone slopes, SW (Franschhoek Mtns to Hermanus).•

parvifolia N.E.Br. (= *Muraltia scoparia sensu* Levyns) Twiggy shrublet to 60 cm, with rigid, angled branches. Leaves minutely petiolate, linear to oblong, fleshy with age, mucronate. Flowers 1 or 2 in axils, pale pink. Mainly July–Sept. Dry rocky slopes, KM (Little Karoo and Witteberg and Swartberg).•

pauciflora (Thunb.) DC. Slender, much-branched subshrub to 30 cm, with stems angled and rough when young. Leaves sessile, filiform, mucronate. Flowers solitary in axils, pale pink. Mainly Nov.–Jan. Moist sandstone slopes, NW, SW, LB (Elandskloof to Langeberg).•

polyphylla (DC.) Levyns Low subshrub to 30 cm, with rough, angular stems. Leaves sessile, linear-lanceolate, usually scabrous, mucronate. Flowers solitary in axils, white with purple carina. Nov.–Feb. Rocky sandstone slopes, NW (Cold Bokkeveld Mtns to Audensberg).•

trinervia (L.f.) DC. Sprawling subshrub to 25 cm, with ridged branches. Leaves sessile, lanceolate to ovate, mucronate. Flowers solitary in axils, pink. Aug.–Nov. Clay and granite slopes, NW, SW (Grootwinterhoek Mtns to Tygerberg and Stellenbosch).•

B.' Leaves fascicled (sometimes solitary), flowers sessile or on short pedicels
C. Capsules obtuse, without horns

ciliaris DC. Sprawling subshrub to 30 cm, hispid on young parts. Leaves fascicled, lanceolate, rigid and spine-tipped. Flowers sessile, axillary, pink. Apr.–Dec. Sandstone and clay slopes, LB, SE (Swellendam to Humansdorp).•

squarrosa (L.f.) DC. Erect or spreading shrub to 1 m, tomentose on young parts. Leaves in fascicles, hairy when young, ovate to subulate, spine-tipped. Flowers sessile, axillary, pink. Capsules obtuse. Oct.–May. Sandstone slopes, SE (George to Alexandria).

C.' Capsules with 4 long horns or sometimes only shortly toothed
D. Calyx small, < half the length of corolla

acicularis Harv. Sprawling, pubescent to scabrid subshrub to 25 cm. Leaves sessile, fascicled, rigid, needle-like, spine-tipped, often recurved apically. Flowers sessile, axillary, pink. Capsules ?horned. Sept.–Nov. Sandstone slopes, NW, SW (Cedarberg to Du Toitskloof Mtns).•

alba Levyns Closely leafy, pubescent shrub to 70 cm. Leaves sessile, fascicled, lanceolate-acuminate, narrowed below, hispid below, shortly spine-tipped. Flowers on short pedicels, axillary, pink. Capsules hispid, with slender, elongate horns and only 1 chamber fertile. Sept.–Feb. Rocky sandstone slopes, SW (Jonkershoek and Groot-Drakenstein Mtns).•

alopecuroides (L.) DC. Pubescent or glabrescent shrub to 1 m. Leaves sessile, fascicled, subulate to ovate, usually villous, spine-tipped, straight or upcurved apically. Flowers on short pedicels, axillary, pink. Capsules often hispid, with long, slender horns. Mainly Oct.–Dec. Sandstone and clay slopes and flats, NW, SW, KM, LB, SE (Bokkeveld Mtns to Stutterheim).

angustiflora Levyns Closely leafy, rigid shrub to 60 cm, pubescent on young stems. Leaves sessile, fascicled, lanceolate-attenuate, channelled, puberulous, spine-tipped. Flowers sessile, axillary, pink. Capsules hispid, with long, slender horns. Oct.–Nov. Clay slopes, NW (Gydo Mtns).•

aspalathoides Schltr. Densely leafy, hispid, sprawling shrublet to 20 cm. Leaves sessile, fascicled, linear-lanceolate, long-ciliate below, spine-tipped. Flowers sessile, axillary, pink. Capsules scabrid, shortly horned. Dec.–Jan. Sandstone slopes, SW (Houwhoek and Caledon Swartberg).•

brachyceras Schltr. Erect or sprawling, glabrescent shrublet to 30 cm. Leaves sessile, irregularly fascicled, oblong to lanceolate, puberulous becoming scabrid, shortly spine-tipped, apex often reflexed. Flowers sessile, axillary, pink. Capsules hispid, minutely horned. Sept.–Oct. Dry, sandstone slopes, NW, KM (Cedarberg to Anysberg).•

capensis Levyns Densely leafy, hispid subshrub to 20 cm, branching mainly from base. Leaves sessile, fascicled, elliptic-ovate, ciliate-hispid, spine-tipped. Flowers sessile, axillary, pink. Capsules ?shortly horned. Sept.–Oct. Rocky sandstone slopes, SW (Viljoen's Pass to Houwhoek).•

chamaepitys Chodat Slender, glabrescent subshrub to 40 cm, branching mainly from base. Leaves sessile, fascicled, linear to ovate, pilose, becoming scabrid, apiculate. Flowers on short pedicels, axillary, pink. Capsules hispid, with short, slender horns. Sept.–Oct. Rocky sandstone slopes, SW (Houwhoek Mtns).•

cliffortiifolia Eckl. & Zeyh. Robust, twiggy shrub to 70 cm. Leaves usually fascicled, ovate, rigid, spike-tipped. Flowers on short pedicels, axillary, pink. Capsules with rough, tapering horns. Mar.–June. Rocky slopes, KM, LB (Rooiberg and Riversdale to Mossel Bay).•

commutata Levyns Laxly branched, spreading shrub to 40 cm, puberulous on young parts. Leaves subsessile, fascicled, lanceolate to spathulate, pubescent below, shortly apiculate. Flowers sessile, axillary, pink. Capsules hispid, shortly horned. Sept.–Oct. Sandstone slopes, NW, KM (Cold Bokkeveld Mtns to Witteberg).•

concava Levyns Densely leafy shrublet to 30 cm, pubescent on young parts. Leaves shortly petiolate, ovate, concave, apiculate, margins long-ciliate. Flowers subsessile, axillary, pink. Capsules hispid, without horns. Oct.–Nov. Rocky, S-facing, upper slopes, SW (Riviersonderend Mtns: Jonas Kop).•

curvipetala Levyns Sprawling or erect, glabrescent subshrub to 40 cm. Leaves sessile, fascicled, rigid, needle-like, spine-tipped. Flowers sessile, axillary, pink. Capsules scabrid, prominently horned. Aug.–Nov. Sandstone slopes, SW (Cape Peninsula).•

cuspifolia Chodat Closely leafy, hirsute subshrub to 10 cm. Leaves sessile, fascicled, lanceolate, acuminate, fleshy, ciliate below, spine-tipped. Flowers sessile, axillary, pale pink. Capsules shortly horned. Sept.–Jan. ?Low gravel slopes, SW (Elim).•

decipiens Schltr. Closely leafy, hispid subshrub to 20 cm, branching mainly from base. Leaves sessile, fascicled, linear-lanceolate, hispid below and on margins, spine-tipped. Flowers sessile, axillary, pink. Capsules hispid, with long, slender horns. Sept.–Nov. Gravel flats and lower slopes, SW (Tygerberg to Franschhoek).•

demissa Wolley-Dod Sprawling, glabrescent subshrub to 30 cm, with curly hairs on young parts. Leaves sessile, solitary or fascicled, linear-elliptic, shortly curly haired at least on margins, spine-tipped. Flowers on short pedicels, axillary, pink, sometimes white. Capsules sparsely hairy, shortly horned. Aug.–Nov. Sandstone slopes and flats, SW (Cape Peninsula).•

dispersa Levyns Erect or spreading, stiffly branched, glabrescent shrublet to 40 cm. Leaves sessile, loosely or densely fascicled, mostly lanceolate, ciliate on margins, spine-tipped. Flowers sessile, axillary, pink or white. Capsules scabrid, with long horns. Sept.–Jan. Sandstone slopes, KM, LB, SE (Langeberg: Riversdale and Swartberg and Kouga Mtns).•

dumosa (Poir.) DC. Sprawling or suberect shrub to 30 cm, pilose on young parts. Leaves sessile, fascicled, mostly ovate or elliptic, apiculate, tip often reflexed, often pilose below. Flowers sessile, axillary, pink. Capsules scabrid, shortly horned. July–Sept. Mainly coastal sands, NW, SW (Olifants River Mouth to Milnerton).•

ericifolia DC. Rigid, much-branched, pubescent shrub to 70 cm. Leaves sessile, fascicled, narrowly obovate, shortly spine-tipped. Flowers sessile, axillary, pink. Capsules prominently horned. Dec.–Jan. Rocky lower slopes, SW, KM, LB, SE (Robertson to Port Elizabeth).•

ferox Levyns Rigid, much-branched, glabrescent shrub to 60 cm, branch tips becoming spiny. Leaves sessile, fascicled, ovoid, thick and fleshy, spine-tipped, reflexed apically. Flowers sessile, axillary, ?pink. Capsules shortly horned. Sept.–Oct. Dry rocky slopes, SW (Riviersonderend Mtns).•

gillettiae Levyns Sprawling subshrub to 25 cm, branching mainly from base. Leaves sessile, fascicled, needle-like, apiculate, hairy below when young. Flowers sessile, axillary, pale pink. Capsules hispid, shortly horned. Sept.–Oct. Sandstone slopes, SW (Bredasdorp Mtns near Elim).•

harveyana Levyns Stiffly branched, closely leafy, glabrescent shrub to 60 cm. Leaves solitary, oblanceolate, midrib prominent below, mucronate. Flowers on short pedicels, axillary, pink fading white. Capsules scabrid, with long, slender horns. Oct.–Jan. Limestone hills, SW (Jacobsbaai to Yzerfontein).•

heisteria (L.) DC. Erect, usually laxly branched shrub to 1(–2) m, pubescent on young parts. Leaves sessile, fascicled, lanceolate-attenuate, channelled, often ciliate, spine-tipped. Flowers on short pedicels, axillary, usually purple, side petals sometimes white. Capsules with elongate, slender horns. Mainly Oct.–Dec. Rocky slopes, mainly on sandstone, NW, SW, KM, LB (Bokkeveld Mtns to Riversdale).•

hirsuta Levyns Densely leafy, villous subshrub to 15 cm, branching mainly at base. Leaves sessile, fascicled, linear-lanceolate, hairy below and on margins, apiculate, Flowers sessile, axillary, white fading pink. Capsules hispid, shortly horned. Jan.–Feb. Granite slopes, SW (Hemel-en-Aarde Valley).•

karroica Levyns Suberect, much-branched shrub to 60 cm, puberulous on young parts. Leaves subsessile, fascicled, mostly ovate to spathulate, puberulous to scabrid, obtuse, shortly apiculate. Flowers sessile, axillary, pink. Capsules scabrid, minutely horned. June–July. Rocky slopes, KM (Klein Swartberg to Rooiberg and Anysberg).•

lignosa Levyns Stiffly branched, scabrid shrub to 60 cm. Leaves shortly petiolate, fascicled, mostly obovate to oblanceolate, fleshy, pubescent, becoming scabrid, with a recurved, spiny tip. Flowers sessile, axillary, pink or white. Capsules hispid, with long, slender horns. Oct.–Nov. Rocky sandstone slopes, NW (Cold Bokkeveld).•

macropetala Harv. Rigid, pubescent, divaricately branched shrublet to 45 cm. Leaves sessile, fascicled, ovate, fleshy, ciliate to hispid below, mucronate to spine-tipped. Flowers subsessile, axillary, purple with white side petals. Capsules shortly horned. July–Nov. Rocky and gravel slopes and flats, SW (Hopefield to Faure).•

mitior (P.J.Bergius) Levyns Sparsely branched, pubescent shrub to 80 cm, leaves and flowers crowded on upper branches. Leaves sessile, fascicled, linear-subulate, slightly channelled above, slightly incurved, spine-tipped. Flowers on short pedicels, axillary, pink. Capsules hispid, with slender horns. July–Feb. Sandy and limestone flats, often seasonally damp, SW, AP (Cape Peninsula to Agulhas).•

muirii F.Bolus Low subshrub to 20 cm, setose on young parts. Leaves fascicled, linear and rigid, spine-tipped. Flowers sessile, axillary, pink. Capsules hispid, shortly horned. Nov.–Apr. Rocky slopes, LB, SE (Langeberg and Outeniqua Mtns).•

obovata DC. Spreading, glabrescent shrublet to 40 cm. Leaves sessile, usually solitary, obovate to oblanceolate, shortly spine-tipped, apex often reflexed. Flowers sessile, axillary, pink or white. Capsules hispid, horned. July–Sept. Dry, sandy slopes and flats, NW, SW (S Namaqualand to Saldanha). **gce**

occidentalis Levyns Densely leafy, hispid shrublet to 40 cm. Leaves sessile, fascicled, linear to lanceolate, ciliate on margins, spine-tipped. Flowers on short pedicels, axillary, pale pink or white. Capsules ?horned. Aug.–Oct. Sandstone slopes, SW (Hottentots Holland Mtns to Kogelberg).•

origanoides C.Presl Sprawling, densely branched shrub to 20 cm, hispid on young parts, branches becoming spiny. Leaves subsessile, solitary or fascicled, obovate to elliptic, margins thickened and hispid, with a reflexed spiny tip. Flowers sessile, axillary, pink. Capsules hispid, shortly horned. July–Sept. Gravel slopes, NW, SW (Citrusdal to Tulbagh and Darling).•

rhamnoides Chodat Spreading, glabrescent shrub to 60 cm. Leaves sessile, fascicled, lanceolate-elliptic, linear to ovate, barely apiculate or spine-tipped. Flowers sessile, axillary, pink. Capsules hispid, prominently horned. Aug.–Nov. Sandstone or clay slopes, NW, SW, KM, LB (Bokkeveld Mtns to Little Karoo and Riversdale).•

satureioides DC. Sprawling, divaricately branched shrub to 60 cm. Leaves sessile, fascicled, linear to oblong, shortly ciliate on margins and keel, spine-tipped. Flowers on short pedicels, axillary, pink or white. Capsules hispid, prominently horned. Mainly Sept.–Oct. Coastal calcareous sands, SW, AP, SE (Cape Peninsula to Knysna).•

serpylloides DC. Diffuse, slightly villous shrublet to 40 cm. Leaves fascicled, shortly petiolate, broadly ovate, margins hispid and revolute. Flowers sessile, axillary, pink. Capsules prominently horned. June–Feb. Rocky sandstone slopes, SW (Cape Peninsula and Hottentots Holland Mtns).•

stokoei Levyns Densely leafy, villous subshrub to 20 cm. Leaves sessile, fascicled, lanceolate, hispid on margins and lower midrib, apiculate, Flowers sessile, axillary, pink. Capsules hispid, horned. Mar.–Apr. Rocky sandstone slopes, SW (Viljoen's Pass to Kleinmond).•

tenuifolia (Poir.) DC. Intricately branched, glabrescent shrub to 60 cm. Leaves sessile, fascicled, rigid, needle-like, spine-tipped, recurved at tips. Flowers on short pedicels, axillary, pale pink or white. Capsules with short, slender horns. Jan.–Mar. Rocky sandstone slopes, SW (Riviersonderend Mtns).•

thymifolia (Thunb.) DC. Erect or sprawling, densely branched shrub to 60 cm, hairy on young parts. Leaves sessile, solitary or imperfectly fascicled, linear to ovate, pilose below, shortly spine-tipped. Flowers on short pedicels, axillary, pink. Capsules hispid, with long, slender horns. Mainly July–Sept. Sandy flats and lower slopes, NW, SW (Clanwilliam to Cape Peninsula).•

vulpina Chodat Erect, stiffly branched shrub to 70 cm, villous on young parts. Leaves sessile, fascicled, linear to elliptic, long-ciliate when young, spine-tipped. Flowers on short pedicels, axillary, pink. Capsules sparsely hispid, with slender horns. Mainly Nov.–Jan. Sandstone slopes, SW (Jonkershoek to Kleinmond).•

D.' Calyx at least half the length of corolla

acerosa Harv. Sparsely hairy undershrub to 20 cm, producing slender stems from woody rootstock. Leaves sessile, fascicled or solitary, elliptic, channelled, rigid, spine-tipped. Flowers on short pedicels, axillary, pink or white. Capsules shortly horned. Oct.–Dec. Stony lower slopes, LB, SE (Langeberg: Swellendam to Tsitsikamma Mtns).•

acipetala Harv. Sprawling, glabrescent subshrub to 15 cm. Leaves sessile, fascicled, linear, often channelled, rigid, spine-tipped. Flowers on short pedicels, axillary, pink or white. Capsules shortly horned. Mainly Sept.–Nov. Sandstone hills and flats, SW (Cape Peninsula).•

aciphylla Levyns Densely leafy, hispid subshrub to 30 cm. Leaves sessile, fascicled, linear-elliptic, hispid on margins and keel, spine-tipped. Flowers sessile, axillary, usually pink. Capsules hispid, shortly horned. Sept.–Nov. High rocky slopes, SW (Jonkershoek Mtns).•

arachnoidea Chodat Sprawling shrub to 50 cm, hairy on young stems. Leaves sessile, fascicled, ovate, sparsely hairy, recurved above and spine-tipped. Flowers sessile, axillary, pink or white. Capsules hispid, horned. Sept.–Dec. Lower sandstone slopes, NW (Piketberg).•

aspalatha DC. Densely leafy, hispid, subshrub to 20 cm, branching mainly from base. Leaves sessile, fascicled, linear-lanceolate, hispid below and on margins, spine-tipped. Flowers sessile, axillary, pink or white and yellow. Capsules ?villous, shortly horned. Aug.–Dec. Sandy and gravel slopes, SW (Hottentots Holland Mtns to Botrivier and Betty's Bay).•

asparagifolia Eckl. & Zeyh. Intricately branched shrublet to 50 cm, shortly pubescent on young parts. Leaves sessile, fascicled, needle-like, bristly on margins, spine-tipped. Flowers sessile, axillary, pink or white. Capsules with short, hispid horns. Oct.–Dec. Moist sandstone slopes, SW (Jonkershoek and Hottentots Holland Mtns).•

barkerae Levyns Sprawling, woody shrublet to 50 cm, hispid on young parts. Leaves sessile, fascicled, oblong-obovate, shortly spine-tipped. Flowers sessile, axillary, pink. Capsules with short, slender horns. Aug.–Sept. Low, limestone hills, AP (Still Bay).•

bolusii Levyns Like **M. minuta** but flowers 3.3–4 mm long. Sept.–Jan. Sandy coastal flats, SW (Kleinmond to Hermanus).•

brachypetala Wolley-Dod Erect, stiffly branched subshrub to 30 cm, branching mainly from base. Leaves sessile, fascicled, linear-lanceolate, acuminate, channelled, glabrescent, spine-tipped. Flowers shortly pedicellate, axillary, pink. Capsules with elongate, slender horns. July–Dec. Sandstone slopes, SW (Cape Peninsula).•

caledonensis Levyns Sparsely branched, sprawling subshrub to 30 cm, pilose on young parts. Leaves sessile, fascicled, mostly linear or subulate, pilose below, apiculate. Flowers sessile, axillary, pink. Capsules sparsely hispid, with long, slender horns. Oct.–Nov. Gravel slopes and hills, SW (Botrivier to Caledon and Shaw's Mtns).•

calycina Harv. Twiggy, much-branched shrublet to 50 cm. Leaves fascicled, linear-oblong, villous below, mucronate. Flowers sessile, axillary, pink. Capsules horned. Feb.–May. Limestone hills, AP (Agulhas coast).•

collina Levyns Divaricately branched, glabrescent shrublet to 35 cm. Leaves sessile, fascicled, elliptic, channelled, margins long-ciliate, spine-tipped. Flowers on short pedicels, axillary, pink. Capsules with long, slender horns. Sept.–Jan. Lower sandstone slopes, SW (Riviersonderend and Bredasdorp Mtns to Potberg).•

comptonii Levyns Like **M. stipulacea** but leaves with spiny tip often reflexed, flowers on short pedicels and with calyx ± half as long as corolla. July–Sept. Sandstone slopes, SW (Cape Peninsula).•

cyclolopha Chodat Sprawling or erect subshrub to 25 cm, branching from base and villous on young parts. Leaves sessile, fascicled, needle-like, villous or rough. Flowers on short pedicels, axillary, pale pink. Capsules hispid, shortly horned. Sept.–Jan. Gravel flats and slopes, SW, AP (Agulhas Peninsula).•

depressa DC. Like **M. salsolacea** but leaves subulate, with curly marginal hairs and flowers sessile. Sept.–Nov. Coastal limestone slopes, AP (Still Bay to Mossel Bay).•

diabolica Levyns Twiggy shrublet to 30 cm, hispid on young parts. Leaves sessile, fascicled, needle-like, spine-tipped. Flowers sessile, axillary, pink or white. Capsules prominently horned. Sept.–Feb. Rocky slopes, SW (Cape Peninsula).•

divaricata Eckl. & Zeyh. Sprawling shrublet to 50 cm, villous on young stems. Leaves sessile, fascicled, rigid, linear-subulate, apiculate. Flowers sessile, axillary, pink. Capsules hispid, prominently horned. Sept.–Dec. Rocky sandstone slopes, NW, SW (Grootwinterhoek Mtns to Franschhoek and Riviersonderend).•

empleuridioides Schltr. Sprawling, laxly branched, glabrescent shrub to 50 cm. Leaves solitary, sometimes fascicled, rigid, ovate to linear or needle-like, apiculate. Flowers sessile, axillary, pink or white. Capsules prominently horned. Aug.–Dec. Coastal calcareous sands, SW, AP (Stanford to Mossel Bay).•

ericoides (Burm.f.) Steud. Erect or spreading, glabrescent subshrub to 40 cm. Leaves sessile, solitary or imperfectly fascicled, linear to ovate, villous below when young, apiculate. Flowers sessile, axillary, usually pink. Capsules hispid, with long, slender horns. Aug.–Apr. Low granite or sandstone slopes, SW, AP, LB, SE (Darling to Humansdorp).•

filiformis (Thunb.) DC. Slender, glabrous subshrub to 30 cm, branching mainly at base. Leaves sessile, solitary or fascicled, needle-like to linear-lanceolate, apiculate. Flowers sessile, axillary, usually pink. Capsules with slender horns. Sept.–Dec. Sandstone slopes, often damp sites, SW, AP (Cape Peninsula to Agulhas).•

guthriei Levyns Closely leafy, divaricately branched, pubescent shrublet to 45 cm. Leaves sessile, fascicled, linear-oblong, minutely ciliate below, spine-tipped. Flowers on short pedicels, axillary, white. Capsules with slender, elongate horns. Dec.–Jan. Rocky sandstone slopes, SW (Steenbras Mtns).•

hyssopifolia Chodat Densely leafy, sprawling or erect, glabrescent subshrub to 40 cm. Leaves sessile, fascicled, linear to elliptic, spine-tipped. Flowers on short pedicels, axillary, pink or white. Capsules with stout horns. July–Feb. Rocky sandstone slopes, SW (Franschhoek Mtns to Houwhoek).•

knysnaensis Levyns Glabrescent subshrub to 20 cm, branching mainly from base. Leaves sessile, solitary, sometimes fascicled, linear to ovate, ciliate when young, apiculate. Flowers sessile, axillary, pink. Capsules with short, slender horns. Oct.–Dec. Dry flats and hills, SE (George to Keurboomsrivier).•

langebergensis Levyns Hispid shrublet to 50 cm. Leaves sessile, fascicled, linear-elliptic, rigid, spine-tipped. Flowers sessile, axillary, pink. Capsules with short, hispid horns. Mar.–Apr. Rocky sandstone slopes, LB (Langeberg: Swellendam).•

lewisiae Levyns Sprawling, glabrescent, intricately branched subshrub to 20 cm. Leaves sessile, fascicled, linear-subulate, apiculate. Flowers on short pedicels, axillary, whitish. Capsules shortly horned. Dec.–Jan. Coastal limestone ridges, AP (Gansbaai).•

longicuspis Turcz. Densely leafy, hispid subshrub to 30 cm. Leaves sessile, fascicled, elliptic, ciliate on margins, spine-tipped. Flowers sessile, axillary, pink or white. Capsules sparsely hairy, with short, slender horns. Sept.–Mar. Sandstone slopes, SW (Du Toitskloof to Sir Lowry's Pass).•

macrocarpa Eckl. & Zeyh. Spreading, much-branched shrub to 80 cm. Leaves sessile, fascicled or solitary, narrowly elliptic, hooked above and spine-tipped. Flowers sessile, axillary, white, sometimes pink. Capsules prominently horned. July–Dec. Dry, rocky slopes, KM (Little Karoo and Karoo Mtns).

minuta Levyns Erect or spreading subshrub to 20 cm, branching mainly at base. Leaves sessile, mostly fascicled, linear-lanceolate, softly hairy below, rigid, apiculate. Flowers sessile, axillary, pink, to 2.5 mm long. Capsules hispid, with slender horns. Oct.–Feb. Rocky flats, SW (Betty's Bay to Kleinmond).•

mixta (L.f.) DC. Villous, sprawling, much-branched shrublet to 20 cm. Leaves sessile, fascicled, lanceolate-acuminate, sparsely ciliate-hispid below, spine-tipped. Flowers sessile, axillary, pale pink or white. Capsules scabrid, shortly horned. Oct.–Nov. Rocky sandstone slopes, SW (Cape Peninsula).•

montana Levyns Sprawling shrublet to 20 cm, villous on young parts. Leaves sessile, fascicled, linear-lanceolate, rigid, spine-tipped. Flowers on short pedicels, axillary, deep pink. Capsules sparsely hairy, with narrow horns. Nov.–Dec. High rocky slopes, NW, SW (Grootwinterhoek and Wemmershoek Mtns).•

mutabilis Levyns Erect or spreading subshrub to 25 cm, villous on young parts. Leaves sessile, fascicled or solitary, linear, villous below, apiculate. Flowers 1 or 2 in axils, pink. Capsules hispid, prominently horned. Aug.–Jan. Low, coastal, sandstone slopes, SW (False Bay).•

ononidifolia Eckl. & Zeyh. Twiggy shrublet to 50 cm. Leaves sessile, fascicled, linear-lanceolate, rigid, spine-tipped. Flowers sessile, axillary, pink or white. Capsules prominently horned. May–Sept. Rocky slopes and flats, NW, SW, KM, LB (Karoopoort and Melkbos to Barrydale and Swellendam).•

orbicularis Hutch. Glabrescent, sprawling shrublet to 30 cm. Leaves shortly petiolate, mostly solitary, orbicular to elliptic, sparsely curly haired, with a recurved, spiny tip. Flowers on short pedicels, axillary, pink. Capsules hispid, prominently horned. May–Sept. Rocky, gravel slopes, SW (Cape Peninsula).•

pageae Levyns Low, hispid shrublet to 30 cm. Leaves sessile, fascicled, oblong, ciliate, spine-tipped. Flowers sessile, axillary, pink. Capsules with slender horns. Apr.–May. Sandy flats, SW (Cape Peninsula).•

paludosa Levyns Erect or sprawling, glabrescent shrublet to 50 cm. Leaves solitary, distant, margins with adpressed hairs, needle-like, apiculate. Flowers sessile, axillary, pink. Capsules glabrescent, shortly horned. Aug.–Sept. Marshes on sandstone, SW (Grabouw to Kleinmond).•

pappeana Harv. Sprawling shrublet to 25 cm, villous on young parts. Leaves sessile, fascicled, linear-oblong, channelled, recurving apically and spine tipped. Flowers sessile, axillary, white. Capsules with short, hispid horns. Apr.–July. Dry coastal hills, AP, LB (Bredasdorp to Riversdale).•

pillansii Levyns Much-branched shrublet to 50 cm, hispid on young parts. Leaves sessile, fascicled, needle-like, spine tipped. Flowers sessile, axillary, pale pink or white. Capsules prominently horned. Sept.–Dec. Sandstone slopes, NW (Olifants River and Grootwinterhoek Mtns).•

plumosa Chodat Tufted subshrublet to 50 cm, tomentose on young parts. Leaves sessile, fascicled or solitary, slightly channelled, needle-like, spine-tipped. Flowers on short pedicels, axillary, pink or white. Capsules shortly horned. Nov.–Dec. Sandstone slopes, NW (Olifants River and Grootwinterhoek Mtns).•

pottebergensis Levyns Laxly branched shrub to 80 cm, hairy on young parts. Leaves sessile, fascicled, linear, villous below, spine-tipped. Flowers sessile, axillary, pink. Capsules hispid, with slender horns. Sept.–Nov. Sandstone slopes, SW (Potberg).•

pubescens DC. Softly hairy, spreading shrublet to 20 cm. Leaves loosely fascicled, linear-lanceolate, hairy, mucronate. Flowers shortly pedicellate, axillary, pale pink. Capsules hispid, shortly horned. Mainly Nov.–Feb. Rocky slopes, SW (Jonkershoek and Hottentots Holland Mtns).•

pungens Schltr. Densely leafy, shrublet to 50 cm, puberulous on young parts. Leaves fascicled, lanceolate, often channelled, spine-tipped. Flowers sessile, axillary, pale pink. Capsules shortly horned. Oct.–Dec. Rocky slopes and flats, SW, AP (Caledon to Agulhas).•

rosmarinifolia Levyns Sprawling, glabrescent subshrub to 25 cm. Leaves sessile, solitary or tufted, linear to lanceolate, villous below, apiculate, often recurved above. Flowers sessile, axillary, pink. Capsules hispid, with long horns. Nov.–Jan. Sandy coastal slopes, SW (Cape Peninsula to Betty's Bay).•

rubeacea Eckl. & Zeyh. Much-branched, villous shrub to 80 cm. Leaves sessile, fascicled, linear, hooked above and spine-tipped. Flowers sessile, axillary, usually pink. Capsules horned. June–Nov. Sandstone and limestone slopes, SW, AP (Hottentots Holland and Riviersonderend Mtns to Agulhas).•

salsolacea Chodat Sprawling, glabrescent subshrub to 25 cm. Leaves sessile, fascicled, ovate to linear, spine-tipped. Flowers on short pedicels, axillary, pink or white. Capsules with slender horns. Sept.–Feb. Coastal limestone hills, AP (Agulhas to Cape Infanta).•

schlechteri Levyns Glabrescent shrublet to 50 cm. Leaves sessile, fascicled, lanceolate-elliptic, channelled, hispid on margins, spine-tipped. Flowers on short pedicels, axillary, pink. Capsules prominently horned. Sept.–Dec. Sandstone slopes, SW (Houwhoek and Riviersonderend Mtns).•

serrata Levyns Stiffly branched, minutely hairy shrublet to 50 cm. Leaves sessile, axillary, linear-oblanceolate, spine-tipped. Flowers sessile, axillary, pink or white. Capsules horned. Oct.–Nov. Rocky sandstone slopes, NW (Hex River Mtns).•

spicata Bolus Erect, softly hairy shrub to 60 cm. Leaves sessile, imperfectly fascicled, linear-elliptic, pilose below, mucronate. Flowers sessile, axillary, pink. Capsules villous above, shortly horned. July–Aug. Sandstone slopes, SW (Bredasdorp Mtns).•

splendens Levyns Spreading or erect subshrub to 50 cm, villous on young parts. Leaves sessile, fascicled, lanceolate, channelled, villous below, often hooked above and spine-tipped. Flowers sessile, axillary, pink or white with red keel. Capsules with short, hispid horns. June–Dec. Limestone slopes, AP (Bredasdorp to Still Bay).•

stenophylla Levyns Diffuse, pubescent subshrub to 40 cm, branching mainly from base. Leaves sessile, imperfectly fascicled, needle-like, ciliate when young, mucronate. Flowers sessile, axillary, pink. Capsules shortly horned. Nov.–Jan. Rocky sandstone slopes, NW, SW (Cold Bokkeveld Mtns to Franschhoek Pass).•

stipulacea (Burm.f.) DC. Sprawling, laxly branched subshrub to 30 cm, pilose on young parts. Leaves sessile, imperfectly fascicled, linear-lanceolate, pilose below, spine-tipped. Flowers sessile, axillary, pale pink, calyx > half as long as corolla. Capsules hispid, prominently horned. June–Nov. Sandy and gravel slopes and flats, SW (Cape Peninsula).•

thunbergii Eckl. & Zeyh. Closely leafy, hispid, erect or spreading subshrub to 40 cm. Leaves sessile, fascicled, linear-lanceolate, hispid below and on margins, spine-tipped. Flowers sessile, axillary, pink or white. Capsules hispid, with slender, elongate horns. Sept.–Dec. Low, sandy or clay slopes, SW (Darling to Franschhoek and Cape Peninsula).•

vulnerans Levyns Intricately branched shrublet, mostly to 40 cm, branchlets often spiny. Leaves fascicled, sessile, linear, channelled, spine-tipped. Flowers sessile, axillary, white with purple keel. Capsules prominently horned. Aug.–Nov. Rocky slopes, KM (Witteberg, Bonteberg and W Karoo). **gce**

NYLANDTIA Dumort. = **MURALTIA**

POLYGALA L. BUTTERFLY BUSH, ERTJIEBLOM ± 500 spp., cosmopolitan

A. Inflorescences lateral, peduncles borne at right angles to stem
B. Keel crest deeply fringed and side petals deeply lobed

lasiosepala Levyns Like **P. teretifolia** but leaves persistently crisped-hairy, sepals often shortly hairy, and side petals with dorsal lobe shorter than sickle-shaped lower lobe. Sept.–Oct. Dry rocky slopes, NW (Namaqualand to Nardouw Mtns). **gce**

pappeana Eckl. & Zeyh. Diffuse, slender-stemmed subshrub or short-lived perennial to 30 cm. Leaves scale-like, adpressed. Flowers in short, lateral racemes, purple, side petals deeply lobed

with dorsal lobe larger. Sept.–Dec. Sandstone slopes, NW, SW, LB (Cedarberg to Hottentots Holland Mtns and Langeberg).•

peduncularis Burch. ex DC. Sprawling shrub to 1 m, often velvety on young parts. Leaves linear-oblong, margins revolute, sometimes hairy. Flowers large, few on stout, axillary racemes, purple, side petals deeply subequally bilobed with a small, median tooth. Sept.–Apr. Rocky slopes, NW, AP, SE (Nardouw Mtns to Agulhas to Knysna).•

teretifolia L.f. Rounded shrublet to 80 cm, with stems slender and shortly velvety. Leaves linear, spreading-upcurving, often crisped-hairy when young, margins revolute. Flowers few in short, lateral or sometimes terminal racemes, purple to pink, side petals deeply bilobed, dorsal lobe larger. Mainly Oct.–June. Dry, stony, karroid slopes, KM, LB (Little Karoo to Brak River).•

B.' Either keel crest or side petals entire or shortly lobed

asbestina Burch. Softly woolly, rounded shrublet to 20 cm. Leaves leathery, oblong to obovate, obtuse, glabrescent with age. Flowers 1–3 in short, axillary racemes, blue, side petals entire. Nov.–Mar. Dry karroid slopes, KM (Little Karoo to E Cape).

brachyphylla Chodat Rigid, stiffly branched shrublet to 35 cm, with ridged stems. Leaves sparse, elliptic, apiculate, shortly hairy. Flowers few on short, flattened, axillary racemes, purple, outer sepals shortly hairy, side petals deeply lobed, dorsal lobe broadest, keel with broad, shallowly lobed crest. Sept.–Dec. Sandstone slopes, NW (Cedarberg).•

illepida E.Mey. ex Harv. Slender-stemmed, sparsely leafy shrublet to 15 cm. Leaves ascending, lanceolate-elliptic. Flowers few in lax, axillary racemes, purple, side petals entire, spathulate. Mainly Oct.–Nov. Rocky slopes in grasslands, SE (Van Staden's Mtns to E Cape).

lehmanniana Eckl. & Zeyh. Like **P. ludwigiana** but flowers white or pink, side petals unequally bilobed, dorsal lobe largest, keel with broad crest, barely or not fringed. Sept.–Nov. Clay and sandstone slopes, NW, SW (Cedarberg to Elim).•

ludwigiana Eckl. & Zeyh. Diffuse subshrub to 20 cm, with slender, sprawling, ridged stems. Leaves linear-elliptic. Flowers on flattened, axillary racemes, pink, side petals unequally bilobed, dorsal lobe largest, keel with minute, undivided crest. Mainly Sept.–Dec. Rocky sandstone slopes, NW, SW (Bokkeveld Mtns to Tulbagh).•

nematocaulis Levyns Diffuse, slender-stemmed subshrub or short-lived perennial to 30 cm. Leaves scale-like, adpressed. Flowers in short, lateral racemes, purple, side petals shallowly lobed, keel crest ± as long as body. Oct.–Apr. Marshy sandstone slopes, NW, SW (Agterwitzenberg and Cape Peninsula to Pearly Beach).•

parkeri Levyns Like **P. ludwigiana** but side petals oblong, obtuse, entire or nearly so and carina with broad, entire, undulate crest. Sept.–Oct. Rocky slopes, SW (Franschhoek Mtns to Somerset West).•

refracta DC. Slender subshrub to 40 cm, with slender, ridged stems. Leaves linear-lanceolate, ascending. Flowers in short, axillary racemes, purple, side petals shortly bilobed. Sept.–Apr. Rocky sandstone slopes, NW, SW, LB, SE (Cedarberg to E Cape).

scabra L. (= *Polygala affinis* DC.) Sprawling, sparsely leafy shrublet to 40 cm, hairy on young parts. Leaves linear-lanceolate, margins slightly revolute, shortly hairy. Flowers few in slender, axillary racemes, purple, outer sepals often shortly hairy, side petals shortly and equally lobed. July–Oct. Rocky slopes, NW, SW, KM, LB (Namaqualand and Karoo to Little Karoo and Riversdale).

A.' Inflorescences terminal
C. Side petals unequally bilobed

bracteolata L. Few-branched, erect or sprawling shrub to 1 m, sometimes slightly hairy. Leaves lanceolate to elliptic, margins sometimes slightly thickened or revolute. Flowers many in terminal racemes, pink or purple, side petals unequally bilobed, lower lobe the longest, floral bracts prominent. Mainly Sept.–Nov. Sandstone slopes and flats, NW, SW, LB, SE (Gifberg to Uitenhage).•

fruticosa P.J.Bergius Pubescent or glabrous shrub to 2 m. Leaves opposite, subsessile, lanceolate to ovate, cordate at base. Flowers in short racemes at tips of branchlets, purple, inner sepals often green, side petals deeply unequally bilobed, lower lobe often longest. Mainly Sept.–Nov. Rocky sandstone and clay slopes, NW, SW, AP, KM, LB, SE (Gydouw Pass and Houwhoek to KwaZulu-Natal).

microlopha DC. (incl. **P. levynsiana** Paiva) Sparsely leafy shrub to 60 cm. Leaves leathery, linear to elliptic, usually shortly ciliate. Flowers in short, terminal, umbel-like racemes, purple, side pet-

als unequally bilobed with lower lobe linear and elongate, crest of keel reduced and short. Mainly Aug.–Nov. Rocky sandstone and clay slopes, KM, LB, SE (Montagu to E Cape).

myrtifolia L. (= *Polygala pinifolia* Lam. ex Poir.) SEPTEMBERBOS Sprawling or erect shrub to 2 m, often velvety on young parts. Leaves ascending, linear with margins slightly revolute to elliptic-obovate and flat. Flowers large, in short, terminal racemes, purple, side petals bilobed, lower lobe much longer than dorsal. Mainly July–Oct. Rocky slopes, NW, SW, AP, KM, LB, SE (Bokkeveld Mtns to KwaZulu-Natal).

C.' Side petals entire or equally bilobed

dasyphylla Levyns Closely leafy, hispid subshrub to 20 cm, with sprawling or ascending branches from base. Leaves linear, leathery, spreading. Flowers crowded in terminal, umbel-like racemes, pink to mauve with inner sepals white inside, side petals entire, obtuse. Aug.–Oct. Limestone hills, AP (Agulhas coast).•

ericaefolia DC. Closely leafy shrublet to 40 cm. Leaves ascending, linear, channelled, sparsely ciliate below. Flowers in short, terminal, subumbellate racemes, purple, side petals obtuse, with a short, finger-like process below apex. Mainly Aug.–Nov. Sandy coastal slopes and flats, SE (George to Port Elizabeth).•

garcinii DC. Soft subshrub to 40 cm, with slender, trailing branches from woody base. Leaves linear to acicular. Flowers in long, terminal racemes, purple, side petals obtuse, sparsely hairy below. Mainly Sept.–Dec. Sandy and clay slopes, NW, SW, AP, KM, LB, SE (Bokkeveld Mtns to Knysna).•

hispida Burch. ex DC. Densely leafy, softly hairy subshrub to 30 cm, stems slender, sprawling or ascending. Leaves ascending, imbricate, broadly ovate to elliptic. Flowers many in congested, terminal racemes, purple, side petals entire, spathulate. Oct.–Dec. Grassy slopes, SE (George to Mpumalanga).

langebergensis Levyns Few-branched, closely leafy subshrub to 60 cm. Leaves elliptic, margins translucent, midrib prominent beneath. Flowers crowded in terminal, subumbellate racemes, mauve, side petals entire, obtuse. Sept.–Nov. Rocky sandstone slopes, LB (Langeberg: Riversdale).•

leptophylla Burch. Erect, sparsely branched shrub to 2 m. Leaves linear-elliptic, leathery. Flowers in elongate, terminal racemes, mauve, side petals entire. May–Oct. Stony slopes, NW (Namaqualand and Karoo to Cedarberg).

meridionalis Levyns Closely leafy shrublet to 40 cm. Leaves ascending, linear, sparsely ciliate below. Flowers in short, terminal, subumbellate racemes, purple, side petals obtuse. Mainly Sept.–Nov. Coastal sandy and limestone slopes and flats, SW, AP (Cape Peninsula to De Hoop).•

pottebergensis Levyns Like **P. meridionalis** but outer sepals ciliate and obtuse. Mainly Sept.–Oct. Rocky sandstone slopes, AP (Potberg to Cape Infanta).•

pubiflora Burch. Stiffly branched, hairy shrublet to 20 cm, with sprawling to prostrate stems. Leaves ovate, cordate at base, glabrescent above. Flowers in terminal racemes, purple, side petals shortly and equally bilobed. Aug.–Mar. Limestone and stony clay, AP, LB (Cape Infanta to Mossel Bay).•

recognita Chodat Like **P. umbellata** but keel < 6 mm, with shallowly fringed crest, and stigma terminal. Sept.–Oct. Sandy slopes and flats, NW, SW (Piketberg to Cape Peninsula).•

triquetra C.Presl Subshrub branching from base, mostly to 50 cm, with stems 3-angled, often winged. Leaves narrowly lanceolate-elliptic, rigid, margins thickened and hyaline. Flowers in terminal racemes, purple, side petals shortly, subequally bilobed. June–Oct. Rocky sandstone slopes, LB, SE (Langeberg: Swellendam to Tsitsikamma Mtns).•

umbellata L. Slender subshrub to 40 cm, with sprawling branches from woody base. Leaves linear to narrowly elliptic. Flowers in dense, terminal, umbel-like clusters, purple, entire, obtuse. Aug.–Nov. Sandy and clay flats and lower slopes, NW, SW, AP, LB, SE (Ceres and Caledon to Humansdorp).•

uncinata E.Mey. ex Meisn. Sprawling subshrub to 25 cm. Leaves ascending, linear, margins revolute, apex obtuse-apiculate and recurved. Flowers in terminal racemes, purple, side petals entire, obtuse. Dec.–Apr. Sandstone slopes in grassy fynbos, SE (Humansdorp to Zimbabwe).

virgata Thunb. Slender-stemmed shrub, sometimes to 2 m, stems only leafy above. Leaves mostly lanceolate-elliptic. Flowers many in terminal racemes, uniformly dark purple, side petals entire, pedicels hairy. Mainly Oct.–Dec. Sandstone or clay or limestone slopes, often forest margins, AP, KM, LB, SE (Swellendam to tropical Africa).

wittebergensis Compton Like **P. microlopha** but side petals entire, obtuse, with a shortly hairy zone below. Aug.–Oct. Rocky sandstone slopes, NW, KM, LB, SE (Cedarberg to Uitenhage).•

sp. 1 Like **P. virgata** but plants glabrous including pedicels, somewhat twiggy above and flowers with crest of keel very small. Mainly Jan.–Mar. Limestone flats, AP (De Hoop).•

POLYGONACEAE

1. Perianth persistent, with short sharp spines ..... **Emex**
1.' Perianth without spines:
2. Inner perianth segments much larger than outer, enlarged in fruit ..... **Rumex**
2.' Perianth segments subequal, inner not accrescent:
3. Ocrea silvery hyaline, lacerate ..... **Polygonum**
3.' Ocrea brown, membranous, truncate, entire or ciliate ..... **Persicaria**

EMEX Campd. DEVIL'S THORN, DUIWELTJIE 2 spp., southern Africa, Mediterranean basin

australis Steinh. Monoecious annual to 30 cm with sprawling to prostrate branches. Leaves long-petiolate, hastate. Flowers in axillary clusters, greenish. Fruits spiny. Sept.–Oct. Sandy and stony flats and lower slopes, NW, SW, AP, KM, SE (Namaqualand and NW Province, Lambert's Bay to Uitenhage).

PERSICARIA (L.) Mill. ± 150 spp., ± cosmopolitan

attenuata (R.Br.) Sojak. Perennial herb to 75 cm. Leaves lanceolate. Flowers white and pink. Sept.–Nov. Streamsides, KM, SE (Little Karoo to E Cape, widespread in southern Africa).

POLYGONUM L. KNOTGRASS ± 600 spp., cosmopolitan

***aviculare** L. VARKGRAS Sprawling to prostrate annual to 30 cm, with striate stems. Leaves elliptic-oblanceolate, stipules papery, lacerate. Flowers 3–5 in axils, 5-merous, pink. Fruits shorter than perianth. Mainly Sept.–Mar. Disturbed places and saline marshes, NW, SW, AP, LB, SE (Eurasian weed).

maritimum L. Sprawling or prostrate shrublet to 50 cm. Leaves elliptic, grey, imbricate, margins revolute, stipules conspicuous, papery, lacerate with age. Flowers 1–3 in axils, 5-merous, white to pink. Fruits longer than perianth. June–Feb. Sandy beaches, NW, SW (Namaqualand to Hermanus). **gce**

undulatum (L.) P.J.Bergius Twiggy shrublet to 50 cm, with flaking bark. Leaves oval-oblong, punctate, margins finely crisped, stipules papery. Flowers crowded in terminal spikes, 4-merous, creamy green to pink. Fruits shorter than perianth. Nov.–Apr. Clay and sandy slopes, SW, AP, SE (Darling and Cape Peninsula to Uitenhage).•

RUMEX L. SORREL ± 200 spp., cosmopolitan

***acetosella** L. BOKSURING, SHEEP SORREL Dioecious, rhizomatous perennial to 30 cm. Leaves often tufted, oblanceolate-hastate, long-petiolate, stipules conspicuous, papery. Flowers in axillary clusters on branched spikes. Fruits small, to 2 mm long, articulating at pedicel apex. Mainly Sept.–Nov. Disturbed places, NW, SW, LB, SE (cosmopolitan weed).

cordatus Desf. TONGBLAAR Like **R. lativalvis** but leaves ovate-cordate, often prostrate. July–Sept. Sandy flats and slopes, NW, SW, AP, LB, SE (Namaqualand and W Karoo to E Cape).

lativalvis Meisn. Monoecious, tuberous perennial spreading on creeping rhizomes, mostly to 25 cm. Leaves mostly basal, sagittate-hastate, long-petiolate. Flowers in axillary clusters on branched spikes. Fruits enclosed in enlarged, papery sepals forming triangular-cordate wings, articulated below middle of pedicels. Aug.–Oct. Mostly clay and limestone slopes and flats, NW, SW, AP, ?SE (Clanwilliam to De Hoop, ?Uitenhage).•

sagittatus Thunb. RANKSURING, CLIMBING SORREL Sprawling or climbing, usually dioecious perennial. Leaves sagittate, margins undulate, often minutely crisped, with short, papery stipules. Flowers in stalked clusters forming large panicles, white. Fruits tiny, enclosed in enlarged, orbicular sepals forming wings 5–8 mm diam., articulated near pedicel base. Jan.–Apr. Bush and forest margins, SW, LB, SE (Riviersonderend Mtns to Port Elizabeth, widespread in southern Africa).

PORTULACACEAE

ANACAMPSEROS see **ANACAMPSEROTACEAE**

PORTULACARIA see **DIDIEREACEAE**

PRIMULACEAE

1. Inflorescence reduced to solitary, axillary flower; filaments bearded; capsule circumscissile or indehiscent; soft annuals ..... **Anagallis**
1.' Inflorescence racemose or spicate; filaments glabrous; capsules 5-valvate; perennials or biennials ..... **Lysimachia**

ANAGALLIS L. PIMPERNEL ± 30 spp., cosmopolitan

***arvensis** L. SCARLET PIMPERNEL, BLOUSELBLOMMETJIE Diffuse, branching annual to 20 cm. Leaves sessile, ovate. Flowers solitary in axils, often glandular-ciliate, blue or scarlet. July–Feb. Disturbed sites, NW, SW, AP, KM, LB, SE (cosmopolitan weed).

huttonii Harv. Sprawling, rarely branched annual to 30 cm. Leaves petiolate, orbicular. Flowers solitary in axils, white or pale pink. Oct.–Jan. Damp places, LB, SE (Riversdale to Mpumalanga).

LYSIMACHIA L. LOOSESTRIFE ± 200 spp., mostly N temperate

nutans Nees CAPE LOOSESTRIFE Perennial to 60 cm. Leaves lanceolate, margins slightly revolute. Flowers in a dense raceme, campanulate with exserted stamens, red to purple. Nov.–Jan. Moist places, SE (Uitenhage to E Cape).

SAMOLUS see **THEOPHRASTACEAE**

PROTEACEAE

1. Flowers paired in axil of a bract; ovules 2 (subfamily GREVILLEOIDEAE):
2. Leaves in whorls, oblanceolate, toothed, discolorous; fruit a velvety, indehiscent achene **Brabejum**
2.' Leaves alternate, usually terete but if flattened then both surfaces similar; fruit a glabrous, often warty, dehiscent follicle ..... **Hakea**
1.' Flowers solitary in axil of a bract; ovule 1 (subfamily PROTEOIDEAE):
3. Flowers unisexual, dioecious:
4. Female flowers in cones formed by woody, imbricate bracts; male flowers sessile in densely congested, globose or conical inflorescences, rarely spicate ..... **Leucadendron**
4.' Female flowers in densely involucrate, foliaceous heads, arranged racemosely on central cone of tissue; male flowers in lax racemes, pedicellate ..... **Aulax**
3.' Flowers bisexual:
5. Leaves pinnately or bipinnately divided, or at least divided at some stage; leaflets usually terete or subterete:
6. Inflorescence globose or cylindrical; flowers arranged in sessile groups of 4, each flower subtended by a floral bract that becomes woody in postpollination phase .... **Paranomus**
6.' Inflorescence a panicle, a capitulum or a panicle of capitula; floral bracts not enlarging in postpollination phase ..... **Serruria**
5.' Leaves entire or with apical teeth:
7. Inflorescence a panicle, raceme or lax spike:
8. Broad-leaved trees; inflorescence a lax, terminal spike ..... **Faurea**
8.' Terete-leaved shrubs; inflorescence a panicle, raceme or condensed raceme:
9. Inflorescence a panicle; flowers actinomorphic, straight in bud ..... **Sorocephalus**
9.' Inflorescence a raceme or condensed raceme; flowers zygomorphic or at least abaxially curved in bud ..... **Spatalla**

7.' Inflorescence a 3–many-flowered capitulum; capitula terminal and solitary, or axillary and often numerous towards apex of flowering shoot, or a terminal panicle of capitula:
10. Capitula surrounded by large, highly coloured, involucral bracts; perianth zygomorphic, separated to base into 2 parts, an adaxial sheath of 3 fused perianth segments and a free abaxial segment ..... **Protea**
10.' Involucral bracts small and insignificant or large, conspicuous and brightly coloured; perianth actinomorphic, the segments free or fused into a distinct tube at base:
11. Capitula solitary and terminal or a terminal panicle of capitula:
12. Leaves terete, acicular:
13. Perianth limbs glabrous ..... **Diastella**
13.' Perianth limbs pubescent ..... **Sorocephalus**
12.' Leaves flat:
14. Perianth segments ± free to base; hypogynous scales usually absent ..... **Diastella**
14.' Perianth segments fused below to form a distinct tube 3–8 mm long; hypogynous scales present ..... **Vexatorella**
11.' Capitula axillary:
15. Capitula sessile and massed among upper leaves, 3–15-flowered ..... **Mimetes**
15'. Capitula usually pedunculate or narrowed to a peduncular region, globose or ovoid, mostly > 15-flowered:
16. Involucral bracts small, green or brown, cartilaginous, papyraceous or woody, not brightly coloured ..... **Leucospermum**
16'. Involucral bracts large, conspicuous, brightly coloured; capitulum nodding . **Orothamnus**

AULAX P.J.Bergius• FEATHER BUSH 3 spp., W Cape

cancellata (L.) Druce Single-stemmed, dioecious shrub to 2.5 m. Leaves needle-like, sometimes linear-spathulate, terete or subterete. Flowers in terminal racemes, yellow, female flowers congested, with involucre of sterile branchlets. Nov.–Feb. Sandstone slopes, SW, KM, LB, SE (Cape Peninsula to Kouga Mtns).•

pallasia Stapf Dioecious, resprouting, sparsely branched shrub to 2 m. Leaves needle-like to linear. Flowers in terminal racemes, yellow, female flowers congested, with involucre of sterile and fertile branchlets. Jan.–Apr. Sandstone slopes, NW, SW, LB (Cold Bokkeveld to Swellendam).•

umbellata (Thunb.) R.Br. Like **A. cancellata** but leaves flat, linear-spathulate to oblanceolate. Nov.–Feb. Sandstone slopes and flats, SW, AP (Kogelberg to Still Bay).•

BRABEJUM L.• WILD ALMOND, WILDE-AMANDEL 1 sp., SW Cape

stellatifolium L. Widely spreading tree to 8 m. Leaves in whorls of (4–)6(–9), oblanceolate, toothed. Flowers in dense racemes, white. Fruits almond-shaped, velvety. Dec.–Jan. Sandstone slopes, mostly near streams, NW, SW, LB (Gifberg to Riversdale).•

DIASTELLA Salisb. ex Knight• SILKY PUFF 7 spp., SW Cape

A. Perianth lobes unequal; floral nectaries present

myrtifolia (Thunb.) Salisb. ex Knight Like **D. parilis** but with sprawling branches and involucral leaves oblong-elliptic. Sept.–Jan. Seeps on sandy slopes, SW (Tulbagh: Elandskloof Mtns).•

parilis Salisb. ex Knight Single-stemmed, rounded shrublet to 70 cm. Leaves elliptic, with 1–3 apical calluses. Flower heads 1–few at branch tips, 15–20 mm diam., pink, involucral leaves ovate with margins hairy, pink, becoming brown and papery. July–Jan. Seeps on sandstone slopes at low alt., SW (Tulbagh: Elandskloof Mtns to Slanghoek).•

A.' Perianth lobes equal; floral nectaries absent

buekii (Gand.) Rourke Mat-forming shrublet to 0.2 × 1 m, with trailing branches. Leaves needle-like. Flower heads solitary, nested among leaves, pink, 10–15 mm diam., outer involucral leaves with hairy margins. Aug.–Nov. Sandy flats, SW (Wemmershoek and Franschhoek).•

divaricata (P.J.Bergius) Rourke Sprawling, single stemmed shrublet to 0.5 × 3 m. Leaves elliptic. Flower heads solitary, 10–15 mm diam., pink. Jan.–Dec. Sandstone flats and slopes, SW (Cape Peninsula to Kleinrivier Mtns).•

fraterna Rourke Sprawling, single-stemmed shrublet to 0.7 × 1 m. Leaves lanceolate to elliptic. Flower heads solitary, white to cream-coloured, 10–15 mm diam., involucral leaves usually becoming brown and papery. Jan.–Dec. Seeps and stream banks, SW (Kogelberg to Kleinmond).•

proteoides (L.) Druce Sprawling shrublet, 0.5 × 3 m, with hairy stems. Leaves linear, hairy when young. Flower heads solitary, ± 10 mm diam., pink, involucral leaves hairy. Mainly July–Feb. Sandy flats, SW (Mamre and Paarl to Cape Peninsula).•

thymelaeoides (P.J.Bergius) Rourke Erect shrub to 1.5 m. Leaves elliptic to ovate. Flower heads solitary, 10–20 mm diam., white or pink. Mainly Aug.–Nov. Sandstone slopes, SW (Hottentots Holland Mtns to Betty's Bay).•

FAUREA Harv. BEECHWOOD 18 spp., southern and tropical Africa, Madagascar

macnaughtonii E.Phillips TERBLANS Tree to 25 m. Leaves elliptic-lanceolate. Flowers in dense, pendent spikes, white or pale pink, scented. Dec.–Feb. Evergreen forests, SE (George to Knysna, E Cape to Mpumalanga, Madagascar).

*__HAKEA__ Schrad. HAKEA ± 100 spp., Australia

***drupacea** (C.F.Gaertn.) Roem & Schult. (= *Hakea suaveolens* R.Br.) SWEET HAKEA Shrub or small tree to 4 m. Leaves pinnatisect, lobes needle-like. Flowers in axillary clusters, fragrant, cream-coloured. Fruits glossy, smooth. May–June. Sandstone slopes, SW, LB (W Australian weed).

***gibbosa** (Sm.) Cav. ROCK HAKEA Shrub or small tree to 4 m. Leaves needle-like, 40–80 mm long. Flowers axillary, cream-coloured. Fruits woody with knobs. June–Sept. Sandstone slopes, SW (Cape Peninsula to Caledon, introduced from E Australia).

***salicifolia** (Vent.) B.L.Burtt WILLOW HAKEA Shrub or bushy tree to 5(–8) m. Leaves linear-lanceolate, 50–100 mm long. Flowers in axillary clusters, white. Fruits warty. Sept.–Oct.(Jan.). Moist slopes, SW, SE (Australian, widely planted as a hedge, mildly invasive in high rainfall areas like Elgin).

***sericea** Schrad. & J.C.Wendl. SILKY HAKEA Shrub or small tree to 5 m. Leaves needle-like, 30–40 mm long. Flowers in axillary clusters, white, on silky pedicels. Fruits warty. June–Oct. Sandstone slopes, NW, SW, AP, LB, SE (SE Australian weed).

LEUCADENDRON R.Br. CONE BUSH, TOLBOS 83 spp., N Cape to KwaZulu-Natal, mainly W Cape

A. Fruits retained in cones, cone scales tightly overlapping until burned
B. Fruits rounded

album (Thunb.) Fourc. Dioecious shrub to 2 m. Leaves linear-oblanceolate, silvery adpressed-hairy, 28–42 mm long (male), 45–59 mm (female), involucral leaves larger. Male flower heads ± 15 mm diam., female ± 26 mm diam., slightly scented. Nov.–Dec. Sandstone slopes, KM, LB, SE (Swartberg and Langeberg to Great Winterhoek Mtns).•

argenteum (L.) R.Br. SILVER TREE, WITTEBOOM Dioecious tree to 10 m. Leaves lanceolate, adpressed-silvery hairy, fringed, to 150 mm long, involucral leaves similar. Male flower heads ± 50 mm diam., female ± 40 mm diam. Sept.–Oct. Granite and clay slopes, SW (Cape Peninsula to Hottentots Holland Mtns).•

cinereum (Sol. ex Aiton) R.Br. Dioecious shrub to 1 m. Leaves linear-oblanceolate, 27 mm long (male), 47 mm long (female), glabrescent, involucral leaves similar. Male flower heads ± 17 mm long, female ± 13 mm long, slightly sweet-scented. Sept.–Oct. Sandy flats, NW, SW (Berg River Mouth to Kraaifontein).•

dregei E.Mey. ex Meisn. Sprawling, dioecious shrublet to 60 cm. Leaves linear-oblanceolate, glabrescent, 25 mm long (male), 45 mm long (female), involucral leaves similar. Male flower heads ± 16 mm diam., female ± 24 mm diam., banana-scented. Nov.–Dec. High sandstone slopes, KM (Swartberg).•

galpinii E.Phillips & Hutch. Sturdy, dioecious shrub to 3 m. Leaves linear-oblanceolate, to 40 mm long (male), to 57 mm long (female), involucral leaves similar. Male flower heads ± 15 mm long, female ± 17 mm long, with foetid-yeasty scent. Oct.–Nov. Sandy coastal flats, AP (De Hoop to Mossel Bay).•

levisanus (L.) P.J.Bergius Much-branched, dioecious shrub to 2 m. Leaves oblanceolate-spathulate, ± 10 mm long, glabrescent, involucral leaves similar. Male flower heads ± 16 mm diam., female ± 11 mm diam., slightly sweet-scented. Sept.–Oct. Damp sandy flats, SW (Mamre to Cape Flats).•

linifolium (Jacq.) R.Br. Densely branched, dioecious shrub to 2 m. Leaves linear-oblanceolate, 7–27 mm long (male), 15–35 mm long (female), involucral leaves similar. Male flower heads 10–12 mm long, female 12–14 mm long, yeast-scented. Sept.–Oct. Waterlogged coastal flats, SW, AP (Eersterivier to Riversdale).•

rubrum Burm.f. Dioecious shrub to 2.5 m. Leaves oblanceolate, glabrescent, to 34 mm long (male), to 70 mm long (female), involucral leaves similar. Male flower heads clustered, ± 5 mm diam., female ± 20 mm diam. Aug.–Sept. Sandstone slopes, NW, SW, KM, LB, SE (Bokkeveld to Baviaanskloof Mtns).•

B.' Fruits flattened and winged
C. Cone scales flattened, not overlapping at tips; leaves needle-like in young plants

comosum (Thunb.) R.Br. Dioecious shrub to 1.7 m. Leaves needle-like or the upper flattened, oblanceolate, 35 mm long (male), to 45 mm long (female), involucral leaves similar, pale green to yellow. Male flower heads 10–13 mm diam., female ± 16 mm diam., sweetly scented. Oct.–Dec. Sandstone slopes, SW, KM, LB, SE (Du Toitskloof to Kouga Mtns and Swartberg).•

immoderatum Rourke Dioecious shrub to 2 m with single, rod-like main stem, branching at ground level. Leaves dimorphic, needle-like on basal branches, obovate at apex of main stem, leathery, to 55 mm long, involucral leaves similar, pale greenish or ivory. Male flower heads subsessile, 25 × 20 mm, female 40–50 × 10 mm. Nov. Upper N slopes, 1 300 m, SW (Riviersonderend Mtns: Olifantsberg).•

muirii E.Phillips Dioecious shrub to 2 m. Leaves dimorphic, needle-like below, spathulate-obovate above, leathery, to 30 mm long (male), to 40 mm long (female), involucral leaves similar. Male flower heads stalked, to 40 × 13 mm, female to 30 × 13 mm. Nov.–Dec. Coastal limestone slopes and flats, AP (Agulhas to Still Bay).•

nobile I.Williams Stout, dioecious shrub to 4 m. Leaves needle-like, ± 40 mm long (male), ± 58 mm long (female), involucral leaves similar, pale green to ivory. Male flower heads spike-like, ± 40 mm long, female narrow, ± 28 mm long, foetid. Oct.–Mar. Dry sandstone slopes, SE (Kouga and Baviaanskloof Mtns to S Karoo).

osbornei Rourke Like **L. teretifolium** but up to 4 m high, leaves terete-pungent, and male inflorescences cylindric (not globose). Oct.–Nov. Sandy or gravel slopes, KM (W Little Karoo mtns).•

platyspermum R.Br. Dioecious shrub to 1.7 m. Leaves dimorphic, the juvenile needle-like, adult oblanceolate, to 40 mm long (male), to 70 mm long (female), involucral leaves longer, yellowish. Male flower heads ± 12 mm diam., female ± 14 mm diam. Sept.–Oct. Sandy and gravel slopes, SW, AP (Villiersdorp to Agulhas coast).•

spirale (Salisb. ex Knight) I.Williams Dioecious shrub to 1 m. Leaves terete, thinly silky, 4–9 mm long, involucral leaves similar. Male flower heads 6–8 mm long, female unknown. Nov.–Jan. Marshy flats, NW (Breede River Valley: Wolseley to Botha).• EXTINCT

teretifolium (Andrews) I.Williams Dioecious shrublet to 1 m. Leaves needle-like, ± 8 mm long (male), ± 22 mm long (female), involucral leaves similar. Male flower heads crowded, ± 7 mm diam., female ± 12 mm diam., slightly yeast-scented. Aug.–Sept. Sandstone and clay slopes, SW, KM, LB (Witteberg, and Kleinrivier Mtns to Riversdale).•

C.' Cone scales overlapping; leaves flattened in young plants

conicum (Lam.) I.Williams Dioecious shrub or tree to 6 m. Leaves narrowly oblanceolate, 40–50 mm long, involucral leaves inconspicuous but bracts spreading, reddish to purplish. Male flower heads ± 15 mm diam., female ± 12 mm diam., slightly fruit-scented. Oct.–Nov. Sandstone slopes near streams, LB, SE (Langeberg: Riversdale to Loerie).•

coniferum (L.) Meisn. Dioecious shrub or small tree to 4 m. Leaves linear-oblanceolate, glabrescent, to 77 mm long (male), to 83 mm long (female), involucral leaves slightly larger, yellow. Male flower heads ± 18 mm diam., female ± 14 mm diam., bracts yellow. Aug.–Sept. Coastal sands, SW, AP (Cape Peninsula to Soetanysberg).•

cryptocephalum Guthrie Rounded, dioecious shrub to 1 m. Leaves lanceolate, glabrescent, to 85 mm long, involucral leaves larger, yellow, concealing young flower heads. Male flower heads ± 15 mm diam., female ± 13 mm diam. Mar.–May. Clay slopes, SW (Groenland Mtns to Potberg).•

diemontianum I.Williams Spindly, dioecious shrub to 2 m, bushy at base. Leaves linear-elliptic, erect, ± 24 mm long (male), ± 36 mm long (female), involucral leaves lanceolate, yellow turning red. Male flower heads ± 12 mm diam., female ± 10 mm diam., yeast-scented. June. Sandstone slopes, NW (N Cedarberg and Cold Bokkeveld Mtns).•

discolor E.Phillips & Hutch. Dioecious shrub to 3 m. Leaves obovate, 30–35 mm long (male), 40–48 mm long (female), involucral leaves larger, yellow tinged red. Male flower heads ± 25 mm diam., florets red in bud, female ± 16 mm diam., foetid. Sept.–Oct. Sandstone slopes, NW (Piketberg).•

eucalyptifolium H.Buek ex Meisn. Dioecious shrub or tree to 5 m. Leaves linear-lanceolate, glabrescent, to 105 mm long, involucral leaves longer, yellow. Male flower heads ± 16 mm diam., female ± 12 mm diam., fruit-scented, bracts conspicuous, yellow. July–Oct. Forest margins and open sandstone slopes, SW, KM, LB, SE (Waboomsberg and Potberg to Van Staden's Mtns, ?Grahamstown).•

flexuosum I.Williams Slender, resprouting, dioecious shrub to 2.5 m. Leaves linear-oblanceolate, erect, 25–27 mm long (male), 30–40 mm long (female), involucral leaves larger, yellow turning red. Male flower heads ± 14 mm diam., female ± 9 mm diam., yeast-scented. Apr.–May. Alluvial flats, NW (Breede River Valley: Worcester).•

floridum R.Br. Silvery, dioecious shrub to 2 m, with pubescent branches. Leaves oblong, silvery silky, ± 25 mm long, involucral leaves larger, yellow. Flower heads ± 10 mm diam., slightly fruit-scented, bracts conspicuous, spreading, yellow. Sept.–Oct. Marshes and streamsides on sandy flats, SW (Cape Peninsula to Kuils River).•

foedum I.Williams Dioecious shrub to 2.5 m. Leaves oblanceolate, ± 27 mm long (male), ± 33 mm long (female), involucral leaves longer, pale green to ivory. Male flower heads ± 20 mm diam., female ± 12 mm diam., foetid. Sept.–Oct. Sandy flats, NW, SW (Piketberg to Hopefield).•

gandogeri Schinz ex Gand. Rounded, dioecious shrub to 1.6 m. Leaves elliptic-oblanceolate, glabrescent, 42–85 mm long (male), 60–105 mm long (female), involucral leaves larger, yellow tinged red. Male flower heads ± 24 mm diam., female ± 18 mm diam., fruit-scented. Aug.–Oct. Rocky sandstone slopes, SW (Hottentots Holland to Bredasdorp Mtns).•

lanigerum H.Buek ex Meisn. Single-stemmed or resprouting and multistemmed, dioecious shrub to 1.5 m. Leaves linear-oblanceolate, to 30 mm long, usually rough, involucral leaves linear-lanceolate, pale yellow. Male flower heads ± 11 mm diam., female 7–12 mm diam., foetid or yeast-scented. July–Sept. Clay or silt flats, SW (Darling to Strand).•

laureolum (Lam.) Fourc. Rounded, dioecious shrub to 2 m. Leaves oblong, to 75 mm long (male), to 95 mm long (female), glabrescent, involucral leaves larger, yellow, concealing young heads. Male flower heads ± 20 mm diam., female ± 14 mm diam., slightly fruit-scented. June–July. Sandstone slopes, SW, AP (Cape Peninsula to Potberg).•

loeriense I.Williams Dioecious shrub to 2.5 m, branching from below. Leaves narrowly oblong, velvety, 30–35 mm long, often flushed red, involucral leaves slightly larger, glabrous above, whitish green. Male flower heads ± 12 mm diam., female ± 10 m diam. Dec.–Jan. Sandstone slopes, SE (Baviaanskloof Mtns to Elandsberg).•

macowanii E.Phillips Dioecious shrub to 2.5 m, with silky branches. Leaves linear-oblanceolate, thinly silky below, ± 53 mm long (male), ± 75 mm long (female), involucral leaves lacking. Male flower heads crowded, ± 14 mm diam., female ± 25 mm diam. May–July. Streamsides, SW (Cape Peninsula).•

meridianum I.Williams Densely branched, dioecious shrub to 2 m. Leaves linear-oblanceolate, silky or glabrous, ± 40 mm long, involucral leaves longer, yellow. Flower heads ± 12 m diam., slightly scented. July–Aug. Limestone flats, AP (Gansbaai to Gouritsmond).•

microcephalum (Gand.) Gand. & Schinz Dioecious shrub to 2 m. Leaves oblong, to 90 mm long, involucral leaves similar, yellow. Male flower heads ± 18 mm diam., female ± 11 mm diam., bracts conspicuous, obovate, brown and oily. July. Sandstone slopes, SW (Du Toitskloof to Riviersonderend Mtns).•

modestum I.Williams Slender, dioecious shrublet to 60 cm. Leaves linear-oblanceolate, rough, ± 18 mm long (male), ± 25 mm long (female), involucral leaves slightly longer, linear, pale yellow. Male flower heads ± 13 mm diam., female ± 8 mm diam. slightly foetid. Aug.–Sept. Clay and gravel flats, SW, AP (Botrivier to Potberg).•

procerum (Salisb. ex Knight) I.Williams Like **L. foedum** but leaves larger, 26–37 mm long (male), 37–47 mm long (female), male florets red and bracts dimpled. Aug.–Sept. Sandstone slopes and sandveld, NW (Gifberg to Piketberg).•

radiatum E.Phillips & Hutch. Dioecious shrublet to 60 cm. Leaves oblanceolate, glabrescent, ± 22 mm long, involucral leaves lanceolate, softly hairy, cream-coloured. Flower heads 10–12 mm diam., slightly scented, bracts prominent, cream-coloured. Oct.–Dec. Upper sandstone slopes, LB (Langeberg: Swellendam to Riversdale).•

rourkei I.Williams Like **L. conicum** but leaves smaller, to 24 mm long, involucral leaves inconspicuous. Dec.–Jan. Stony or shale slopes, KM, SE (Swartberg to Kouga Mtns).•

salicifolium (Salisb.) I.Williams Dioecious shrub to 3 m. Leaves linear-falcate, to 60 mm long, involucral leaves similar, creamy yellow. Flower heads 9–10 mm diam., slightly fruit-scented, bracts spreading, yellow. July–Sept. Streams and seeps on flats and slopes, NW, SW, KM, LB (Olifants River Mtns to Langeberg: Riversdale).•

salignum P.J.Bergius Sprawling or erect, resprouting, dioecious shrub to 2 m. Leaves linear-oblanceolate, 20–47 mm long (male), 48–58 mm long (female), male involucral leaves slightly longer, yellow, sometimes red, female larger, ivory or red. Male flower heads 10–14 mm diam., female 9–12 mm diam., sweet or yeast-scented. Apr.–Nov. Sandy and clay slopes and flats, NW, SW, AP, KM, LB, SE (Bokkeveld Mtns to Grahamstown).

spissifolium (Salisb. ex Knight) I.Williams Resprouting, dioecious shrub to 1.3 m. Leaves linear-oblanceolate, 25–63 mm long (male), 27–80 mm long (female), involucral leaves larger, ivory or pale green. Male flower heads ± 18 mm diam., female 13–15 mm diam., lemon-scented. Aug.–Oct. Sandstone slopes, NW, SW, LB, SE (Gifberg to KwaZulu-Natal).

stelligerum I.Williams Slender, dioecious shrub to 1.3 m. Leaves erect, oblanceolate, rough, thinly silky, ± 23 mm long, involucral leaves longer, ivory. Male flower heads ± 16 m diam., female ± 10 mm diam., foetid. July–Aug. Gravel and clay flats, SW, AP (Elim to Agulhas plain).•

strobilinum (L.) Druce Dioecious shrub to 2.6 m, branching below. Leaves elliptic, ciliate, to 67 mm long (male), to 80 mm long (female), involucral leaves larger, ivory. Male flower heads 24–36 mm diam., female 18–25 mm diam., yeast-scented. Sept.–Oct. Damp, S-facing, upper sandstone slopes, SW (Cape Peninsula).•

uliginosum R.Br. Dioecious shrub to 4 m, bushy below. Leaves oblong, adpressed-silvery silky or glabrescent, 20–35 mm long, involucral leaves slightly larger, ivory to pale yellow. Male flower heads ± 15 mm diam., female ± 12 mm diam., slightly scented. Oct.–Dec. Sandstone slopes, LB, SE (Langeberg: Swellendam and Outeniqua to Baviaanskloof Mtns).•

xanthoconus (Kuntze) K.Schum. Dioecious shrub to 2 m. Leaves narrowly oblong-falcate, glabrescent, to 65 mm long, involucral leaves larger, yellow. Flower heads 10–11 mm diam. Aug. Sandstone slopes, SW (Cape Peninsula to Potberg).•

A.' Fruits shed within a season, cone scales soon recurving to expose fruits
D. Fruits glabrous, uniformly coloured

arcuatum (Lam.) I.Williams Sprawling or erect, resprouting, dioecious shrub to 1.3 m. Leaves obovate-spathulate, margins thickened, red, 55–80 mm long, involucral leaves similar, yellow. Male flower heads 22–35 mm diam., female 14–33 mm diam., sweetly scented. Sept.–Oct. High sandstone slopes, NW (Cedarberg to Kwadouwsberg).•

barkerae I.Williams Like **L. daphnoides** but leaves glabrescent, hairy when young, flower heads with fruity smell. Sept.–Oct. Dry sandstone slopes, NW, KM (S Cold Bokkeveld to Swartberg).•

bonum I.Williams Dioecious shrub to 1.6 m. Leaves spathulate, softly silvery hairy, to 55 mm long (males), to 62 mm (female), involucral leaves similar, pale yellow. Male flower heads ± 21 mm diam., female ± 18 mm diam., honey-scented, involucral bracts slender, softly hairy, yellow, ± 40 mm long. Oct.–Nov. High sandstone plateaus, NW (Cedarberg: Gideonskop).•

burchellii I.Williams Dioecious shrub to 1.6 m. Leaves elliptic, margins reddish, ± 60 mm long, involucral leaves similar, yellow turning red. Male flower heads ± 42 mm diam., female ± 27 mm diam., lemon-scented, bracts recurved. Aug.–Sept. N-facing, stony slopes, SW (Riviersonderend Mtns).•

cadens I.Williams Sprawling, dioecious shrublet to 50 cm diam. Leaves secund, narrowly oblanceolate, ± 22 mm long (male), ± 34 mm long (female), margins reddish, involucral leaves similar, sometimes yellowish. Male flower heads ± 15 mm diam., female ± 11 mm diam., spicy scented. Oct. Dry sandstone slopes, KM (Witteberg).•

chamelaea (Lam.) I.Williams Dioecious shrub to 2.3 m, branching from base. Leaves linear-oblanceolate, ± 40 mm long, involucral leaves slightly longer, yellow. Flower heads ± 20 mm diam., strongly scented. Sept.–Oct. Seasonally damp sandy flats, sometimes over clay, NW, SW (Cold Bokkeveld to Franschhoek Valley).•

cordatum E.Phillips Erect or sprawling, dioecious shrub to 1 m. Leaves oblong-elliptic, ± 50 mm long, involucral leaves larger, yellow to red. Flower heads nodding, male ± 25 mm diam., female ± 20 mm diam. pepper-scented, bracts recurved. June–July. Rocky sandstone slopes, NW, KM, LB (Langeberg: Koo to Barrydale and Swartberg).•

daphnoides (Thunb.) Meisn. Dioecious shrub to 1.5 m. Leaves lanceolate-elliptic, to 60 mm long, involucral leaves broader, yellow turning red. Male flower heads ± 42 mm diam., female ± 23 mm diam., with citrus scent. July–Sept. Granite slopes, SW (Du Toitskloof to Villiersdorp).•

elimense E.Phillips Dioecious shrub to 1.5 m. Leaves elliptic-lanceolate, to 70 mm long, involucral leaves slightly larger, yellow. Male flower heads to 45 mm diam., female to 20 mm diam., strongly scented. July–Oct. Sandy flats, SW, AP (Viljoen's Pass to Gansbaai and Bredasdorp).•

glaberrimum (Schltr.) Compton Spreading, much-branched, dioecious shrub to 1.3 m. Leaves oblanceolate, glabrous or hairy, 20–30 mm long, sometimes purplish, involucral leaves similar. Male flower heads 12–17 mm diam., female ± 10 mm diam., sweetly scented or foetid. Aug.–Oct. High sandstone slopes, NW (Cedarberg to Hex River Mtns).•

globosum (Kenn. ex Andrews) I.Williams Dioecious shrub to 2 m, with pubescent branches. Leaves ovate, to 60 mm long, involucral leaves slightly larger, yellow. Male flower heads ± 50 mm diam., female ± 23 mm diam., spicy scented, bracts oily, recurved above. Sept.–Oct. Loamy slopes, SW (Grabouw Valley).•

grandiflorum (Salisb.) R.Br. Like **L. globosum** but leaves pale green, twisted. ? ?Clay slopes, SW (Cape Peninsula).• EXTINCT

gydoense I.Williams Like **L. sessile** but leaves smaller, narrowly oblanceolate, to 45 mm long, male flower heads ± 30 mm diam., female ± 12 mm diam. Oct. Sandstone slopes, NW (Cold Bokkeveld and Hex River Mtns).•

loranthifolium (Salisb. ex Knight) I.Williams Dioecious shrub to 2 m. Leaves elliptic to oblanceolate, 38–70 mm long, blue-green, involucral leaves similar. Male flower heads 20–40 mm diam., female ± 15 mm diam., foetid. July–Sept. Sandstone slopes, NW (Gifberg to Hex River Mtns).•

meyerianum H.Buek ex E.Phillips & Hutch. Dioecious shrub to 2 m, with slender, purplish branches. Leaves linear, ± 30 mm long, involucral leaves similar. Male flower heads ± 16 mm diam., female ± 7 mm diam., slightly scented. Aug.–Sept. Sandy plateaus, NW (Bokkeveld Mtns).•

nitidum H.Buek ex Meisn. Erect to spreading, resprouting, dioecious shrub to 2 m, branching at base. Leaves linear-oblanceolate, silvery adpressed-hairy, 9–15 mm long (male), 11–20 mm (female), involucral leaves twice as long, yellow. Male flower heads 15–20 mm diam., female 12–18 mm diam., sweetly scented. May–Nov. Sandstone plateaus, NW (Cedarberg to Swartruggens).•

orientale I.Williams Dioecious shrub to 1.3 m. Leaves lanceolate to oblanceolate, 90–100 mm long, involucral leaves similar, yellow. Male flower heads ± 35 mm diam., female ± 30 mm diam., sweetly scented, bracts recurved, red, oily. June–July. Sandstone slopes, SE (Cockscomb to Van Staden's Mtns).•

pubescens R.Br. Dioecious shrub to 2.5 m. Leaves oblanceolate, glabrous or silvery adpressed-hairy, 16–28 mm long (male), 25–57 mm long (female). Male flower heads 9–18 mm diam., female 10–20 mm diam., sweet or yeast-scented. July–Oct. Sandstone slopes, NW, KM (Bokkeveld Mtns to Witteberg and Klein Swartberg).•

pubibracteolatum I.Williams Like **L. tinctum** but leaves shorter, to 64 mm long (male), to 75 mm long (female), bracts not oily. July–Aug. Dry sandstone slopes, KM, SE (E Swartberg and Outeniqua to Baviaanskloof Mtns).•

remotum I.Williams Dioecious shrub to 1.5 m, branching from below. Leaves linear-oblanceolate, adpressed, glabrescent, ± 29 mm long (male), ± 42 mm long (female), involucral leaves similar. Male flower heads ± 16 mm diam., slightly scented. Aug.–Sept. Sandy plateaus, NW (Bokkeveld Mtns).•

roodii E.Phillips Dioecious shrub to 1.5 m. Leaves elliptic, to 44 mm long (male), to 57 mm long (female), involucral leaves similar, tinged red. Male flower heads ± 20 mm diam., female ± 15 mm diam., foetid, bracts pouched. Aug.–Sept. Sandstone slopes and plateaus, NW (Gifberg).•

sericeum (Thunb.) R.Br. Slender, dioecious shrublet to 1 m. Leaves narrowly oblanceolate, adpressed-hairy, to 9 mm long (male), to 15 mm (female), involucral leaves similar. Male flower heads in small clusters, ± 11 mm diam., females ± 13 mm diam., sometimes in clusters, sweetly scented. May–Sept. Sandstone plateaus, NW (Cold Bokkeveld: Waboomsrivier).•

sessile R.Br. Dioecious shrub to 1.5 m. Leaves narrowly elliptic, to 64 mm long (male), to 80 mm long (female), involucral leaves similar, yellow turning red. Male flower heads ± 35 mm diam., female 14–18 mm diam., lemon-scented. July–Aug. Granitic slopes and flats, NW, SW (Witzenberg to Slanghoek and Jonkershoek to Kogelberg).•

sheilae I.Williams Dioecious shrub to 1 m. Leaves oblanceolate, 26–29 mm long, involucral leaves similar. Male flower heads ± 15 mm diam., female ± 6 mm diam. Aug. Sandstone plateaus, NW (Bokkeveld Mtns).•

tinctum I.Williams Rounded shrub to 1.3 m. Leaves oblong-lanceolate, spreading-incurved below, to 90 mm long (male), to 115 mm (female), involucral leaves larger, yellow turning red. Male flower heads ± 35 mm diam., female ± 27 mm diam., spicy scented, bracts recurved, oily. July–Aug. Sandstone slopes, NW, SW, KM, LB (Hex River Mtns to Hottentots Holland Mtns and Langeberg).•

tradouwense I.Williams Dioecious shrub to 2 m. Leaves oblanceolate, ± 57 mm long (male), ± 67 mm long (female), involucral leaves larger, yellow. Male flowers heads to 25 mm diam., female ± 15 mm diam., sweetly scented, bracts red, recurved. June. Sandstone slopes, LB (Langeberg: Tradouw Pass).•

D.' Fruits variously hairy or mottled

brunioides Meisn. Dioecious, resprouting shrub to 2 m with many slender stems. Leaves linear to oblong, ± 23 mm long; involucral leaves similar. Male flower heads ± 17 mm diam., female ± 11 mm diam., foetid. Oct.–Nov. Sandy flats, NW, SW, KM, LB (S Namaqualand and Bokkeveld Mtns to Piketberg and Bonteberg to Swellendam). **gce**

concavum I.Williams Spindly, dioecious shrub to 1.5 m. Leaves imbricate, clasping, obovate-rotund, softly hairy, ± 9 mm long, involucral leaves similar. Male flower heads ± 20 mm diam., female ± 13 mm diam., unscented. Sept. Sandy plateaus, NW (Pakhuis Mtns).•

coriaceum E.Phillips & Hutch. Resprouting, dioecious shrublet to 60 cm with many slender stems. Leaves obovate, ± 14 mm long, involucral leaves similar. Male flower heads ± 17 mm diam., female ± 8 mm diam. yeast or honey-scented. Sept. Gravel flats, SW, LB (Napier to Riversdale).•

corymbosum P.J.Bergius Slender, dioecious shrub to 2 m, with many branchlets clustered at base. Leaves stiffly subterete, erect, 15–20 mm long, involucral leaves similar. Male flower heads ± 12 mm diam., female ± 10 mm diam., foetid. Sept.–Oct. Damp clay flats, NW, SW (Michell's Pass to Paarl).•

dubium (H.Buek ex Meisn.) E.Phillips & Hutch. Like **L. concavum** but leaves smaller, 5–9 mm long. Aug.–Sept. Sandstone plateaus, NW (Cedarberg).•

ericifolium R.Br. Rounded, dioecious shrub to 1.3 m (male), 3 m (female). Leaves dimorphic, lower terete, to 27 mm long, upper linear, to 8 mm long (male), to 39 mm long (female), involucral leaves similar. Male flower heads many, crowded, nodding, ± 3 mm diam., female 1-flowered, ± 8 mm diam. July–Aug. Dry rocky slopes, KM, LB, SE (Klein Swartberg and Langeberg to George).•

laxum I.Williams Finely leafy, Like **L. corymbosum** but leaves narrower, ± 1 mm wide, male flower heads ± 9 mm diam. Sept.–Oct. Damp coastal flats, SW, AP (Hermanus to Agulhas).•

nervosum E.Phillips & Hutch. Dioecious shrub to 1.5 m. Leaves elliptic, glabrescent, ± 47 mm long (male), 60 mm (female), involucral leaves similar, shaggy, yellow. Male flower heads ± 22 mm diam., female ± 20 mm diam. Sept.–Oct. N-facing sandstone slopes, SW, LB (Riviersonderend Mtns to Langeberg: Heidelberg).•

olens I.Williams Dioecious shrub to 1.2 m. Leaves erect, linear-lanceolate, 7–11 mm long, involucral leaves similar, yellow. Male flower heads ± 8 mm diam., female with 2 or 3 florets, ± 5 mm diam. June–July. N-facing sandstone slopes, SE (Outeniqua Mtns: Grootdoring River).•

singulare I.Williams Spreading shrublet to 30 cm. Leaves linear-oblanceolate, adpressed, silvery hairy, ± 16 mm long, involucral leaves larger. Male flower heads ± 12 mm diam., female ± 18 mm diam. Oct. High rocky ridges, KM (Kammanassie Mtns).•

sorocephalodes E.Phillips & Hutch. Sprawling, dioecious shrublet to 30 cm. Leaves terete, 12–18 mm long, involucral leaves similar. Male flower heads ± 20 mm diam., female ± 13 mm diam., sweetly scented. Aug. High sandstone slopes, SE (Outeniqua to Baviaanskloof Mtns).•

stellare (Sims) Sweet Resprouting, multistemmed, dioecious shrub to 2 m. Leaves imbricate, clasping, oblong, 8–12 mm long, involucral bracts similar. Male flower heads 15–20 mm diam., female ± 8 mm diam., yeasty or foetid. Sept.–Oct. Silt flats, NW, SW (Aurora to Cape Flats).•

thymifolium (Salisb. ex Knight) I.Williams Slender, dioecious shrub to 2 m. Leaves imbricate, clasping, elliptic-oblong, ± 8 mm long, glabrescent, involucral bracts similar. Male flower heads ± 17 mm diam., females ± 13 mm diam., yeast-smelling. Aug.–Sept. Sandy flats, often over clay, SW (Dassenberg to Klipheuwel).•

verticillatum (Thunb.) Meisn. Slender shrub to 2 m. Leaves linear-oblanceolate, silvery adpressed-hairy, 22–25 mm long, involucral leaves similar. Male flower heads ± 11 mm diam., female ± 8 mm diam., slightly yeast-scented. Sept.–Oct. Silt flats, SW (Cape Flats around Paarl).•

LEUCOSPERMUM R.Br. PINCUSHION, LUISIESBOS 48 spp., S Africa to Zimbabwe, mainly W Cape

A. Style 10–35 mm long
B. Flower heads obconic with flat receptacle; pollen presenter scarcely thickened

gracile (Salisb. ex Knight) Rourke Sprawling, mat-forming shrublet to 0.5 × 1.5 m. Leaves secund, narrowly oblong, thinly hairy, with 1–3 apical teeth. Flower heads obconic, 25–30 mm diam., yellow, style 25–30 mm long, pollen presenter slender. July–Dec. Sandstone slopes, SW (Kleinrivier Mtns to Bredasdorp).•

mundii Meisn. Like **L. oleifolium** but leaves broadly ovate to cuneate, with 7–17 teeth and flower heads 10–20 mm diam. July–Nov. Sandstone slopes, LB (Langeberg: Swellendam to Riversdale).•

oleifolium (P.J.Bergius) R.Br. Rounded shrub to 1 m. Leaves ovate to lanceolate, with 1–5 apical teeth, glabrous or hairy. Flower heads obconic, 25–40 mm diam., yellow-green fading red, style 25–30 mm long, pollen presenter slender. Mainly Sept.–Oct. Sandstone slopes, SW (Slanghoek Mtns to Caledon Swartberg and Kleinmond).•

saxatile (Salisb. ex Knight) Rourke Sprawling shrub to 70 cm. Leaves narrowly oblong, with 1 (sometimes to 3) apical teeth, glabrescent. Flower heads obconic, 25–30 mm diam., pale lime-green to pink, style ± 30 mm long, pollen presenter slender. July–Feb. Dry, rocky, N-facing slopes, LB (Langeberg: Garcia's Pass).•

B.' Flower head subglobose with conical receptacle; pollen presenter noticeably thickened
*C. Leaves densely grey-felted or style strongly recurved (see also **L. wittebergense**)*

arenarium Rycroft Sprawling shrublet to 75 cm, with trailing stems. Leaves secund, linear-oblong, densely grey-felted, with 1(–3) apical teeth. Flower heads 50–70 mm diam., yellow, style 30–35 mm long, incurved, pollen presenter ellipsoid; involucral bracts red. July–Oct. Sandveld, NW (Redelinghuys to Aurora).•

hamatum Rourke Sprawling, mat-forming shrublet to 3 m diam. Leaves secund, narrowly oblong, glabrescent, with 3 apical teeth. Flower heads small, with 4–7 flowers, 15–20 mm diam., reddish, style strongly incurved, 18–20 mm long, pollen presenter conical. July–Nov. Dry rock outcrops, SE (Outeniqua Mtns: Robinson Pass).•

harpagonatum Rourke Like **L. hamatum** but leaves linear-oblong, channelled, with 1 apical tooth, flower heads with 7–12 flowers, style 20–25 mm long. Aug.–Nov. N-facing sandstone slopes, SW (Riviersonderend Mtns: McGregor).•

hypophyllocarpodendron (L.) Druce Sprawling to prostrate shrublet with trailing stems. Leaves secund, linear to oblanceolate, glabrous to grey-felted, with 2–4 apical teeth. Flower heads 30–40 mm diam., yellow, style 20–26 mm long, pollen presenter club-shaped. Aug.–Jan. Acid sand flats, NW, SW, AP (Piketberg to Agulhas coast).•

parile (Salisb. ex Knight) Sweet Like **L. rodolentum** but to 1.5 m, leaves linear-oblong, with 1–3 apical teeth, involucral bracts ovate, red, with only margins hairy. July–Nov. Sandy flats, SW (Dassenberg and Paardeberg).•

rodolentum (Salisb. ex Knight) Rourke Erect or spreading shrub to 3 m. Leaves elliptic to cuneate, densely grey-velvety, with 3–6 apical teeth. Flower heads globose, 30–35 mm diam., bright yellow, style 15–25 mm long, pollen presenter ellipsoid; involucral bracts ovate. Aug.–Nov. Sandy flats and lower slopes, NW, SW (Namaqualand to Cape Peninsula). **gce**

tomentosum (Thunb.) R.Br. Like **L. rodolentum** but resprouting shrub to 1 m, leaves linear-spathulate, channelled, 1–3-toothed and involucral bracts lanceolate. June–Nov. Coastal sands, SW (Hopefield to Bokbaai).•

*C.' Leaves glabrous to thinly hairy or style strongly incurved (see also **L. hamatum**)*

bolusii Gand. Rounded shrub to 1.5 m. Leaves ovate-elliptic, glabrescent, with 1 apical tooth. Flower heads subglobose, ± 20 mm diam., cream-coloured fading pale pink, style 15–20 mm long, pollen presenter ovoid. Sept.–Dec. Rocky sandstone slopes, SW (Gordon's Bay to Kogelbaai).•

calligerum (Salisb. ex Knight) Rourke Shrub to 2 m. Leaves lanceolate to elliptic, grey-hairy, with 1(–3) apical teeth. Flower heads globose, 20–35 mm diam., cream-coloured fading dull red, style 21–25 mm long, pollen presenter conic-ovoid. July–Jan. Dry sandy slopes, NW, SW, KM, LB (Bokkeveld Mtns to Bonteberg and Langeberg: Riversdale).•

cordatum E.Phillips Mat-forming shrublet to 2 m diam., with trailing branches. Leaves ovate-cordate, glabrescent, with 1 apical tooth. Flower heads depressed, globose, 30–40 mm diam., cream-coloured fading pink, anthers on filaments to 1.5 mm long, style incurved, 20–25 mm long, pollen presenter conical. Mainly Sept.–Nov. Shale slopes, SW (Kogelberg).•

heterophyllum (Thunb.) Rourke Prostrate, mat-forming shrublet. Leaves secund, linear to narrowly oblanceolate, glabrescent, with 3 (sometimes 1) apical teeth. Flower heads globose, 20–30 mm diam., cream-coloured fading reddish, style 18–21 mm long, pollen presenter ovoid. Mainly Sept.–Oct. Coastal slopes and flats, AP (Elim to De Hoop).•

muirii E.Phillips Like **L. truncatum** but leaves with 3–7 apical teeth, flower heads 20–30 mm diam., perianth inflated and style 13–20 mm long. July–Oct. Coastal sands, AP (Still Bay to Gouritsmond).•

pedunculatum Klotzsch Prostrate, mat-forming shrublet to 30 cm, with exposed woody base. Leaves subsecund, linear, glabrescent, with 1 apical tooth. Flower heads usually solitary on lateral branchlets, globose, 25–30 mm diam., fragrant, cream-coloured fading reddish, style 17–20 mm long, pollen presenter ellipsoid. Mainly Sept.–Dec. Coastal sands, SW, AP (Danger Point to Agulhas).•

prostratum (Thunb.) Stapf Resprouting, mat-forming shrublet to 4 m diam. Leaves secund, linear to oblong, subglabrous, with 1 apical tooth. Flower heads globose, 20–25 mm diam., scented, yellow fading orange, style 12–15 mm long, pollen presenter ellipsoid. July–Dec. Mainly coastal sands, SW, AP (Groenland Mtns to Elim flats).•

royenifolium (Salisb. ex Knight) Stapf Sprawling, mat-forming shrub to 3 m diam., with exposed rootstock. Leaves elliptic, glabrescent, with 1(–3) apical teeth. Flower heads globose, 10–20 mm diam., cream-coloured fading pink, scented, style 13–16 mm long, pollen presenter ellipsoid. July–Dec. Dry sandstone slopes, KM, SE (Swartberg to Kouga Mtns).•

secundifolium Rourke Mat-forming shrublet to 2 m diam. Leaves secund, oblanceolate, glabrescent, margins horny, with 1(–3) apical teeth. Flower heads globose, 10–15 mm diam., yellow fading red, style ± 14 mm long, pollen presenter club-shaped. Nov.–Jan. S-facing, rocky upper slopes, KM (Klein Swartberg).•

truncatulum (Salisb. ex Knight) Rourke Like **L. bolusii** but leaves elliptic-obovate, grey-felted and flower heads yellow fading red. Aug.–Dec. Sandy slopes and flats, SW (Groenland Mtns to Bredasdorp).•

truncatum (H.Buek ex Meisn.) Rourke Rounded shrub to 2 m. Leaves oblanceolate-cuneate, glabrescent, with 3 apical teeth. Flower heads globose, 30–40 mm diam., yellow fading orange, style 18–35 mm long, pollen presenter ellipsoid. Aug.–Dec. Coastal limestones, AP (Soetanysberg to Still Bay).•

winteri Rourke Rounded shrub to 1.3 m. Leaves broadly obovate to cuneate, glabrescent, with 5–14 apical teeth. Flower heads globose, ± 30 mm diam., yellow fading pink, style ± 20 mm long, pollen presenter club-shaped. July–Dec. Sandstone summits, LB (Langeberg: Langkloof).•

wittebergense Compton Like **L. calligerum** but pollen presenter club-shaped. Aug.–Jan. Dry rocky slopes, KM, SE (Witteberg and Swartberg to Kouga Mtns).•

A.' Style > 35 mm long
D. Style 55–80 mm long, pollen presenter slender, bent at right angles to style or style sharply reflexed after anthesis

catherinae Compton Shrub to 3 m. Leaves oblanceolate-elliptic, with 3 or 4 teeth. Flower heads discoid, ± 150 mm diam., orange, style 70–80 mm long, twisted in clockwise direction, slender, flexed outward. Sept.–Dec. Sandstone slopes along streams, NW (Cedarberg to Hex River Mtns).•

formosum (Andrews) Sweet Like **L. catherinae** but leaves grey-felted. Sept.–Oct. Moist sandstone slopes, SW, LB, SE (Riviersonderend to Outeniqua Mtns).•

grandiflorum (Salisb.) R.Br. Like **L. gueinzii** but leaves ovate, with (1–)3 apical teeth, grey-felted. July–Dec. Mostly granite slopes, SW (Paardeberg to Paarl).•

gueinzii Meisn. Stout shrub to 3 m. Leaves lanceolate, glabrescent, with 1 (sometimes to 4) apical teeth. Flower heads subglobose, 100–140 mm diam., yellow and orange, style 70–75 mm long,

pollen presenter slender, flexed outward. Aug.–Dec. Clay slopes near streams, SW (Jonkershoek to Groenland Mtns).•

reflexum H.Buek ex Meisn. Single-stemmed shrub to 3 m. Leaves oblanceolate, grey-felted, with 2 or 3 apical teeth. Flower heads globose, 80–100 mm diam., scarlet, sometimes yellow, style 70–75 mm long, sharply reflexed at anthesis, pollen presenter slender. Aug.–Dec. Sandstone slopes near streams, NW (Pakhuis and N Cedarberg).•

D.' Style 30–60 mm long, pollen presenter swollen in line with style
E. Anthers subsessile on filaments, 1–2 mm long

cordifolium (Salisb. ex Knight) Fourc. Rounded, spreading shrub to 1.5 m. Leaves ovate-cordate, glabrescent, with 1–6 apical teeth. Flower heads depressed-globose, 100–120 mm diam., orange-scarlet, style spreading-incurved, 45–60 mm long, pollen presenter globose and obliquely truncate. Aug.–Jan. Rocky sandstone slopes, SW, AP (Kogelberg to Soetanysberg).•

lineare R.Br. Like **L. tottum** but leaves linear, channelled, involucral bracts hairy and cartilaginous and flower heads 60–90 mm diam., yellow to red. Mainly Sept.–Oct. Clay slopes, SW (Bain's Kloof to Hottentots Holland and Villiersdorp Mtns).•

patersonii E.Phillips Like **L. cordifolium** but tree to 4 m, leaves with 3–8 apical teeth, tepal claws silky. Aug.–Dec. Coastal limestone, SW, AP (Kleinmond to Agulhas).•

tottum (L.) R.Br. Rounded shrub to 1.3 m, with spreading branches. Leaves oblong-lanceolate, with 1–3 apical teeth. Flower heads depressed globose, 90–150 mm diam., pink, style ± 50 mm long, pollen presenter ovoid. Sept.–Jan. Rocky slopes, NW, SW (Cedarberg to Du Toitskloof).•

vestitum (Lam.) Rourke Rounded shrub to 2.5 mm. Leaves ovate to elliptic, with 2–4 apical teeth. Flower heads subglobose, 70–90 mm diam., orange to scarlet, style 50–60 mm long, incurved, pollen presenter obliquely subglobose. Mainly Aug.–Nov. Rocky sandstone slopes, NW, SW (Cedarberg to Botha; extinct Paarl to Cape Peninsula).•

E.' Anthers sessile
F. Perianth tube cylindrical

conocarpodendron (L.) H.Buek KREUPELHOUT Rounded shrub or tree to 5 m, with thickly hairy branches. Leaves cuneate, subglabrous, sometimes felted, with 3–10 apical teeth. Flower heads globose to ovoid, 70–90 mm diam., yellow, style 45–55 mm long, pollen presenter conical. Aug.–Dec. Dry rocky slopes, SW (Cape Peninsula to Stanford).•

cuneiforme (Burm.f.) Rourke Resprouting, many-stemmed shrub, to 2, sometimes 3 m, stems warty below. Leaves ± cuneate, with 3–10 apical teeth. Flower heads ovoid, 50–90 mm diam., yellow fading to red, style 38–55 mm long, pollen presenter conical. Mainly Aug.–Feb. Sandstone slopes and flats, SW, AP, KM, LB, SE (Riviersonderend Mtns and Swartberg to E Cape).•

glabrum E.Phillips Shrub to 2.5 m like **L. conocarpodendron** but mature stems glabrous, flower heads orange to red, style 50–60 mm long and involucral bracts acuminate, recurved at tips. Aug.–Oct. Moist lower slopes, SE (Outeniqua and Tsitsikamma Mtns).•

pluridens Rourke Shrub to 3 m like **L. conocarpodendron** but flower heads ± 60 mm diam., style 55–60 mm long and involucral bracts acuminate, recurved at tips. Sept.–Dec. Dry, N-facing, sandstone slopes, KM, LB, SE (Rooiberg to Robinson Pass).•

praemorsum (Meisn.) E.Phillips Large shrub or tree to 5 m. Leaves petiolate, oblanceolate, with 3–5 apical teeth. Flower heads subglobose, ± 70 mm diam., orange to red, style 50–60 mm long, pollen presenter narrowly ellipsoid, involucral bracts silky. Mainly July–Sept. Dry sandy flats and plateaus, NW (Namaqualand to Cedarberg). **gce**

F.' Perianth tube inflated above

erubescens Rourke Shrub to 2 m. Leaves oblong-oblanceolate, with 3(–7) apical teeth. Flower heads subglobose, 20–30 mm diam., pale yellow fading crimson, style 40–55 mm long, pollen presenter club-shaped. Aug.–Jan. Dry stony slopes and flats, KM, LB (Warmwaterberg to Langeberg: Garcia's Pass).•

fulgens Rourke Like **L. praecox** but leaves oblong to oblanceolate, with 2–4 apical teeth, flower heads 60–80 mm diam., pink fading orange-red, style 46–53 mm long. Aug.–Jan. Coastal sands, AP (Potberg to Cape Infanta).•

praecox Rourke Rounded shrub to 3 m. Leaves obovate-cuneate, with 5–11 apical teeth. Flower heads globose, ± 60 mm diam., yellow fading orange, style 38–48 mm long, pollen presenter narrowly conical. Apr.–Sept. Sandy flats, AP (Gouritsmond to Mossel Bay).•

profugum Rourke Like **L. spathulatum** but leaves glabrescent, style 45–62 mm long. Sept.–Dec. Sandstone slopes, NW (Piketberg).•

spathulatum R.Br. Mat-forming shrublet to 0.3 × 3 m. Leaves oblanceolate, secund, silvery hairy, with 1(–3) apical teeth. Flower heads globose, 50–70 mm diam., orange to red, style 30–40 mm long, incurved above, pollen presenter club-shaped. Mainly Oct. High sandstone slopes, NW (Cedarberg to Cold Bokkeveld, and Worcester: Kwadouwsberg).•

utriculosum Rourke Like **L. erubescens** but lower branches spreading horizontally, style incurved. Mainly Sept.–Nov. Dry, N-facing, sandstone slopes, SW (Riviersonderend Mtns and Potberg).•

MIMETES Salisb.• PAGODA BUSH, STOMPIE 13 spp., SW Cape

A. Involucral bracts brightly coloured, usually longer than inflorescence leaves

capitulatus (L.) R.Br. Rounded, single-stemmed shrub to 2 m. Leaves ovate to lanceolate, clasping stem, sometimes spreading, shaggy; inflorescence leaves similar. Flower heads in terminal spikes, white, involucral bracts orange-red, style red with yellow tip, pollen presenter club-shaped. June–Dec. Marshy sandstone slopes, SW (Kogelberg, Groenland and Kleinrivier Mtns).•

hirtus (L.) Salisb. ex Knight Single-stemmed shrub to 2 m. Leaves ovate to lanceolate, glabrescent; inflorescence leaves similar. Flower heads in terminal spikes, white, involucral bracts yellow with red tips, style red, pollen presenter needle-like, swollen at base. Mainly July–Aug. Peaty marshes, SW (Cape Peninsula to Elim).•

palustris Salisb. ex Knight Sprawling, single-stemmed shrub sometimes to 1 m. Leaves lanceolate-elliptic, clasping stem, shaggy; inflorescence leaves similar. Flower heads in terminal spikes, white, involucral bracts yellow-green, style yellow with red tip, fading red, pollen presenter needle-like, swollen at base. Mainly July–Nov. Marshy slopes, SW (Kleinrivier Mtns).•

pauciflorus R.Br. Single-stemmed shrub, 2–4 m. Leaves ovate, ascending, hairy when young; inflorescence leaves similar. Flower heads in narrow, terminal spikes, cream-coloured, involucral bracts orange-yellow, style orange with red tip, pollen presenter needle-like. Aug.–Nov. Moist, S-facing slopes, SE (Outeniqua and Tsitsikamma Mtns).•

A.' Involucral bracts much smaller than the often brightly coloured inflorescence leaves
B. Leaves glabrous or hairy but not silvery silky

chrysanthus Rourke Single-stemmed shrub to 2 m. Leaves lanceolate to elliptic, glabrescent; inflorescence leaves similar. Flower heads in terminal spikes, 25–35-flowered, bright yellow, style yellow, pollen presenter needle-like. Mainly Apr.–May. Sandstone slopes, KM (Gamkaberg and Herold: Perdeberg).•

cucullatus (L.) R.Br. ROOISTOMPIE Many-stemmed shrub to 1.4 m. Leaves oblong-elliptic; inflorescence leaves spooned, red. Flower heads in terminal spikes, white, style red, pollen presenter needle-like. Mainly Aug.–Mar. Sandstone slopes and flats, NW, SW, AP, KM, LB, SE (Cold Bokkeveld to Outeniqua and Kouga Mtns).•

fimbriifolius Salisb. ex Knight MAANHAARSTOMPIE Tree to 4 m. Leaves oblong to elliptic, margins hairy; inflorescence leaves spooned, dull red. Flower heads in terminal spikes, white, style yellow with red tips, pollen presenter needle-like. Mainly July–Dec. Rocky slopes, SW (Cape Peninsula).•

saxatilis E.Phillips Robust, single-stemmed shrub to 2.5 m. Leaves elliptic to ovate, glabrescent; inflorescence leaves similar. Flower heads in terminal spikes, yellow, style yellow, pollen presenter club-shaped. July–Dec. Limestone outcrops, AP (Pearly Beach to Struis Bay).•

B.' Leaves silvery silky

arboreus Rourke Like **M. argenteus** but much-branched shrub to 6 m and leaves lanceolate. Apr.–June. Moist, S-facing slopes, SW (Kogelberg).•

argenteus Salisb. ex Knight VAALSTOMPIE Single-stemmed shrub to 3.5 m. Leaves spreading, silvery silky, elliptic; inflorescence leaves spooned, carmine to pale mauve. Flower heads in terminal spikes, pink, involucral bracts woody, style yellow, pollen presenter needle-like. Mar.–June. Moist, S-facing slopes, SW (Franschhoek to Riviersonderend).•

hottentoticus E.Phillips & Hutch. Single-stemmed shrub to 3 m. Leaves ovate, silvery silky; inflorescence leaves oblong, silvery pink. Flower heads in terminal spikes, cream-coloured, style red, pollen presenter capitate, black. Jan.–Mar. Damp upper slopes, SW (Kogelberg).•

splendidus Salisb. ex Knight Single-stemmed shrub to 3 m. Leaves lanceolate to elliptic, silvery silky; inflorescence leaves oblong, spooned, orange-pink. Flower heads in terminal spikes, white, involucral bracts papery, style yellow, pollen presenter acute. May–July. Damp, S-facing slopes, LB, SE (Langeberg to Tsitsikamma Mtns).•

stokoei E.Phillips & Hutch. Like **M. hottentoticus** but inflorescence leaves golden, involucral bracts ovate, style yellow. May–Jan. Damp, S-facing, sandstone slopes, SW (Palmiet River Mtns).•

OROTHAMNUS Pappe ex Hook.• MARSH ROSE 1 sp., SW Cape

zeyheri Pappe ex Hook.f. Slender, mostly unbranched shrub, 2–4 m. Leaves imbricate, ovate, shaggy. Flower heads 1–few at branch tips, nodding, involucral bracts large, rounded, waxy, velvety, pink to red, concealing flower heads. Mainly Sept.–Oct. Moist, middle to upper slopes, SW (Kogelberg to Kleinrivier Mtns).•

PARANOMUS Salisb.• DOLL'S BUSH, POPPIESBOS 18 spp., SW Cape

A. Leaves distinctly dimorphic, the lower dissected, the upper ± obovate and entire

adiantifolius Salisb. ex Knight Sparsely branched shrub to 1.7 m. Leaves dimorphic, the lower dissected, the upper obovate, margins cartilaginous. Flower heads ± 13 mm long, in subglobose spikes, pink, style hairy below, pollen presenter top-shaped. Sept.–Nov. Sandstone slopes, SW (Groenland and Riviersonderend Mtns).•

longicaulis Salisb. ex Knight Sparsely branched shrub to 2.5 m. Leaves dimorphic, the lower dissected, the upper clasping, spathulate-truncate, margins cartilaginous. Flower heads ± 18 mm long, in terminal, subglobose spikes, pink, subtended by dry, undulate, brown bracts, style ?glabrous. Mainly Sept.–Dec. Sandstone slopes, LB (Langeberg: Garcia's Pass to Attaquas Kloof).•

reflexus (E.Phillips & Hutch.) Fourc. Like **P. sceptrum-gustavianus** but flower heads 30–35 mm long and flowers reflexing at anthesis. June–Aug. Sandstone slopes, SE (Van Staden's Mtns).•

roodebergensis (Compton) Levyns Shrub to 2.5 m. Leaves dimorphic, the lower dissected, the upper obovate, margins cartilaginous. Flower heads ± 12 mm long, in cylindrical spikes, pink, involucral bracts yellow tipped red, honey-scented, style glabrous. Aug.–Oct. Sandstone slopes, KM (Touwsberg to Rooiberg).•

sceptrum-gustavianus (Sparrm.) Hyl. Robust shrub to 1.8 m. Leaves dimorphic, the lower dissected, the upper obovate-rhomboid. Flower heads 16–22 mm long, in cylindrical, terminal spikes, cream-coloured, strongly scented, style glabrous. July–Mar. Sandstone upper slopes, SW, LB (Hottentots Holland Mtns to Langeberg: Swellendam).•

spathulatus (Thunb.) Kuntze Resprouting shrub to 2.5 m. Leaves dimorphic, glaucous, the lower dissected, the upper obovate. Flower heads 10–12 mm long, in subglobose spikes, pink, style glabrous. May–Dec. Sandstone slopes, KM, LB (Gamkaberg and Langeberg: Tradouw to Garcia's Pass).•

A.' Leaves all dissected, the upper sometimes less so
B. Inflorescence subglobose, to 25 mm long

abrotanifolius Salisb. ex Knight Low, much-branched shrublet to 90 cm. Leaves dissected, 15–25 mm long. Flower heads 7–9 mm long, in globose spikes, purple. May–Dec. Clay and gravel flats, SW (Grabouw, Elim flats and Potberg).•

capitatus (R.Br.) Kuntze Shrub to 1 m. Leaves dissected, glabrescent, 10–20 mm long. Flower heads ± 9 mm long, in globose spikes, dull purple, style sparsely hairy. Oct.–Dec. Sandstone slopes, SW (Du Toitskloof and Riviersonderend Mtns).•

centaureoides Levyns Branched shrub to 1.5 m. Leaves dissected, becoming linear above, 10–60 mm long. Flower heads ± 18 mm long, in sessile, globose spikes, pink and maroon, subtended by dark brown bracts, style ± glabrous. June–Nov. Dry upper slopes, KM (Klein Swartberg).•

dregei (H.Buek ex Meisn.) Kuntze Shrub to 1.7 m. Leaves dissected, the upper linear, to 50 mm long. Flower heads ± 14 mm long, in globose spikes, fragrant, cream-coloured, style glabrous. May–Oct. Dry, upper sandstone slopes, KM, SE (Witteberg to Kouga Mtns).•

esterhuyseniae Levyns Shrub to 70 cm. Leaves dissected or the upper entire, 20–50 mm long. Flower heads ± 8 mm long, in globose spikes, cream-coloured, style glabrous. Aug.–Nov. Dry upper slopes, SE (Outeniqua and Kouga Mtns).•

B.' Inflorescence cylindrical, > 25 mm long

bolusii (Gand.) Levyns Much-branched shrub to 1 m. Leaves dissected, to 50 mm long. Flower heads 10–12 mm long, in cylindrical spikes, purple, style thinly hairy below. June–Nov. Sandstone slopes, SW (Groenland Mtns to Kleinrivier Mtns).•

bracteolaris Salisb. ex Knight Shrub to 2.5 m. Leaves dissected, to 60 mm long. Flower heads ± 14 mm long, in cylindrical spikes, purple, style thinly hairy below. Aug.–Oct. Rocky sandstone slopes and plateaus, NW (Bokkeveld Mtns to Olifants River Mtns).•

candicans (Thunb.) Kuntze Much-branched shrub to 2 m. Leaves much dissected, silvery hairy when young. Flower heads 10–13 mm long, in cylindrical spikes, pale yellow, style hairy below. June–Nov. Sandstone slopes, NW, LB (Hex River Mtns to Langeberg: Mossel Bay).•

dispersus Levyns Like **P. bracteolaris** but leaves sparsely dissected and lobes flattened. Mainly Aug.–Nov. Sandstone slopes, NW, SW, KM, LB, SE (Grootwinterhoek to Outeniqua Mtns).•

lagopus (Thunb.) Salisb. Shrub to 1.3 m, lower branches sprawling. Leaves dissected, 10–50 mm long. Flower heads ± 9 mm long, in cylindrical spikes, purple, style thinly hairy below. Sept.–Nov. Sandstone slopes, NW, SW (Cold Bokkeveld to Elandskloof Mtns).•

spicatus (P.J.Bergius) Kuntze PERDEBOS Like **P. bracteolaris** but style woolly below. Sept.–Nov. Sandstone slopes, SW (Hottentots Holland Mtns to Kogelberg).•

tomentosus (E.Phillips & Hutch.) N.E.Br. Shrub to 3 m, with white-woolly branches. Leaves dissected, recurved at tips, silvery hairy. Flower heads ± 17 mm long, in cylindrical spikes, whitish, style hairy below. Aug.–Oct. High sandstone slopes, NW (Cedarberg).•

PROTEA L. PROTEA, SUGARBUSH ± 115 spp., southern and tropical Africa, mainly W Cape

A. Flower heads axillary, produced close to the ground, usually clustered; involucral bracts velvety dark brown or purple

amplexicaulis (Salisb.) R.Br. Sprawling, grey-green shrublet to 40 cm. Leaves spreading, ovate and clasping at base. Flower heads axillary, borne near base of branches, cup-shaped, 60–80 mm diam., involucral bracts oblanceolate, ivory, chocolate-velvety beneath, style 25–30 mm long. June–Sept. Sandstone slopes, NW, SW (Cold Bokkeveld to Riviersonderend Mtns).•

cordata Thunb. Erect, resprouting shrublet to 50 cm. Leaves heart-shaped, glaucous blue-green. Flower heads axillary, clustered at base of branches, cup-shaped, 40–50 mm diam., involucral bracts papery, brown, style ± 30 mm long. June–July. Shale slopes, SW, AP, LB (Du Toitskloof to Langeberg: Swellendam and Soetanysberg).•

decurrens E.Phillips Resprouting shrublet to 60 cm. Leaves linear. Flower heads axillary, clustered near base, cup-shaped, 30–50 mm diam., involucral bracts pinkish brown, silvery to rusty hairy, style 30–35 mm long. Mainly July–Aug. Gravelly flats, SW, LB (Shaw's Pass to Langeberg).•

humiflora Andrews Erect to sprawling shrub to 1 m. Leaves linear-falcate, glaucous. Flower heads axillary, cup-shaped, 60–80 mm diam., involucral bracts ivory with pink tips, purple-black velvety outside, style 30–40 mm long. July–Sept. Dry, sandstone slopes, SW, KM, LB (Du Toitskloof to Gamkaberg).•

subulifolia (Salisb. ex Knight) Rourke Like **P. decurrens** but leaves needle-like and style 25–30 mm long. Mainly July–Sept. Sandy to clay flats, SW, AP, LB (Stettynskloof to Langeberg and Agulhas plain).•

A.' Flower heads terminal, usually solitary; stems aerial or subterranean
B. Stems prostrate or mostly underground

Group 1:
Plants tufted and acaulescent

aspera E.Phillips Like **P. scorzonerifolia** but leaves flat, rough, flower heads 40–60 mm diam. and style 50–70 mm long. Mainly Sept.–Oct. Clay and stony flats, SW, LB (Kleinrivier Mtns to Agulhas and Langeberg: Garcia's Pass to Cloete's Pass).•

lorea R.Br. Like **P. scorzonerifolia** but leaves needle-like and style 75–90 mm long. Jan.–Feb. Stony slopes, NW, SW, LB (Ceres to Kogelberg to Langeberg).•

piscina Rourke Like **P. scorzonerifolia** but leaf margins horny, flower heads 40–50 mm diam., pale yellow, sometimes pink-flushed and style 30–35 mm long. June–Jan. Sandstone slopes, NW, LB (Cedarberg to Ceres, Langeberg: Swellendam to Riversdale).•

restionifolia (Salisb. ex Knight) Rycroft Like **P. scorzonerifolia** but leaves needle-shaped, warty, sparsely coarse white-hairy, involucral bracts brown velvety at tips and style 45–60 mm long. Aug.–Oct. Dry rocky slopes, NW, SW (Cold Bokkeveld, Wolseley to Botrivier).•

scabra R.Br. Like **P. scorzonerifolia** but leaves needle-like to oblanceolate-channelled, rough, flower heads cup-shaped, brown and cream-coloured and style 30–35 mm long. Mainly July–Oct. Sandstone slopes, SW (Hottentots Holland to Riviersonderend Mtns).•

scorzonerifolia (Salisb. ex Knight) Rycroft Rhizomatous, mat-forming, resprouting shrublet to 1 m diam. Leaves tufted, needle-shaped to linear and channelled, margins scabrid. Flower heads obconic, involucral bracts creamy yellow to pink, silky, 50–80 mm diam., style 60–75 mm long. Aug.–Dec. Stony slopes, SW (Tygerberg and Bain's Kloof to Hottentots Holland Mtns).•

Group 2.
Involucral bracts acuminate, pinkish, white-woolly outside

cryophila Bolus SNOW PROTEA Like **P. pruinosa** but flower heads larger, 130–160 mm diam. and style 65–90 mm long. Jan.–Apr. Rocky ridges and summits, NW (Cedarberg).•

pruinosa Rourke Prostrate, mat-forming shrublet to 1.5 m diam. Leaves petiolate, oblanceolate, rough. Flower heads cup-shaped, 80–120 mm diam., involucral bracts acuminate, red, densely white-woolly outside, style 55–60 mm long. Jan.–Feb. Sandstone ridges and summits, KM (Swartberg).•

scabriuscula E.Phillips Like **P. pruinosa** but leaves linear, flower heads obconic, remaining ± closed, style 30–35 mm long. Oct.–Jan., mainly Dec. High sandstone slopes, NW (Cold Bokkeveld and Hex River Mtns).•

scolopendriifolia (Salisb. ex Knight) Rourke Rhizomatous, clumped, resprouting shrublet to 1 m diam. Leaves petiolate, oblanceolate-spathulate, rough, glabrescent. Flower heads cup-shaped, 60–120 mm diam., involucral bracts acuminate, carmine, densely white-woolly outside near tips, style 30–45 mm long. Sept.–Dec. Mostly shale bands at high altitude, NW, SW, KM, LB, SE (Cedarberg to Kouga Mtns).•

Group 3.
Plants sprawling with prostrate stems, sometimes underground but then bracts glabrescent except on margins

acaulos (L.) Reichard GROUND PROTEA Mat-forming, resprouting shrublet. Leaves secund, linear-oblanceolate to obovate. Flower heads cup-shaped, 30–60 mm diam., involucral bracts green with red tips, style 25–35 mm long. June–Nov. Sandy flats and lower slopes, NW, SW, AP (Cedarberg to Agulhas).•

angustata R.Br. Mat-forming, resprouting shrublet to 30 cm with short tufted stems. Leaves linear, sometimes channelled. Flower heads cup-shaped, 30–45 mm diam., involucral bracts yellowish flushed red, style 25–30 mm long. July–Oct. Coastal flats and slopes, SW (Groenland Mtns to Kleinrivier Mtns).•

caespitosa Andrews Compact, rounded shrublet to 70 cm, with tangled branches. Leaves ovate to oblanceolate, glabrescent, margins often silky. Flower heads obconic, nested among brown papery leaves, 45–60 mm diam., involucral bracts pink, silky, margins white to tawny and bearded, style 40–45 mm long. July–Nov. Shale slopes at high alt., SW (Du Toitskloof to Riviersonderend Mtns).•

convexa E.Phillips Like **P. laevis** but stems sticky to glazed, leaves broadly obovate. Aug.–Nov. Dry, rocky, sandstone slopes, NW, KM (N Cedarberg, Witteberg and Klein Swartberg).•

intonsa Rourke Like **P. vogtsiae** but leaves linear to needle-like. Sept.–Nov. Dry sandstone slopes, KM, SE (Swartberg to Baviaanskloof Mtns).•

laevis R.Br. Mat-forming shrublet to 1 m diam. Leaves secund, oblong-oblanceolate, glaucous. Flower heads cup-shaped, 40–70 mm diam., involucral bracts glaucous, yellow-green, flushed red within, style 28–35 mm long. Mainly Sept.–Nov. Sandstone or shale slopes, NW, KM (Cedarberg to Hex River Mtns, Waboomsberg).•

montana E.Mey. ex Meisn. Mat-forming shrublet to 4 m diam. Leaves secund, needle-like to linear. Flower heads cup-shaped, 30–50 mm diam., involucral bracts green flushed carmine, silky, the outermost with leaf-like tips, style 25–35 mm long. Feb.–June. Sandstone slopes at high alt., KM (Swartberg and Kammanassie Mtns).•

pudens Rourke Sprawling or prostrate shrublet to 1 m diam. Leaves secund, linear-spathulate, often ciliate. Flower heads cup-shaped, 30–60 mm diam., deep pink, florets tipped black, forming a woolly cone longer than bracts, style 30–45 mm long. June–Aug. Loamy clay flats, AP (Agulhas coast).•

revoluta R.Br. Like **P. acaulos** but leaves linear, margins revolute. Nov.–Jan. Dry sandstone slopes, NW, KM (Cedarberg to Witteberg).•

tenax (Salisb.) R.Br. Trailing, resprouting shrub to 4 m diam. Leaves secund, linear-oblanceolate. Flower heads cup-shaped, 40–60 mm diam., involucral bracts green to yellow, flushed pink, margins silky, style 25–30 mm long. Mainly May–Sept. Rocky sandstone slopes, KM, SE (Swartberg and Outeniqua to Great Winterhoek Mtns).•

venusta Compton Mat-forming shrublet to 3 m diam. Leaves secund to subsecund, oblanceolate. Flower heads top-shaped, 80–100 mm diam., honey-scented, involucral bracts ivory flushed pink, style ± 55 mm long. Mainly Jan.–Feb. S-facing, upper sandstone slopes, KM (Groot Swartberg and Kammanassie Mtns).•

vogtsiae Rourke Dwarf, tufted shrublet to 25 cm. Leaves tufted, oblanceolate-spathulate, glaucous, slightly rough. Flower heads subglobose, 35–40 mm diam., involucral bracts glabrescent, green to carmine, style 25–30 mm long. Aug.–Nov. High sandstone slopes, SE (Outeniqua to Baviaanskloof Mtns).•

B.' Stems mainly aerial, erect to sprawling
C. Style 15–35(–40) mm long
D. Leaves needle-like

nana (P.J.Bergius) Thunb. MOUNTAIN ROSE Rounded shrub to 1.3 m. Leaves needle-like. Flower heads nodding, cup-shaped, 30–45 mm diam., involucral bracts red to green, ciliate, style 20–25 mm long. July–Oct. Middle to upper sandstone slopes, NW, SW (Grootwinterhoek to Du Toitskloof).•

pityphylla E.Phillips Suberect to sprawling shrublet to 1 m. Leaves subsecund, needle-like. Flower heads nodding, cup-shaped, 50–80 mm diam., involucral bracts deep red, style 30–35 mm long. Mainly May–July. Upper sandstone slopes, NW, SW (Olifants River Mtns to Hex River Mtns).•

witzenbergiana E.Phillips Sprawling to mat-forming shrublet, hairy on stems and leaves. Leaves secund, needle-like, glaucous. Flower heads nodding, cup-shaped, 40–70 mm diam., involucral bracts reddish brown, style 25–30 mm long. Mar.–June. Upper sandstone slopes, NW (Cedarberg to Hex River Mtns).•

D.' Leaves linear to obovate, flat or channelled

acuminata Sims Rounded shrub to 2 m. Leaves linear-spathulate, glaucous. Flower heads globose, 25–35 mm diam., involucral bracts dark red, style ± 20 mm long. Mainly July–Aug. Dry sandstone slopes, NW, SW (Bokkeveld Mtns to Olifants River Mtns and Stettynskloof).•

canaliculata Andrews Rounded shrub to 1.2 m. Leaves linear-spathulate, channelled above. Flower heads bowl-shaped, 35–60 mm diam., involucral bracts pink to red, style 20–30 mm long. Mar.–June. Rocky sandstone slopes, NW, KM (Hex River Mtns to Waboomsberg and Swartberg).•

denticulata Rourke Densely branched, resprouting shrub to 1 m. Leaves linear, channelled, rigid and rough, softly hairy when young. Flower heads cup-shaped, 35–40 mm diam., involucral bracts reddish brown velvety, style 25–35 mm long. Aug.–Oct. Sandstone slopes, SW (Potberg).•

effusa E.Mey. ex Meisn. Erect or sprawling shrub to 1.5 m. Leaves oblanceolate, grey-blue. Flower heads cup-shaped, 60–100 mm diam., involucral bracts dark red, sometimes greenish yellow, style 30–35 mm long. May–Sept. Sandstone slopes, NW, SW (Cold Bokkeveld to Du Toitskloof and Naudésberg).•

foliosa Rourke Rounded, resprouting shrub to 1.5 m. Leaves elliptic-oblanceolate, glabrescent. Flower heads subglobose, concealed by upper leaves, often clustered, 30–40 mm diam., involucral bracts greenish cream, sometimes flushed pink, style ± 25 mm long. Mainly May–June. Sandstone slopes, SE (Van Staden's Mtns to Grahamstown).

mucronifolia Salisb. Rounded shrublet to 1 m. Leaves linear, rigid, pungent. Flower heads bowl-shaped, ± 50 mm diam., involucral bracts acuminate, white and pink, style ± 16 mm long. Oct.–Dec. Gravel flats, SW (Hermon to Saron).•

odorata Thunb. Like **P. mucronifolia** but leaves grooved below, obliquely pungent, flower heads 20–30 mm diam. Mainly Mar.–Apr. Gravel flats, SW (Kalbaskraal to Klapmuts).•

pendula R.Br. Rounded shrub to 3 m. Leaves oblanceolate, grey-felted when young. Flower heads nodding, cup-shaped, 40–70 mm diam., involucral bracts silky, purple-red to pink, sometimes green below, style 25–30 mm long. May–Aug. Dry upper slopes, NW (Cedarberg to Cold Bokkeveld).•

recondita H.Buek ex Meisn. Sprawling shrublet to 1 m. Leaves lanceolate to broadly obovate, often flushed purple. Flower heads concealed by upper leaves, nodding, cup-shaped, 70–90 mm diam., involucral bracts green, style 30–35 mm long. Mainly May–July. Rocky, upper sandstone slopes, NW (Cedarberg to Witsenberg).•

scolymocephala (L.) Reichard Erect shrub to 1.5 m. Leaves linear-spathulate. Flower heads bowl-shaped, 35–45 mm diam., involucral bracts creamy green, style 12–25 mm long. Mainly Aug.–Oct. Sandy flats and lower slopes, NW, SW (Gifberg to Hermanus).•

sulphurea E.Phillips Dense, low spreading shrub to 0.5 × 7 m. Leaves elliptic-oblanceolate. Flower heads nodding, cup-shaped, 90–130 mm diam., involucral bracts yellow inside, green with red tips outside, style 30–38 mm long. Apr.–Aug. Dry rocky slopes, NW, KM (Hex River Mtns to Witteberg and Swartberg).•

C.' Style 40–130 mm long

E. Style longer than involucral bracts or more conspicuous

aurea (Burm.f.) Rourke Shrub or tree to 5 m. Leaves oblong-ovate. Flower heads obconic (shuttlecock-like), 90–120 mm long, involucral bracts pink to creamy green, silky, style 85–105 mm long. Mainly Jan.–June. S-facing slopes, SW, LB, SE (Riviersonderend to Outeniqua Mtns).•

glabra Thunb. CHESTNUT SUGARBUSH Resprouting shrub or tree to 5 m. Leaves elliptic-oblanceolate. Flower heads ovoid-subglobose, 70–120 mm diam., involucral bracts short, dull brownish, glabrous or velvety, style 40–50 mm long. Mainly Aug.–Sept. Dry sandstone slopes and plateaus, NW (Bokkeveld Mtns to Cold Bokkeveld).•

inopina Rourke Resprouting shrub to 1 m. Leaves elliptic-oblanceolate, blue-green. Flower heads ovoid, 100–120 mm diam., involucral bracts short, green below, brown velvety above, style ± 85 mm long. Sept.–Dec. Sandstone slopes, NW (S Olifants River Mtns).•

lacticolor Salisb. Like **P. punctata** but leaves cordate at base. Feb.–May. Moist sandstone or shale slopes, SW (Bain's Kloof to Hottentots Holland Mtns).•

lanceolata E.Mey. ex Meisn. Shrub to 4 m. Leaves oblanceolate. Flower heads obconic, 50–70 mm diam., involucral bracts short, green with brown margins, style 55–60 mm long. Mainly May–July. Calcareous sands, AP (Cape Infanta to Mossel Bay).•

mundii Klotzsch Shrub or tree to 8(–12) m. Leaves oblanceolate, glabrescent. Flower heads oblong-obconic, 65–80 × 40–65 mm, involucral bracts white to pink, silky, fringed, style 55–65 mm long. Mainly Feb.–Apr. Moist slopes and forest margins, SW, SE (Kogelberg to Kleinrivier Mtns, Outeniqua to Great Winterhoek Mtns).•

nitida Mill. WABOOM Tree 5–10 m or dwarf form < 1 m, resprouting from base or trunk. Leaves elliptic, grey-glaucous. Flower heads cup-shaped, involucral bracts short, silver-grey, sometimes silky, style 60–80 mm long. Mostly May–Aug. Sandstone slopes, NW, SW, KM, LB, SE (Bokkeveld Mtns to Great Winterhoek Mtns).•

punctata Meisn. Shrub to 4 m. Leaves ovate-obovate, glabrescent, glaucous. Flower heads bowl-shaped, 20–25 mm diam., involucral bracts pink or white, silky and fringed, style ± 50 mm long. Mainly Mar.–Apr. Rocky upper slopes, NW, SW, KM, SE (Cedarberg to Kouga Mtns).•

rupicola Mund ex Meisn. Erect or spreading shrub to 2 m. Leaves linear-oblanceolate. Flower heads ovoid, 40–100 mm diam., involucral bracts short, deep pink to brown, subglabrous, style 45–55 mm long. Sept.–Feb. Sandstone cliffs at high alt., NW, SW, LB, SW (Grootwinterhoek to Great Winterhoek Mtns).•

subvestita N.E.Br. Large shrub or tree to 5 m. Leaves elliptic-oblanceolate, densely hairy when young. Flower heads oblong-obconic, 30–40 mm diam., involucral bracts cream-coloured to pink, glabrous or silky, fringed, inner recurved at tips, style ± 55 mm long. Mainly Jan.–Mar. Rocky sandstone slopes, KM (Klein Swartberg and E Cape to Mpumalanga).

E.' Style shorter than involucral bracts and less conspicuous
F. Inner involucral bracts with a distinct beard

burchellii Stapf Shrub to 2 m. Leaves linear-oblanceolate. Flower heads obconic, 50–70 mm diam., involucral bracts shiny, cream-coloured to carmine, inner fringed or bearded, style 55–65 mm long. June–Aug. Mainly clay slopes and loam, NW, SW (Piketberg to Hottentots Holland Mtns).•

coronata Lam. Erect shrub or small tree to 5 m. Leaves lanceolate. Flower heads on hairy stems, oblong, ± 100 × 60 mm diam., involucral bracts green, with a white beard, style ± 60 mm long. Mainly Apr.–June. Clay slopes, SW, LB, SE (Cape Peninsula to Zuurberg).

grandiceps Tratt. Rounded shrub to 2 m. Leaves ovate to obovate, glaucous. Flower heads oblong, 100–140 × ± 70 mm, involucral bracts brick-red, glabrous or shortly hairy, white- to purple-bearded, style ± 65 mm long. Mainly Dec.–Jan. Sandstone slopes, SW, KM, LB, SE (Cape Peninsula and Paarl to Great Winterhoek Mtns).•

holosericea (Salisb. ex Knight) Rourke Erect or sprawling shrub to 1.2 m. Leaves oblong, glabrescent, glaucous. Flower heads on hairy branches, obconic, 60–80 mm diam., involucral bracts cream-coloured, silky and with dense blackish beard, style ± 50 mm long. Sept.–Oct. High rocky ridges, NW (Kwadouwsberg: Saw Edge Peak).•

laurifolia Thunb. Small tree to 8 m. Leaves oblong-oblanceolate, grey-glaucous. Flower heads oblong, 100–130 × 40–60 mm, involucral bracts silky, cream-coloured to pink, inner bracts with a dense blackish beard, outer with brown, horny margins, style 65–70 mm long. Mainly May–July. Sandstone slopes, often dry sites, NW, SW, KM (Bokkeveld Mtns to Witteberg and Riviersonderend Mtns).•

lepidocarpodendron (L.) L. BLACK-BEARDED PROTEA Like **P. neriifolia** but involucral bracts with black hairs below beard. Apr.–Aug. Mainly sandstone slopes, usually with ferricrete or manganese, SW (Cape Peninsula to Kleinrivier Mtns).•

lorifolia (Salisb. ex Knight) Fourc. Rounded shrub or small tree to 3(–5) m. Leaves oblanceolate, glaucous. Flower heads oblong-obconic, 70–130 × 25–50 mm, involucral bracts pink or cream-coloured, silky with a short, white to dark beard. Apr.–June. Dry sandstone slopes, NW, SW, KM, LB, SE (Cold Bokkeveld to Somerset East).

magnifica Link QUEEN PROTEA Sprawling, grey-leaved shrub to 2.5 m. Leaves oblong-oblanceolate, undulate, glaucous. Flower heads obconic, to 140 × 150 mm, pink or cream-coloured, silky, recurved above, with a white or black beard, style 60–70 mm long. June–Jan. Upper sandstone slopes, NW, SW, KM, LB (Cedarberg to Klein Swartberg and Langeberg).•

neriifolia R.Br. Like **P. laurifolia** but leaves narrowly oblong, green. Feb.–Nov. Sandstone and clay slopes, SW, KM, LB, SE (Kleinwinterhoek Mtns to Port Elizabeth).•

speciosa (L.) L. Resprouting shrub to 1.2 m. Leaves oblanceolate to obovate. Flower heads on shortly hairy stems, oblong, 90–140 × ± 70 mm, involucral bracts greenish to pink, silky with a heavy brown, sometimes white beard, style 65–75 mm long. Mainly Sept.–Oct. Sandstone flats and slopes, SW, LB (Cape Peninsula to Langeberg).•

stokoei E.Phillips Shrub to 2 m. Leaves ovate-obovate. Flower heads on softly hairy stems, oblong, 90–130 × ± 60 mm, involucral bracts pink, silky and with heavy brown beard, style 65–70 mm long. Mainly May–June. Sandstone seeps, SW (Hottentots Holland Mtns to Betty's Bay).•

F.' Inner involucral bracts without a beard

aristata E.Phillips Rounded shrub to 2.5 m. Leaves linear, sulphurous, black tipped. Flower heads obconic, 100–120 mm diam., involucral bracts crimson, inner narrow, velvety, style ± 70 mm long. Mainly Nov.–Dec. Lower sandstone slopes, KM (Klein Swartberg).•

compacta R.Br. BOT RIVER PROTEA Like **P. obtusifolia** but leaves oblong-ovate, cordate at base. Mainly May–June. Coastal slopes and flats, SW (Betty's Bay to Bredasdorp Mtns).•

cynaroides (L.) L. KING PROTEA Resprouting shrub to 3 m. Leaves long-petiolate, elliptic to rhomboid. Flower heads large, obconic to cup-shaped, 120–300 mm diam., involucral bracts pale or deep pink, often silky outside, style 80–95 mm long. Jan.–Dec. Moist sandstone slopes, NW, SW, LB, SE (Gifberg to Port Elizabeth).•

eximia (Salisb. ex Knight) Fourc. Like **P. obtusifolia** but leaves oblong-ovate, cordate at base, florets black-tipped. Mainly Aug.–Oct. Upper sandstone and shale slopes, NW, KM, LB, SE (Keeromsberg to Van Staden's Mtns).•

longifolia Andrews Sprawling shrub to 1.5 m. Leaves linear. Flower heads oblong-obconic, 40–90 mm diam., involucral bracts greenish to pink, innermost linear and densely fringed, florets form-

ing a black, woolly cone longer than bracts, style 40–65 mm long. Mainly June–July. Gravel flats and sandy lower slopes, SW, AP (Hottentots Holland Mtns to Agulhas).•

obtusifolia H.Buek ex Meisn. Large shrub to 4 m. Leaves elliptic-oblanceolate, glabrescent. Flower heads oblong-obconic, 90–120 × 50–80 mm, involucral bracts cream-coloured to red, the inner spathulate, style ± 65 mm long. Mainly June–Aug. Limestone flats and hills, SW, AP (Hawston to Still Bay).•

repens (L.) L. SUGARBUSH, SUIKERBOS Shrub or tree to 4.5 m. Leaves linear-spathulate. Flower heads narrowly obconic, 100–160 × 70–90 mm, involucral bracts cream-coloured to red, sticky, style 70–90 mm long. Jan.–Dec. Sandstone and clay flats and slopes, NW, SW, AP, KM, LB, SE (Bokkeveld Mtns to Grahamstown).

susannae E.Phillips STINKBLAARSUIKERBOS Like **P. obtusifolia** but leaves with a sulphurous odour, and involucral bracts with brown, sticky coating. Mainly May–July. Coastal limestone and sand, SW, AP (Stanford to Still Bay).•

SERRURIA Salisb.• SPIDERHEAD, SPINNEKOPBOS 56 spp., SW Cape

*A. Flowers strongly curved in bud (see also **S. aitonii** and **S. reflexa**)*
B. Flower heads several in clusters

adscendens (Lam.) R.Br. Like **S. decipiens** but leaves 25–60 mm long, peduncle hairy and style 7–8 mm long. July–Oct. Coastal sandstone slopes, SW (Hottentots Holland to Kleinrivier Mtns).•

bolusii E.Phillips & Hutch. Sprawling shrublet to 40 cm. Leaves dissected, glabrescent, 25–35 mm long. Flower heads few, adpressed-hairy, silvery pink, fragrant, style ± 6 mm long, pollen presenter club-shaped, floral bracts grooved. Sept.–Nov. Sandstone slopes, SW, AP (Elim hills and Soetanysberg).•

collina Salisb. ex Knight Sprawling, mat-forming shrublet to 3 m diam. Leaves secund, dissected, 50–150 mm long. Flower heads 8–15, clustered, adpressed-hairy, cream-coloured, fragrant, style 8–10 mm long, pollen presenter filiform, involucral bracts absent. July–Oct. Sandy slopes, SW (Cape Peninsula).•

decipiens R.Br. Rounded shrub to 1 m. Leaves dissected, glabrescent, 30–45 mm long. Flower heads 5–10, clustered, adpressed-hairy, creamy white, fragrant, style 8–9 mm long, pollen presenter club-shaped, involucral bracts absent. July–Oct. Sandy flats and slopes, mainly coastal, NW, SW (Olifants River Mtns to Cape Flats).•

glomerata (L.) R.Br. Compact, rounded shrublet to 50 cm. Leaves dissected, 25–70 mm long. Flower heads 4–8, clustered, adpressed-hairy, cream-coloured, fragrant, style 8–10 mm long, pollen presenter club-shaped, involucral bracts few. Aug.–Oct. Damp sandy flats, SW (Cape Peninsula).•

nervosa Meisn. Erect shrub to 80 cm. Leaves dissected, glabrescent, 50–70 mm long. Flower heads 1–3, silvery pink, fragrant, style ± 7 mm long, pollen presenter club-shaped, involucral bracts grooved. July–Nov. Sandstone slopes, SW (Kleinrivier and Bredasdorp Mtns).•

roxburghii R.Br. Sprawling shrub to 1 m. Leaves dissected, glabrescent, 10–25 mm long. Flower heads 3–7, clustered, silvery pink, fragrant, style 5–10 mm long, pollen presenter club-shaped, involucral bracts ovate. Sept.–Nov. Sandy flats, SW (Riebeek-Kasteel to Paarl).•

rubricaulis R.Br. Sprawling to prostrate, resprouting shrublet to 20 cm. Leaves secund, dissected, 35–45 mm long. Flower heads 5–25, clustered, adpressed-hairy, silvery pink, style ± 8 mm long, pollen presenter club-shaped, involucral bracts absent. Sept.–Oct. Lower sandstone slopes flats, SW (Hottentots Holland to Kleinrivier Mtns).•

*B.' Flower heads solitary(see also **S. nervosa**)*
C. Style hairy below

acrocarpa R.Br. Rounded, resprouting shrublet to 50 cm. Leaves dissected, glabrescent, 20–50 mm long. Flower heads solitary, silvery pink to greenish, adpressed silky, style hairy below, ± 7 mm long, pollen presenter club-shaped, involucral bracts ovate. Mainly July–Dec. Sandy flats and slopes, NW, LB (Cold Bokkeveld to Potberg).•

balanocephala Rourke Rounded, resprouting or reseeding shrublet to 1 m. Leaves dissected, grey-hairy, 40–60 mm long. Flower heads solitary, silvery pink, style hairy below, ± 13 mm long, pollen presenter acorn-shaped, involucral bracts ovate. Aug.–Nov. Sandstone slopes, LB (Langeberg: Montagu to Swellendam).•

dodii E.Phillips & Hutch. Shrublet to 1 m. Leaves dissected, silvery silky, 30–50 mm long. Flower heads solitary, silvery adpressed-hairy, fragrant, style hairy below, ± 12 mm long, pollen presenter club-shaped, involucral bracts ovate. Aug.–Nov. Sandstone slopes, NW (Hex River Mtns and Keeromsberg).•

flava Meisn. Shrublet to 80 cm. Leaves dissected, silvery silky, 12–35 mm long. Flower heads solitary, yellow, silvery silky adpressed-hairy, style hairy below, ± 15 mm long, pollen presenter slender, involucral bracts ovate. Aug.–Dec. Sandstone slopes and plateaus, NW (N Cedarberg).•

gremialis Rourke Sprawling, mat-forming, resprouting shrublet to 50 cm. Leaves secund, dissected, crispy hairy when young, 10–30 mm long. Flower heads solitary, silvery pink, adpressed silky, style hairy below, 12–15 mm long, pollen presenter club-shaped. July–Feb. N-facing sandstone slopes, SW (Stettynskloof and Riviersonderend Mtns, ?Potberg).•

pedunculata (Lam.) R.Br. Erect shrublet to 1 m. Leaves dissected, grey hairy, 15–20 mm long. Flower heads solitary, silvery pink, fragrant, style hairy below, 8–12 mm long, pollen presenter club-shaped, involucral bracts ovate. Aug.–Dec. Sandstone slopes, NW, SW (Cedarberg to Riviersonderend Mtns).•

C.' Style glabrous

cygnea R.Br. Mat-forming shrublet to 1 m diam. Leaves secund, dissected, glabrescent, 25–70 mm long. Flower heads solitary, silvery pink to brown, fragrant, style 9–12 mm long, pollen presenter club-shaped, involucral bracts ovate. Sept.–Nov. Sandstone and clay slopes, NW, SW (Cedarberg to Slanghoek Mtns).•

effusa Rourke Sprawling to mat-forming shrublet to 2 m diam. Leaves secund, dissected, glabrous or grey-hairy, 40–90 mm long. Flower heads_solitary, adpressed-hairy, silvery pink to brown, style 12–14 mm long, pollen presenter club-shaped, involucral bracts ovate, margins sometimes hairy. Mainly Aug.–Sept. Sand/shale slopes, NW (Cedarberg to Olifants River Mtns).•

fucifolia Salisb. ex Knight Rounded shrub to 1.5 m. Leaves dissected, grey-crispy hairy, 35–60 mm long. Flower heads solitary, small, adpressed-hairy, silvery grey to purple, fragrant, style ± 9 mm long, pollen presenter slender, involucral bracts lanceolate. Aug.–Oct. Sandy flats and slopes, NW, SW (Gifberg to Hopefield).•

incrassata Meisn. Sprawling, resprouting shrublet to 0.1 × 1 m. Leaves dissected, crispy hairy, 25–50 mm long. Flower heads solitary, adpressed silvery pink, fragrant, style 9–12 mm long, pollen presenter club-shaped, involucral bracts ovate with silky margins. July–Oct. Granite and shale, SW (Moorreesburg hills and Paarl to Klapmuts).•

scoparia R.Br. Tufted, resprouting shrublet to 0.4 × 1 m. Leaves dissected, silky hairy when young, 20–40 mm long. Flower heads solitary, silvery yellow turning pink, fragrant, style 10–12 mm long, pollen presenter club-shaped, involucral bracts ovate with silky margins. Aug.–Oct. Sandy flats, SW (Moorreesburg to Hermon).•

A.' Flowers ± straight in bud
D. Flower heads sessile or subsessile and nested in leaves

brownii Meisn. Densely leafy shrublet to 50 cm. Leaves dissected, grey-silky, 15–25 mm long. Flower heads solitary, silvery pink to brown, fragrant, style ± 10 mm long, pollen presenter club-shaped, involucral bracts lanceolate. June–Oct. Shale and granite slopes and flats, SW (Hopefield to Tygerberg).•

deluvialis Rourke Sprawling to prostrate shrublet to 30 cm. Leaves sparsely dissected, 45–80 mm long. Flower heads solitary, sessile, silvery cream-coloured, inconspicuous, style ± 8 mm long, pollen presenter slender. Sept.–Nov. Seasonally waterlogged, sandstone lower slopes, SW (Kogelberg: Palmiet River Valley).•

hirsuta R.Br. Compact, rounded shrublet to 50 cm. Leaves dissected, silky hairy, 30–35 mm long. Flower heads solitary, silvery pink, fragrant, style ± 10 mm long, pollen presenter club-shaped, involucral bracts linear, with silky margins. July–Oct. Sandstone slopes, SW (Cape Peninsula: Simonstown).•

millefolia Salisb. ex Knight Densely leafy shrublet to 50 cm. Leaves dissected, crispy hairy, 5–14 mm long. Flower heads solitary, silvery cream-coloured to brown, style ± 7 mm long, pollen presenter club-shaped, involucral bracts ovate. Aug.–Dec. Sandy flat and slopes, NW (Bokkeveld to Olifants River Mtns).•

rebeloi Rourke Sprawling to prostrate shrublet to 30 cm. Leaves secund, dimorphic, the lower dissected, the upper terete, glabrescent-silky, 40–55 mm long. Flower heads solitary, sessile, silvery cream-coloured, inconspicuous, style ± 5 mm long, pollen presenter slender. Sept.–Nov. Sandstone slopes, SW (Bredasdorp Mtns to Napier).•

rostellaris Salisb. ex Knight Compact shrublet to 50 cm. Leaves dissected, 15–25 mm long. Flower heads solitary, sessile, silvery pink, style ± 10 mm long, pollen presenter club-shaped, involucral bracts lanceolate, purple beneath. Sept.–Nov. Moist sandstone slopes, SW (Groenland to Kleinrivier Mtns).•

villosa (Lam.) R.Br. Compact, rounded shrublet to 80 cm. Leaves dissected, silky hairy, 20–40 mm long. Flower heads solitary, sessile, yellow, fragrant, style ± 10 mm long, pollen presenter club-shaped, involucral bracts lanceolate. Apr.–July. Sandstone slopes and flats, SW (Cape Peninsula).•

D.' Flower heads on a discrete stalk
E. Involucral bracts lacking

candicans R.Br. Shrublet to 80 cm. Leaves dissected, silvery woolly, 25–55 mm long. Flower heads many, silvery pink with dark tips, style 6–9 mm long, pollen presenter club-shaped, involucral bracts absent. July–Dec. Granite and sandy slopes and flats, SW (Paardeberg to Slanghoek Mtns).•

confragosa Rourke Sparsely branched, wand-like shrub to 1 m. Leaves clustered at branch tips, dissected, 30–60 mm long. Flower heads several, silvery pink, style 10–12 mm long, pollen presenter club-shaped, involucral bracts absent. Sept.–Nov. Sandstone slopes, NW (Cold Bokkeveld and Grootwinterhoek Mtns).•

decumbens (Thunb.) R.Br. Prostrate shrublet. Leaves secund, weakly dissected. Flower heads few, adpressed-hairy, carmine, fragrant, style 12–14 mm long, pollen presenter slender. July–Oct. Rocky sandstone slopes, SW (southern Cape Peninsula).•

elongata (P.J.Bergius) R.Br. Erect shrub to 1.5 m. Leaves whorled above, dissected, fleshy, 50–150 mm long. Flower heads several, on a long peduncle, adpressed-hairy, silvery pink, fragrant, style 7–11 mm long, pollen presenter club-shaped, involucral bracts absent. July–Oct. Sandy flats and slopes, SW, AP (Du Toitskloof to Agulhas).•

inconspicua L.Guthrie & T.M.Salter Sprawling, tangled shrublet to 30 cm. Leaves dissected, crispy hairy, 15–25 mm long. Flower heads few, hidden among leaves, adpressed-hairy, cream-coloured, style ± 5 mm long, pollen presenter weakly club-shaped, involucral bracts absent. Mainly Sept.–Oct. Sandstone flats and slopes, SW (Cape Peninsula to Houwhoek and Caledon Swartberg).•

lacunosa Rourke Erect shrublet to 1 m. Leaves dissected, glabrescent, 60–80 mm long. Flower heads solitary on long peduncles, adpressed-hairy, silvery pink, style 10–12 mm long, hairy below, pollen presenter club-shaped, involucral bracts absent. Sept.–Dec. Sandstone slopes, NW (Matsikamma Mtns).•

leipoldtii E.Phillips & Hutch. Multistemmed, resprouting shrub to 1 m. Leaves dissected, 65–105 mm long. Flower heads on a distinct peduncle, adpressed-hairy, silvery pink, style ± 8 mm long, pollen presenter club-shaped, involucral bracts absent. Sept.–Dec. Sandstone slopes, NW (N Cedarberg).•

williamsii Rourke Like **S. elongata** but leaves 150–220 mm long, leathery. Mainly Aug.–Nov. Sandstone slopes, SW (Riviersonderend Mtns).•

E.' Involucral bracts present
F. Involucral bracts conspicuous, at least as long as the flowers or strongly keeled

flagellifolia Salisb. ex Knight Prostrate, sparsely leafy shrublet with slender, trailing stems. Leaves secund, needle-like or sparsely dissected. Flower heads solitary, glabrous, deep pink, style 5–8 mm long, pollen presenter club-shaped, involucral bracts ovate and keeled. June–Nov. Sandstone slopes, SW (Grabouw to Babilonstoring).•

florida (Thunb.) Salisb. ex Knight BLUSHING BRIDE Willowy shrub to 1.5 m. Leaves dissected, 45–100 mm long. Flower heads few, pink and white, style 8–12 mm long, pollen presenter slender, involucral bracts longer than flowers, ovate, pale pink. July–Oct. Granite slopes, SW (Franschhoek: Assegaaibooskloof).•

gracilis Salisb. ex Knight (incl. **S. pinnata** R.Br.) Prostrate, mat-forming shrublet to 1 m diam. Leaves secund, dissected, glabrescent, 15–30 mm long. Flower heads 1 or 2, adpressed-hairy, silvery pink, style ± 11 mm long, pollen presenter club-shaped, involucral bracts lanceolate, purple. July–Oct. Sand and granite slopes, SW (Tygerberg and Du Toitskloof to Hottentots Holland Mtns).•

heterophylla Meisn. Spindly shrublet to 1 m. Leaves dissected below, becoming linear above, 25–25 mm long. Flower heads 1–3, silvery pink, fragrant, style ± 8 mm long, pollen presenter club-shaped, involucral bracts large, ovate, cream-coloured. July–Oct. Sandstone slopes, SW (Kleinmond and Kleinrivier Mtns).•

meisneriana Schltr. Slender shrublet to 50 cm. Leaves dissected, 35–90 mm long. Flower heads few, on a long peduncle, 2–7-flowered, pink with glossy, maroon tips, style ± 9 mm long, pollen presenter conical, involucral bracts prominent, pink, strongly keeled. July–Oct. Lower sandstone slopes, SW (Babilonstoring).•

phylicoides (P.J.Bergius) R.Br. Like **S. rosea** but style ± 10 mm long, involucral bracts numerous, linear-lanceolate, cream-coloured to pink. Aug.–Nov. Sandy flats and slopes, SW (Du Toitskloof to Kleinrivier Mtns).•

rosea E.Phillips Shrublet to 1.5 m. Leaves dissected, 30–60 mm long. Flower heads few, silvery pink, style ± 11 mm long, pollen presenter club-shaped, involucral bracts conspicuous, ovate, pink with silky margins. Aug.–Oct. Sandy slopes, SW (Du Toitskloof to Riviersonderend Mtns).•

stellata Rourke Prostrate shrublet to 1 m diam. Leaves secund, dissected, 50–80 mm long. Flower heads few, pink, fragrant, style 12–14 mm long, pollen presenter club-shaped, involucral bracts ovate. Sept.–Nov. Sandstone slopes, SW (Stettynsberg to W Riviersonderend Mtns).•

F.' Involucral bracts inconspicuous

aemula Salisb. ex Knight Sprawling shrublet to 50 cm. Leaves dissected, glabrescent, 12–20 mm long. Flower heads solitary, adpressed-hairy, silvery pink, fragrant, style ± 8 mm long, pollen presenter club-shaped, involucral bracts linear, silky. July–Oct. Sandy flats, SW (Cape Flats).•

aitonii R.Br. Rounded shrublet to 1 m. Leaves dissected, crispy hairy, 20–45 mm long. Flower heads 1–few, silvery grey, fragrant, style 7–10 mm long, pollen presenter club-shaped, involucral bracts ovate. July–Nov. Sandstone slopes, NW (Cedarberg to Grootwinterhoek Mtns and Piketberg).•

altiscapa Rourke Rounded shrublet to 30 cm with inflorescences to 2 m. Leaves whorled, dissected, 120–230 mm long. Flower heads several to many, in racemes on elongated peduncles, adpressed-hairy, silvery pink, style 12–14 mm long, pollen presenter club-shaped, involucral bracts ovate, winged. Aug.–Oct. Sandstone slopes, SW (Villiersdorp to Hottentots Holland Mtns).•

cyanoides (L.) R.Br. Densely branched, resprouting shrublet to 50 cm. Leaves dissected, glabrescent, 25–65 mm long. Flower heads solitary, adpressed or spreading hairy, silvery pink, fragrant, style 6–10 mm long, pollen presenter club-shaped, involucral bracts ovate, silky. July–Oct. Sandy flats, SW (Cape Peninsula).•

fasciflora Salisb. ex Knight Sprawling to erect shrublet to 1 m. Leaves dissected, sparsely hairy, 30–70 mm long. Flower heads many, silvery pink, sometimes glabrous, sweetly scented, style 5–7 mm long, pollen presenter slender to club-shaped, involucral bracts lanceolate. Mainly May–Dec. Sandy flats and lower slopes, SW, LB, SE (Hopefield to George).•

furcellata R.Br. Like **S. cyanoides** but florets inflated below. Aug.–Oct. Sandy slopes and flats, SW (Tulbagh: Elandskloof Mtns and Cape Flats).•

kraussii Meisn. Shrublet to 1 m. Leaves dissected, 50–75 mm long. Flower heads several, silvery white, style 5–9 mm long, pollen presenter knob-like, involucral bracts lanceolate, subglabrous. July–Nov. Granite and sandstone slopes, SW (Jonkershoek to Hottentots Holland Mtns).•

linearis Salisb. ex Knight Slender, resprouting shrub to 80 cm. Leaves linear, needle-like, sometimes slightly dissected, 26–60 mm long. Flower heads 1–few, silvery pink, style 6–9 mm long, pollen presenter club-shaped, involucral bracts ovate. Aug.–Nov. Sandy lower slopes and flats, SW (Mamre to Dassenberg).•

reflexa Rourke Sparsely branched shrub to 2 m. Leaves dissected, silvery silky, 10–25 mm long. Flower heads 1–3 on spreading peduncles, white, style ± 17 mm long, pollen presenter club-shaped, involucral bracts ovate. Sept.–Nov. Sandstone slopes, NW (Cold Bokkeveld to Olifants River Mtns).•

trilopha Salisb. ex Knight Like **S. cyanoides** but leaves short, 5–25 mm long, florets glabrous below, coconut-scented. Aug.–Oct. Sandy flats, SW (Malmesbury to Cape Peninsula).•

triternata (Thunb.) R.Br. Robust shrub to 1.5 m. Leaves dissected, 65–140 mm long, rigid. Flower heads few to many, on a shared peduncle, adpressed-hairy, cream-coloured, style 3–7 mm long, pollen presenter conical, involucral bracts ovate. Aug.–Oct. Sandstone slopes, SW (Tulbagh: Elandskloof Mtns).•

viridifolia Rourke Prostrate, mat-forming shrublet to 2 m diam. Leaves secund, 20–50 mm long. Flower heads few, minutely hairy, pink, style ± 9 mm long, pollen presenter slender, involucral bracts ovate. Mainly Oct.–Nov. Deep sands on sandstone plateaus, SW (Stettynsberg and W Riviersonderend Mtns).•

zeyheri Meisn. Rounded shrublet to 50 cm. Leaves dissected, glabrescent, 70–150 mm long. Flower heads many, white with glossy, black tips, adpressed-hairy below, style ± 10 mm long, pollen presenter knob-like, involucral bracts lanceolate. Aug.–Nov. Peaty sandstone slopes, SW (Du Toitskloof to Riviersonderend Mtns).•

SOROCEPHALUS R.Br.• POWDERPUFF PROTEA 11 spp., SW Cape

A. Leaves flattened above

capitatus Rourke Slender, single-stemmed shrub to 1 m. Leaves linear, adpressed, glabrescent, 6–12 mm long, margins scabrid. Flower heads in globose clusters, 20–30 mm diam., pink or cream-coloured, inner florets with perianth tips glabrous. Sept.–Feb. Sandy flats, NW (Piketberg and Cold Bokkeveld: Onderboskloof).•

imbricatus (Thunb.) R.Br. Slender, single-stemmed, sparsely branched shrub to 1.5 m. Leaves lanceolate, adpressed, glabrescent, ± 15 mm long, margins scabrid. Flower heads in globose, terminal clusters, ± 40 mm diam., cream-coloured, fragrant. Sept.–Dec. Sandstone and clay slopes, NW, SW (Piketberg, Grootwinterhoek and Elandskloof Mtns).•

lanatus (Thunb.) R.Br. Erect or sprawling shrublet to 80 cm. Leaves linear, adpressed, glabrous or hairy, 5–18 mm long, margins scabrid. Flower heads in globose clusters, 10–30 mm diam., pink to purple with darker tips. Sept.–Apr. Sandstone slopes at high alt, NW (Cedarberg to Hex River Mtns).•

scabridus Meisn. Erect, sparsely branched shrublet to 80 cm. Leaves linear, slightly hooked at tips, glabrescent, 20–30 mm long, margins scabrid. Flower heads in globose clusters, ± 20–25 mm diam., pink with glabrous, shiny black tips. Oct.–Jan. Mountain plateaus on sandstone, NW (Olifants River and Grootwinterhoek Mtns).•

tenuifolius R.Br. Much-branched, slender shrublet to 1 m. Leaves linear, adpressed, glabrescent, ± 10 mm long. Flower heads in globose clusters, ± 15 mm diam., cream-coloured to yellow. Jan.–Feb. Wet sandy flats, SW (Palmiet River Mtns: Arieskraal and Kogelberg).•

A.' Leaves channelled above

alopecurus Rourke Single-stemmed, sparsely branched shrub to 1 m. Leaves needle-like, channelled above, 30–50 mm long. Flower heads in terminal, cylindrical clusters, ± 20 mm diam., cream-coloured with black tips, scented. July–Sept. S-facing sandstone slopes, SW (Riviersonderend Mtns).•

clavigerus (Salisb. ex Knight) Hutch. Single-stemmed shrub to 1 m. Leaves needle-like, channelled above, 7–25 mm long, glabrescent, adpressed and imbricate. Flower heads in terminal, broadly cylindrical clusters, 20–40 mm diam., cream-coloured to pale yellow with dark tips. July–Dec. Sandstone slopes, SW (Hottentots Holland to Kleinrivier Mtns).•

crassifolius Hutch. Rounded, much branched shrublet, 30–50 cm, multistemmed from a woody rootstock. Leaves needle-like, channelled above, 20–25 mm long. Flower heads few, in small, solitary, terminal clusters, cream-coloured with brown tips, thinly hairy. Dec.–Feb. Rock ledges at high alt., SW (Riviersonderend Mtns: Die Galg).•

palustris Rourke Sprawling, mat-forming shrublet to 0.2 × 1 m. Leaves needle-like, channelled above, 15–20 mm long. Flower heads in terminal, globose clusters, ± 20 mm diam., white with dark tips. Sept.–Dec. Peaty sponges at high alt., SW (Kogelberg).•

pinifolius (Salisb. ex Knight) Rourke Single-stemmed shrub to 1 m. Leaves needle-like, channelled above, 40–60 mm long. Flower heads in terminal, subglobose clusters, ± 25 mm diam., cream-coloured with glabrous black tips. June–Oct. S-facing sandstone slopes, SW (Riviersonderend Mtns: Tygerhoek).•

teretifolius (Meisn.) E.Phillips Single-stemmed, erect or spreading shrublet to 70 cm. Leaves needle-like, channelled above, 10–14 mm long. Flower heads crowded in flattened, terminal clusters, 15–20 mm diam., pink with dark tips. Nov.–Dec. Damp, sandstone slopes at high alt., SW (Du Toitskloof Mtns to Blokkop).•

SPATALLA Salisb.• FUZZY-BUDS 20 spp., SW Cape

A. Involucres 3-flowered

argentea Rourke Like **S. propinqua** but leaves silvery silky and style straight. Oct.–Jan. Sandstone slopes, SW (western Riviersonderend Mtns).•

caudata (Thunb.) R.Br. Shrub to 1 m. Leaves linear-subterete, thinly hairy above. Flower heads in cylindrical racemes, 50–60 mm long, silvery pink, sometimes cream-coloured, tepals equal, style inflexed, ± 8 mm long, pollen presenter ovoid. Aug.–Oct. Moist slopes and plateaus at mid to high alt., NW (Cedarberg and Hex River Mtns).•

confusa (E.Phillips) Rourke Sprawling to mat-forming shrublet to 1 m. Leaves linear-subterete, glabrescent. Flower heads in short racemes, 10–25 mm long, silvery pink, upper tepal larger, style inflexed, 6–7 mm long, pollen presenter ovoid. Mainly Nov.–Dec. Rocky, upper sandstone slopes, NW, SW, KM (Cedarberg to Hottentots Holland Mtns, Witteberg to Kammanassie Mtns).•

incurva (Thunb.) R.Br. Erect shrublet to 1 m. Leaves needle-like, glabrous or subglabrous. Flower heads in cylindrical racemes ± 40 mm long, silvery pink, upper tepal larger, style inflexed, ± 6 mm long, pollen presenter obovoid. Sept.–Mar. Sandstone slopes, NW, SW (Cedarberg to Du Toitskloof Mtns and Kwadouwsberg).•

propinqua R.Br. Shrublet to 1 m. Leaves needle-like, glabrescent. Flower heads in cylindrical racemes, 10–30 mm long, silvery pink, upper tepal larger, style inflexed, ± 7 mm long, pollen presenter discoid. Mainly July–Oct. Moist sandstone slopes, SW (Slanghoek Valley to Riviersonderend Mtns).•

thyrsiflora Salisb. ex Knight Resprouting, mat-forming shrublet to 1.5 m diam. Leaves needle-like. Flower heads in cylindrical racemes, 20–40 mm long, silvery pink or whitish, lower bracteole subtending a forked shoot, tepals equal, style sigmoid, ± 10 mm long, pollen presenter ovoid, black. Mainly Oct.–Nov. Moist, rocky slopes at high alt., SW (Du Toitskloof Mtns and Caledon Swartberg).•

tulbaghensis (E.Phillips) Rourke Rounded shrublet to 50 cm. Leaves linear-subterete, ciliate. Flower heads in globose clusters, silvery pink, tepals equal, style inflexed, 7–8 mm long, pollen presenter oblong-cylindrical. Sept.–Dec. Moist sandstone slopes at high alt., NW (Witzenberg and Skurweberg).•

A.' Involucres 1-flowered
B. Tepals equal; pollen presenter ± ovoid

nubicola Rourke Rounded shrub to 1.5 m. Leaves needle-like, glabrescent. Flower heads in cylindrical racemes, 30–40 mm long, silvery pink, tepals equal, style straight, ± 9 mm long, pollen presenter ± ovoid. Sept.–Dec. Moist, S-facing, sandstone slopes at high alt., LB (Langeberg: Grootvadersbos).•

salsoloides (R.Br.) Rourke Like **S. nubicola** but plants sprawling, leaves incurved and style inflexed. Oct.–Dec. Upper sandstone slopes, SW (Du Toitskloof Mtns).•

setacea (R.Br.) Rourke Like **S. nubicola** but leaves longer, 20–30 mm long, flower heads subglobose. Sept.–Dec. Peaty sponges on S-facing slopes at high alt., SW (Slanghoek Mtns to Kleinmond).•

B.' Tepals unequal, the upper larger and hooded; pollen presenter discoid
C. Racemes pedunculate; leaves channelled

curvifolia Salisb. ex Knight Rounded shrublet to 80 cm. Leaves needle-like, channelled. Flower head in cylindrical racemes, cream-coloured, style straight, ± 7 mm long, pollen presenter discoid. Jan.–Dec. Sandstone slopes, SW, AP (Kogelberg to Agulhas coast).•

longifolia Salisb. ex Knight Rounded shrub to 1 m. Leaves needle-like, channelled. Flower heads in cylindrical racemes, greyish pink with red markings, style incurved, ± 6 mm long, pollen presenter discoid. Oct.–Nov. Sandstone slopes, SW (Jonkershoek Mtns to Kleinmond).•

racemosa (L.) Druce Slender shrublet like **S. curvifolia** but raceme small, 10–30 mm long, style ± 5 mm long. Sept.–Mar. Sandy flats and slopes, SW (Viljoen's Pass to Kleinrivier Mtns).•

C.' Racemes sessile; leaves needle-like

barbigera Salisb. ex Knight Like **S. colorata** but leaves softly hairy, style ± 6 mm long. May–Nov. Sandstone slopes, KM, LB, SE (E Langeberg to Outeniqua Mtns and Swartberg).•

colorata Meisn. Shrublet to 80 cm. Leaves needle-like. Flower heads in short, ovoid racemes, silvery pink, style incurved, ± 7 mm long, pollen presenter discoid. July–Nov. High sandstone slopes, SW, LB (Riviersonderend Mtns to Langeberg: Heidelberg).•

ericoides E.Phillips Slender shrublet to 80 cm. Leaves needle-like, fairly short, 7–12 mm long. Flower heads in cylindrical spikes, silvery pink, bracteoles fused into a prominent involucre, style incurved, ± 7 mm long, pollen presenter discoid. Aug.–Oct. Coastal sands between limestone ridges, AP (W Agulhas coast).•

mollis R.Br. Rounded shrublet to 80 cm. Leaves needle-like. Flower heads in cylindrical racemes, white, sometimes mauve, style straight, hairy below, ± 5 mm long, pollen presenter discoid. July–Dec. Streamsides and damp sandstone slopes, SW (Hottentots Holland Mtns to Kleinmond).•

parilis Salisb. ex Knight Shrub to 1.5 m. Leaves needle-like. Flower heads in cylindrical racemes, silvery pink, style straight, ± 6 mm long, pollen presenter discoid. Jan.–Dec. Moist sandstone slopes, SW, LB (Hottentots Holland Mtns to Langeberg).•

prolifera (Thunb.) Salisb. ex Knight Sparsely branched shrub to 1.5 m. Leaves needle-like. Flower heads in subglobose spikes, silvery pink, style inflexed, ± 7 mm long, pollen presenter discoid. Sept.–Dec. Marshy sandstone slopes, SW (Viljoen's Pass to Kleinmond).•

squamata Meisn. Like **S. ericoides** but involucral bracts glabrous, accrescent, style ± 8 mm long. Aug.–Oct. Sandy flats and slopes, often between limestone ridges, SW, AP (Bredasdorp Mtns and Agulhas coast).•

VEXATORELLA Rourke FALSE PINCUSHION 4 spp., Namaqualand to SW Cape **gce**

amoena (Rourke) Rourke Erect to sprawling shrub to 1.5 m. Leaves obovate, 15–30 mm long. Flower heads solitary, cream-coloured to pink, fragrant, 12–25 mm diam. Sept.–Nov. Sandstone slopes, NW (Cold Bokkeveld and Swartruggens).•

latebrosa Rourke Single-stemmed, rounded shrub to 2 m. Leaves linear to spathulate, 50–60 mm long. Flower heads solitary, terminal, pink to carmine, fragrant, 25–30 mm diam. Oct.–Nov. Clay, lower slopes, NW (Langeberg: Robertson).•

obtusata (Thunb.) Rourke Prostrate, mat-forming shrub, 1–2 m diam. Leaves linear-spathulate, 9–45 mm long. Flower heads solitary, terminal, cream-coloured to pink, fragrant, 15–20 mm diam. Aug.–Dec. Sandstone slopes, NW, KM (Hex River Mtns to Witteberg and Anysberg).•

RANUNCULACEAE

1. Leaves opposite; carpels with feathery tails; twiners or scramblers, becoming woody with age ..... **Clematis**
1.' Leaves radical or alternate; carpels without feathery tails; perennial herbs:
2. Bracts not forming involucre; sepals and petals present; petals with nectary, white or yellow ..... **Ranunculus**
2.' Bracts forming involucre beneath flowers; sepals petaloid; petals absent, without nectary, pink or white to greenish ..... **Anemone**
a. Peduncles 1-flowered; fruit dry ..... ***Anemone* group**
a.' Peduncles several-flowered; fruit ± fleshy ..... ***Knowltonia* group**

ANEMONE L. (= *KNOWLTONIA*) ANEMONE, WINDFLOWER ± 160 spp., mainly temperate

***Anemone* group**

tenuifolia (L.f.) DC. CAPE ANEMONE Tufted perennial to 40 cm. Leaves bi- or tripinnate, segments cuneate and 3-toothed, margins revolute. Flowers solitary on woolly peduncle, pinkish white, silky beneath. June–Feb. Moist sandstone slopes, NW, SW, AP, KM, LB, SE (Bokkeveld Mtns to Humansdorp).•

***Knowltonia* group**

A. Carpels and fruits hairy

anemonoides (H.Rasm.) J.C.Manning & Goldblatt (= *Knowltonia anemonoides* H.Rasm.) Like **A. knowltonia** but leaves more hairy beneath than above, scape much longer than leaves and tepals essentially alike. Sept.–Jan., after fire. Rocky slopes, NW, SW, AP, LB (Tulbagh to Cape Peninsula to Riversdale).•

knowltonia Burtt Davy (= *Knowltonia capensis* (L.) Huth) Silky hairy, tufted perennial to 30 cm, rhizome vertical. Leaves bi- or triternate, leaflets ovate, toothed, equally hairy or more hairy above. Flowers in scapose umbels not much longer than leaves, greenish white to purple, outer tepals shorter and more hairy. Fruits hairy. June–Sept. Shaded, rocky slopes, NW, SW (Porterville to Cape Peninsula).•

A.' Carpels and fruits ± glabrous

cordata (H.Rasm.) J.C.Manning & Goldblatt (= *Knowltonia cordata* H.Rasm.) Thinly silky, tufted perennial to 70 cm, rhizome vertical. Leaves ovate or ternate, leaflets cordate, toothed. Flowers in scapose umbels much longer than leaves, greenish to pale yellow. Fruits glabrous. Sept.–Jan. Rocky outcrops and forest margins, SE (Attaquas Mtns to E Cape).

filia (L.f.) J.C.Manning & Goldblatt (= *Knowltonia filia* (L.f.) T.Durand & Schinz) Like **A. cordata** but leaves pinnate or bipinnate, leaflets coarsely toothed, never cordate. Flowers in scapose umbels, white or greenish white. Oct.–Jan. Shaded or moist slopes, KM, SE (Kammanassie Mtns, Outeniqua to Tsitsikamma Mtns).•

vesicatoria (L.f.) Prantl (= *Knowltonia vesicatoria* (L.f.) Sims) BRANDBLAAR, KATJIEDRIEBLAAR Tufted perennial to 1.2 m, rhizome horizontal. Leaves leathery, ternate or triternate, segments ovate, toothed. Flowers in scapose umbels not much longer than leaves, white to yellowish green. Fruits glabrous. Aug.–Oct. Scrub or woody ravines, NW, SW, AP, LB, SE (Bokkeveld Mtns to Cape Peninsula to E Cape).

CLEMATIS L. TRAVELLER'S JOY ± 250 spp., pantemperate

brachiata Thunb. OLD MAN'S BEARD Perennial climber. Leaves opposite, bi- or tripinnate, segments ovate, toothed. Flowers in axillary, cymose panicles, hairy, white, fragrant. Fruits plumose. Dec.–May. Scrub and forest margins, KM, LB, SE (Montagu to Port Elizabeth, widespread in southern and tropical Africa).

KNOWLTONIA Salisb. = **ANEMONE**

RANUNCULUS L. BUTTERCUP, CROWFOOT ± 400 spp., cosmopolitan, mainly temperate

meyeri Harv. BOG BUTTERCUP Dwarf, mat-forming perennial with trailing stems rooting at the nodes. Leaves cordate or reniform, crenate. Flowers solitary on slender penduncles, yellow, petals linear. Achenes smooth. Oct.–Feb. Alpine bogs and seeps, KM (Swartberg, E Cape to Zimbabwe).

multifidus Forssk. BUTTERCUP Tufted, silky perennial to 90 cm. Leaves pinnatisect or bipinnatisect, segments toothed. Flowers in open panicles, yellow. Achenes warty, 1.5–2 mm long. Aug.–Mar. Damp places, NW, SW, AP, LB, SE (Namaqualand to Cape Peninsula to Arabia).

***muricatus** L. SPINY-FRUITED BUTTERCUP Annual to 30 cm. Leaves round, on long petioles, 3-lobed and toothed. Flowers in open panicles, yellow. Achenes spiny, 7–8 mm long. Sept.–Nov. Weed of damp places, SW (European weed, Cape Peninsula to Caledon).

rionii Lagger (= *Ranunculus trichophyllus* auct.) WATER BUTTERCUP, WATER CROWFOOT Submerged, aquatic perennial. Leaves finely dissected, segments filiform. Flowers emergent, solitary, opposite leaves, white. Achenes wrinkled, ± 1 mm long. Sept.–May. Pools or streams, NW, SW (Velddrif, Cape Peninsula, Karoo, almost worldwide).

RESEDACEAE

OLIGOMERIS Cambess. 3 spp., Mediterranean and southern Africa

dipetala (Aiton) Turcz. BITTERAARBOSSIE Perennial to 70 cm, often rough. Leaves linear, often tufted. Flowers in terminal spikes, whitish, stamens mostly 8–12. Dec.–Mar. Alkaline and limestone flats, AP, KM, LB, SE (Montagu to Uitenhage to Namibia and Botswana).

RHAMNACEAE

1. Fruit a single-seeded drupe, fleshy or dry:
   2. Inflorescence a short, axillary umbel; spines usually present ..... **Scutia**
   2.' Inflorescence an axillary raceme or cyme; spines absent ..... **Rhamnus**

1.' Fruit a several-seeded capsule, fleshy or dry:
3. Leaves elliptic-oblong, toothed; flowers in lax, terminal and axillary panicles; disc inconspicuous; style shortly 3-lobed ..... **Noltia**
3.' Leaves narrower, entire; flowers in racemes, spikes or heads (rarely solitary); disc evident; style simple:
4. Stipules present; disc densely hairy ..... **Trichocephalus**
4.' Stipules absent; disc glabrous ..... **Phylica**

NOLTEA Rchb.f. SEEPBLINKBLAAR 1 sp., S Africa

africana (L.) Endl. Shrub or small tree to 4 m. Leaves elliptic-oblong, serrate, glossy above, paler beneath. Flowers in axillary and terminal panicles, white. Fruits globose, calyx cup persistent. Aug.–Oct. Riverine bush, SW, LB, SE (Cape Peninsula to KwaZulu-Natal).

PHYLICA L. PHYLICA, HARDEBOS ± 150 spp., Africa, Madagascar, S Atlantic islands

*A. Petals absent (see also **P. debilis, P. pubescens**)*

aemula Schltr. Closely leafy, grey-tomentose shrublet to 30 cm. Leaves linear, 8–13 mm long, rough, margins closely revolute. Flowers in large, solitary, plumose capitula surrounded by many leaves with enlarged petioles, without petals, whitish. Aug.–Jan. Sandstone plateaus, NW (Bokkeveld Mtns to Cold Bokkeveld).•

alticola Pillans Closely leafy shrublet to 35 cm. Leaves linear, 5–8 mm long, smooth, margins closely revolute. Flowers in small, rounded capitula, without petals, whitish. Sept.–Oct. Upper mountain slopes, NW (Grootwinterhoek Mtns).•

barbata Pillans Closely leafy, dwarf shrublet, velvety on young parts. Leaves linear, 10–14 mm long, rough, margins closely revolute. Flowers in wide, solitary, plumose capitula surrounded by many, strongly ciliate leaves, without petals, whitish. Aug.–Oct. Dry rocky slopes, NW (Cedarberg).•

barnardii Pillans Closely leafy shrub to 60 cm, silky on young parts. Leaves needle-like, 7–12 mm long, rough, margins closely revolute. Flowers in rounded, solitary of clustered capitula, without petals, whitish. Aug.–Oct. Rocky sandstone slopes, NW (Cedarberg to Hex River Mtns).•

comptonii Pillans Compact, closely leafy shrublet to 30 cm. Leaves oblong, cordate at base, 2–5 mm long, margins closely revolute. Flowers in solitary capitula, without petals, whitish, subsessile. Dec.–Feb. Dry sandstone slopes, NW, KM (Hex River Mtns to Witteberg).•

constricta Pillans Closely leafy, much-branched shrublet to 45 cm. Leaves needle-like, 5–9 mm long, smooth, margins closely revolute. Flowers in solitary, flattened capitula, whitish, without petals. Mainly Oct.–Jan. NW, SW, KM (Cedarberg to Hottentots Holland Mtns and Swartberg).•

intrusa Pillans Twiggy shrublet to 60 cm. Leaves linear, ± 5 mm long, smooth, margins closely revolute. Flowers in short spikes, whitish, without petals, tomentose outside. Nov.–Jan. High peaks, NW (Hex River Mtns).•

leipoldtii Pillans Closely leafy shrublet to 50 cm, velvety on young parts. Leaves needle-like, 10–15 mm long, rough, margins closely revolute. Flowers in wide, flattened, solitary capitula surrounded by densely pilose leaves, without petals, whitish. Aug.–Jan. Rocky slopes, NW (Cedarberg to Cold Bokkeveld).•

levynsiae Pillans Closely leafy, tomentose shrublet to 50 cm. Leaves ascending, oblong, rough, margins closely revolute. Flowers in solitary, rounded capitula surrounded by many leaves, without petals, whitish. Sept.–Oct. Rocky sandstone slopes, NW (Swartruggens).•

marlothii Pillans Closely leafy shrublet to 60 cm, velvety pubescent on young branches. Leaves needle-like, 13–15 mm long, margins closely revolute. Flowers in large, flattened, solitary capitula surrounded by many leaves and villous bracts, without petals, whitish. May–Nov. Rocky sandstone slopes, NW, KM (Cedarberg to Witteberg).•

obtusifolia Pillans Closely leafy shrublet to 35 cm. Leaves oblong, cordate at base, ± 4 mm long, margins closely revolute. Flowers in solitary capitula surrounded by leafy bracts, subsessile, without petals, whitish. Dec.–Jan. Upper slopes, NW (Cold Bokkeveld Mtns).•

plumigera Pillans Closely leafy, spreading shrublet to 40 cm. Leaves needle-like, 7–15 mm long, rough, margins closely revolute. Flowers in wide, solitary, plumose capitula surrounded by many, heavily ciliate leaves, without petals, white. Aug.–Dec. Rocky sandstone slopes, NW (Cedarberg).•

pulchella Schltr. Closely leafy shrublet, 40–60 cm. Leaves ascending, oblong, rough, margins closely revolute. Flowers in large, flattened, solitary capitula surrounded by villous leaves and bracts, without petals, white. Aug.–Nov. Sandstone slopes, NW (Bokkeveld Mtns to Cold Bokkeveld).•

retorta Pillans Silky haired shrublet to 40 cm. Leaves needle-like, 7–10 mm long, rough, margins closely revolute. Flowers in wide, solitary capitula surrounded by a few leaves, without petals, whitish. July–Sept. Dry sandstone slopes, KM (Bonteberg and Witteberg).•

rigida Eckl. & Zeyh. Closely leafy, grey-tomentose shrub to 1 m. Leaves linear, 10–25 mm long, smooth, margins closely revolute. Flowers in large, flattened, solitary capitula surrounded by many, pilose leaves, without petals, whitish. Sept.–Nov. Rocky slopes and outcrops, NW (Cedarberg to Cold Bokkeveld).•

A.' Petals present
B. Flowers in racemes or spikes

agathosmoides Pillans Closely leafy shrub to 60 cm. Leaves ascending, needle-like, 7–10 mm long, rough, margins closely revolute. Flowers in compact spikes, lower bracts leafy, brownish green, subsessile. Aug.–Sept. Sandstone slopes, NW (Bokkeveld Mtns).•

ambigua Sond. Much-branched, densely leafy shrub to 60 cm. Leaves needle-like, 10–15 mm long, margins closely revolute, covered with silky hairs when young. Flowers axillary, forming dense racemes below branch tips, yellowish. Aug.–Nov. Rocky sandstone slopes, NW (Pakhuis Pass to Cold Bokkeveld).•

ampliata Pillans Densely branched shrub to 1 m. Leaves ovate, 6–8 mm long, smooth, margins narrowly revolute. Flowers axillary, crowded near branch tips, whitish. Mar.–June. Mountain slopes, SW (Tulbagh: Elandskloof Mtns).•

axillaris Lam. Much-branched, tomentose shrub to 80 cm. Leaves linear to linear-lanceolate, 5–15 mm long, smooth, margins closely revolute. Flowers axillary, well below branch tips, whitish. Mainly Dec.–Apr. Rocky slopes in coastal bush or forest margins, AP, SE (Agulhas coast to Katberg and Alexandria).

cryptandroides Sond. Slender-branched, closely leafy shrub to 3 m. Leaves needle-like, 10–15 mm long, rough, margins closely revolute. Flowers in dense racemes grouped in panicles, white, sometimes pinkish. Mainly Sept.–Oct. Sandstone slopes, NW (Kamiesberg and Gifberg to Piketberg). **gce**

cuspidata Eckl. & Zeyh. Twiggy shrub to 2 m, silky on young parts. Leaves ovate-lanceolate, 4–8 mm long, recurved above middle, margins closely revolute. Flowers in rounded spikes, subtended by densely villous bracts, whitish, sessile. Aug.–Dec. Sandstone slopes and flats, NW (Olifants River Mtns to Piketberg).•

cylindrica J.C.Wendl. Virgate shrub to 1 m. Leaves linear-lanceolate, 7–12 mm long, rough, margins closely revolute. Flowers in a dense, terminal raceme, whitish. July–Sept. Sandstone slopes and flats, NW (Olifants River Mtns and Piketberg).•

elimensis Pillans Like **P. axillaris** but leaves narrowly linear, 5–12 mm long, and flowers covered with retrorse hairs. July–Aug. Lower slopes, SW, LB (Elim to Riversdale).•

hirta Pillans Densely leafy shrub to 60 cm, grey-villous on young parts. Leaves linear-lanceolate, ± 10 mm long, rough, margins closely revolute. Flowers in compact spikes, subtended by long, silky bracts, whitish, subsessile. Nov.–Jan. Sandstone slopes, NW (Nardouw and Olifants River Mtns).•

mundii Pillans Closely leafy shrub to 40 cm. Leaves needle-like, 12–16 mm long, incurved above middle, margins closely revolute. Flowers in crowded racemes, pinkish. Mar.–May. Rocky sandstone slopes, SW, LB (Houwhoek to Langeberg: Riversdale).•

oleifolia Vent. [*oleaefolia* Sphalm.] BLINKHARDEBOS Rigid shrub to 2 m. Leaves ovate to broadly elliptic, 15–25 mm long, white-felted beneath, margins slightly revolute. Flowers in short, terminal racemes sometimes forming small panicles, cream-coloured. Mar.–May. Rocky slopes, NW, SW (S Namaqualand and W Karoo to Moorreesburg and Worcester). **gce**

paniculata Willd. HARDEBOS, LUISBOOM Grey-tomentose shrub or small tree mostly 1.5–3 m. Leaves ovate to lanceolate, mostly 10–15 mm long, margins revolute, white-felted beneath. Flowers usually in spikes forming compound panicles, shortly stipitate, whitish. May–June. Moist slopes and gullies, bush and forest margins, NW, KM, LB, SE (Hex River Valley and Witteberg to Zimbabwe).

pinea Thunb. Closely leafy shrub to 1 m. Leaves lanceolate to linear-lanceolate, cordate at base, mostly ± 12 mm long, margins strongly revolute. Flowers in short, mostly terminal racemes, white. Dec.–Aug. Sandstone slopes, SW, KM, LB, SE (Drakenstein Mtns and Klein Swartberg to Tsitsikamma Mtns).•

plumosa L. VEERKOPPIE Sparsely branched shrublet to 40 cm. Leaves linear-lanceolate, 10–15 mm long, rough, margins revolute. Flowers in dense spikes, subtended by buff-plumose bracts longer than leaves, yellowish, subsessile. May–Aug. Mainly clay and granite soils, NW, SW (Piketberg to Cape Peninsula and Caledon).•

purpurea Sond. Closely leafy shrub or small tree to 3 m. Leaves lanceolate, rounded to cordate at base, 5–10 mm long, margins revolute. Flowers in dense, head-like racemes, pink to purple. Apr.–Oct. Sandstone slopes, often on forest margins, SW, KM, LB, SE (Swartberg and Bredasdorp to Humansdorp).•

recurvifolia Eckl. & Zeyh. Sprawling, sparsely branched shrublet to 40 cm. Leaves linear, 12–17 mm long, recurving above middle, margins closely revolute. Flowers in lax spikes, sessile, whitish. Oct.–Nov. Sandstone slopes, LB (Langeberg: Swellendam).•

rigidifolia Sond. Much-branched, closely leafy shrub to 1 m. Leaves linear to needle-like, 12–25 mm long, rough, margins closely revolute. Flowers in rounded panicles, sometimes in racemes, white. May–Oct. Mainly sandstone slopes and plateaus, NW, KM, LB (Kamiesberg and Bokkeveld Mtns to Piketberg and Witteberg to Riversdale). **gce**

spicata L.f. Closely leafy shrub to 2 m, grey-felted on young parts. Leaves ovate-lanceolate, 15–20 mm long, rough, margins slightly revolute, white-felted beneath. Flowers in solitary spikes, white, subtended by white-villous bracts, sessile. Apr.–Aug. Rocky sandstone slopes, NW, SW (Pakhuis Mtns to Stellenbosch).•

strigulosa Sond. Wiry, much-branched shrublet to 30 cm. Leaves linear to needle-like, mostly 12–15 mm long, rough, margins closely revolute. Flowers in dense spikes, white, sessile. Mar.–July. Stony clay and sandstone slopes at low elevation, NW, SW (Piketberg to Stellenbosch).•

velutina Sond. Closely leafy, sparsely branched shrublet to 30 cm. Leaves needle-like, 13–23 mm long, rough, margins closely revolute. Flowers in dense spikes, subtended by long, buff-plumose bracts, white, subsessile. Apr.–Aug. Stony lower slopes, LB (Langeberg: Swellendam to Ruitersbos).•

villosa Thunb. NAALDHARDEBLAAR Closely leafy, much-branched shrub to 1 m. Leaves linear, mostly 7–20 mm long, tomentose when young, margins closely revolute. Flowers in dense or lax racemes subtended by leafy bracts, white. Feb.–July. Rocky sandstone slopes, NW (Pakhuis Mtns and Cedarberg to Olifants River Mtns).•

willdenowiana Eckl. & Zeyh. Densely leafy shrub, 30–60 cm. Leaves linear to linear-lanceolate, 5–15 mm long, margins closely revolute. Flowers in crowded racemes below branch tips, white. May–July. Sandstone slopes, SE (Outeniqua Mtns to Port Elizabeth).•

B.' Flowers in heads

abietina Eckl. & Zeyh. Closely leafy shrub to 1 m. Leaves linear-lanceolate, 4–6 mm long, smooth above, margins closely revolute. Flowers in solitary, rounded capitula surrounded by many leaves, white or pinkish, subsessile. Apr.–Aug. Dry sandstone slopes, SE (George to Uitenhage).•

acmaephylla Eckl. & Zeyh. Spreading shrublet to 50 cm. Leaves lanceolate, 5–8 mm long, incurved, margins strongly revolute. Flowers usually in solitary capitula, surrounded by leaves and leafy bracts, whitish. ? Sandstone slopes, SW (Tulbagh: Elandskloof Mtns to Brandvlei).•

affinis Sond. Closely leafy, grey-tomentose shrublet to 60 cm. Leaves linear, 8–13 mm long, smooth, margins closely revolute. Flowers in wide, solitary capitula surrounded by many leaves and plumose bracts, greyish white. July–Aug. Sandstone outcrops, NW (Bokkeveld Mtns).•

alba Pillans Virgate shrub to 60 cm. Leaves linear-lanceolate, ± 6 mm long, cordate at base, margins closely revolute. Flowers in flattened capitula, solitary or in small clusters, whitish, subsessile. Mar.–June. Moist sandstone slopes, LB, SE (Langeberg to Tsitsikamma Mtns).•

alpina Eckl. & Zeyh. Sprawling shrublet to 20 cm. Leaves lanceolate, ± 6 mm long, spreading-incurved, margins revolute, tomentose beneath. Flowers in solitary, flattened capitula, whitish. Aug.–Sept. Sandstone slopes, NW (Olifants River Mtns).•

altigena Schltr. Much-branched shrublet to 50 cm. Leaves linear, 5–8 mm long, rough, margins closely revolute. Flowers in wide, mostly solitary capitula surrounded by many pilose leaves, whitish. Aug.–Oct. Rocky slopes, NW (Cedarberg to Grootwinterhoek Mtns).•

amoena Pillans Closely leafy shrublet to 30 cm. Leaves lanceolate, ± 8–12 mm long, margins revolute. Flowers in broad, flattened, solitary capitula surrounded by many leaves, white, sessile. Mar.–Apr. Coastal dunes, AP (Agulhas coast).•

anomala Pillans Intricately branched, closely leafy shrublet to 40 cm. Leaves ovate-lanceolate, ± 2.5 mm long, rough, margins closely revolute. Flowers in small, solitary, flattened capitula, surrounded by several leaves, whitish. Dec. Lower shale and sandstone slopes, SW (Caledon to Swellendam).•

apiculata Sond. Erect shrub to 60 cm, with slender, tomentose branchlets. Leaves linear-lanceolate, 7–14 mm long, smooth, margins strongly revolute. Flowers in capitula surrounded by leafy bracts, sometimes grouped in loose panicles, whitish. Aug.–Sept. Mountain slopes, SW (Caledon District).•

atrata Licht. ex Roem. & Schult. Closely leafy, spreading shrub, mostly 30–60 cm. Leaves lanceolate, 6–10 mm long, smooth, margins closely revolute. Flowers in solitary, flattened capitula, surrounded by leaves and leafy bracts, white. Oct.–Mar. Rocky slopes, SW (Tulbagh: Elandskloof Mtns to False Bay).•

bolusii Pillans Closely leafy, grey-felted shrublet to 50 cm. Leaves needle-like, 13–20 mm long, rough, margins closely revolute. Flowers in mostly solitary capitula surrounded by buff-hairy leaves and bracts, whitish. Nov.–Jan. Rocky sandstone slopes, NW (Ceres Mtns).•

brachycephala Sond. Shortly leafy shrub to 60 cm, with numerous short branches. Leaves lanceolate, 3–6 mm long, margins loosely revolute. Flowers in solitary capitula surrounded by a few, small leaves, sessile, whitish. Nov. High rocky slopes, LB (Langeberg: Swellendam).•

brevifolia Eckl. & Zeyh. Closely leafy shrublet to 40 cm. Leaves ovate-lanceolate, ± 2 mm long, incurved from middle, margins closely revolute. Flowers in rounded capitula, solitary or in small clusters, densely white woolly, whitish. July–Aug. Sandstone slopes, SW (Kleinrivier Mtns).•

burchellii Pillans Slender shrublet to 30 cm. Leaves needle-like, 10–18 mm long, margins closely revolute. Flowers in solitary, rounded capitula, whitish. Nov.–Dec. Lower mountain slopes, SW (Riviersonderend Mtns).•

buxifolia L. BUKSHARDEBLAAR Rounded, velvety pubescent shrub or small tree, sometimes to 4 m. Leaves ovate to elliptic, 15–25 mm long, margins slightly revolute, grey-felted beneath. Flowers in small capitula grouped in panicles, shortly stipitate, white. Apr.–Aug. Lower mountain slopes, often rock outcrops, SW (Cape Columbine to Cape Peninsula and Caledon).•

calcarata Pillans Closely leafy, slender shrublet to 35 cm. Leaves linear-lanceolate, 12–15 mm long, smooth or scabrid, margins revolute, densely felted beneath. Flowers in large, solitary capitula, surrounded by long, villous leaves, whitish. Apr.–July. Lower slopes on shales, SW (Riviersonderend Mtns and Langeberg).•

callosa L.f. Closely leafy shrub to 1.2 m. Leaves ovate-lanceolate, 5–15 mm long, rough, margins revolute. Flowers in flattened, usually solitary capitula, surrounded by small leaves and leafy bracts, whitish, subsessile. Apr.–July. Lower slopes, SW (Mamre to Bredasdorp).•

cephalantha Sond. Densely branched shrub, 40–90 cm. Leaves linear, 5–8 mm long, margins closely revolute. Flowers in solitary or panicled capitula, brownish, stipitate, bracts with silky buff hairs. Apr.–Sept. Sandy flats and lower slopes, NW, SW (Kotzesrus to Olifants River Mouth and Cedarberg to Cape Peninsula). **gce**

chionocephala Schltr. Closely leafy shrublet to 20 cm. Leaves linear, ± 6 mm long, incurved, margins closely revolute. Flowers in solitary capitula surrounded by leafy bracts with purplish hairs, whitish. Aug.–Sept. Rocky slopes, NW (Cold Bokkeveld).•

chionophila Schltr. Densely branched shrublet to 40 cm, grey silky on young parts. Leaves linear, 10–15 mm long, margins closely revolute. Flowers in capitula surrounded by leaves and leafy bracts, whitish. Oct.–Dec. Sandstone slopes, NW (Mosterthoek Twins to Brandwacht Mt).•

comosa Steud. Closely leafy shrublet to 40 cm. Leaves linear-lanceolate, ± 8 mm long, margins closely revolute. Flowers in solitary, rounded capitula, surrounded by leaves and leafy bracts with golden hairs, whitish. Nov.–Dec. Sandstone slopes, SW (Tulbagh: Elandskloof Mtns).•

confusa Pillans Closely leafy shrub to 1 m. Leaves ± linear, cordate at base, 5–15 mm long, margins closely revolute. Flowers in small capitula grouped in panicles, sessile, whitish. Mar.–May. Sandstone slopes and peaks, SE (Outeniqua and Tsitsikamma Mtns).•

costata Pillans Like **P. willdenowiana** but more densely branched, rarely exceeding 35 cm and flowers in small capitula arranged in panicles. Dec.–Jan. Rocky sandstone slopes, KM (Swartberg).•

curvifolia Pillans Closely leafy shrub to 1 m, branches usually in threes from below capitula. Leaves linear-lanceolate, 10–15 mm long, smooth, margins closely revolute. Flowers in solitary, rounded capitula surrounded by leafy bracts and leaves with enlarged petioles, whitish. Mainly Oct.–Feb. Moist sandstone slopes, SE (Outeniqua Mtns).•

debilis Eckl. & Zeyh. Twiggy shrublet, 30–60 cm, grey-tomentose on young parts. Leaves cordate-lanceolate, 2.5–5 mm long, apparently smooth, margins laxly but closely revolute. Flowers in small, flattened, solitary capitula surrounded by leaves with long petioles, whitish. Nov.–Dec. Sandstone slopes, SW, LB, SE (Caledon Swartberg to Tsitsikamma Mtns).•

diffusa Pillans Spreading shrublet to 30 cm with slender, minutely hairy branches. Leaves ovate-lanceolate, ± 6 mm long, spreading to deflexed, widely convex, margins revolute. Flowers in

small, flattened capitula usually in lax panicles, whitish. Dec.–July. Sandstone slopes, SW (Riviersonderend Mtns and Langeberg to Elim).•

dioica L. Much-branched shrub to 1 m, buff-felted on young branches. Leaves ovate, obtuse, 13–18 mm long, rough, margins slightly revolute, white-felted and conspicuously veined beneath. Flowers in large, solitary capitula surrounded by many leaves. Dec.–Mar. Upper sandstone slopes, SW (Cape Peninsula and Jonkershoek).•

diosmoides Sond. Closely leafy shrublet to 30 cm. Leaves lanceolate, 10–15 mm long, smooth, margins revolute. Flowers usually in solitary capitula, surrounded by leaves and leafy bracts, whitish, stipitate. Mar.–Apr. Gravelly lower slopes, SW (Houwhoek and Botrivier).•

disticha Eckl. & Zeyh. Loosely branched shrub to 90 cm. Leaves linear, 4–6 mm long, margins closely revolute. Flowers in small, usually solitary, flattened capitula, whitish. Dec.–Apr. Sandstone and gravel slopes, SW (Cape Peninsula to Hermanus).•

dodii N.E.Br. Closely leafy shrublet to 40 cm. Leaves linear, 8–20 mm long, smooth, margins closely revolute. Flowers in solitary, rounded capitula surrounded by many villous leaves with enlarged petioles, whitish, subsessile. June–Sept. Sandy or limestone flats and slopes, SW, AP, SE (Cape Peninsula to Knysna).•

ericoides L. Closely leafy, compact shrublet, sometimes to 1 m. Leaves needle-like, mostly 5–8 mm long, often rough, margins closely revolute. Flowers in small, rounded, solitary or clustered capitula, whitish, dense white-felted. Jan.–Dec. Coastal slopes and deep sands, also renosterveld ecotone SW, AP, SE (Saldanha to Port Elizabeth).•

excelsa H.L.Wendl. Closely leafy shrub to 1 m, with few, willowy branches. Leaves lanceolate, 7–15 mm long, rough, margins closely revolute. Flowers in solitary, rounded capitula surrounded by leaves and bracts with prominent golden hairs, whitish, sessile, clothed with retrorse, grey-silky hairs. Dec.–May. Rocky sandstone slopes, NW, SW (Grootwinterhoek Mtns to Cape Peninsula and Koo).•

floccosa Pillans Densely branched shrublet to 40 cm. Leaves linear-lanceolate, 3–6 mm long, rough, compressed near tips, margins closely revolute. Flowers in small, flattened capitula arranged in panicles, whitish, densely white-woolly on outside. Jan.–Feb. High rocky slopes, KM (Kammanassie Mtns).•

floribunda Pillans Densely branched shrublet to 40 cm. Leaves linear-lanceolate, ± 5 mm long, rough, compressed near tips, deeply cordate at base, margins closely revolute. Flowers in small, flattened capitula arranged in panicles, whitish, densely white-felted on outside. Sept.–Oct. Rocky slopes, SW (Bredasdorp Mtns).•

fourcadei Pillans Like **P. gnidioides** but leaves shorter, 5–7 mm long, scarcely compressed and style longer, ± 8 mm long. Mainly Jan.–Mar. Sandstone slopes, SE (Langkloof to Humansdorp).•

fruticosa Schltr. Rigid shrub to 1.5 m. Leaves ovate to broadly lanceolate, 10–15 mm long, margins revolute, tomentose beneath. Flowers in solitary capitula surrounded by leaves, stipitate, whitish. Mar.–Apr. Rocky sandstone slopes, NW (Cedarberg).•

gnidioides Eckl. & Zeyh. Closely leafy, erect or spreading shrub, to 1 m. Leaves linear, 8–10 mm long, smooth above, margins closely revolute. Flowers in rounded capitula, grouped in small corymbs, surrounded by ciliate leaves with enlarged petioles, pink. May–July. Dunes and grassy slopes, SE (Humansdorp to Grahamstown).

gracilis (Eckl. & Zeyh.) D.Dietr. Slender, twiggy shrublet to 40 cm. Leaves linear, 6–10 mm long, pilose on margins and midrib, margins closely revolute. Flowers in solitary capitula surrounded by bracts with long, silky hairs, whitish. Mainly Dec.–Apr. Sandy slopes and flats, SW (Malmesbury to Elim).•

greyii Pillans Densely leafy shrublet to 30 cm, with divaricate branching. Leaves oblong-lanceolate, 4–5 mm long, smooth, cordate at base, margins closely revolute. Flowers in solitary capitula, whitish, sepals subglabrous. May–June. Coastal limestone hills, SW (Cape Columbine, Jacobsbaai, Yzerfontein).•

guthriei Pillans Closely leafy shrub to 60 cm, with wiry, tomentose branchlets. Leaves narrowly lanceolate, 10–25 mm long, margins revolute. Flowers in globose capitula surrounded by modified leaves, sometimes clustered on small branchlets or solitary, shortly stipitate, whitish. May. High sandstone slopes, SW (Franschhoek Mtns).•

harveyi (Arn.) Pillans Closely leafy shrublet to 30 cm. Leaves linear-lanceolate, 6–13 mm long, cordate at base, margins closely revolute. Flowers in rounded, solitary capitula surrounded by a few, short leaves, whitish. Sept.–Oct. Sandy flats, often loamy and seasonally moist, NW, SW (Piketberg to Cape Peninsula).•

humilis Sond. Sprawling, closely leafy shrublet to 30 cm. Leaves narrowly ovate, deeply cordate at base, ± 2 mm long, margins strongly revolute. Flowers in solitary capitula surrounded by a few leaves, stipitate, whitish. Aug.–Nov. Sandstone slopes, SW (Sir Lowry's Pass to Bredasdorp).•

imberbis P.J.Bergius Closely leafy, loosely branched shrub mostly to 50 cm. Leaves linear, 7–10 mm long, smooth except on edges, margins closely revolute. Flowers in mostly solitary, rounded capitula, whitish. Nov.–Apr. Sandstone slopes and flats, NW, SW, KM, LB, SE (Bokkeveld Mtns to Knysna and Swartberg).•

incurvata Pillans Closely leafy, stiffly branched shrub to 60 cm. Leaves linear, oblong-lanceolate, ± 2.5 mm long, margins closely revolute. Flowers in small, solitary, flattened capitula, whitish. Sept. Limestone slopes, SW (Pearly Beach to Still Bay).•

insignis Pillans Closely leafy shrublet to 60 cm. Leaves linear-lanceolate, 10–18 mm long, ± incurved above middle, closely tubercled above, margins closely revolute. Flowers in small, rounded capitula in small clusters, each surrounded by many, pilose leaves, white. Apr.–May. Rocky sandstone slopes, NW (Cedarberg).•

karroica Pillans Like **P parviflora** but leaves needle-like, 5–8 mm long, margins closely revolute, without tubercles and hairy when young, becoming smooth over entire surface. Sept.–Oct. Rocky sandstone slopes, LB, SE (Langeberg to Langkloof).•

keetii Pillans Closely leafy shrublet to 40 cm. Leaves needle-like, ± 5 mm long, smooth, margins closely revolute. Flowers in small, densely white-plumose capitula, white. Nov.–Feb. Rocky sandstone slopes, SE (Outeniqua and Tsitsikamma Mtns).•

lachneaeoides Pillans Like **P. gnidioides** but leaves short, 5–8 mm long, and flowers with cordate petals and elongate style. May–Sept. Sandstone slopes, SE (Uniondale to Humansdorp).•

laevifolia Pillans Densely grey-pubescent shrublet to 40 cm. Leaves lanceolate, 8–10 mm long, smooth above, margins revolute. Flowers in wide, flattened, solitary capitula surrounded by many, pilose leaves, whitish. ? Lower slopes, SW (Elim).•

laevigata Pillans Much-branched, closely leafy shrublet to 30 cm. Leaves oblong-lanceolate, cordate at base, 4–5 mm long, margins closely revolute, becoming smooth and shiny. Flowers mostly in solitary capitula, whitish, stipitate. Apr.–Aug. Limestone hills, AP (Bredasdorp to Still Bay).•

laevis (Eckl. & Zeyh.) Steud. Twiggy shrublet to 30 cm. Leaves ovate-lanceolate, 5–7.5 mm long, smooth or rough, margins closely revolute. Flowers in solitary capitula surrounded by many leaves. ?. Sandstone slopes, SW (Houwhoek to Caledon Swartberg).•

lanata Pillans Like **P. lasiocarpa** but leaves 4–6 mm long, entirely tubercled above, capitula usually in small clusters, and flowers subsessile and densely white-woolly. Aug.–Sept. Dry, rocky, sandstone slopes, KM (Witteberg, Swartberg and Little Karoo Mtns).•

lasiantha Pillans Closely leafy shrub to 60 cm. Leaves linear, 3.5–5 mm long, smooth, margins closely revolute. Flowers in small, solitary capitula, surrounded by short leaves and leafy bracts, whitish. Nov.–Feb. Sandstone slopes, LB (Langeberg: Swellendam).•

lasiocarpa Sond. Much-branched shrub to 60 cm. Leaves linear to lanceolate, 6–12 mm long, smooth except on edges, margins strongly revolute. Flowers mostly in solitary capitula, sessile, whitish. Mainly Dec.–Apr. Clay and sandstone slopes, SW (Hottentots Holland Mtns to Bredasdorp).•

linifolia Pillans Sprawling, closely leafy shrublet with slender branches. Leaves needle-like, 5–9 mm long, becoming smooth with age, margins closely revolute. Flowers in small, solitary capitula surrounded by a few, long leaves, whitish, subsessile. Nov.–Dec. Sandstone slopes, SW (Houwhoek Mtns).•

litoralis (Eckl. & Zeyh.) D.Dietr. Closely leafy, much-branched shrublet to 30 cm. Leaves lanceolate, 7–15 mm long, margins revolute. Flowers in solitary or clustered capitula, whitish, subsessile. Nov.–Feb. Coastal dunes, SE (Knysna to East London).

longimontana Pillans Sprawling, closely leafy shrublet to 20 cm. Leaves lanceolate, 5–7 mm long, margins loosely revolute. Flowers in solitary capitula surrounded by short leaves, stipitate, whitish. Nov.–Dec. High rocky slopes, LB (Langeberg: Riversdale).•

lucens Pillans Like **P. minutiflora** but leaves densely tubercled above. Oct.–Feb. Mountain slopes, SW (Riviersonderend Mtns).•

lucida Pillans Closely leafy, sparsely branched shrublet to 40 cm. Leaves lanceolate, ± 1.2 mm long, margins revolute. Flowers in solitary, flattened capitula surrounded by many, villous leaves, whitish. Sept.–Oct. Coastal flats often associated with limestone, SW, AP (Stanford to Agulhas).•

mairei Pillans Shrub to 40 cm. Leaves lanceolate, ± 5 mm long, cordate at base, ascending and incurved, margins closely revolute. Flowers in small, usually solitary, flat capitula, whitish, subsessile. Feb.–Apr. Lower slopes, LB (Langeberg).•

maximiliani Schltr. Closely leafy shrublet to 60 cm. Leaves needle-like, 7–10 mm long, rough, margins closely revolute. Flowers in solitary, rounded capitula, whitish. Aug.–Sept. Rocky sandstone slopes, NW (Pakhuis Mtns).•

meyeri Sond. Closely leafy, sparsely branched shrublet to 40 cm. Leaves linear, 8–12 mm long, smooth, margins closely revolute. Flowers in large, solitary, rounded capitula, with long, white-plumose bracts, white. Oct.–Feb. Rocky slopes, KM (Swartberg and Kammanassie Mtns).•

minutiflora Sond. Much-branched, closely leafy shrub to 60 cm. Leaves linear to narrowly lanceolate, 5–10 mm long, almost smooth, margins closely revolute. Flowers in small, solitary capitula almost hidden by upper leaves, whitish, stipitate. Dec.–Jan. Sandstone slopes, SW (Hottentots Holland Mtns to Cape Hangklip).•

nervosa Pillans Stout, closely leafy, much-branched shrub to 1.5 m. Leaves ovate, cordate at base, 10–20 mm long, margins slightly revolute, tomentose and prominently veined beneath. Flowers in solitary capitula, subsessile, white. Sept.–Jan. Sandstone slopes, NW (Cold Bokkeveld Mtns to Ceres).•

nigrita Sond. Much-branched shrublet to 40 cm. Leaves linear-lanceolate, 5–8 mm long, rough or smooth, margins closely revolute. Flowers in solitary, flattened capitula surrounded by short bracts, whitish. July–Aug. Rocky slopes, SW, AP (Cape Peninsula to Agulhas).•

nigromontana Pillans Closely leafy, stiffly branched shrub to 70 cm. Leaves needle-like, 10–15 mm long, smooth, margins closely revolute. Flowers in solitary, flat capitula surrounded by bracts with long, golden hairs, whitish. Feb.–May. High rocky slopes, KM (Swartberg).•

nodosa Pillans Closely leafy, much-branched shrub to 1.2 m, stems swollen at positions of old capitula. Leaves lanceolate, 10–14 mm long, margins revolute. Flowers in solitary capitula, surrounded by numerous leaves, whitish. Nov.–Dec. Rocky peaks and ridges, SW (Du Toitskloof Mtns).•

odorata Schltr. Closely leafy, grey-pubescent shrublet to 60 cm. Leaves linear, 6–15 mm long, rough, margins closely revolute. Flowers in solitary, flattened capitula surrounded by a few, broad leaves, cream-coloured, fragrant. Sept.–Nov. Rocky sandstone slopes, NW, KM (Cedarberg to Witteberg).•

parviflora P.J.Bergius Compact, closely leafy shrublet, mostly to 40 cm. Leaves lanceolate, ± 5 mm long, incurved, margins usually closely revolute. Flowers in small, rounded to flat capitula usually grouped in panicles, whitish, subsessile. Jan.–May. Sandy coastal flats and low hills, SW, AP, SE (Hopefield to Knysna).•

parvula Pillans Closely leafy, sprawling shrublet to 20 cm. Leaves ovate, ascending, ± 2 mm long, cordate at base, margins closely revolute. Flowers in small, solitary capitula, surrounded by short leaves and leafy bracts, whitish, sessile. June–Sept. Coastal hills, SW, AP (Cape Peninsula to Agulhas).•

pauciflora Pillans Closely leafy shrublet to 50 cm. Leaves linear-terete, ± 5 mm long, rough, margins closely revolute. Flowers in small, solitary, flattened capitula, surrounded by several leaves, whitish. Mainly Sept.–Nov. Rocky sandstone slopes, NW (Swartruggens).•

piquetbergensis Pillans Twiggy shrub to 80 cm, grey-pubescent on young parts. Leaves lanceolate, 7–10 mm long, rough, margins revolute. Flowers in small, solitary or clustered capitula, white, subsessile. Sept.–Oct. Sandstone slopes, NW (Piketberg).•

propinqua Sond. Virgate shrublet to 40 cm. Leaves lanceolate, 5–15 mm long, cordate at base, margins revolute. Flowers in solitary, flattened capitula surrounded by large, leafy bracts, whitish, sessile. Apr.–Sept. Sandstone slopes, LB (Langeberg).•

pubescens Aiton FEATHERHEAD, VEERKOPPIE Closely leafy, villous shrub 1.5 m. Leaves linear-lanceolate, 25–35 mm long, margins revolute. Flowers in large, flattened, solitary capitula, surrounded by many leaves and elongate, long-villous bracts, white, sessile. May–Aug. Sandstone and limestone slopes, SW, AP (Cape Peninsula to Albertinia).•

pustulata E.Phillips Closely leafy, slender shrub to 1 m. Leaves needle-like, 12–18 mm long, rough, margins closely revolute. Flowers in solitary, rounded capitula, whitish. May–Aug. Sandstone rocks, NW (Bokkeveld Mtns to Gifberg).•

reversa Pillans Closely leafy shrublet to 20 cm. Leaves linear, 8–10 mm long, smooth, margins closely revolute. Flowers in large, flattened, solitary capitula, surrounded by many leaves and villous bracts, white, subsessile, with petals reversed. Mainly Nov. Rocky, upper sandstone slopes, NW (Hex River Mtns).•

rogersii Pillans Like **P. minutiflora** but sprawling rather than rounded, leaves mostly 5–8 mm long, conspicuously tubercled along edges and cordate at base, capitula often in panicles. June–Dec. Mainly shale and stony, sandstone flats, occasionally on slopes, NW, SW (Hex River Mtns to Brandvlei and Montagu).•

rubra Willd. ex Roem. & Schult. Densely branched, closely leafy shrub to 2 m. Leaves linear to lanceolate, 5–10 mm long, smooth, margins closely revolute. Flowers in numerous, small capitula forming panicles, white, sessile. Mar.–July. Lower sandy slopes, LB (Langeberg).•

salteri Pillans Like **P. insignis** but leaves sparsely set with prominent, scattered tubercles above. Apr.–May. Rocky sandstone slopes, NW (Cold Bokkeveld Mtns: Elandskloof).•

schlechteri Pillans Sprawling, sparsely branched shrublet mostly to 40 cm, with ascending branches. Leaves linear, 8–10 mm long, buff-tomentose when young, margins closely revolute. Flowers in rounded capitula, 2 or 3 in a cluster, buff-tomentose, white, stipitate. June–July. Sandstone slopes, SW (Cape Peninsula).•

selaginoides Sond. Closely leafy shrublet to 40 cm. Leaves linear, 3.5–6 mm long, compressed near tips, smooth, margins closely revolute. Flowers in solitary, flattened capitula surrounded by many leaves, white. Mainly Aug.–Sept. Coastal limestone flats and hills, AP (Agulhas).•

sericea Pillans Shrublet to 60 cm, white-felted on young branches. Leaves linear, 6–20 mm long, cordate at base, rough, margins closely revolute. Flowers in solitary, flattened capitula surrounded by long-petiolate leaves, white. Nov.–Dec. Sandstone slopes, KM (Klein Swartberg).•

stenantha Pillans Closely leafy shrublet to 25 cm. Leaves linear, 5–8 mm long, smooth, margins closely revolute. Flowers in rounded, solitary capitula surrounded by numerous leaves with enlarged petioles, white. Sept.–Oct. Sandstone slopes, SW (Riviersonderend Mtns).•

stenopetala Schltr. Closely leafy shrub to 60 cm. Leaves linear-lanceolate, 3–7 mm long, margins revolute. Flowers in small, flattened, solitary capitula, white. June. Stony flats and granite slopes, SW (Namaqualand: Toringberg, Saldanha to Gouda). **gce**

stokoei Pillans Like **P. excelsa** but flowers stipitate, with adpressed, straight, golden hairs, and sepals slightly longer, ± 2 mm long. Nov.–Dec. High rocky slopes, KM (Klein Swartberg).•

strigosa P.J.Bergius Sparsely branched shrub to 1 m, with ascending branches. Leaves lanceolate, 10–20 mm long, rough, margins revolute. Flowers in solitary, flat capitula surrounded by leaves with prominent golden hairs, yellowish. Feb.–July. Rocky sandstone slopes, NW, SW (Hopefield to Cape Peninsula and Hex River Mtns).•

subulifolia Pillans Closely leafy shrub to 50 cm. Leaves needle-like, 3–5 mm long, ultimately smooth, margins closely revolute. Flowers in small, flattened, solitary capitula, surrounded by leaves with flattened petioles, whitish, sessile. Oct.–Feb. High sandstone slopes, NW (Hex River Mtns).•

thunbergiana Sond. Closely leafy shrub, 30–50 cm. Leaves lanceolate, 2.5–6 mm long, cordate at base, smooth and shiny above, margins closely revolute. Flowers in solitary, flattened capitula surrounded by several, short leaves, white. Mar.–Aug. Lower slopes, SW (Malmesbury to Stellenbosch).•

tortuosa E.Mey. ex Harv. & Sond. Closely leafy, tomentose shrub to 80 cm. Leaves linear, 5–7 mm long, smooth, margins closely revolute. Flowers in solitary, flattened capitula surrounded by many, pilose leaves, purple. July–Oct. Rocky sandstone slopes, KM, SE (Swartberg and Tsitsikamma Mtns).•

trachyphylla (Eckl. & Zeyh.) D.Dietr. Twiggy shrub to 1 m, pilose on young branches. Leaves lanceolate, 8–12 mm long, incurved above middle, smooth, margins closely revolute. Flowers in wide, solitary capitula surrounded by many leaves, white. Oct.–Nov. Sandstone slopes, NW (Grootwinterhoek Mtns).•

tuberculata Pillans Like **P. lasiocarpa** but leaves 10–14 mm long, coarsely tubercled and rough, petals with linear claws, ovary with deciduous hairs. Dec.–Mar. Sandstone mountain slopes, NW (Cedarberg to Witzenberg).•

tubulosa Schltr. Densely leafy, sprawling shrublet, white-felted on young parts. Leaves linear-oblong, 3–5 mm long, smooth, margins closely revolute. Flowers in solitary, rounded capitula, white, subsessile. Oct.–Feb. High sandstone slopes, SW (Riviersonderend Mtns).•

variabilis Pillans Closely leafy, densely branched shrub to 60 cm. Leaves lanceolate, 7–12 mm long, rough, margins strongly revolute, white-felted beneath. Flowers in solitary or grouped capitula, white. Jan.–Mar. High sandstone slopes, SW (Hottentots Holland Mtns).•

virgata (Eckl. & Zeyh.) D.Dietr. Much-branched shrub to 60 cm. Leaves linear, mostly 7–12 mm long, rough, margins revolute. Flowers in small, rounded capitula in small clusters, surrounded by many, small leaves with enlarged petioles, white. Mar.–Aug. Sandstone slopes, SW (Houwhoek to Hermanus).•

vulgaris Pillans Closely leafy shrublet to 30 cm. Leaves needle-like, 6–10 mm long, rough, margins closely revolute. Flowers in flattened, solitary capitula surrounded by leaves and leafy bracts, white. June–Oct. Sandstone slopes, NW, SW, LB (Witzenberg to Witteberg and Riviersonderend Mtns).•

wittebergensis Pillans Densely leafy shrub to 60 cm, grey-tomentose on young parts. Leaves linear, ± 10 mm long, smooth, margins closely revolute. Flowers in small capitula overtopped by leaves, stipitate, white. Aug.–Sept. High rocky sandstone slopes, KM (Witteberg and Klein Swartberg).•

[**Species excluded** Incompletely known and probably conspecific with one of the above: **P. divaricata** Vent., **P. glabrata** Thunb.]

RHAMNUS L. BLINKBLAAR 9 spp., pantropical

prinoides L'Hér. Shrub or small tree to 7 m. Leaves elliptic, serrate, glossy above. Flowers in axillary fascicles, greenish. Fruits thinly fleshy, turbinate, red to black. Aug.–Dec. Riverine scrub and forest margins, LB, SE (Riversdale to tropical Africa).

SCUTIA (Comm. ex DC.) Brongn. KATDORING 9 spp., pantropical

myrtina (Burm.f.) Kurz Armed, scandent shrub or small tree to 8 m, with straight or recurved, axillary thorns. Leaves usually opposite, ovate, leathery, glossy above. Flowers in axillary umbels, yellowish green. Fruits thinly fleshy, black. Oct.–Feb. Forest margins, SW, LB, SE (Cape Peninsula to tropical Africa).

TRICHOCEPHALUS Brongn. DOGFACE, HONDEGESIG 1 sp., Namaqualand to SW Cape **gce**

stipularis (L.) Brongn. (= *Phylica stipularis* L.) Rounded shrublet, sometimes to 90 cm, resprouting from persistent rootstock. Leaves with small, dry stipules, linear-lanceolate, 7–15 mm long, rough, margins closely revolute. Flowers in solitary, rounded capitula, pink, densely white-hairy on outside. May–Sept. Sandy flats and lower slopes, NW, SW, AP, SE (S Namaqualand and Cedarberg to Knysna). **gce**

RORIDULACEAE•

RORIDULA L.• FLYCATCHER BUSH 2 spp., SW Cape

dentata L. Shrub to 2 m. Leaves crowded on side-shoots, narrowly lanceolate, margins with narrow, fine teeth and tentacles. Flowers on long pedicels in upper axils, petals persistent, pink, style shorter than ovary. Sept.–Oct. Seasonally damp, sandstone slopes, 900–1 200 m, NW, SW (Pakhuis to Elandskloof Mtns).•

gorgonias Planch. Shrublet to 60 cm. Leaves crowded at branch tips, narrowly lanceolate, margins with tentacles. Flowers on short pedicels in terminal racemes, petals caducous, pink, style longer than ovary, capitate. July–Oct. Damp, sandstone slopes and seeps, 100–900 m, SW (Hottentots Holland to Kleinrivier and Riviersonderend Mtns).•

ROSACEAE

Cliffortia by A.C. Fellingham

1. Carpel 1; fruit a fleshy drupe; tree with petiolate, elliptic leaves (subfamily PRUNOIDEAE) . . . **Prunus**
1.' Carpels 2 or more (subfamily ROSOIDEAE):
2. Petals present; prickly scramblers with pinnate leaves; fruit succulent . . . . . **Rubus**
2.' Petals absent:
3. Flowers unisexual . . . . . **Cliffortia**
3.' Flowers bisexual:
4. Calyx unarmed; leaves cordate . . . . . **Alchemilla**
4.' Calyx and fruit armed with barbed bristles; leaves pinnate . . . . . **Acaena**

ACAENA L. ± 100 spp., mainly S temperate, also Hawaii, California and S Africa

latebrosa Aiton Silky, tufted perennial with woody base, stems to 30 cm. Leaves pinnate, leaflets oblong, toothed. Flowers on elongated spikes, green. Fruits woolly and barbed. Aug.–Oct. Gran-

ite and clay slopes above 1 000 m, NW, SW, KM, LB (Kamiesberg and W Karoo to Langeberg and Swartberg). **gce**

ALCHEMILLA L. LADY'S MANTLE ± 250 spp., temperate and tropical mountains

capensis Thunb. Silky hairy, trailing perennial. Leaves cordate, 3-lobed and toothed. Flowers in axillary spikes, green. Oct.–Jan. Moist, mainly montane sites, SW, LB, SE (Cape Peninsula to E Cape).

CLIFFORTIA L. CLIMBER'S FRIEND ± 140 spp., N Cape to tropical Africa

*A. Leaves bifoliolate, leaflets flat (see also **C. mirabilis**, **C. multiformis**)*

crenata L.f. Virgate, monoecious or dioecious shrub to 1.5 m. Leaves bifoliolate, leaflets connate around branch, oblique reniform to suborbiculate, 2–6 mm long, margins crenate. Flowers: male: stamens ± 30; female: receptacle oblong, cylindrical, 4 mm long. May–Sept. Sandstone slope, NW, KM (Cold Bokkeveld to Swartberg).•

crenulata Weim. Monoecious or dioecious shrublet to 20 cm with flexuose branches. Leaves bifoliolate, leaflets small, rhomboid-obovate, 4–6-veined, 6–8 mm long, margins translucent, crenulate-denticulate. Flowers: male: unknown; female: ovoid, dull brown, glabrous. Oct. Sandstone slopes, SW (Riviersonderend Mtns).•

phyllanthoides Schltr. Monoecious or dioecious shrublet to 40 cm. Leaves bifoliolate with a rudimentary third leaflet, leaflets flat, orbicular to cordate, 3–6 mm long. Flowers: male: unknown; female: receptacle oblong, 2–2.5 mm long, 3-winged, wings small, undulate and transparent. Apr. Coastal flats, SW, AP (Botrivier to Elim).•

pulchella L.f. Monoecious or dioecious shrublet to 60 cm. Leaves bifoliolate, leaflets flat, reniform to orbiculate, 5–6 mm long, margins shortly ciliate. Flowers: male: stamens ± 20; female: receptacle ovoid, smooth, ± 3 mm long. Apr.–May. Dry sandstone slopes, LB (Langeberg).•

varians Weim. Monoecious or dioecious shrublet to 60 cm. Leaves bifoliolate, occasionally trifoliolate, leaflets obliquely obovate, 4–8(–10) mm long. Flowers: male: stamens 12; female: receptacle ± 3 mm long, with brownish ribs. Sept.–Dec. Middle to upper slopes, LB (Langeberg: Bonnievale).•

A.' Leaves unifoliolate
*B. Leaves linear to subterete (see also **C. sp. 3**)*

acanthophylla C.M.Whitehouse Like **C. dregeana** but more robust with larger leaves, 15–39 × 4–9 mm, with thickened margins when dry. July–Feb. Sandstone slopes and sandveld, NW (Cedarberg to Olifants River Mtns, Leipoldtville).•

aculeata Weim. Monoecious or dioecious shrublet to 30 cm. Leaves simple, subterete, adaxially channelled, aculeate, (20–)40–60 mm long, arranged in flat, imbricate fans. Flowers: male: sepals 8–10 mm long, linear-lanceolate, stamens ± 20; female: receptacle ± 4 mm long, oblong, sulcate. Nov.–Jan. Streamsides on upper slopes, KM (Waboomsberg and Swartberg).•

brevifolia Weim. Spreading, monoecious or dioecious shrublet to 30 cm. Leaves simple, linear, ± 2 mm long. Flowers: male: sepals 4, stamens 4; female: sepals 4, receptacle 1.8 mm long, 4-ribbed with 2 high and 2 low ribs, style short, curved. Dec. Coastal hills and flats, sometimes on calcareous sands, SW, AP (Cape Peninsula to Bredasdorp).•

dregeana C.Presl Monoecious or dioecious shrub, 0.5–1 m. Leaves simple, linear-lanceolate, pungent, 15–35 mm long. Flowers: male: stamens ± 40; female: receptacle ± 8 mm long, ovoid, ± 20-ribbed. July–Feb. Sandstone slopes, NW, SW (Hex River Mtns to Riviersonderend Mtns).•

erectisepala Weim. Monoecious or dioecious shrub, 0.5–2 m. Leaves simple, narrowly linear, 5–7 mm long. Flowers: male unknown; female: sepals erect, margins coherent, receptacle ± 2.5 mm long, cylindrical to turbinate, brown. May–Sept. Middle slopes often on granite, occasionally stream banks, NW, SW, KM, LB (Matsikamma and Gifberg, Paarl to Swartberg).•

ericifolia L.f. Monoecious or dioecious shrublet to 60 cm. Leaves simple, linear, 4–5 mm long. Flowers: male: sepals (3)4, stamens (3)4; female: sepals 4, fugacious, receptacle 2–2.5 ×

1–1.2 mm, ovoid-oblong, brownish, 4-ribbed. Feb.–June. Seasonally damp, acid, sand flats, SW (Philadelphia to Cape Peninsula).•

neglecta Schltr. Compact, monoecious or dioecious shrublet to 30 cm. Leaves simple, needle-shaped, pungent, 5–10 mm long. Flowers: male: stamens 6(7); female: receptacle ovoid. Sept.–Oct. High rocky slopes, NW, KM (Cedarberg to Witteberg and Swartberg).•

nivenioides Fellingham Compact, spreading, monoecious or dioecious shrublet to 60 cm. Leaves simple, linear, straight to slightly falcate, bilaterally flattened, 3–33 × 1–2 mm, in distichous fans. Flowers: male: stamens (13–)16(–20); female: with thick, fleshy receptacle, faintly ridged, ± 5 mm long, style short, curved, maroon. Nov.–Jan. N-facing slopes in seeps, KM (Swartberg).•

pungens C.Presl Monoecious or dioecious shrub to 1 m. Leaves simple, thick, needle-like, pungent, 4–10 mm long. Flowers: male: stamens 6; female: sepals persistent, ± 1 mm long, erect, receptacle ± 6 mm long, cylindrical, 6-angled. Sept. High sandstone slopes, SW (Riviersonderend Mtns).•

uncinata Weim. Erect or trailing, monoecious or dioecious shrublet. Leaves simple, terete, reflexed, uncinate, 10–20 mm long. Flowers: male: stamens 12–15; female: receptacle 3.5–4 mm long, sub-cylindrical. Sept.–Dec. Rocky sandstone slopes, SW, NW (Cedarberg to Porterville Mtns).•

B.' Leaves flat, linear to ovate (see also ***C. dispar****)*

acutifolia Weim. Like **C. phillipsii** but receptacle glabrous. Aug.–Sept. Sandstone slopes, NW (Bokkeveld Mtns).•

ceresana C.M.Whitehouse Resprouting, monoecious shrub to 1.8 m. Leaves simple, broadly ovate-oblong, 10–27 × 5–16 mm, pungent and sharply toothed. Flowers: male: stamens 21–34; female: receptacle 2.3–3.7 mm, smooth. Sept.–Jan. Sandstone slopes, NW (Groot Winterhoek and Cold Bokkeveld Mtns to Hex River Mtns).•

cuneata Aiton Monoecious or dioecious shrub to 2 m. Leaves simple, 25–30 × 5–7 mm, cuneate at base, truncate, margins toothed. Flowers: male: stamens 40–50; female: receptacle ± 7 mm long, ovoid, sulcate, glabrous. Oct.–Nov. Lower sandstone slopes, SW (Cape Peninsula to Riviersonderend Mtns).•

cymbifolia Weim. Low, monoecious or dioecious shrublet. Leaves simple, boat-shaped, 6–12 × 1–2 mm. Flowers: male: stamens 7 or 8; female: receptacle 3 mm long, ovoid-oblong, brown, prominently ribbed. Sept.–Oct. High sandstone slopes, SW, KM (Franschhoek Mtns to Swartberg).•

denticulata (Weim.) C.M.Whitehouse Spindly, monoecious shrub or small tree to 4 m. Leaves simple, broadly ovate to suborbicular, finely toothed, 30–68 × 20–40 mm. Flowers: male: stamens 60–130; female: receptacle ± 3 mm, smooth. Dec.–Jan. Damp depressions and watercourses on sandstone slopes, SW (Hottentots Holland Mtns).•

esterhuyseniae Weim. Hairy, monoecious or dioecious shrub to 2 m. Leaves simple, declinate, lanceolate-elliptic, 8–15 mm long. Flowers: male: stamens 9; female: sepals 0.2 mm wide, receptacle 2.5–2.8 mm long, ovoid, ribbed, brownish green. Dec. High rocky slopes, NW (Hex River Mtns).•

ferricola C.M.Whitehouse Like **C. ruscifolia** but erect and narrowly columnar with smaller leaves often deeply 2- or 3-fid. (Mar.–)Sept.–Feb. Ferricrete lower slopes, SW (Botrivier).•

ferruginea L.f. GLASTEE, TERINGTEE, PYPSTEELBOS Sprawling, monoecious or dioecious shrublet, with reddish branches. Leaves simple, linear-lanceolate to obovate, margins finely dentate, apex coarsely toothed and curved to one side. Flowers male: stamens 15; female: receptacle 3 mm long, ovoid to ovoid-oblong. Nov.–July. Near water, usually on lower slopes, NW, SW, LB, SE (Redelinghuys to Cape Peninsula to Port Elizabeth).•

graminea L.f. VLEIROOIGRAS, WILDE-ERTJIE Sprawling, monoecious or dioecious shrub to 2 m. Leaves simple, grass-like with clasping sheath 30–60 mm long, stipules narrowly triangular, 4–10 mm long, leaf blade linear-lanceolate, 50–150 × 3–6 mm. Flowers: male: stamens ± 30; female: receptacle 4–5 mm long, oblong, greenish, sulcate. Aug.–Mar. Damp flats and slopes, NW, SW, LB, SE (Grootwinterhoek Mtns to Port Elizabeth).•

grandifolia Eckl. & Zeyh. GROOTBLAARRYSBOS Monoecious or dioecious shrub or small tree to 5 m. Leaves simple, coarsely dentate, 50–100 × 15–30 mm. Flowers: male: stamens ± 50; female: unknown. Dec.–Jan. Wooded ravines on sandstone slopes, LB (Langeberg).•

heterophylla Weim. Slender, monoecious or dioecious, tree-like shrub to 2.5 m. Leaves simple, dimorphic, vegetative leaves willow-like, fertile leaves broad, amplexicaul, imbricate in female inflorescences. Flowers: male: stamens 40–50; female: receptacle 2.3–3 mm long, turbinate, fleshy,

slightly striate. Fruits to 7 mm long, completely hidden between imbricate inflorescence leaves. Sept.–June. Sheltered slopes and damp ravines, SW (Kogelberg to Kleinmond).•

hirsuta Eckl. & Zeyh. Monoecious or dioecious shrublet to 50 cm. Leaves simple, cordate, cuspidate-dentate, white-woolly below, 30–50 mm long. Flowers: male: shortly pedicellate, stamens ± 20; female shortly pedicellate, receptacle 2.5–3 mm long, ovoid, apex pointed. Apr.–Dec. Damp sites on mountain slopes, SW (Hottentots Holland to Riviersonderend Mtns).•

ilicifolia L. DORINGTEE, JANKOENSEDORING Monoecious or dioecious shrub to 2 m. Leaves simple, ovate, 15–25 mm long, margins coarsely toothed. Flowers: male: stamens ± 40; female: sepals 1.5–2.5 mm long, acute, upright, receptacle 7–9 × 4–5 mm, ovoid, with ± 20 reddish ribs. Mainly Nov.–Dec. Sandstone slopes, SW, KM, LB, SE (Cape Peninsula, Swellendam to Port Elizabeth).•

integerrima Weim. Monoecious or dioecious shrub to 1 m. Leaves simple, ovate to obovate, 12–16 mm long, rarely 2(3)-toothed. Flowers: male: stamens ± 50; female: receptacle 5–6 mm long, ovoid, ribbed. Jan.–May. Sandstone slopes SW, KM (Cape Peninsula to Caledon and Swartberg).•

intermedia Eckl. & Zeyh. Monoecious or dioecious shrublet to 80 cm. Leaves simple, lanceolate, acute to 2(3)-toothed, 20–30 mm long. Flowers: male: stamens 20–30; female: receptacle 5–5.5 mm long, ovoid, ribbed. July–Nov. Lower mountain slopes, SW (Cape Peninsula to Riviersonderend Mtns).•

lanceolata Weim. Monoecious or dioecious shrublet to 50 cm. Leaves simple, lanceolate, ± 20 mm long. Flowers: male: stamens ± 40, anthers with hairy connectives; female: unknown. Nov.–Jan. High, rocky slopes, LB (Langeberg: Swellendam to Riversdale).•

longifolia (Eckl. & Zeyh.) Weim. Monoecious or dioecious shrub to 1.5 m. Leaves simple, linear, to 60 mm long, minutely denticulate, cauline leaves fugacious, leaf sheath 8–13 mm long, reddish, stipules to 20 mm long, densely hairy. Flowers: male: pedicel ± 8 mm long, densely hairy, bracteoles densely hairy, situated 1.5 mm apart on pedicel, stamens ± 20; female: pedicel 1.6 mm long with half that length above upper bracteole, receptacle 2.6 mm long, ovoid, irregularly ribbed. June–Apr. Seasonally damp, alkaline sands, SW, AP (Saldanha Bay to Gouritsmond).•

monophylla Weim. Hairy, monoecious or dioecious shrublet to 60 cm. Leaves simple, ovate to cordate, ± 4 mm long. Flowers: male: sepals 4, coherent for more than half their length, stamens 6; female: sepals 4, receptacle obovoid, ± 1 mm long. Oct.–Apr. Shale slopes in renosterveld, SW (Caledon Swartberg).•

multiformis Weim. Monoecious or dioecious shrublet. Leaves simple to 2- or 3-lobed to 2- or 3-foliolate, 9–12 × 2–3 mm. Flowers: male: unknown; female: receptacle 5 mm long, oblong, 15–20-ribbed. May–July. Sandstone slopes, SW (Paarl to Bredasdorp).•

odorata L.f. (= *Cliffortia discolor* Weim.) WILDEWINGERD Scrambling, monoecious or dioecious shrub to 1 m. Leaves simple, blade 30–60 × 20–50 mm, toothed, stipules triangular, 4–7 mm long. Flowers: male: stamens 15–20; female: receptacle 2.5 mm long, ovoid. May–Feb. Damp sites, often along streams, NW, SW, LB, SE (Clanwilliam to KwaZulu-Natal).

oligodonta C.M.Whitehouse Erect, resprouting, monoecious shrub to 1.2 m. Leaves simple, recurved, elliptic-ovate, entire or coarsely toothed, glaucous, 22–36 × 10–14 mm. Flowers: male: stamens 30–35; female: receptacle 2.5–3 mm, smooth. Sept.–May. S-facing, sandstone slopes, SW (Hottentots Holland Mtns: Wemmershoek).•

ovalis Weim. Like **C. ilicifolia** but stems sprawling or erect and male flowers with 12 stamens; female: receptacle 3.5 mm long, ovoid, ribbed. Dec.–Jan. High rocky slopes, SW (Jonkershoek and Hottentots Holland Mtns).•

phillipsii Weim. Robust, monoecious or dioecious shrub to 3 m. Leaves simple, ligulate, spiny toothed, 20–35 × 4–7 mm. Flowers: male: stamens ± 50; female: receptacle ± 10 mm long, ovoid, sulcate, densely grey-hairy. Nov.–Dec. Sandstone slopes, SW (Franschhoek and Hottentots Holland Mtns).•

pilifera Bolus Sprawling, lax, monoecious or dioecious shrublet to 60 cm. Leaves simple, ovate, 2–4 mm long, coarsely toothed. Flowers: male: stamens ± 20; female: receptacle ± 2 mm long, ovoid, smooth. Nov.–Apr. Cool, middle to upper slopes, SW (Bain's Kloof Mtns).•

prionota C.M.Whitehouse Erect, resprouting, monoecious shrub to 2.5 m. Leaves simple, narrowly oblong-lanceolate, toothed, 25–50 × 4.5–8.5 mm. Flowers: male: stamens 40–50; female: receptacle 2.5–3.2 mm long, smooth. Sept.–Apr. Shale bands on lower slopes, SW (Kogelberg).•

recurvata (Weim.) C.M.Whitehouse Spindly, monoecious shrub or small tree to 4 m. Leaves simple, narrowly ovate to lanceolate, finely toothed, 64–74 × 20–27 mm. Flowers: male: stamens 75–120; female: receptacle ± 3.5–9 mm long, smooth. Dec.–Jan. Damp depressions and watercourses on sandstone slopes, SW (Kogelberg).•

reniformis (Weim.) C.M.Whitehouse Erect, single-stemmed, monoecious shrublet to 3 m with divaricately spreading side-branches. Leaves simple, suborbicular, clasping at base, blade 12–20

× 16–26 mm, toothed. Flowers: male: stamens 50–70; female: receptacle 2–2.5 mm long, smooth. Jan.–Dec. Streamsides and valley bottoms, LB (Langeberg: Garcia's Pass).•

reticulata Eckl. & Zeyh. Straggling, monoecious or dioecious shrublet. Leaves simple, ovate-cordate, ± 3.5 mm long, margins dentate. Flowers: male: stamens 20; female: unknown. Nov.–Feb. Moist sites on sandstone slopes, NW, SW (Grootwinterhoek Mtns to Kogelberg).•

ruscifolia L. STEEKBOS Monoecious or dioecious shrub to 1.5 m. Leaves simple, pungent, vegetative leaves oblong-lanceolate, channelled, sparsely hairy, 10–12 mm long, fertile leaves shorter, tridentate, densely hairy. Flowers: male: pedicel 1–2 mm long, stamens ± 12; female: receptacle 3–4 mm long, ovoid, brownish, sulcate. Aug.–Oct. Sandy and rocky sandstone slopes, often disturbed sites, NW, SW, KM, LB, SE (Richtersveld to Humansdorp).

scandens C.M.Whitehouse Scrambling, densely branched monoecious shrublet to 60 cm. Leaves simple, narrowly lanceolate to oblong, toothed, 22–38 × 2–3 mm. Flowers: male: stamens ± 20; female: receptacle smooth. Nov.–Feb. Rocky S-facing sandstone slopes, SW (Riviersonderend Mtns).•

schlechteri (Weim.) C.M.Whitehouse Like **C. ilicifolia** but leaves smaller, 6–11 × 6–12 mm and 2–4-toothed. Jan.–Dec. Sandstone and limestone flats, AP (Gansbaai to Gourits River).•

strigosa Weim. Straggling, monoecious or dioecious shrub to 1 m. Leaves simple, cordate, hairy, 12–18 mm long. Flowers: male: stamens numerous; female: unknown. Mar. Upper slopes, SW (Paarl: Limietberg).•

strobilifera L. KAMMIEBOS, PYPSTEELBOS, VLEIBOS Monoecious or dioecious shrub to 3 m, often bearing cone-shaped galls. Leaves simple, linear, acute, 10–15 mm long. Flowers: male: stamens 15–20; female: receptacle ± 1.5 mm long, subcylindrical, obscurely striate, apical opening as wide as receptacle. Jan.–Apr. Sandstone flats and lower slopes, often near water, NW, SW, KM, LB, SE (Kamiesberg and Bokkeveld Mtns to KwaZulu-Natal).

theodori-friesii Weim. Like **C. ruscifolia** but leaves spine-tipped and female flowers with receptacle 4–6 mm long, ovoid, 12-ribbed. Sept.–Apr. Middle to upper slopes, SW (Cape Peninsula to Riviersonderend Mtns).•

tricuspidata Harv. Sprawling, monoecious or dioecious shrublet, branches to 50 cm long. Leaves simple, 2.5 × 1.5–4 mm, pubescent, apex with 3, sharp, curved teeth. Flowers: male: stamens 6(7); female: receptacle 2.5 mm long, ovoid, obscurely reticulate. Dec.–Apr. Upper slopes, NW, SW (Cedarberg to Hottentots Holland Mtns).•

verrucosa Weim. Monoecious or dioecious shrublet. Leaves simple, entire to irregularly dentate, hairy, 4–8 × 2–4 mm. Flowers: male: unknown; female: receptacle ± 4 mm long, oblong, verrucose. Oct. High sandstone slopes, KM (Swartberg).•

virgata Weim. Sparsely branched, monoecious or dioecious shrub to 2 m. Leaves simple, cordate, 20–30 mm long, apex acuminate and recurved, margins coarsely recurved-dentate. Flowers: male: stamens ± 40; female: unknown. Aug.–Oct. High sandstone slopes, NW, SW (Piketberg to Ceres and Paarl).•

viridis Weim. Spreading, monoecious or dioecious shrub. Leaves simple, ovate, 30–45 mm long, margins crenate to toothed, stipules with cusps to 8 mm long. Flowers: male: stamens ± 20; female: unknown. Sept. High sandstone slopes, SW (Kogelberg).•

A." Leaves trifoliolate (see also ***C. multiformis****)*
C. Leaflets flat, linear to lobed

anthospermoides Fellingham Densely leafy, monoecious or dioecious shrub to 1 m. Leaves trifoliolate, leaflets flat, linear-lanceolate, straight to twisted, ± 10 mm long. Flowers: male: stamens ± 10, maroon; female: sepals fugacious, receptacle elliptic, ± 1.5 mm long. Mainly Aug.–Sept. Alkaline sands, AP (Gansbaai and Franskraal).•

apiculata Weim. Monoecious or dioecious shrublet to 40 cm. Leaves trifoliolate, leaflets flat, oblong-lanceolate, 5–12 mm long, apiculate. Flowers: male: stamens 7–9; female: receptacle ± 4 mm long, obovoid, apically tricostate; style 6–7 mm long, reddish purple. Oct.–Dec. Damp, shale slopes, SW (Palmiet River Valley).•

arcuata Weim. Monoecious or dioecious shrub to 1 m. Leaves, petiolate, trifoliolate, leaflets, narrow, linear, flat, falcate, apiculate, 5–10 × 0.5–0.8 mm, margins revolute. Flowers: male unknown; female: sepals revolute, receptacle walls thin, membranous, semi-transparent. Sept.–Nov. Sandstone slopes, SE (Langkloof).•

baccans Harv. Monoecious or dioecious shrublet to 60 cm. Leaves trifoliolate, leaflets ericoid, 2–3.5 × 0.4–0.5 mm. Flowers: male: stamens 6; female: sepals 3 or 4, adpressed to receptacle,

3 mm long, spherical, deep yellow. Fruits red. Sept.–Oct. Dry, rocky, upper slopes, NW, KM (Cedarberg to Witteberg).•

carinata Weim. Monoecious or dioecious shrublet to 30 cm, twigs pilose. Leaves trifoliolate, leaflets lanceolate, apiculate, 5–6 × 1–1.5 mm. Flowers: male: stamens 12; female: receptacle ribbed. Jan.–Apr. Coastal slopes, SW (Cape Peninsula).•

complanata E.Mey. Spreading, monoecious or dioecious shrublet to 60 cm. Leaves trifoliolate, leaflets flat, narrowly elliptic, ± 7 mm long. Flowers: male: unknown; female: sepals 4, ovate, receptacle dorsiventrally flattened, hairy; styles 2, ± 2 mm long, rusty red. Nov.–Mar. Moist, upper rocky slopes, SW (Du Toitskloof to Caledon Swartberg).•

concinna Weim. Slender, monoecious or dioecious shrublet. Leaves trifoliolate, leaflets flat with midribs projecting in small, hooked points, 3–5 × 1–1.5 mm. Flowers: male: stamens 6; female: receptacle prominently ribbed, style 4–5 mm long. May. High rocky slopes, KM (Rooiberg).•

conifera E.G.H.Oliv. & Fellingham Monoecious or dioecious shrub or tree to 4 m. Leaves trifoliolate, leaflets flat, narrowly elliptic to ovate, ± 15 × 5 mm, entire, sometimes 3-lobed, margins slightly revolute. Flowers: male: single or in small clusters on lower branches, with tiny, pale yellowish sepals; female: in cone-like inflorescences on lateral branches near apices of main branches, hidden except for the single, linear red styles. June–Oct. E-facing, sandstone, summit slopes, KM (Anysberg).•

cruciata C.M.Whitehouse Low, single-stemmed, monoecious shrublet to 30 cm. Leaves trifoliolate, sessile, leaflets linear-falcate, base bulbous, grooved adaxially, 3–4 × 0.5 mm. Flowers: sepals 4: male: stamens 6 or 7; female: receptacle 1–3 mm long, ribbed. Sept. Sandy plateaus, SW (Riviersonderend Mtns: Jonaskop).•

dentata Willd. (= *Cliffortia gracilis* Harv.) Slender, trailing, monoecious or dioecious shrublet to 60 cm. Leaves trifoliolate, leaflets flat, cuneate, toothed, ± 4.5 × 3 mm. Flowers: male: sepals 4, stamens 8; female: sepals 4; receptacle dorsiventrally flattened, styles 2, 1.5–2 mm long. Mainly Sept.–Oct. Sheltered sites on sandstone slopes, SW (Cape Peninsula to Hottentots Holland Mtns).•

dichotoma Fellingham Monoecious or dioecious shrub or tree to 3 m. Primary leaves fugacious, trifoliolate, secondary leaves simple, ± 2 mm long, tongue-shaped, greyish green, grooved adaxially. Flowers: male: minute, borne singly or in small clusters in axils of vegetative leaves, stamens 3; female: hidden in compact cones ± 30 mm long, terminally on branches, styles strap-shaped, red. Oct. Sandstone cliffs and outcrops, NW (Bokkeveld Mtns: Oorlogskloof and Blomfontein).•

dispar Weim. Hairy, monoecious or dioecious shrub. Leaves trifoliate sometimes unifoliolate, leaflets flat, beneath, margins revolute, 4–12 × 1–2 mm. Flowers: male: stamens 9; female: receptacle obscurely ribbed. Mainly Nov.–Jan. High sandstone slopes, LB, SE (Langeberg to Kouga Mtns).•

dodecandra Weim. Monoecious or dioecious shrub to 1 m. Leaves trifoliolate, leaflets flat, linear, sharp-pointed, sparsely long white-hairy above when young, 8–12 × 0.6–1.5 mm. Flowers: male: stamens 12; female: receptacle dark reddish brown. Sept.–Dec. Lower sandstone slopes along streams, SW (Cape Peninsula to Hottentots Holland Mtns).•

drepanoides Eckl. & Zeyh. Monoecious or dioecious shrub to 1 m. Leaves trifoliolate, leaflets linear-lanceolate, somewhat falcate, subacute, 10–18 mm long. Flowers: male: stamens ± 25; female: receptacle 6-ribbed. Mar.–Apr. Sandstone slopes, SE (Langkloof to Uitenhage).•

falcata L.f. Monoecious or dioecious shrub to 1 m. Leaves trifoliolate, leaflets 6–12 mm long, falcate, margins revolute. Flowers: male: sepals locked, pollen dispersed through round openings bordered by recurved, subapical portions of sepals; female: receptacle walls thin, membranous, semi-transparent. Aug.–Oct. Coastal slopes, SW, AP, LB (Cape Peninsula to Knysna).•

filicaulis Schltdl. Sprawling or erect, monoecious or dioecious shrublet. Leaves trifoliolate, stipules large and leaf-like, leaflets flat, hairy, central leaflet 2–4 × 2–3 mm, obcordate to obovate, apex trilobed, lateral leaflets 2–4 × 1–3 mm, obtuse. Flowers: male: sepals 4, stamens 8; female: sepals 4, receptacle ovoid, 1–1.5 mm long. Aug.–Dec. Lower sandstone slopes, SW, LB, SE (Cape Peninsula to Humansdorp).•

geniculata Weim. Monoecious or dioecious shrub. Leaves trifoliolate, leaflets oblong-obovate and apiculate, 5–8 × 2–3.5 mm. Flowers: male: unknown; female: receptacle 6-ribbed, interspersed with wrinkled areas. Jan.–Feb. Lower slopes, SW (Kleinrivier Mtns).•

glauca Weim. Monoecious or dioecious shrub to 1 m. Leaves trifoliolate, leaflets broadly obovate, mucronate, 4–7 × 1–4 mm. Flowers: male: stamens 15; female: receptacle 6-ribbed, brownish. Nov.–Feb. Sandstone slopes, KM, LB (Cape Peninsula to Langeberg).•

gracillima C.M.Whitehouse (= *Cliffortia gracilis* auct.) Like **C. dentata** but leaves smaller, central leaflet 3–5 × 2–5 mm, lateral leaflets obliquely obovate, 4–6 × 1.5–3 mm. July–Oct. Shaded, upper sandstone slopes, SW, LB (Waboomsberg and Langeberg).•

hantamensis Diels Closely leafy, densely branched, hairy, monoecious or dioecious shrub to 1 m. Leaves trifoliolate, leaflets flat, oblong-ovate, obtuse, densely long-hairy, 2–3 × 1–2 mm. Flowers: male: sepals 4, ± 3 mm long, connate in lower half, apices acute, recurved and hairy, stamens 8; female: sepals as for male but smaller, styles 2. Sept.–Oct. High sandstone slopes, NW, KM (W Karoo and Cedarberg to Waboomsberg). **gce**

hexandra Weim. Erect, monoecious or dioecious shrub to 60 cm. Leaves trifoliolate, leaflets small, flat, oblong-lanceolate, acute, 2–2.5 × 0.5–0.7 mm. Flowers: male: stamens 6; female: receptacle fusiform, with 3, longitudinal, reflexed crests. Sept.–Oct. Upper slopes, NW (Bokkeveld Mtns to Ceres).•

lanata Weim. Erect, monoecious or dioecious shrublet to 30 cm. Leaves trifoliolate, leaflets flat, oblanceolate, densely grey-hairy, 3–5 × 1 mm. Flowers: male: unknown; female: fusiform, 6-winged: 3 low wings recurved and 3 high wings adpressed or patent. May–June. High rocky slopes, SW (Du Toitskloof Mtns).•

lepida Weim. Slender, sprawling, monoecious or dioecious shrublet. Leaves trifoliolate, leaflets 5–12 × 2–5 mm, base cuneate, apex lobed. Flowers: male: pedicel 8–12 mm long, filiform, stamens 12; female: pedicel as for male, sepals recurved, receptacle obovoid. Dec. High sandstone slopes, NW, SW (Grootwinterhoek Mtns to Du Toitskloof).•

marginata Eckl. & Zeyh. Twiggy, monoecious or dioecious shrublet to 30 cm. Leaves trifoliolate, leaflets flat, linear to narrowly lanceolate, 2–4 × 0.5–1 mm, margins transparent. Flowers: male: stamens 12; female: receptacle smooth to slightly ribbed. Mar.–Apr. Stony flats, SW (Stellenbosch to Elim).•

micrantha Weim. Slender, monoecious or dioecious shrublet to 60 cm. Leaves trifoliolate, leaflets small, broadened to apex with 3–5 obtuse teeth. Flowers: male: unknown; female: receptacle oblong, 2.5 mm long, with a few, low ribs. May–June. Arid fynbos on middle to upper sandstone slopes, KM (Little Karoo Mtns).•

mirabilis Weim. Rigid, monoecious or dioecious shrub to 1 m. Leaves bi- or trifoliolate, leaflets flat, obovate to oblong, 4–8 × 2.5–5 mm. Flowers: male: stamens 10–12; female: receptacle 3.5 mm long, ovoid-oblong, ribbed. July. High rocky slopes, NW, SW, KM, LB (Hex River Mtns to Franschhoek, Anysberg to Langeberg).•

montana Weim. Monoecious or dioecious shrublet. Leaves trifoliolate, leaf sheaths and stipules large and prominent, leaflets flat with revolute margins, hairy, 2.5–5 × 0.5 mm. Flowers: male: stamens 6; female: receptacle smooth, brown, obscurely sulcate. Dec.–Jan. High rocky slopes, KM (Swartberg and Karoo Mtns).

obcordata L.f. Monoecious or dioecious shrub to 1.3 m. Leaves trifoliolate, leaflets flat; central leaflet obcordate, with midrib excurrent and declinate, 3–7 mm long, lateral leaflets 4–10 × 2–8 mm, obliquely rhomboid-obovate. Flowers: male: stamens 15; female: receptacle tinged with brown, shallowly 12-grooved, style 7 mm long. Mar.–Nov. Flats and lower slopes, SW, AP (Cape Peninsula to Still Bay).•

obovata E.Mey. Spreading, monoecious or dioecious shrublet to 60 cm. Leaves trifoliolate, leaflets obovate, 2–5 mm long. Flowers: male: stamens 12; female: receptacle shallowly 6-ribbed, brownish. Apr. Middle to upper mountain slopes, NW, SW (Witzenberg to Riviersonderend Mtns).•

pedunculata Schltr. Erect to sprawling, monoecious or dioecious shrublet to 30 cm. Leaves trifoliolate, long-petiolate, leaflets cuneate-lanceolate to obovate, 2–4 mm long, irregularly toothed. Flowers on pedicels 2–4 cm long: male: sepals 7–12 mm long, stamens 50, anthers yellow; female: ± 3.5 mm long, style 1, 8–10 mm long, dull yellow. July–Jan. Damp sandstone slopes, SW (Cape Peninsula to Kleinrivier Mtns).•

perpendicularis C.M.Whitehouse Possibly a hybrid **C. falcata** × **ramosissima** Lax, spindly shrublet soon sprawling under its weight. Leaves trifoliolate, leaflets oblong-linear, 3.5–7.5 × 0.7–1.1 mm, lateral leaflets falcate. Flowers: male: unknown; female: receptacle 1–1.8 mm, sparsely hairy. Sept. Acid sands, AP (Elim to Potberg).•

polygonifolia L. PADDABOS Erect, monoecious or dioecious shrub to 1.5 m. Leaves trifoliolate, leaflets flat, pubescent, oblong-lanceolate to lanceolate, obtuse to tridentate, 4–7 × 1–3 mm. Flowers: male: stamens 12; female: receptacle 3–4 mm long, fusiform, glabrous to hairy, 3-winged, wings adpressed to receptacle. Apr.–Nov. Flats and lower slopes, NW, SW (Clanwilliam to Bredasdorp).•

propinqua Eckl. & Zeyh. Sprawling, monoecious or dioecious shrublet to 60 cm. Leaves trifoliolate, leaflets 2–4 mm long, flat, pinnately veined, central leaflet with 2–4 apical teeth. Flowers: male: sepals 4, ± 2 mm long, stamens 8; female: sepals 4, receptacle dorsiventrally flattened, with long, reddish hairs. Feb.–Mar. Rocky sandstone slopes, NW, SW, LB (Cedarberg to Langeberg).•

ramosissima Schltr. Much-branched, monoecious or dioecious shrub to 3 m. Leaves trifoliolate, leaflets nearly flat, midvein raised abaxially, 4–6 × 0.5–1 mm. Flowers: male: stamens 6; female:

receptacle ± 3 mm long, ribbed, green with a lilac tinge, walls membranous and semi-transparent. Apr.–May. Flats and slopes, SW, KM, SE (Bredasdorp and Swartberg to Mpumalanga).

rigida Weim. Sprawling, monoecious or dioecious shrublet. Leaves simple and tridentate to trifoliolate, 5–7 × 1.5–2 mm. Flowers: male: stamens 6; female: receptacle 6–12-ribbed. Sept.–Oct. Sandstone slopes, SW (Du Toitskloof Mtns).•

sericea Eckl. & Zeyh. Silky, monoecious or dioecious shrub to 60 cm. Leaves trifoliolate, leaflets linear-lanceolate, sericeous, 4–6 mm long. Flowers: male: stamens 9; female: receptacle ± 4 mm long, fusiform, 3-winged, wings adpressed to receptacle. Aug.–Nov. Mountain slopes, NW, SW (Tulbagh to Elim).•

serpyllifolia Cham. & Schltdl. Monoecious or dioecious shrub to 2 m. Leaves trifoliolate, leaflets flat, margins flat or subrevolute, apex sometimes obtusely tridentate, 3–6 × 0.5–1.5 mm. Flowers: male: sepals 4, partly coherent, stamens 4–6; female: receptacle to 2 mm long, slightly ribbed. Nov.–May. Middle to upper slopes, LB, SE (Swellendam to KwaZulu-Natal).

subdura Weim. Monoecious or dioecious shrub to 1 m. Leaves trifoliolate, leaflets narrowly lanceolate, 7–10 mm long. Flowers: male: unknown; female: receptacle 4 mm long, fusiform, winged, wings recurved. May. Stream banks, SW (Du Toitskloof Mtns).•

tenuis Weim. Monoecious or dioecious shrublet to 30 cm. Leaves trifoliolate, leaflets oblanceolate, apiculate, ± 6 × 0.5 mm. Flowers: male: stamens 6; female: receptacle ± 2 mm long, 6-ribbed, ribs interspersed with fine, grey-brown tubercles. Dec. Flats and lower slopes SW (Caledon, Bredasdorp).•

triloba Harv. Sparsely branched, spreading, monoecious or dioecious shrub to 30 cm. Leaves trifoliolate, petiole 1–2 mm trifenestratelong, leaflets flat, cuneate-triangular, 4–8 mm long, apices 2–4-dentate. Flowers: male: stamens 20; female: sepals 3, ± 3 mm long, style 1, 8–10 mm long, red. Aug.–Sept. Upper slopes, NW, SW (Cedarberg to Ceres).•

C.' Leaflets linear to subterete

acockii Weim. Monoecious or dioecious shrublet to 25 cm. Leaves trifoliolate, leaflets needle-shaped, 3–4 mm long, apex with distinctive red awn. Flowers: male: unknown; female: receptacle ovoid-oblong, 3.5 mm long, sulcate, dull rusty red, style 1 mm long. June–Nov. Granite hills, SW (Namaqualand: Toringberg and Paarl). **gce**

alata N.E.Br. Monoecious or dioecious shrublet to 50 cm. Leaves trifoliolate, leaflets linear, sparsely to densely hairy, 3–8 mm long. Flowers: male: sepals (3)4, stamens 6–8; female: pedicel ± 1 mm long, receptacle rotund-elliptic, central part grey-hairy and tubercled, 2(3)-winged, style 1 mm long, red. June–Jan. Lower, rocky, N slopes, LB (Langeberg).•

amplexistipula Schltr. Monoecious or dioecious shrublet to 30 cm. Leaves trifoliolate, leaflets thick, subterete, young spathulate, older elliptic, scabrid, 2–3 mm long. Flowers: male: stamens 6; female: receptacle narrowly oblong, slightly curved, 7(8)-ribbed with 2 ribs flattened and extended around base forming a continuous wing. July–Apr. Dry, rocky, sandstone or granite slopes, NW, KM (Kamiesberg and Bokkeveld Mtns to Anysberg).•

atrata Weim. Monoecious or dioecious shrub to 1 m. Leaves trifoliolate, leaflets needle-like, acuminate, 5–12 mm long. Flowers: male: stamens 12; female: receptacle pedicellate, dark brown to black, 12-ribbed, ribs rounded, style curled to form a dense tuft. July–Dec. Sandstone slopes, NW, SW, KM, LB (Cold Bokkeveld to Langeberg and Swartberg).•

burchellii Stapf Monoecious or dioecious shrub to 2 m. Leaves trifoliolate, leaflets linear, mucronate, margins finely toothed, 15–20 mm long. Flowers: male: stamens 12; female: sepals connate at base, fleshy, erect, receptacle 6 mm long, ovoid, shallowly ribbed to smooth, style ± 1 mm long, hidden. Apr.–May. Streamsides on sandstone slopes, SW, KM, LB, SE (Riviersonderend to Van Staden's Mtns).•

burgersii E.G.H.Oliv. & Fellingham Much-branched, monoecious or dioecious shrub to 1.5 m. Leaves trifoliolate, leaflets needle-like, glaucous, 3–7 mm long. Flowers: male: pedicels 1.5 mm long, sepals 3 or 4, stamens 10–13; female: pedicels 1.5 mm long lengthening to 3.7 mm in fruit, sepals 3(4), receptacle 3(4)-winged, white-woolly, with irregular horny, red spines or wing-like combs. June–Jan. Limestone flats, AP (De Hoop).•

castanea Weim. Low, monoecious or dioecious shrublet with branches densely and shortly red- or grey-hairy. Leaves trifoliolate, leaflets subterete, slightly arched, densely verruculose, 4–7 mm long. Flowers: male: unknown; female: receptacle 6-ribbed, chestnut-brown. Oct.–Nov. Dry, rocky, upper slopes, KM (Witteberg and Anysberg).•

cervicornu Weim. Monoecious or dioecious shrublet. Leaves trifoliolate, leaflets 2–3 mm long, deeply 3–5-lobed. Flowers: male: unknown; female: receptacle oblong, 2.5 mm long, with a few, low ribs. Oct. Rocky upper slopes, KM (Swartberg).•

crassinervis Weim. Monoecious or dioecious shrublet. Leaves trifoliolate, leaflets needle-like, shortly apiculate, bright green, 3–4 mm long, midrib broad, filling almost entire width above. Flowers: male: unknown; female: receptacle oblong, green, sepals small, erect. Oct. High sandstone slopes, KM (Swartberg: Seweweekspoort).•

cristata Weim. Monoecious or dioecious shrublet to 30 cm. Leaves trifoliolate, leaflets linear, hairy, 6–10 mm long. Flowers: male: unknown; female: receptacle ovoid-oblong, winged to crested, crests brownish red. Aug.–Nov. Upper sandstone slopes, NW, SW (Cold Bokkeveld to Cape Peninsula).•

curvifolia Weim. Spreading, densely leafy, monoecious or dioecious shrub. Leaves trifoliolate, leaflets linear, curved, midrib prominent abaxially, 10–15 mm long. Flowers: male: stamens ± 25; female: receptacle fusiform, to 12 mm long. July. Low hills, SW (Bredasdorp).•

densa Weim. Densely leafy, monoecious or dioecious shrub. Leaves trifoliolate, leaflets slender, curved, square in section, 6–9 mm long. Flowers: male: stamens 15; female: receptacle ± 6 mm long, fusiform, 12-ribbed. May. High sandstone slopes, LB (Langeberg).•

eriocephalina Cham. Silvery hairy, monoecious or dioecious shrub to 1 m. Leaves trifoliolate, leaflets linear, obtuse, sparsely to densely pilose. Flowers: male: stamens 6; female: receptacle 12-ribbed, ribs brown. Sept.–Feb. Rocky peaks, NW, SW, LB, SE (Grootwinterhoek Mtns to Knysna).•

exilifolia Weim. Robust, monoecious or dioecious shrub to 1.3 m. Leaves trifoliolate, leaflets needle-like, acuminate, 8–10 mm long. Flowers: male: bracteoles sparsely hairy, stamens 6; female: bracteoles as for male, sepals erect. Apr. and Sept. High rocky slopes, SW (Cape Peninsula to Kogelberg).•

filifolia L.f. Low, monoecious or dioecious shrublet. Leaves trifoliolate, leaflets fine, needle-like, slightly curved, margins rough, 6–12 mm long. Flowers: male: stamens 6; female: receptacle oblong, ribs inconspicuous. May–Aug. Flats and lower slopes, SW, AP, SE (Malmesbury to Knysna).•

hirta Burm.f. Straggling, monoecious or dioecious shrublet to 60 cm. Leaves trifoliolate, with sheath and stipules membranous, ciliate, leaflets linear, sparsely long-hairy, 5–12 mm long. Flowers: male: stamens ± 20; female: receptacle 3–3.5 mm long. May–Nov. Flats and lower slopes, SW (Bokbaai to Cape Peninsula).•

incana Weim. Robust, monoecious or dioecious shrub. Leaves trifoliolate with sheaths and stipules densely hairy, leaflets linear, 8–14 mm long. Flowers: male: bracteoles densely grey-hairy, stamens 9–12; female: bracteoles as for male, receptacle 6-ribbed, slightly shiny. Oct. Coastal slopes, AP (Breede River Mouth).•

juniperina L.f. (= *Cliffortia hermaphroditica* Weim.) Closely leafy, monoecious or dioecious shrub to 1 m, verruculose on young parts. Leaves trifoliolate, leaflets needle-like, verrucose, 4–10 mm long. Flowers: male: stamens ± 20; female: receptacle brownish green, rugose between green ribs. Sept.–Mar. Granite and sandstone slopes, NW, SW (Bokkeveld Mtns to Caledon).•

linearifolia Eckl. & Zeyh. Monoecious or dioecious shrub to 1.5 m. Leaves trifoliolate, leaflets linear, 5–10 mm long, margins revolute, midribs prominent. Flowers: male: sepals 4, stamens 4; female: receptacle reddish brown, smooth, shiny, striate. Apr.–July(–Oct.). Lower slopes, SE (Knysna to tropical Africa).

paucistaminea Weim. Densely leafy, monoecious or dioecious shrub to 1.2 m. Leaves trifoliolate, leaflets linear, curved, pungent, 5–13 mm long, margins minutely toothed. Flowers: male: stamens 3 or 4; female: receptacle yellowish green, shiny, oblique obovate-oblong, with 12–16 conspicuous ribs. Jan.–Apr. Lower mountain slopes, SE (George to KwaZulu-Natal).

polita Weim. Monoecious or dioecious shrublet to 60 cm. Leaves trifoliolate, leaflets linear, shiny, 3–6 mm long. Flowers: male: stamens 6; female: receptacle cylindrical, straight to slightly curved, irregularly 6-ribbed. Nov.–Jan. Dry, rocky, upper slopes, KM, SE (Swartberg and Outeniqua Mtns to Uitenhage).•

pterocarpa (Harv.) Weim. Monoecious or dioecious shrub to 1 m. Leaves trifoliolate, leaflets narrowly linear, adaxially flat, abaxially convex, 7–15 × 0.5–1.5 mm. Flowers: male: stamens (8)9; female: receptacle brown, 6-ridged, ridges high and sharp-edged. Aug.–Dec. Lower mountain slopes, SW, LB (Cape Peninsula to Riversdale).•

repens Schltr. Erect or spreading, monoecious or dioecious shrub to 1 m. Leaves simple, linear-lanceolate, 6–15 mm long, margins scabrid. Flowers: male: stamens 6; female: receptacle 3 mm long, oblong, 9-ribbed, brownish. Mar.–Apr. ?, LB, SE (Swellendam to Mpumalanga).

robusta Weim. Sprawling, monoecious or dioecious shrublet to 20 cm. Leaves trifoliolate, leaflets needle-like, thick, pungent, 10–15 mm long. Flowers: male: stamens 12; female: receptacle ovoid, smooth to slightly ribbed, styles 1(2). Nov.–Feb. High rocky slopes, KM (Klein Swartberg to Uniondale).•

semiteres Weim. Straggling, monoecious or dioecious shrublet to 60 cm. Leaves trifoliolate, leaflets linear, convex below, 4–7 × 1.2–1.5 mm. Flowers: male: unknown; female: receptacle ovoid, 3-winged, wings low. June. Rocky sandstone slopes, NW, KM (Hex River Valley to Klein Swartberg).•

setifolia Weim. Sprawling, monoecious or dioecious shrub to 1.5 m. Leaves trifoliolate, leaflets fine, needle-like, 4–5 mm long, apices blunt. Flowers: male: sepals 4, stamens 4; female: receptacle ± 1 mm long, smooth, style stout and curved. Dec. Rock crevices at high alt., KM (Klein and Groot Swartberg).•

sparsa C.M.Whitehouse Possibly a hybrid **C. atrata** × **C. cristata** or **C. sericea** Erect, divaricately branched shrub to 1.2 m. Leaves trifoliolate, leaflets linear-aciculate, 6–10 × 0.6–1 mm. Flowers: male: stamens 10 or 11; female: receptacle ± 2 mm, ribbed. Aug.–Nov. Shale bands, SW (Hottentots Holland Mtns.)•

stricta Weim. Monoecious or dioecious shrub to 1.5 m. Leaves trifoliolate, sheath and stipules large and prominent, leaflets linear, hairy, 4–8 mm long. Flowers: male: stamens 6; female: receptacle 12-veined, smooth. Oct.–June. Flats and lower slopes, SW, AP, LB, SE (Cape Peninsula to Humansdorp).•

subsetacea (Eckl. & Zeyh.) Diels ex Bolus & Wolley-Dod Monoecious or dioecious shrub to 2 m. Leaves trifoliolate, leaflets needle-like, curved, 3–5 mm long. Flowers: male: stamens 8 (1 or 2 sterile); female: receptacle with 4 high and 4 low ribs, style 1 mm long, red. Aug.–Jan. Flats and lower mountain slopes, mainly marshy areas, SW (Cape Peninsula to Kleinmond).•

teretifolia L.f. Monoecious or dioecious shrub to 1 m. Leaves trifoliolate, leaflets terete, mucronate, 4–8 mm long. Flowers: male: sepals with long, dorsal spine; female: receptacle ± 3 mm long, 3- or 4-winged. Mainly Sept.–Dec. Mountain slopes NW, KM (Namaqualand to Piketberg, Witteberg and Anysberg). **gce**

tuberculata (Harv.) Weim. Closely leafy, monoecious or dioecious shrub to 1 m. Leaves trifoliolate, leaflets linear, 5–10 mm long, margins finely scabrous. Flowers: male: stamens 12; female: receptacle reddish brown, coarsely tuberculate. Oct.–Nov. High peaks, NW, SW, KM, LB (Cedarberg to Little Karoo and Langeberg).•

weimarckii C.M.Whitehouse Like **C. eriocephalina** but leaves longer and more rigid, 6–13 × ± 1 mm. Jan. Sandy slopes at high alt., NW, SW (Cold Bokkeveld to Hex River Mtns.)•

PRUNUS L. ± 400 spp., worldwide, mainly N hemisphere

africana (Hook.f.) Kalkman ROOISTINKHOUT Tree to 24 m. Leaves elliptic, toothed. Flowers in axillary racemes, white, fragrant. Aug.–Sept. Evergreen forests, SE (Bloukrans River Gorge and E Cape to tropical Africa).

RUBUS L. BRAMBLE ± 250 spp., cosmopolitan, mainly N hemisphere

fruticosus L. Sprawling, thorny shrub to 2 m. Leaves 3–5-digitate, leaflets ovate, toothed and discolorous. Flowers in grey-velvety, terminal panicles, pink. Fruits black. Oct.–Apr. Forest margins, SW (Riebeek-Kasteel to Jonkershoek).•

pinnatus Willd. Sprawling, thorny shrub to 2 m. Leaves 5–7-pinnate, leaflets elliptic and toothed. Flowers in small, velvety, terminal panicles, lilac. Fruits orange. Nov.–Feb. Forest margins, SW, LB, SE (Cape Peninsula to tropical Africa).

rigidus Sm. Like **R. pinnatus** but leaves grey-felted beneath and leaflets ovate. Oct.–Feb. Forest margins, NW, SW, LB, SE (Clanwilliam to tropical Africa).

RUBIACEAE

1. Ovules 2–many in each locule:
   2. Fruit dry, capsular; annual or perennial herbs; corolla tube < 1 mm long, funnel-shaped ..... **Oldenlandia**
   2.' Fruit baccate, indehiscent; shrubs or small trees; corolla various:
      3. Flowers several to many, corymbose, red ..... **Burchellia**
      3.' Flowers solitary, white or cream-coloured:
         4. Corolla tube cylindric; stipules connate ..... **Gardenia**

4.' Corolla tube campanulate; stipules ovate ..... **Rothmannia**
1.' Ovules solitary in each locule:
5. Style undivided, capitate or clavate; flowers conspicuous; broad-leaved trees or shrubs:
6. Flowers yellow; cymes terminal; style included ..... **Psychotria**
6.' Flowers white; cymes axillary or lateral; style exserted:
7. Style twice as long as corolla tube; stigmatic knob cylindrical, ± twice as long as wide .. **Psydrax**
7.' Style less than twice as long as corolla tube; stigmatic knob globose, ± as long as wide ... **Canthium**
5.' Style absent or deeply divided; flowers inconspicuous; herbs or ericoid shrubs:
8. Stigmas capitate; stipules foliaceous, leaves thus appearing whorled; diffusely branched weak herbs with 4-angled branches:
9. Flowers 5-merous ..... **Galium**
9.' Flowers 4-merous ..... **Rubia**
8.' Stigmas filiform; stipules unlike leaves which are thus clearly opposite:
10. Style present; succulent-leaved, coastal sand-dune runner ..... **Phylohydrax**
10.' Style absent or obsolete; plants not succulent:
11. Leaves ovate, soft, petiolate; flowers in diffuse panicles; sepals absent .....**Galopina**
11.' Leaves ± ericoid, subsessile; sepals present:
12. Sepals as long as corolla tube, sometimes only 1 or 2 developed ..... **Carpacoce**
12.' Sepals very short:
13. Dioecious dwarf shrubs with ericoid leaves; cymes 1–flowered; stigmas usually purple ..... **Nenax**
13.' Polygamous shrubs or perennials with ericoid or oblong leaves; cymes few to many-flowered; stigmas mostly white or greenish ..... **Anthospermum**

ANTHOSPERMUM L. 9 spp., Africa and Madagascar, mostly southern Africa

aethiopicum L. Dioecious shrub to 2 m. Leaves in whorls of 3, needle-like. Flowers in axillary clusters, yellowish. Aug.–Jan. Mainly clay slopes, often disturbed areas, NW, SW, AP, KM, LB, SE (Bokkeveld Escarpment to E Cape).

bergianum Cruse Densely hairy, mostly dioecious subshrub to 70 cm. Leaves imbricate, usually in whorls of 3, lanceolate. Flowers in axillary clusters, 5-lobed, yellowish. July–Jan. Sandstone slopes, NW, SW (Pakhuis Mtns to Caledon Swartberg).•

bicorne Puff Shrublet to 50 cm. Leaves decussate, ascending, needle-like. Flowers in axillary clusters, with only 1 fertile carpel subtended by enlarged calyx lobes, yellowish. Mainly Dec.–Apr. Sandstone slopes, NW, SW (Cedarberg to Bredasdorp).•

comptonii Puff Dioecious dwarf shrub to 30 cm. Leaves decussate, lanceolate. Flowers in axillary clusters, yellowish. Aug.–Oct. Rocky slopes, often Witteberg quartzite, NW, KM (Cold Bokkeveld to Touwsberg).•

dregei Sond. Dwarf shrub to 40 cm. Leaves decussate, lanceolate. Flowers in axillary clusters, yellowish. Aug.–Oct. Granite or sandstone slopes, NW (Namaqualand to Tulbagh). **gce**

ericifolium (Licht. ex Roem. & Schult.) Kuntze Shrublet to 60 cm. Leaves decussate, linear-lanceolate, margins ciliate. Flowers in axillary clusters, with only 1 fertile carpel and 1 stigma, yellowish. Oct.–Nov. Deep acid sands, occasionally clay, SW (Mamre to Cape Peninsula to Botrivier).•

esterhuysenianum Puff Trailing, mat-forming subshrub to 10 cm. Leaves decussate, lanceolate, sometimes hairy. Flowers solitary and terminal, 5-lobed, yellowish. Oct.–Jan. Shale bands at high alt., NW, SW (Cedarberg to Jonkershoek).•

galioides Rchb.f. Rounded or sprawling subshrub to 50 cm. Leaves decussate, linear to lanceolate, often recurved above, margins ciliate. Flowers in axillary clusters, yellowish. July–Jan. Flats and slopes, NW, SW, AP, KM, LB, SE (Bokkeveld Escarpment to E Cape).

herbaceum L.f. Sprawling or trailing perennial to 3 m. Leaves decussate, shortly hairy, lanceolate. Flowers in elongated, axillary clusters, yellowish. Throughout the year. Scrub and damp thickets, SW, AP, LB, SE (Hermanus to N Africa).

hirtum Cruse Densely hairy shrub to 1.5 m. Leaves decussate, linear-lanceolate, often discolorous. Flowers in axillary clusters, 5-lobed, yellowish. Aug.–Dec. Damp sand or clay flats or slopes, NW, SW (Clanwilliam to Bredasdorp).•

paniculatum Cruse Dioecious shrublet to 70 cm. Leaves decussate, linear. Flowers in terminal, thyrsoid panicles, yellowish. Aug.–Apr. ?, LB, SE (George to E Cape).

prostratum Sond. Dioecious, prostrate, dwarf shrub to 10 cm, stems trailing and rooting at nodes. Leaves decussate, lanceolate. Flowers in axillary pairs, yellowish. Aug.–Oct. Coastal sands, SW, AP, LB, SE (Saldanha to Port Elizabeth).•

spathulatum Spreng. Like **A. aethiopicum** but leaves decussate. June–Feb. Sandy soils, NW, SW, AP, KM, LB, SE (Namaqualand to E Cape).

BURCHELLIA R.Br. WILD POMEGRANATE, WILDEGRANAAT, UMFINCANE
1 sp., S Africa

bubalina (L.f.) Sims Shrub or small tree to 5 m. Leaves opposite, elliptic, glossy above, margins revolute. Flowers few in terminal heads, tubular, velvety, orange. Sept.–Dec. Mainly in forests, LB, SE (Grootvadersbos to Mpumalanga).

CANTHIUM Lam. KLIPELS ± 40 spp., Africa to India

ciliatum (Klotzsch ex Eckl. & Zeyh.) Kuntze SKAAPDROLLETJIE, DWERGBOKDROL Thorny shrub to 4 m. Leaves opposite, small, ovate, thinly hairy and ciliate. Flowers 1 or 2 in leaf axils, cream-coloured to greenish. June–Dec. Forests and forest margins, SE (Storms River to Limpopo).

inerme (L.f.) Kuntze CAPE DATE, GEWONE BOKDROL, UMNYUSHULUBE Usually thorny shrub or tree to 10 m. Leaves opposite, elliptic. Flowers several in axillary cymes, whitish, corolla bearded. Nov.–Feb. Coastal forests, SW, AP, LB, SE (Cape Peninsula to Zimbabwe).

kuntzeanum Bridson (= *Canthium pauciflorum* (Klotzsch ex Eckl. & Zeyh.) Kuntze) WATERBOKDROL Like **C. ciliatum** but leaves glabrous, often borne on spur shoots. Oct.–Jan. Coastal forests, SE (Plettenberg Bay to Limpopo).

mundianum Cham. & Schltdl. ROCK ALDER, KLIPELS, UMSANTULANE Shrub or tree to 5 m. Leaves opposite, broadly elliptic to ovate, softly hairy, usually large. Flowers several in axillary cymes, greenish cream, calyx lobes reduced to a rim. Sept.–Nov. Coastal forest margins, SW, AP, LB, SE (Cape Peninsula to Zimbabwe).

spinosum (Klotzsch ex Eckl. & Zeyh.) Kuntze DORINGKLIPELS Thorny shrub or tree 2–9 m. Leaves opposite, ovate to elliptic, thinly hairy when young. Flowers several in axillary cymes, greenish. May–Sept. Coastal forests, SE (Humansdorp to KwaZulu-Natal).

CARPACOCE Sond. 7 spp., mostly W Cape

burchellii Puff Dwarf shrub to 30 cm. Leaves ericoid, stipular sheath cup-shaped. Flowers 1–4 at nodes, stigma 1 and fruits 1-seeded. Nov.–Apr. Damp sandstone slopes, SW (Paarl to Riviersonderend Mtns).•

curvifolia Puff Sprawling perennial to 50 cm. Leaves rigid, shiny, recurved, lanceolate, stipular sheath with 1 bristle. Flowers 1 or 2 at nodes, greenish. Nov.–Mar. Moist spots on sandstone slopes, KM, SE (Anysberg to Uitenhage).•

gigantea Puff Leafy shrub to 90 cm. Leaves linear-lanceolate, 40–80 mm long. Flowers solitary on lateral branchlets, greenish. Nov.–Jan. Damp sandstone slopes, LB (Langeberg: Swellendam and Grootvadersbos).•

heteromorpha (H.Buek) L.Bolus Dwarf shrub to 45 cm. Leaves ericoid, spreading to recurved, margins ciliate, stipular sheath broadly cup-shaped and hairy. Flowers solitary, calyx 4-lobed, yellowish. July–Jan. Sandy flats and slopes, SW (Worcester to Bredasdorp).•

scabra (Thunb.) Sond. Dwarf shrub to 45 cm. Leaves ascending, ericoid, stipular sheath cup-shaped. Flowers 1 or 2 at nodes, greenish. Sept.–Jan. Sandstone slopes, NW, KM (Bokkeveld Mtns to Witteberg).•

spermacocea (Rchb.f.) Sond. Foetid, lax, straggling perennial to 90 cm. Leaves lanceolate, soft, stipular sheath with several bristles. Flowers few on mostly lateral branchlets, greenish. July–Jan. Damp, sheltered places, SW, LB (Tulbagh to Port Elizabeth).•

vaginellata Salter Like **C. scabra** but stipular sheath long and funnel-shaped. July–May. Sandy slopes and flats, NW, SW, AP, LB, SE (Bokkeveld Mtns to E Cape).

GALIUM L. GOOSE-GRASS ± 620 spp., cosmopolitan

A. Inflorescences reduced, few-flowered

bredasdorpense Puff Sprawling, roughly hairy perennial to 25 cm. Leaves in whorls of 6, ericoid, almost granular (1.5–2.5 mm long). Flowers 1–3 in axils, anthers exserted, yellowish. Nov.–Dec. Limestone, AP (Agulhas to Cape Infanta).•

mucroniferum Sond. Sprawling, glabrescent perennial to 60 cm. Leaves in whorls of 6–8, linear-lanceolate, margins ciliate. Flowers in pairs in axils, anthers well exserted, yellowish. Sept.–Dec. Sheltered sandstone slopes, SW (Du Toitskloof to Hottentots Holland Mtns).•

rourkei Puff Prostrate, thinly hairy perennial to 20 cm. Leaves in whorls of 4–6, small (2–5 mm long), oblanceolate, hairy. Flowers in pairs in axils, whitish. Dec. Sheltered sandstone slopes, SW (Kogelberg).•

spurium L. CLEAVERS, GOOSE-GRASS Straggling, prickly annual ± 2 m. Leaves in whorls of 6–8, lanceolate-ovate, margins prickly. Flowers 1–4 in axils, anthers subsessile, ovary prickly, whitish. Sept.–Dec. Forest margins and stream banks, NW, SW, AP, KM, LB, SE (Namaqualand to tropical Africa).

A.' Inflorescences many-flowered

capense Thunb. TINY TOTS Scrambling, glabrescent perennial to 90 cm. Leaves in whorls of 6–10, linear-ericoid with margins revolute. Flowers many in axillary cymes, anthers exserted, yellowish. Sept.–Dec. Rocky, damp places, NW, SW, AP, KM, LB, SE (most of S Africa).

monticolum Sond. Like **G. capense** but leaves and stems shortly hairy. Oct.–Nov. Damp sandstone slopes, NW (Olifants River Mtns and Cedarberg).•

subvillosum Sond. Scrambling, glabrescent perennial to 60 cm. Leaves in whorls of 5–11, lanceolate, margins ciliate. Flowers axillary, in threes, anthers well exserted, yellowish. Sept.–Dec. Damp sandstone slopes, SW (Ceres to Kogelberg).•

tomentosum Thunb. KLEEFGRAS Dioecious, prickly, scrambling perennial to 3 m. Leaves in whorls of 6–8, ovate-lanceolate, margins prickly. Flowers many in axillary cymes, peduncles woolly, anthers subsessile, yellowish. Sept.–Nov. Scrub, NW, SW, AP, KM, LB, SE (S Namibia to E Cape and Free State).

undulatum Puff Glabrescent perennial to 1.5 m. Leaves in whorls of 6, ovate, margins prickly. Flowers 3–many in axillary cymes, anthers subsessile, whitish. Sept.–Dec. Forest margins and stream banks, LB (Langeberg).•

GALOPINA Thunb. 4 spp., SE Africa

circaeoides Thunb. Perennial to 1.5 m. Leaves opposite, lanceolate, soft. Flowers in a diffuse, terminal panicle, whitish or reddish. Dec.–Apr. Forests or damp scrub, LB, SE (Riviersonderend Mtns to tropical Africa).

GARDENIA J.Ellis GARDENIA, KATJIEPIERING ± 250 spp., pantropical

thunbergia L.f. WITKATJIEPIERING, UMKHANGAZI Grey-stemmed shrub, 2–5 m. Leaves opposite, obovate. Flowers solitary, terminal, hypocrateriform, white, fragrant. Mainly Jan.–Mar. Forest margins, SE (Witelsbos to N KwaZulu-Natal).

HYDROPHYLAX see **PHYLOHYDRAX**

NENAX Gaertn. 11 spp., southern Africa, mostly W Cape

A. Fruits dehiscent

coronata Puff Dioecious dwarf shrub to 40 cm, branching often pseudo-dichotomous. Leaves decussate, needle-like. Flowers mostly single at nodes, mostly 5-lobed, yellowish. Fruits dehiscent, glabrous or papillate, mericarps 3–5 × 2–3 mm. June–Aug. Sandstone outcrops, NW (Gifberg to Pakhuis Mtns).•

divaricata Salter Like **N. coronata** but to 1 m, branching often divaricate, and flowers 4-lobed. July–Sept. Sandstone slopes, NW, SW (Bokkeveld Mtns to Hottentots Holland Mtns).•

elsieae Puff Dioecious dwarf shrub to 30 cm. Leaves decussate, needle-like. Flowers mostly single at nodes, yellowish. Fruits dehiscent, white-woolly, mericarps 3–3.5 × ± 2 mm. Sept.–Oct. Dry sandstone slopes, NW (Swartruggens to Bonteberg).•

A.' Fruits indehiscent

acerosa Gaertn. Dioecious shrublet to 40 cm. Leaves decussate, needle-like, 5–12 mm long. Flowers in axillary clusters of 6–12, yellowish. Fruits indehiscent, glabrous or papillate, 3–5.5 × 2–3.5 mm. July–Nov. Sandy or gravelly flats and slopes, NW, SW, LB (Piketberg to Riversdale).•

arenicola Puff Dioecious dwarf shrub to 10 m. Leaves decussate, linear. Flowers 1 or 2 at nodes, yellowish. Fruits indehiscent, glabrous, 5–8 × 2–3.5 mm. July–Aug. Coastal sands, NW (Namaqualand to Graafwater). **gce**

hirta (Cruse) Salter Dioecious, cushion-forming shrublet to 30 cm. Leaves sometimes in whorls of 3, linear, 1.5–4 mm long. Flowers usually in axillary clusters of 3, yellowish. Fruits indehiscent, grey-hairy, 2–3 × ± 2 mm. June–Aug. Coastal sands, clays or limestone, NW, SW (Vredenburg and Tulbagh to Cape Peninsula).•

velutina J.C.Manning & Goldblatt Dioecious shrublet to 40 cm. Leaves decussate, on long shoots ovate-lanceolate to linear-lanceolate, on short shoots needle-like. Flowers 1 or 2 at nodes, ?whitish or pale yellow. Fruits indehiscent, velvety, 3–5 × 3 mm. Sept.–Oct. Sandy loam on lower slopes, KM (Bonteberg–Voetpadsberg).•

sp. 1 Like **N. acerosa** but fruits smaller, ± 2–2.5 mm diam. and ribbed. July–Aug. Sandstone slopes, SW (Riviersonderend Mtns).•

OLDENLANDIA L. ± 300 spp., cosmopolitan in warm areas

capensis L.f. Diffuse, sprawling or erect annual. Leaves opposite, linear to oblanceolate, thinly hairy, margins revolute. Flowers in axillary clusters, white or lilac. Jan.–Mar. Waste places, NW, SW, SE (throughout Africa).

PHYLOHYDRAX Puff 2 spp., Africa, Madagascar

carnosa (Hochst.) Puff (= *Hydrophylax carnosa* (Hochst.) Sond.) Succulent, creeping perennial. Leaves opposite, ovate, fleshy, stipules sheathing. Flowers solitary in axils, white. Nov.–May. Coastal sand dunes, SE (Knysna to S Mozambique).

PSYCHOTRIA L. BIRD-BERRY ± 1 400 spp., pantropical

capensis (Eckl.) Vatke BLACK BIRD-BERRY Shrub or small tree to 7 m. Leaves opposite, leathery, obovate, margins revolute. Flowers in terminal, pedunculate cymes. Flowers yellow, berries red. June–Jan. Coastal forests, SE (Knysna to Zimbabwe).

PSYDRAX Gaertn. ± 40 spp., Old World tropics

capensis J.C.Manning & Goldblatt Tree to 12 m. Leaves opposite, mostly elliptic, glossy above. Flowers several in delicate, axillary cymes, tube shorter than lobes. Dec.–Mar. Coastal and submontane forests, LB (Langeberg: Grootvadersbos).•

obovatum (Eckl. & Zeyh.) Bridson (= *Canthium obovatum* Eckl. & Zeyh.) KWAR, UMBOMBEMFENE Shrub or tree to 15 m. Leaves opposite, leathery, broadly obovate to suborbicular, obtuse, margins revolute. Flowers in stoutly pedunculate, axillary cymes, tube as long as lobes, white. Dec.–Jan. Coastal dunes, SE (Humansdorp to Zimbabwe).

ROTHMANNIA Thunb. GARDENIA, UMZUKUZA ± 25 spp., sub-Saharan Africa

capensis Thunb. CANDLEWOOD, CAPE GARDENIA Tree to 14(–20) m. Leaves opposite, elliptic. Flowers cup-shaped, sessile, solitary, terminal, white to cream-coloured. Mainly Jan.–Feb. Forests, LB, SE (Swellendam to Limpopo).

RUBIA L. MADDER ± 60 spp., Old World

petiolaris DC. Prickly, scrambling perennial to 3 m, stems 4-angled. Leaves in whorls of 6–8, ovate, petiolate, 3-veined from base. Flowers in axillary cymes, greenish. Dec.–Feb. Scrub, LB, SE (Riversdale to Free State).

RUTACEAE (= *PTAEROXYLACEAE*)

Agathosma by P.A. Bean & T. Trinder-Smith

1. Leaves pinnate or (1–)3–5-foliolate; trees or large shrubs:
2. Leaves (1–)3(–5)-foliolate; plants dioecious; stamens 8 ..... **Vepris**
2.' Leaves pinnate; stamens 4–10:
3. Flowers bisexual; stamens 8 or 10; fruit a berry ..... **Clausena**
3.' Flowers unisexual; stamens 4; fruit a capsule:
4. Stems and branches prickly; ovary 1-locular; fruit globose, 1-seeded ..... **Zanthoxylum**
4.' Stems and branches unarmed; ovary 2-locular; fruit compressed, 2-seeded ..... **Ptaeroxylon**
1.' Leaves simple:
5. Tree with large pink flowers in open panicles; leaves relatively large; fruit a woody capsule > 50 mm diam., covered with blunt protuberances ..... **Calodendrum**
5.' Shrubs; leaves often ericoid; fruit smaller, sometimes horned:
6. Petals absent; sepals 4; flowers sometimes unisexual ..... **Empleurum**
6.' Petals and sepals 5:
7. Style ± as long as petals, longer than claw; flowers in terminal and/or axillary clusters:
8. Staminodes present ..... **Agathosma**
8.' Staminodes absent or vestigial:
9. Ovary 3(2 or 4)-lobed ..... **Macrostylis**
9.' Ovary 5-lobed ..... **Phyllosma**
7.' Style much shorter than petals; flowers solitary or few:
10. Petals transversely bearded at throat; stamens and style included ..... **Euchaetis**
10.' Petals pubescent or glabrous at throat:
11. Staminodes hidden in channel in petal claw, adnate below ..... **Coleonema**
11.' Staminodes free or absent:
12. Anthers with stalked apical gland ..... **Adenandra**
12.' Anthers with sessile or immersed apical gland:
13. Anthers and ovary hairy ..... **Sheilanthera**
13.' Anthers glabrous and ovary at most glabrescent:
14. Disc spreading-crenulate; staminodes absent or vestigial ..... **Diosma**
14.' Disc cylindrical or enclosing ovary; staminodes present ..... **Acmadenia**

ACMADENIA Bartl. & H.L.Wendl. 33 spp., W to E Cape

A. Petals spreading from below, exposing stamens and style

argillophila I.Williams Like **A. matroosbergensis** but branchlets sparsely puberulous, forked at 90°, leaves glabrous and sessile, flowers lilac. July–Sept. Rocky sandstone slopes, KM (Witteberg and Bonteberg).•

matroosbergensis E.Phillips Shrub to 60 cm. Leaves opposite and decussate, oblong, erect. Flowers in terminal pairs, sessile, pink, petals spreading, ovary 5-carpellate. Mainly June–Nov. Sandstone slopes, NW, KM (Cold Bokkeveld and Hex River Mtns to Waboomsberg).•

patentifolia I.Williams Loosely branched shrub to 1 m. Leaves lanceolate, erect, opposite, margins crenulate. Flowers terminal, pedicellate, up to 6, white, ovary 5-carpellate. Fruits with long horns. Mar.–May. Marshes on sandstone slopes, NW (Cedarberg).•

tenax I.Williams Like **A. wittebergensis** but leaves glabrous and flowers larger and fruits with elongate horns. Jan.–Feb. Sandstone cliffs, NW (Hex River Mtns).•

teretifolia (Link) E.Phillips Multistemmed, aromatic shrublet to 40 cm. Leaves suberect, nearly terete, channelled above, glabrescent. Flowers 2 or 3 in terminal clusters, pink, petals spreading, style at first deflexed, ovary 5-carpellate. Mar.–May. Sandstone rocks at high elevations, NW, SW, KM (Cedarberg to Jonaskop and Worcester to Swartberg).•

tetracarpellata I.Williams Loosely branched shrub to 1 m. Leaves opposite, lanceolate, erect, margins crenulate. Flowers terminal, pedicellate, up to 6, white, petals spreading, ovary 5-carpellate. Mar.–May. Sandy plateaus, NW (Swartruggens).•

wittebergensis (Compton) I.Williams Dichotomously branched shrublet to 50 cm, from a woody caudex. Leaves incurved-erect, linear-lanceolate, loosely imbricate, puberulous beneath. Flowers 2–5 in a terminal raceme, white, petals spreading, anthers red, stigma at first deflexed. July–Mar. Rocky sandstone slopes, KM (Witteberg and Little Karoo Mtns).•

A.' Petals forming a closed throat below, concealing stamens and style
B. Anthers with a large, pointed, apical gland > 0.6 mm long

baileyensis I.Williams Like **A. sheilae** but leaves slightly folded, oblanceolate, broadly obtuse and flowers with filaments and staminodes pubescent. Oct.–Apr. Rocky sandstone slopes, KM (Rooiberg).•

flaccida Eckl. & Zeyh. Loosely branched shrub to 1 m. Leaves lanceolate, erect, opposite, margins crenulate. Flowers terminal, pedicellate, up to 6 in opposed pairs, white, ovary 5-carpellate but only 1 or 2 carpels developing. Fruits with long horns. Mar.–May. Marshes on sandstone slopes, NW (Cedarberg).•

gracilis Dummer Like **A. rupicola** but leaves loosely imbricate or distant. Mainly Dec.–Mar. Sandstone slopes, SE (Outeniqua Mtns: Robinson Pass).•

heterophylla P.E.Glover Finely leafy, single-stemmed, aromatic shrublet to 40 cm. Leaves sometimes opposite, elliptic, loosely imbricate, obtuse, strongly keeled, silky pubescent on midribs and margins. Flowers solitary, terminal, pink, petals recurved. Mainly Sept.–Mar. Coastal limestones, AP (Agulhas to Mossel Bay).•

macropetala (P.E.Glover) Compton Like **A. sheilae** but leaves lanceolate, ciliolate, adpressed-erect. June–Aug. Quartz outcrops on shale hills, SW, LB (Bredasdorp to Cloete's Pass).•

nivenii Sond. Like **A. sheilae** but leaves sessile, adpressed-erect, linear-elliptic, crisped-ciliate. Sept.–Dec. Sandstone slopes, LB (Langeberg: Riversdale).•

rupicola I.Williams Like **A. sheilae** but leaves alternate. Mainly June–Nov. Local on rocky sandstone slopes, SE (Outeniqua Mtns: Robinson Pass).•

sheilae I.Williams Closely leafy, single-stemmed, aromatic shrublet to 40 cm. Leaves short-petiolate, opposite and decussate, oblong, obtuse. Flowers solitary, terminal, pink to red, anthers with a large, pointed apical gland. Mainly July–Nov. Sandstone slopes, KM (Klein Swartberg, Touwsberg and Rooiberg).•

tetragona (L.f.) Bartl. & H.L.Wendl. PAGODA FLOWER Like **A. sheilae** but leaves folded, suborbicular, strongly keeled. Mainly July–Nov. Sandstone slopes, LB, SE (Langeberg: Cloete's Pass to Robinson Pass).•

B.' Anthers with a small to minute, pointed or globose, apical gland < 0.6 mm long
C. Ovary 2–4-carpellate

candida I.Williams Like **A. nivea** but flowers with staminodes minute, scale-like and ovary 2-carpellate. Mar.–May. Marshes on sandstone slopes, SW (Hottentots Holland Mtns).•

nivea I.Williams Slender, sparsely branched, single-stemmed shrublet to 30 cm. Leaves lanceolate, erect, margins translucent. Flowers in terminal clusters, white, ovary 3- or 4-carpellate. Mar.–Aug. High, rocky slopes, SW (Hottentots Holland Mtns and Kogelberg).•

C.' Ovary 5-carpellate

alternifolia Cham. Finely leafy, single-stemmed, aromatic shrublet to 1 m. Leaves ascending, incurved above, linear to lanceolate, acute, sharply mucronate, margins scabrid. Flowers several, crowded at branch tips, pink. Fruits with long horns. Mainly June–Aug. Rocky outcrops and cliff, SE (Knysna to Keurbooms River).•

bodkinii (Schltr.) Strid Loosely branched shrub to 1 m. Leaves obovate, adpressed below, recurved above, glandular-denticulate, sparsely pubescent. Flowers sessile, 1 or 2 at branch tips, white, ovary 5-carpellate. Mar.–May. Sandstone rocks at high elevation, NW (Cedarberg).•

burchellii Dummer Closely leafy shrublet to 30 cm. Leaves subsessile, opposite, imbricate, lanceolate, with a small, inward hooked, apical mucro. Flowers terminal, solitary, bright pink. Mainly Oct.–Jan. High rocky slopes, LB (Langeberg).•

densifolia Sond. Like **A. alternifolia** but leaves adpressed-erect, margins and upper surface crisped-ciliate, flowers often solitary and fruits with short horns. Mainly Aug.–Dec. Limestone hills, AP (De Hoop to Gouriqua).•

faucitincta I.Williams Like **A. candida** but larger in all parts, flowers with petal claws green and red-brown, and ovary 5-carpellate. Nov. High sandstone slopes, SW (Villiersdorp: Blokkop).•

fruticosa I.Williams Closely leafy, single stemmed, aromatic shrub to 80 cm. Leaves opposite, ascending, elliptic, obtuse, margins thickened. Flowers terminal, solitary, small, pale pink or white. May–Nov. Dry sandstone slopes, KM (Klein Swartberg).•

latifolia I.Williams Like **A. trigona** but leaves suborbicular and petal claws sparsely hairy. Mainly Oct.–Dec. N-facing, sandstone slopes, LB (Langeberg: Riversdale).•

laxa I.Williams Like **A. trigona** but leaves adpressed-erect, lanceolate, obtuse and petal claws pubescent, ciliate at throat. Mainly Sept.–Nov. Low, gravel and shale slopes, LB (Swellendam).•

macradenia (Sond.) Dummer Like **A. bodkinii** but leaves glabrescent, flowers pedicellate, white flushed with pink. Sept.–Nov. Sandstone slopes, NW (Cedarberg to Cold Bokkeveld Mtns and Piketberg).•

maculata I.Williams Like **A. obtusata** but leaf margins thickened, sparsely ciliate and subscabrid, with minute, black-stalked glands along upper midline. July–Aug. S-facing, sandstone slopes, SE (Outeniqua Mtns).•

mundiana Eckl. & Zeyh. Like **A. alternifolia** but leaves broadly elliptic, obtuse, scabrid and ciliate, and fruits with short horns. Mainly Sept.–Feb. Limestone hills, AP (De Hoop to Potberg).•

obtusata (Thunb.) Bartl. & H.L.Wendl. Closely leafy, single-stemmed, aromatic shrublet to 30 cm. Leaves sometimes opposite, adpressed, imbricate, linear-lanceolate, erect, margins narrow, scabrid-serrulate. Flowers solitary, terminal, often crowded on short branchlets near stem apices, bright pink. Mainly Sept.–Nov. Limestone and calcareous sands, SW, AP, LB, SE (Stanford to Alexandria).

rourkeana I.Williams Like **A. bodkinii** but leaves with prominent midrib and distinctly grooved beneath, and flowers pedicellate. Sandstone slopes, NW (Cedarberg and Cold Bokkeveld Mtns).•

trigona (Eckl. & Zeyh.) Druce Closely leafy, sprawling, aromatic shrublet to 40 cm. Leaves opposite and decussate, subimbricate or distant, linear-lanceolate, acute. Flowers solitary, terminal, pink, petal claws glabrous. Mainly Sept.–Nov. Dry, N-facing, sandstone slopes, LB (Langeberg: Riversdale).•

ADENANDRA Willd.• CHINA FLOWER, PORSELEINBLOM 19 spp., SW Cape

A. Flowers sessile or subsessile, 2–12 in involucrate heads

acuta Schltr. Erect, aromatic shrublet sometimes to 60 cm, with slender branches. Leaves ascending, loosely imbricate, lanceolate, convex. Flowers subsessile, 1–5 in heads, white, pale pink outside. Mainly Oct.–Dec. Rocky sandstone slopes, SW (Franschhoek to Riviersonderend and Hottentots Holland Mtns).•

gracilis Eckl. & Zeyh. Slender, sparsely branched, glandular shrublet to 40 cm. Leaves erect to spreading, sometimes imbricate, oblong to elliptic, margins thickened. Flowers subsessile, 1–few in dense heads, white, pink outside. Sept.–Oct. High sandstone slopes in damp sites, SW (Riviersonderend Mtns).•

gummifera Strid Like **A. obtusata** but sometimes to 1.5 m and ovary smooth (*vs.* tuberculate). Mainly Sept.–Oct. Sandstone slopes, SW (Potberg).•

obtusata Sond. Densely leafy, aromatic shrublet to 50 cm, glutinous on young parts. Leaves erect to spreading, imbricate, oblong, margins thickened, revolute. Flowers subsessile or sessile, in 1–4-flowered, glutinous heads, white, pink outside. Mainly Sept.–Nov. Limestone hills and flats, AP (Agulhas to Cape Infanta).•

rotundifolia Eckl. & Zeyh. Densely leafy, glandular shrub to 1 m. Leaves erect to spreading, imbricate, broadly elliptic, margins thickened, revolute. Flowers subsessile, many in dense heads, white. Sept.–Oct. Limestone hills and flats, AP (Agulhas to Cape Infanta).•

viscidia Eckl. & Zeyh. Glabrescent, aromatic shrublet to 50 cm. Leaves ascending, sometimes loosely imbricate, lanceolate to elliptic, margins thickened, revolute. Flowers subsessile, 2–10 in dense, glutinous heads, white, pink outside. Aug.–Oct. Sandstone or limestone hills, SW, AP (Kleinrivier Mtns to Agulhas).•

A.' Flowers with short or long pedicels, solitary or in corymbs or umbels

brachyphylla Schltdl. Closely leafy, diffuse, aromatic shrub to 80 cm. Leaves spreading above, sometimes imbricate, broadly ovate, cordate at base, margins thickened. Flowers shortly pedicellate, 2–4 in lax subumbels, white, pink to red outside. July–Nov. Rocky, sandstone slopes, SW (Sir Lowry's Pass to Kleinrivier Mtns).•

coriacea Licht. ex Roem. & Schult. Aromatic, often closely leafy shrublet to 45 cm, reddish and puberulent on young parts. Leaves ascending, ovate to elliptic, margins slightly revolute, densely

glandular beneath. Flowers 2–4, in corymbs, white, pink to red outside. Mainly Sept.–Nov. Sandstone slopes, SW (Bain's Kloof to Kogelberg).•

dahlgrenii Strid Densely leafy, glandular shrub to 1 m. Leaves loosely spreading, imbricate, elliptic to ovate, margins revolute. Flowers on short pedicels, 2–4 in condensed corymbs, pale pink. Mainly Oct.–Dec. Rocky sandstone slopes, KM (Anysberg).•

fragrans (Sims) Roem. & Schult. Densely leafy shrub sometimes to 1.2 m. Leaves ascending, loosely imbricate, oblong, margins obscurely crenate, slightly thickened and revolute, heavily gland-dotted beneath. Flowers 4–18 in loose, resinous umbels, white, pink outside. Mainly Sept.–Nov. Sandstone slopes, LB (Langeberg).•

humilis Eckl. & Zeyh. Twiggy, well-branched, aromatic shrublet to 40 cm. Leaves suberect-spreading, lanceolate, margins revolute, without glands. Flowers 2–5 in loose umbels on glabrous pedicels with minute, ± basal bracteoles, white with pink reverse, petals cordate-acute. Mainly Aug.–Sept. Clay slopes in renosterveld, SW (Botrivier to Napier).•

lasiantha Sond. Closely leafy, aromatic shrublet to 45 cm. Leaves ascending to spreading, loosely imbricate, elliptic to narrowly obovate, margins slightly revolute. Flowers 2–12 in dense corymbs, white, red outside, calyx villous. July–Sept. Sandstone slopes, SW (Hermanus to Bredasdorp).•

marginata (L.f.) Roem. & Schult. Slender, laxly branched, aromatic shrublet sometimes to 1.3 m. Leaves loosely spreading, oblanceolate to narrowly cordate or elliptic, margins revolute, usually without glands. Flowers 2–15 in loose umbels or umbellate corymbs, white, pink outside. Mainly June–Nov. Sandstone slopes, NW, SW (Bokkeveld to Hottentots Holland Mtns).•

multiflora Strid Aromatic, sparsely leafy shrub to 70 cm. Leaves spreading, oblong, margins thin, slightly revolute. Flowers 3–7 in loose corymbs, often 2 or more per branch tip, white or pink, darker pink outside. Aug.–Nov. Sandstone and clay slopes, SW (Kogelberg to Botrivier).•

mundiifolia Eckl. & Zeyh. Sparsely leafy, aromatic shrublet to 70 cm. Leaves spreading, oblong to elliptic, margins thickened, slightly revolute. Flowers 2–6, in dense, resinous umbels, white, pink outside. Aug.–Nov. Sandstone slopes, SW, LB (Riviersonderend and Langeberg).•

odoratissima Strid Densely leafy shrublet to 60 cm, branching from base. Leaves ascending, loosely imbricate, lanceolate, without glands, slightly pilose, margins slightly revolute. Flowers 2–20 in dense, head-like corymbs, often heavily gland-dotted. Sept.–Oct. Limestone slopes, AP (Agulhas Peninsula).•

schlechteri Dummer Closely leafy shrublet to 40 cm. Leaves ascending, loosely imbricate, obovate, margins thickened, slightly revolute. Flowers 6–20 in condensed corymbs, white, pinkish outside, calyx densely villous. Apr.–July. Lower sandstone slopes, SW (Elim).•

uniflora (L.) Willd. Sparsely branched, aromatic shrublet to 50 cm. Leaves ascending to spreading, oblong to lanceolate, margins revolute. Flowers subsessile, terminal and usually solitary, white to pink. Mainly Aug.–Oct. Sandstone slopes, SW (Cape Peninsula to Kleinrivier Mtns).•

villosa (P.J.Bergius) Licht. ex Roem. & Schult. Closely leafy, aromatic shrub to 1 m. Leaves ascending, sometimes loosely imbricate, elliptic to oblong, often hairy beneath. Flowers subsessile or on short pedicels, 2–6 in condensed corymbs, white, pink to red outside, calyx usually hairy. Aug.–Nov. Sandstone slopes, NW, SW (Cold Bokkeveld and Piketberg to Langeberg and Kleinrivier Mtns).•

AGATHOSMA Willd. BUCHU, BOEGOE ± 150 spp., southern Africa, mostly SW Cape

*A. Ovary usually 4- or 5-lobed (see also **A. rosmarinifolia**)*

acocksii Pillans Dwarf shrublet occasionally to 60 cm. Flowers in lax, terminal clusters, pink. Fruits 5-chambered enclosed in calyx. Sept.–Nov. Rocky sandstone slopes, NW, KM (Worcester to Touws River).•

adenandriflora Schltr. Single-stemmed, rounded shrub to 1 m, broad-leaved. Flowers large, in small, lax clusters at branch tips, white to bright pink, pink beneath. Fruits 5-chambered, enclosed in calyx, lacking horns. July–Dec. Rocky slopes at middle to high alt., NW, KM (Swartruggens to Klein Swartberg).•

alligans I.Williams Leafy shrub to 1 m, much-branched from old stumps, lemon-scented. Leaves spine-tipped. Flowers 1–5 in terminal clusters, calyx ± woody, petals white or pink, pink-veined. Fruits 5-chambered. Nov.–Dec. Sandstone cliffs, NW (Olifants River Mtns: Visgat).•

barnesiae Compton Resprouting, dwarf shrub sometimes to 1 m, lemon- or turpentine-scented. Flowers in dense heads, white. Fruits 5-chambered. Oct.–Dec. Rocky, sandstone, upper slopes, KM (Witteberg to Rooiberg).•

bathii (Dummer) Pillans ZEBRA BUCHU Single-stemmed, broad-leaved shrub to over 1 m. Flowers white, dark-spotted, carpels 5. July–Nov. Rocky, middle to upper slopes, NW (Cedarberg).•

betulina (P.J.Bergius) Pillans BUCHU, BERGBOEGOE Resprouting, broad-leaved shrub to over 2 m, fragrant. Flowers large, usually solitary, axillary, white to purplish pink. Fruits 5-chambered. June–Nov. Rocky sandstone slopes, NW (Bokkeveld to Grootwinterhoek Mtns).•

bodkinii Dummer Single-stemmed, slender shrublet to 40 cm, peppery or peppermint-scented. Flowers in small, dense, terminal clusters, pink to bright purple. Fruits (3)4-chambered. Sept.–Jan. Marshes on shale bands at high alt., NW (Cedarberg).•

conferta Pillans Robust, single-stemmed, densely leafy shrub to 1.5 m, peppermint-scented. Flowers in dense heads, white or mauve. Fruits 5-chambered. Dec. Sandstone slopes at high alt., NW (Cedarberg).•

cordifolia Pillans Tangled shrub to 1 m. Leaves broad, reflexed. Flowers in small, dense heads, white to purple. Fruits 5-chambered. Sept.–Oct. Stream banks, NW (Skurweberg).•

craspedota Sond. Single-stemmed, dense, rounded shrublet to 1 m. Flowers profuse, in lax, terminal clusters, white. Fruits 5-chambered, ± enclosed in calyx. Sept.–Dec. Rocky sandstone slopes, NW (Bokkeveld to Grootwinterhoek Mtns).•

crenulata (L.) Pillans BUCHU, ANYSBOEGOE Single-stemmed shrub to 2.5 m, intensely aromatic. Flowers 1(–3) in leaf axils, relatively large, white or mauve, carpels 5. June–Nov. Middle slopes and valleys, NW, SW, LB (Ceres to Garcia's Pass).•

decurrens Pillans Spreading shrublet to 25 cm. Flowers axillary, solitary or in lax clusters, white to pale pink with long, narrow sepals. Fruits 5-chambered. Oct.–Dec. Upper mountain slopes, SW (Slanghoek and Bain's Kloof Mtns).•

distans Pillans Shrub to 1 m, strongly scented. Leaves large, spine-tipped. Flowers solitary, terminal on short, axillary shoots, white with purple dots. Fruits 5-chambered, horns small. Sept. Rocky places on upper slopes, NW (N Cedarberg).•

divaricata Pillans Single-stemmed, rounded shrublet to 30 cm, branching profusely at ground level, strongly unpleasantly scented. Flowers 1–4, terminal, solitary or paired, white, pink or purple with darker midline. Fruits (3)4(5)-chambered. Sept.–Nov. Shale bands, upper slopes, NW (Cedarberg, Cold Bokkeveld Mtns and Swartruggens).•

foetidissima (Bartl. & H.L.Wendl.) Steud. BOKBOEGOE Single-stemmed, much-branched shrublet to 1.2 m, strongly scented. Flowers in lax, terminal clusters, white, carpels 5, processes absent. Apr.–Oct. Lower, shale or granite slopes, AP, LB (Robertson and Bredasdorp to Riversdale).•

insignis (Compton) Pillans Sturdy shrub to 1.4 m. Leaves relatively large. Flowers 1–3, axillary, large, white, pink-dotted, carpels 5. Sept.–Nov. Stream banks, NW (Olifants River Valley).•

marlothii Dummer Sprawling shrublet to 40 cm, lemon-scented. Flowers in lax, terminal clusters with reflexed sepals, mauve to intense purple. Fruits 5-chambered, enfolded by sepals. Sept.–Jan. Rocky, middle to upper slopes, NW, LB (Clanwilliam to Montagu).•

microcarpa (Sond.) Pillans Resprouting shrublet to 40 cm. Flowers in small, lax, axillary clusters below stem tips, white or pale pink. Fruits 5-chambered, processes ± absent. June–Jan. Lower shale slopes of the coastal plain, AP, LB (Potberg to Mossel Bay).•

odoratissima (Montin) Pillans (incl. **A. hirsuta** Pillans) BREËBLAARBOEGOE Resprouting, dense, rounded or willowy shrub to 1 m, strongly citrus-scented. Flowers 1 or 2 in upper axils, white, mauve or purple. Fruits (3)4(5)-chambered. Aug.–Mar. Sheltered and damp, rocky, upper slopes, NW, SW (Cedarberg to Hottentots Holland Mtns to Langeberg).•

ovata (Thunb.) Pillans BASTERBOEGOE Leafy shrub, usually single-stemmed to 3 m, herb-scented. Flowers axillary, white, pink or purple. Fruits 5-chambered. Jan.–Dec. Rocky sandstone and silcrete on open slopes and forest margins, KM, LB, SE (Witteberg to Lesotho).

pattisoniae Dummer Dwarf, gnarled shrublet to 10 cm, buchu-scented. Flowers long-stalked, in few-flowered, lax, terminal clusters, white. Fruits 5-chambered. Aug.–Dec. Upper slopes, NW (Cedarberg).•

pentachotoma E.Mey. ex Sond. Usually densely leafy shrub to 60 cm, peppermint-scented. Flowers in dense, terminal heads, white to purple. Fruits 5-chambered with long processes. Nov.–Mar. Damp places at high alt., NW (Ceres to Hex River Mtns).•

phillipsii Dummer Dwarf, gnarled, cushion-forming shrublet. Flowers in small, terminal clusters, pale pink. Fruits 5-chambered. Nov.–Jan. Rock crevices at high alt., NW, KM (Matroosberg to Rooiberg).•

purpurea Pillans Wiry, much-branched shrublet to 60 cm, delicately lime-scented. Flowers in lax, few-flowered, terminal clusters, brilliant mauve. Fruits 4-chambered. Dec.–Jan. Rocky, sandstone, upper slopes, KM (Klein and Groot Swartberg).•

rudolphii I.Williams Compact, leafy shrub to 1 m. Flowers axillary, solitary, bright pink or purple. Fruits 5-chambered. Nov.–Feb. Upper sandstone slopes, SW (Du Toitskloof and Drakenstein Mtns).•

serratifolia (Curtis) Spreeth Shrub to over 2 m. Leaves very long. Flowers white or pink-tinged. Fruits 5-chambered. July–Sept. Mountain slopes and damp kloofs, SW, LB (Caledon to Riversdale).•

spinescens Dummer Single-stemmed, rounded, stiff, twiggy shrub to 1 m. Flowers in lax, terminal clusters, white. Fruits 5-chambered enclosed by calyx, processes long, bifurcated. Sept.–Oct. Dry middle slopes NW (Bokkeveld Mtns to Clanwilliam and Swartruggens).•

stipitata Pillans Single-stemmed, much-branched, stiff shrub to 80 cm, lemon-scented. Flowers axillary, white. Fruits 5-chambered, stalked. Aug.–Nov. Dry, rocky, sandstone plateaus at middle alt., SW (Perdeberg and Riviersonderend Mtns).•

subteretifolia Pillans Single-stemmed, much-branched shrub to 40 cm. Flowers relatively large, axillary or in lax, terminal clusters, white or pink. Fruits 5-chambered. Sept.–Oct. Upper slopes, NW (Montagu: Kiesiesberg and Langeberg).•

tabularis Sond. STINKBOEGOE Slender, single-stemmed shrub to over 10 m. Leaves when crushed at first stinking, then pleasingly lemon-scented. Flowers axillary, drab pale mauve. Fruits 4-chambered. Sept.–Nov. Protected mountain slopes, forest margins, SW (Cape Peninsula to Riviersonderend Mtns).•

thymifolia Schltdl. Single-stemmed, smooth, rounded shrub to over 1 m, branching near ground level, mildly aromatic. Flowers in lax, terminal clusters, pink or mauve. Fruits (3)4-chambered. Aug.–Oct. Coastal sand and dunes on limestone, SW (Vredenburg to Yzerfontein).•

zwartbergense Pillans Single-stemmed, tangled dwarf shrublet to 20 cm, lemon-scented. Flowers 2–4 in terminal clusters, pink. Fruits 5-chambered. Nov.–Mar. Upper sandstone slopes, KM (Swartberg and Kammanassie Mtns).•

sp. 1 (*Agathosma amidae* Trinder-Smith *ms*.) Upright, single-stemmed shrublet to 60 cm. Leaves linear-lanceolate, adpressed, densely arranged up stems. Flowers in small, dense, terminal heads, white. Fruits 4-chambered. Damp to marshy places in quartzitic sands on mountains, SW (Hottentots Holland Mtns to Mt. Lebanon)•

sp. 2 (*Agathosma canaliculata* P.A.Bean *ms*.) Densely glandular-hairy dwarf shrublet. Leaves oblong, almost succulent, crowded and adpressed, sweet turpentine-scented. Flowers 1 or 2 at branchlet tips, pale pink. Fruits 5-chambered. Mar. Rock cracks in sandstone cliffs at high alt., SW (Worcester: Kwadouwsberg).•

sp. 3 (*Agathosma citriodora* P.A.Bean *ms*.) Single-stemmed, sparsely branched shrub to 2 m, strongly lemon-scented. Leaves narrowly ovate, strongly lemon-scented Flowers in copious, sessile, terminal clusters forming large, compound heads, pale mauve. Fruits 5-chambered. Sept.–Oct. S-facing, loamy slopes and olifantsklip, KM, SE (Swartberg to Van Staden's Mtns).•

sp. 4 (*Agathosma digitata* P.A.Bean *ms*.) Shrublet to 50 cm. Leaves broadly ovate to rhomboid, pubescent, acute Flowers in dense, terminal clusters, white or pink. Fruits 5-chambered. Oct. Sandy seeps on flats, NW (Cold Bokkeveld Mtns).•

sp. 5 (*Agathosma maculata* P.A.Bean *ms*.) Sturdy, bright green, leafy shrub to over 1 m. Leaves large, oblong to elliptic, glabrous. Flowers axillary, usually solitary, large, white, carmine-dotted. Fruits 5-chambered. Oct. Rocky upper slopes, NW (Cold Bokkeveld Mtns: Hexberg).•

sp. 6 (*Agathosma nixmontana* Trinder-Smith *ms*.) Upright, single-stemmed shrub to 60 cm. Leaves very broadly ovate, densely arranged. Flowers in compact, terminal heads, bright pinkish mauve. Fruits 5-chambered. Oct. Marshy areas in deep sand on high-altitude plateaus, NW (Cold Bokkeveld).•

A.' Ovary usually 3-lobed (see also **A. involucrata, A. sp. 28***)*

acutissima Dummer Single-stemmed, densely tangled, sprawling shrublet to 70 cm, unpleasantly scented, branching copiously at ground level. Leaves spine-tipped. Flowers in lax, terminal clusters, white with red spots, fragrant. Fruits 3-chambered. Aug.–Sept. Sandstone hills and valley bushveld ecotone, lower coastal slopes, SE (Plettenberg Bay to Uitenhage).•

aemula Schltr. Much-branched, wiry shrublet to 40 cm. Flowers in dense, terminal clusters, white. Fruits 3-chambered. Aug.–Dec. Moist sands, NW (Pakhuis Mtns).•

affinis Sond. Single-stemmed, stiff shrub to 60 cm, scarcely aromatic. Flowers in terminal clusters, pale pink or white. Fruits 3-chambered. May–Oct. Seeps on upper sandstone slopes, KM, SE (Swartberg to Kouga and Baviaanskloof Mtns).•

alaris Cham. Densely glandular shrublet to 30 cm. Flowers in terminal clusters, white. Fruits 3-chambered. ?. SE (Plettenberg Bay).•

alpina Schltr. Resprouting shrub to 1 m, variously herb-, peppermint- or turpentine-scented. Flowers in dense heads, purple, bright pink, sometimes white. Fruits (2)3-chambered. Sept.–Dec. Sandy or rocky upper slopes and plateaus, NW, KM (Ceres to Anysberg).•

alticola Schltr. ex Dummer Resprouting, rounded shrublet to 30 cm. Flowers in dense heads, white to mauve. Fruits 3-chambered. Dec.–Jan. Damp, upper slopes and summits, shale-bands and among rocks, NW, KM (Cold Bokkeveld Mtns to Witteberg).•

anomala E.Mey. ex Sond. Robust, cushion-forming shrublet to 30 cm. Flowers in dense heads, creamy white. Fruits 3-chambered. Oct.–Apr. Rocky, middle to upper slopes, SW (Worcester to Caledon).•

apiculata G.Mey. KNOFFELBOEGOE Densely leafy shrublet to 1.2 m, strongly sulphur-smelling, leaf tips spiny. Flowers in terminal clusters, white. Fruits 3-chambered. Apr.–Jan. Coastal dunes, clays, granites and limestones, LB, SE (Riversdale to Port Alfred).

asperifolia Eckl. & Zeyh. Single-stemmed, harsh-textured shrub to 1 m, scarcely aromatic. Flowers white in numerous, dense, small heads. Fruits 3-chambered. July–Mar. Middle and lower sandstone slopes, NW, SW (Clanwilliam to Elandskloof Mtns).•

bicolor Dummer Many-stemmed, sprawling, slender shrublet to 35 cm. Flowers in lax, terminal clusters, white with red buds. Fruits 3-chambered, shaggy. Aug.–Sept. Middle to upper, rocky, sandstone slopes, NW (Pakhuis Mtns).•

bifida (Jacq.) Bartl. & H.L.Wendl. Single-stemmed or resprouting, usually densely leafy shrublet to 80 cm. Flowers in lax, terminal clusters, white to intense purple. Fruits (2)3-chambered. Jan.–Dec. Sandy mountain slopes and flats, NW, SW, AP, KM, LB (Bokkeveld to Outeniqua Mtns).•

bisulca (Thunb.) Bartl. & H.L.Wendl. STEENBOKBOEGOE Dense, rounded shrub to over 1 m, branching at soil level. Flowers in lax, terminal clusters, white. Fruits 3-chambered. June–Nov. Lower and middle slopes and flats in deep sand, NW, SW (Bokkeveld Mtns to Silverstroom Strand).•

capensis (L.) Dummer BOEGOE Resprouting shrub to 90 cm, sweetly spice-scented. Flowers in lax, terminal clusters, white, pink or purple. Fruits 3-chambered. Jan.–Dec. Slopes and flats on shales, granites or coastal sands, less often on acid sands, NW, SW, KM, LB, SE (Namaqualand to Port Elizabeth). **gce**

capitata Sond. Single-stemmed, rigid, harsh-textured shrublet to 25 cm. Flowers in dense heads, white. Fruits 3-chambered. Sept.–Nov. Rocky, sandy plateaus, NW (Piketberg).•

cerefolium (Vent.) Bartl. & H.L.Wendl. ANYSBOEGOE, STRANDBOEGOE Single-stemmed shrublet to 1.4 m, strongly aniseed-scented. Flowers in lax, terminal clusters, white, pink or mauve. Fruits 3-chambered. Aug.–Jan. Mostly coastal sands and limestones, also sandstones and shales, AP, SE (Hermanus to Humansdorp).•

ciliaris (L.) Druce Dense, rounded shrublet to 45 cm, aniseed-scented. Flowers in terminal clusters, white or mauve. Fruits 3-chambered. May–Dec. Coastal flats to lower sandstone slopes and shale-bands, SW, AP (Cape Peninsula to Potberg).•

collina Eckl. & Zeyh. Dense, rounded, single-stemmed, yellow-green leaved shrub to over 1 m, mildly aromatic. Flowers in dense, terminal clusters, white. Fruits 3-chambered. Oct.–Apr. Stabilized dunes, AP (Agulhas to Still Bay).•

concava Pillans Rigid, compact shrub to 50 cm, aromatic. Flowers in dense, terminal clusters, mauve. Fruits 3-chambered. Dec.–Jan. Sandstone slopes, NW (Hex River Mtns).•

crassifolia Sond. Resprouting, stiff, much-branched shrublet to 1 m, scarcely aromatic. Leaves stubby. Flowers in terminal clusters, white or pale pink. Fruits 3-chambered. May–Nov. Dry, rocky, sandy or loamy upper slopes at the fynbos-renosterveld ecotone, NW, KM (Cedarberg to Swartberg).•

dielsiana Schltr. ex Dummer Dense shrublet to 80 cm. Flowers in terminal clusters, white or mauve. Fruits 3-chambered. Apr.–Oct. Dunes or limestone hills, AP, SE (Bredasdorp to George).•

elata Sond. Lax, single-stemmed shrub to 80 cm, liquorice-scented. Flowers in terminal clusters, white or pale pink. Fruits 3-chambered. Sept.–Nov. Sandy slopes, NW (Gifberg).•

eriantha (Steud.) Steud. Single-stemmed, rigid, coarse, leafy shrub to 20 cm. Flowers in dense heads, white or purple. Fruits 3-chambered. Sept.–Nov. Coastal limestone hills, AP, LB (Bredasdorp, Swellendam to Riversdale).•

florida Sond. Slender shrublet to 30 cm. Flowers in terminal clusters, white. Fruits 3-chambered. Sept. Coastal hills, LB (Swellendam).•

florulenta Sond. Erect, sparsely branched shrublet to 50 cm, leaf tips greatly swollen beneath. Flowers in terminal clusters, pink. Fruits 3-chambered. Sept. Seasonally wet, coastal limestone flats, AP (Agulhas).•

foleyana Dummer Dwarf shrublet. Flowers in dense, terminal clusters, magenta. Fruits 3-chambered. Jan. Stony shale-bands at high alt., NW, KM (Hex River Mtns to Robertson).•

geniculata Pillans Rigid, harsh, resprouting shrublet to 60 cm, faintly pine-scented. Flowers in dense, terminal clusters, white or pale pink. Fruits 3-chambered. July–Dec. Coastal limestone, SW, AP (Stanford to Still Bay).•

giftbergensis E.Phillips Resprouting, rounded, glabrous shrublet to 50 cm, herb- or spice-scented. Flowers in lax, terminal clusters, white or pale pink. Fruits 3-chambered. July–Nov. Sandy middle slopes, NW (Gifberg to Cedarberg).•

glandulosa (Thunb.) Sond. Sprawling, profusely gland-dotted shrub to 1 m. Flowers in lax, terminal clusters, white. Fruits 3-chambered. Sept.–Oct. Low granite hills, SW (Malmesbury).•

gnidiiflora Dummer Much-branched shrublet to 30 cm. Flowers in dense, terminal clusters, white. Fruits 3-chambered. Nov. Clay flats, LB (Riversdale).•

gonaquensis Eckl. & Zeyh. HOTTENTOTSBOEGOE Single-stemmed, leafy shrub to over 1 m, herb-scented. Flowers in dense heads, white. Fruits 3-chambered. Jan.–Dec. Mainly coastal grasslands, SE (Uitenhage to Port Elizabeth).•

hirta (Lam.) Bartl. & H.L.Wendl. Resprouting, densely leafy shrublet to 60 cm. Flowers in terminal clusters, white. Fruits 3-chambered. Jan.–Dec. Seasonal seeps and lower slopes and dunes, SE (Humansdorp to Port Elizabeth).•

hispida (Thunb.) Bartl. & H.L.Wendl. Resprouting, harsh-textured shrub to 80 cm, resin-scented. Flowers in dense, terminal clusters, white. Fruits 3-chambered. June–Oct. Granitic hills, NW, SW (Piketberg to Paarl).•

hookeri Sond. Resprouting shrublet to 30 cm. Flowers in dense, involucrate heads, white. Fruits 3-chambered. Aug.–Nov. Coastal sandy flats and lower slopes, SW (Cape Peninsula to Betty's Bay).•

imbricata (L.) Willd. Resprouting, leafy shrub to 1 m, sweetly or herb-scented. Flowers in dense, terminal clusters, white, pink or purple. Fruits 3-chambered. June–Jan. Granite, limey or sandy, well-drained or seasonally damp, slopes and flats, SW, AP, SE (Tulbagh to Knysna).•

joubertiana Schltdl. Sturdy, untidy, twisted ?resprouting shrublet to 40 cm, herb-scented. Flowers in large, terminal clusters, bright mauve-pink. Fruits 3-chambered. Aug.–Oct. Gravelly, ironstone flats, SW (Bredasdorp).•

krakadouwensis Dummer ? Single-stemmed shrub to 70 cm. Flowers in dense, woolly heads, white. Fruits (2)3(4)-chambered. Oct.–Dec. Moist, sandy, middle or upper slopes, NW (Cedarberg).•

lanceolata (L.) Engl. HEUNINGBOEGOE Single-stemmed, tangled, spreading shrublet to 50 cm, liquorice-scented. Flowers in lax, terminal clusters, pink to deep mauve. Fruits 3-chambered. Apr.–Oct. S-facing sandstone slopes, SW (Cape Peninsula).•

lancifolia Eckl. & Zeyh. Harsh shrublet to 15 cm. Flowers in dense heads, ?pink. Fruits ?3-chambered. Sept.–Oct. Lower slopes, SW (Tulbagh Kloof).•

latipetala Sond. Harsh, twiggy, much-branched shrublet to 30 cm. Leaves reflexed. Flowers in lax, terminal clusters, white. Fruits 3-chambered. Aug.–Oct. Gravelly sand or granite lower slopes, NW, SW (Bokkeveld Mtns, Piketberg to Paarl).•

leptospermoides Sond. Dense, sturdy, single-stemmed shrublet to 60 cm, only slightly aromatic. Flowers in dense, axillary clusters well below branch tips, white. Fruits 3-chambered. Mainly Feb.–Sept. Dry, sandstone, upper slopes, SW (Riviersonderend Mtns).•

marifolia Eckl. & Zeyh. Single-stemmed, compact, rough shrublet to 60 cm, citronella-scented. Leaves often very reflexed. Flowers in lax, terminal clusters, white. Fruits 3-chambered. June–Nov. Low, sandstone and shale slopes, NW, SW (Bokkeveld Mtns to Moorreesburg).•

martiana Sond. Single-stemmed, leafy, rounded shrub to over 3 m, acrid-smelling. Flowers in lax, terminal clusters, white with maroon dots. Fruits 3-chambered. July–Sept. Lower slopes, SE (Humansdorp).•

microcalyx Dummer Single-stemmed, rounded shrublet to 50 cm. Leaves pilose. Flowers in lax, terminal clusters, white. Fruits 3-chambered. Apr.–Sept. Dry, sandstone slopes and plateaus, NW (Bokkeveld Mtns to Clanwilliam).•

minuta Schltdl. Compact shrublet to 15 cm, coppicing from a woody caudex, liquorice-scented. Flowers small, in lax, terminal clusters, white or mauve. Fruits 3-chambered. June–Sept. Gravelly flats, AP, LB (Bredasdorp and Agulhas to Swellendam).•

mirabilis Pillans Much-branched shrublet to 40 cm, bitter lemon-scented. Flowers sessile, solitary, axillary, white. Fruits 3-chambered, long-horned. Sept.–Mar. Rock crevices, shale-bands, and sandstone ridges, NW (Cold Bokkeveld: Hansiesberg and Hex River Mtns).•

mucronulata Sond. Rounded, densely leafy shrub to 1 m, coppicing from a woody caudex, turpentine-scented. Flowers in lax, terminal clusters, white with purple dots. Fruits 3-chambered. Sept.–Oct. Dry middle slopes, SE (Uniondale).•

muirii E.Phillips Single-stemmed, sturdy shrub to 1 m. Flowers in terminal clusters, white. Fruits 3-chambered. Apr.–Aug. Coastal hills, AP, LB (Still Bay to Mossel Bay).•

nigromontana Eckl. & Zeyh. Sparsely branched shrublet to 40 cm, branching at ground level. Leaves sparsely arranged, needle-like, deflexed, apiculate. Flowers in dense, terminal clusters, mauve, faintly scented. Fruits 3-chambered. July–Aug. Sandstone outcrops in renosterveld, SW (Botrivier).•

orbicularis (Thunb.) Bartl. & H.L.Wendl. Low, tangled shrublet with white stems. Leaves minute, orbicular. Flowers in lax, terminal clusters, lilac. Fruits 3-chambered. July–Sept. Lower ferricrete slopes, SW (Caledon to Langeberg).•

pallens Pillans Single-stemmed, slender, lax shrublet to 40 cm. Flowers in terminal clusters, white. Fruits 3-chambered. Aug.–Dec. Sandy flats, AP?, LB (Riversdale).•

propinqua Sond. Low shrublet to 30 cm, coppicing from a woody caudex. Flowers in terminal clusters, white or purple. Fruits 3-chambered. July–Oct. Sandy flats and hills, SW (Paarl to Caledon).•

puberula (Steud.) Fourc. Single-stemmed, densely leafy shrub to 3 m, acrid-herb- or sulphur-scented. Leaves spine-tipped. Flowers in lax, terminal clusters, white, red-spotted. Fruits 3(4)-chambered. Mar.–Oct. Quartzite, sandstone or gravelly sands on middle slopes, SE (Humansdorp to Grahamstown).

pulchella (L.) Link MUISHONDBOEGOE Shrub to 1 m, strongly lemon-scented. Flowers axillary, magenta-pink. Fruits (2)3(4)-chambered. Nov. Damp, peaty, upper slopes, SW (Cape Peninsula).•

riversdalensis Dummer Single-stemmed, slender shrublet to 60 cm, herb-scented. Flowers in terminal clusters, white or purple. Fruits 3-chambered. Oct.–Apr. Limestone flats, AP (Bredasdorp to Still Bay).•

robusta Eckl. & Zeyh. Laxly branched shrublet to 60 cm, sometimes rooting where buried, lemon-herb-scented. Flowers in woolly, terminal clusters, mauve. Fruits 3- or 4-chambered. Oct. Calcareous coastal sands, AP (Cape Infanta to Still Bay).•

roodebergensis Compton Rounded, single-stemmed shrub to 1 m. Flowers in axillary clusters below branch tips, white. Fruits 3-chambered. Apr.–Nov. Middle to upper sandstone slopes, KM, SE (Rooiberg to Outeniqua Mtns).•

rosmarinifolia (Bartl.) I.Williams Single-stemmed, leafy shrub to 50 cm, unpleasantly scented. Flowers in dense, terminal heads, white. Fruits 3- or 4(5)-chambered. Aug.–Feb. High sandstone slopes, SW (Perdeberg to Kleinrivier Mtns).•

rubricaulis Dummer Leafy shrub with sturdy, bright mahogany, single stem to over 2 m, complex diesel-herb-scented. Flowers in terminal clusters, bright mauve. Fruits (4)5-chambered. June–Sept. Damp upper slopes in shale-bands, NW (Cedarberg).•

salina Eckl. & Zeyh. Stiff, rounded, single-stemmed, harsh shrublet to 40 cm, scarcely aromatic. Flowers in numerous, small, dense, terminal clusters, bright pink. Fruits 3-chambered, without horns. Aug. Hard, sandy, lower slopes, NW (Cedarberg).•

scaberula Dummer Coarse, rounded shrublet to over 1 m, coppicing from a woody caudex. Flowers in dense, shaggy, terminal clusters, white. Fruits 3-chambered. Mar.–June and Aug.–Dec. Coastal sands, AP (Agulhas to Still Bay).•

sedifolia Schltdl. BOSLUISBOEGOE Single-stemmed, smooth shrublet to 80 cm, faintly aromatic. Flowers rather large, in lax, terminal clusters, pink. Fruits 3-chambered. Mar.–Oct. Seasonally damp, coastal limestone flats, AP (Agulhas).•

serpyllacea Licht. ex. Roem. & Schult. Single-stemmed, rounded shrublet to 80 cm. Leaves narrow, swollen behind tip and slightly twisted. Flowers in many, lax, terminal clusters, white, pink or purple. Fruits 3-chambered. May–Dec. Coastal or inland sands or limestone flats and slopes, NW, SW, AP, LB, SE (Piketberg to Humansdorp).•

sladeniana P.E.Glover Single-stemmed, rounded, stiff, bristly shrublet to 40 cm. Flowers in small, dense, involucrate heads, mauve. Fruits 3-chambered. Sept.–Oct. Hard sandy ground, middle to upper slopes, NW (Citrusdal to Piketberg).•

squamosa (Roem. & Schult.) Bartl. & H.L.Wendl. (incl. **A. cedrimontana** Dummer) Dense, single-stemmed, tussocky shrublet to 60 cm, faintly pine-scented. Leaves scale-like. Flowers in small, dense heads, white or pink. Fruits 3-chambered. Apr.–Dec. Arid, rocky, middle mountain slopes, NW, KM (Cedarberg to Cold Bokkeveld Mtns, Swartruggens to Touws River).•

stenosepala Pillans Single-stemmed, dense shrublet with wiry branches, to 60 cm. Flowers usually solitary in upper axils, white, with slender, tapering sepals. Fruits long-horned, 3-chambered. Aug.–Oct. Middle to upper rocky slopes, SW (Paarl).•

trichocarpa Holmes Shrub to 30 cm. Leaves crowded, reflexed. Flowers in lax, terminal clusters, white. Fruits 3-chambered. June–Sept. Mountain plateaus, NW (Clanwilliam to Tulbagh).•

tulbaghensis Dummer Shrub to 40 cm. Flowers in terminal clusters, white or mauve. Fruits 2- or 3-chambered. Nov.–Jan. Sandstone summits, NW (Tulbagh, Ceres).•

sp. 7 (*Agathosma annebeaniae* Trinder-Smith *ms*.) Robust, multi-stemmed, sparsely-branched shrub to 1m. Leaves lanceolate, densely arranged in upper parts, carrot-scented. Flowers in large, dense, terminal clusters, brilliant purple. Fruits 3-chambered. July–Aug. Rocky sandstone slopes, KM (Rooiberg).•

sp. 8 (*Agathosma argentiflumina* Trinder-Smith *ms*.) Single-stemmed, sparsely branched shrublet to 30 cm. Leaves linear to narrowly ovate, sparsely arranged. Flowers in lax, terminal clusters, bright purple. Fruits 3-chambered. Marshy places along shale bands, SW (W Riviersonderend Mtns).•

sp. 9 (*Agathosma arida* P.A.Bean *ms*.) Single-stemmed, rounded shrublet to 40 cm. Leaves awl-shaped, sweetly herb-scented. Flowers in terminal clusters, pink or violet. Fruits 3-chambered. July–Nov. Gravelly loam, karoo-fynbos ecotone, KM (Little Karoo, N slopes of Langeberg and Outeniqua Mtns).•

sp. 10 (*Agathosma calcicola* Trinder-Smith *ms*.) Mat-forming, single-stemmed, much branched shrublet to 10 cm. Densely leafy, leaves linear to ovate, slightly aromatic. Flowers in terminal clusters, pale pink to light mauve. Pedicels dull maroon. Fruits 3-chambered. Sept.–Dec. Crevices in limestone, AP (hills near Pearly Beach).•

sp. 11 (*Agathosma delicata* Trinder-Smith *ms*.) Single-stemmed, upright shrublet to 40 cm. Leaves minute, ovate, keeled. Flowers in lax, terminal clusters, white. Fruits 3-chambered. Sept.–Oct. Deep acid sands, SW (Worcester, Breede River Valley).•

sp. 12 (*Agathosma genipilosa* Trinder-Smith *ms*.) Slender, single-stemmed shrublet to 30 cm, sparsely branched. Leaves minute, ovate, reflexed, densely arranged on upper parts, faintly liquorice-scented. Flowers in terminal clusters, mauve. Fruits 3-chambered. Apr.–Sept. Rocky lateritic soils, SW (E Riviersonderend Mtns).•

sp. 13 (*Agathosma lanata* P.A.Bean *ms*.) Dense, harsh, rounded shrubs to 80 cm, branching profusely at ground level. Leaves ovate, crowded above, margins ciliate, herb-scented. Flowers in dense, woolly, terminal clusters, white. Fruits 3-chambered. Mainly July–Oct. Dry, rocky, upper slopes, KM, SE (Rooiberg and Outeniqua Mtns).•

sp. 14 (*Agathosma leucoramula* Trinder-Smith *ms*.) Upright, single-stemmed shrublet to 40 cm. Leaves linear, ascending. Flowers in lax clusters, terminal or on side branchlets, pale pink. Fruits 3-chambered. Mar.–Apr. Sand on coastal flats, AP (Cape Agulhas).•

sp. 15 (*Agathosma longistyla* Trinder-Smith *ms*.) Resprouting shrublet to 30 cm. Leaves ovate, densely arranged, faintly scented. Flowers in dense, terminal heads, creamy white, buds light pink. Fruits 3-chambered. Oct.–Nov. Moist, loamy, sandstone slopes. SE (Kareedouw).•

sp. 16 (*Agathosma mathiae* Trinder-Smith *ms*.) Tough, many-stemmed, decumbent or cushion-forming shrublet to 30 cm, lemon-scented, underbark yellow. Leaves lanceolate-ovate, crowded in upper parts, densely hairy. Flowers in dense, terminal clusters, pink or white. Fruits (2)3-chambered, horns small. Oct.–Dec. Crevices in limestone, AP (hills near Pearly Beach).•

sp. 17 (*Agathosma moorei* Trinder-Smith *ms*.) Compact, single-stemmed shrublet to 25 cm. Leaves linear-lanceolate, densely arranged, bright green, peppery-scented. Flowers in dense, terminal clusters, white. Fruits 3-chambered. Oct.–Dec. Rock cracks and shallow soils over rocks, SW (Kogelberg to Babilonstoring).•

sp. 18 (*Agathosma obscura* Trinder-Smith *ms*.) Single-stemmed, sparsely branched shrublet to 30 cm tall. Leaves ovate with reddish margins, carrot-liquorice scented. Flowers in lax, terminal clusters, whitish with buds mauve-tinged. Fruits 3-chambered. Sept.–Oct. Seasonally moist areas in deep sand, SW. (Riviersonderend Mtns).•

sp. 19 (*Agathosma paralia* P.A.Bean *ms*.) Erect, sturdy, single-stemmed shrub to 1 m. Leaves narrowly ovate, inflexed at tips, margins ciliate. Flowers in dense, terminal clusters, white. Fruits 3-chambered. June–Aug. Fixed coastal dunes on limestone, AP (Agulhas coast).•

sp. 20 (*Agathosma parva* P.A.Bean *ms*.) KLIPSPRINGERBOEGOE Rounded, harsh, glaucous and often bronzed shrublet to 50 cm, coppicing from a woody caudex. Leaves small, ovate, margins ciliate, scarcely aromatic. Flowers in terminal clusters, bright purple or pink. Fruits 3-chambered. May–Oct. Rocky, shallow sand on arid, N-facing slopes, SW (Perdeberg and Riviersonderend Mtns).•

sp. 21 (*Agathosma parvipetala* P.A.Bean *ms*.) Single-stemmed, delicate shrublet to 30 cm. Leaves narrowly elliptic, sparsely arranged, margins long-ciliate, acrid lemon-scented. Flowers solitary in upper axils, bright mauve. Fruits 3-chambered. Oct.–Nov. Moist loam on high, S slopes, SW (Hottentots Holland Mtns).•

sp. 22 (*Agathosma perdurans* Trinder-Smith & P.A.Bean *ms*.) Robust, multi-stemmed, resprouting shrublet to 40 cm. Leaves linear, crowded, dull green, citrus-scented. Flowers in multiple clusters at tips of branchlets, bright mauve. Fruits 3-chambered. July–Aug. Calcareous rocky sands over limestones, AP (De Hoop).•

sp. 23 (*Agathosma rotundifolia* P.A.Bean *ms*.) Sturdy, rounded, many-stemmed shrub to 40 cm. Leaves broadly elliptic to round pilose, resin-scented. Flowers in dense, terminal clusters, pale pink. Fruits 3-chambered. Aug.–Sept. Stony sands over limestones, AP (De Hoop).•

sp. 24 (*Agathosma viviersii* P.A.Bean *ms*.) Single-stemmed, harsh shrublet with divaricate branching to 40 cm. Leaves long-linear, margins sparsely ciliate, faintly unpleasantly scented. Flowers in multiple, terminal clusters often forming large heads, white, buds red. Fruits 3-chambered. Aug.–Sept. Gravelly sands, middle slopes, NW (Cedarberg).•

sp. 25 (*Agathosma williamsii* P.A.Bean *ms*.) Single-stemmed shrublet to 30 cm. Leaves narrowly ovate, margins hispid, slightly aromatic. Flowers in lax, axillary clusters well below stem tips, white. Fruits 3-chambered. Mainly Oct.–Dec. Rocky upper slopes and summit ridges, LB (Langeberg).•

sp. 26 (*Agathosma worcesterensis* Trinder-Smith *ms*.) Single-stemmed shrublet to 50 cm, much branched. Leaves confined to upper parts, elliptical, grey-green, pubescent. Flowers in dense, terminal clusters, white. Fruits 3(4) chambered. Sept.–Oct. Sands and cobbles over shales, SW (Breede River Valley).•

A". Ovary usually 1- or 2-lobed

abrupta Pillans Single-stemmed, much-branched, tangled shrublet to 70 cm, scarcely aromatic. Flowers in axillary and terminal clusters, white or pale pink. Fruits 2-chambered. Apr.–Aug. Coastal limestone slopes, SW, AP (Grootbos to Hagelkraal).•

barosmifolia Eckl. & Zeyh. Single-stemmed, rounded, densely leafy shrub to 2 m, branching near soil level. Flowers in terminal clusters, white. Fruits usually 2-chambered. June–Sept. Lower sandstone slopes, NW (Bokkeveld Mtns to Olifants River Mtns).•

blaerioides Cham. & Schltdl. Single-stemmed shrub to 1 m. Leaves saddle-shaped, often with large stalked glands on margins. Flowers in small, axillary and terminal clusters, white, sometimes pink. Fruits 1-chambered. Apr.–Jan. Moist, upper, sandstone slopes, SE (Mossel Bay to Uniondale).•

ciliata (L.) Link STEENBOKBOEGOE Slender, single-stemmed, loosely branched shrub to 60 cm, herb-scented. Flowers in lax, terminal clusters, white or mauve. Fruits 2-chambered. Apr.–Sept. Sheltered sandstone slopes, SW (Bain's Kloof to Cape Peninsula).•

corymbosa (Montin) G.Don Single-stemmed shrublet to 40 cm. Flowers in lax, terminal clusters, white to bright purple. Fruits 2-chambered. May–Oct. Seasonally damp, sandy flats, SW (Hopefield to Cape Peninsula).•

dentata Pillans Twiggy, rounded shrublet to 30 cm. Flowers in small, terminal clusters, pink or white. Fruits 1-chambered. Aug.–Sept. Sandy plateaus, NW (Cedarberg).•

dregeana Sond. Slender shrub to 60 cm. Flowers in dense heads, white. Fruits 2-chambered. Sept.–Oct. Sandstone plateaus, NW (Matsikamma Mtns).•

elegans Cham. & Schltdl. Willowy, single-stemmed shrub to 1.5 m, herb-scented. Flowers in terminal clusters, white. Fruits 1(2)-chambered. Jan.–Dec. Damp mountain slopes, LB, SE (Riversdale to Uniondale).•

esterhuyseniae Pillans Wiry shrub to 1 m, strongly aromatic. Flowers in dense, woolly heads, white and mauve. Fruits 2(3)-chambered. Nov.–Dec. High peaks, NW (Cedarberg).•

glabrata Bartl. & H.L.Wendl. Single-stemmed, dense, rounded shrub to 2 m, lemon-scented. Flowers in lax, terminal clusters, mauve, pink or white. Fruits 2-chambered. July–Dec. Damp, sandy plains and dune slacks, SW (Darling to Cape Peninsula).•

humilis Sond. (incl. **A. adnata** Pillans) Resprouting, much-branched, cushion-like shrublet to 75 cm. Flowers in dense, terminal heads, white or pale pink. Fruits 2-chambered with small horns. Oct.–Jan. Middle and upper, well-drained slopes, NW (Cedarberg to Cold Bokkeveld Mtns).•

involucrata Eckl. & Zeyh. (incl. **A. cephalodes** E.Mey. ex Sond., **A. sabulosa** Sond.) Sturdy, resprouting shrub to 1 m, faintly pine-scented. Flowers in dense, involucrate heads, white or bright pink. Fruits 2- or 3-chambered, without processes. Sept.–Nov. Deep, sandy, lower slopes, NW (Paleisheuwel).•

juniperifolia Bartl. Willowy shrub to 2.5 m, strongly aromatic. Flowers in terminal clusters, purple, bright pink or white. Fruits 2-chambered. Apr.–Dec. Middle slopes and kloofs, NW, SW (Clanwilliam, to Riviersonderend Mtns).•

kougaense Pillans Slender, leafy shrub to 20 cm. Flowers in pairs in axils, white. Fruits 1(2)-chambered. July–Nov. Rocky slopes at high alt., SE (Uniondale to Kouga Mtns).•

linifolia (Roem. & Schult.) Licht. ex Bartl. & H.L.Wendl. Shrub to 50 cm. Flowers in terminal clusters, white. Fruits 2-chambered. July–Feb. Sandy loam on middle, S-facing slopes near streams, LB (Langeberg).•

longicornu Pillans Single-stemmed, harsh, twiggy shrublet to 25 cm, scarcely aromatic . Flowers in dense, terminal clusters, white. Fruits 2-chambered, long-horned. Sept. Stony, upper sandstone slopes, NW (Cedarberg).•

mundii Cham. & Schltdl. JAKKALSPISBOS Single-stemmed, sometimes resprouting, finely velvety, wiry shrub to 1 m, foetid. Flowers in terminal or axillary clusters, white. Fruits 2-chambered, flat-sided. June–Nov. Middle to upper, dry, rocky slopes, KM, SE (Witteberg to Humansdorp).•

ovalifolia Pillans Single-stemmed, rounded shrub to 1.5 m, acrid or spice-scented. Flowers in lax, terminal clusters white, red-dotted. Fruits 2-chambered. June–Oct. Rocky, quartzitic, upper slopes, KM, SE (Swartberg to Willowmore).•

pilifera Schltdl. Single-stemmed shrub to 60 cm, herb-scented. Flowers in terminal clusters, white with dark spots. Fruits (1)2(3)-chambered. Sept.–Oct. Upper sandstone slopes, SE (Humansdorp to Port Elizabeth).•

planifolia Sond. Resprouting, willowy shrub to 2 m, liquorice- or pine-scented. Flowers in terminal clusters, white, sometimes pink. Fruits 2-chambered. Mainly Dec.–Apr. Moist loamy soils on cool upper slopes, SE (Outeniqua Mtns).•

pubigera Sond. Resprouting, glaucous, much-branched shrublet to 60 cm, slightly aromatic. Flowers in terminal clusters, white. Fruits 1-chambered. Aug.–Sept. Lower slopes NW (Cedarberg).•

pungens (E.Mey. ex Sond.) Pillans Single-stemmed, much-branched, leafy shrub to 80 cm. Leaves spine-tipped, pleasantly aromatic. Flowers axillary, usually solitary, white, pink to purple. Fruits 2-chambered. May–Nov. Upper mountain slopes, KM, SE (Swartberg and Kammanassie Mtns to Uniondale).•

recurvifolia Sond. KANFERBOEGOE Single-stemmed, stiff, spreading shrublet to 1.5 m, turpentine-scented. Leaves recurving, with hyaline margins. Flowers in terminal clusters, white. Fruits 2-chambered. May–Nov. Dry, middle to upper slopes and valley bushveld ecotone, KM, LB, SE (Rooiberg and Swartberg to Uitenhage).•

spinosa Sond. Prostrate to decumbent, resprouting shrublet, herb-scented. Leaves recurving, pungent, with hyaline margins. Flowers in terminal clusters, white. Fruits 2-chambered. Sept.–Nov. Rocky sandstone slopes, SE (Uniondale to Avontuur).•

stenopetala (Steud.) Steud. Single-stemmed, smooth rounded shrub to 1.5 m, lemon-scented. Flowers in terminal clusters, white. Fruits 2-chambered. June–Nov. Coastal limestone hills, SE (Humansdorp to Port Elizabeth).•

stilbeoides Dummer Single-stemmed, yellowish green, leafy shrub to 1 m, liquorice-scented. Flowers in dense heads, white to mauve. Fruits 1-chambered, without horn. Oct.–Mar. Rocky upper slopes and shale bands, NW (Cedarberg).•

stokoei Pillans Slender shrublet to 35 cm. Flowers in dense, woolly heads, mauve? Fruits 2-chambered. Nov. Upper slopes, SW (Hottentots Holland Mtns to Kogelberg).•

umbonata Pillans Single-stemmed, pubescent shrublet to 60 cm. Flowers ± sessile, solitary in leaf axils, pink or white. Fruits 1- or 2-chambered, without horns. Mainly Jan.–Mar. Seeps and rocky ridges at high alt., LB (Langeberg).•

unicarpellata (Fourc.) Pillans Single-stemmed shrublet to 45 cm, turpentine-scented. Flowers 1–3 in leaf axils, white. Fruits 1-chambered. Apr.–Dec. Rocky, grassy, middle and lower slopes, SE (Kouga and Baviaanskloof Mtns).•

venusta (Eckl. & Zeyh.) Pillans GOEIEBOEGOE Resprouting shrub with warted branches to 1 m, pleasantly liquorice-scented. Flowers in small, axillary and terminal clusters, pale mauve often dark-dotted. Fruits 2(–5)-chambered, 1 or more often aborting. July–Feb. Grassy fynbos in seeps and rocky loams on upper and middle, southern slopes, SE (Uniondale to E Cape).

virgata (Lam.) Bartl. & H.L.Wendl. SKAAPBOEGOE Resprouting, dense, rounded shrub to over 1 m, often unpleasantly scented. Flowers in lax, terminal clusters, white or mauve. Fruits 2-chambered. Apr.–Dec. Middle to upper, sandstone slopes NW, SW, LB (Olifants River Mtns to Langeberg).•

sp. 27 (*Agathosma anysbergensis* P.A.Bean *ms.*) Much-branched shrub to 1 m. Leaves ovate, scabrid, slightly sweet-scented. Flowers in few-flowered, terminal clusters, white. Fruits 2- or 3-chambered. May–Oct. Arid, rocky slopes, KM (Anysberg).•

sp. 28 (*Agathosma auripuncta* Trinder-Smith *ms.*) Single-stemmed shrublet to 30 cm, branching at ground level. Leaves ovate, densely arranged up the stem. Flowers in dense, terminal heads, magenta-mauve. Fruits 2-chambered. Oct.–Nov. Quartzitic sands in rocky soil on mountain slopes, NW (Cold Bokkeveld).•

sp. 29 (*Agathosma glossophylla* Trinder-Smith *ms.*) Sparsely branched, single-stemmed shrublet to 50 cm. Leaves elliptical to ovate, strongly deflexed, densely arranged on upper parts. Flowers in dense, terminal heads, pink. Fruits 2-chambered. Mar.–Apr. Well-drained, manganese-rich gravels, SW (Riviersonderend Mtns).•

sp. 30 (*Agathosma menefulgida* Trinder-Smith *ms.*) Single-stemmed shrublet to 25 cm. Leaves lanceolate, strongly aromatic. Flowers in small, terminal clusters, deep purple. Fruits 2-chambered. Sept. Well-drained, quartzitic, sandy loam slopes, SW (Kleinrivier Mtns).•

sp. 31 (*Agathosma paludigena* Trinder-Smith *ms.*) Sparsely branched, single-stemmed shrublet to 30 cm. Leaves linear, woolly. Flowers in terminal clusters, mauve. Fruits 2-chambered. Sept.–Oct. Marshy areas at high altitude, KM (Klein Swartberg).•

sp. 32 (*Agathosma toximontana* Trinder-Smith *ms.*) Straggling, single-stemmed shrub to 50 cm. Leaves ovate, deflexed, aromatic. Flowers in lax, terminal clusters. Fruits 2-chambered. Sept.–Oct. Sandy plateaus, NW (Gifberg).•

sp. 33 (*Agathosma vlokii* Trinder-Smith *ms.*) Upright, single-stemmed shrub to 80 cm. Leaves elliptical to rotund, sweetly scented. Flowers in lax, terminal clusters, white with red, gland dots. Fruits 2-chambered. Feb.–Mar. Dry, rocky slopes in loamy soil, SE (Kouga Mtns).•

CALODENDRUM Thunb. CAPE-CHESTNUT, WILDEKASTAIING 1 sp., Africa

capense (L.f.) Thunb. Evergreen tree to 20 m. Leaves simple, elliptic, aromatic. Flowers in terminal panicles, large, pink dotted mauve. Capsules large and conspicuously warty. Mainly Oct.–Dec. Evergreen forests, LB, SE (Swellendam to tropical Africa).

CLAUSENA Burm.f. HORSEWOOD, PERDEPIS ± 50 spp., Africa to Malaysia

anisata (Willd.) Hook.f. ex Benth. Shrub or small tree to 5(–10) m. Leaves imparipinnate, leaflets ovate, toothed, strongly scented. Flowers in axillary, cymose panicles, yellow or white. Aug.–Nov. Evergreen forests, LB, SE (Riversdale to tropical Africa).

COLEONEMA Bartl. & H.L.Wendl. CAPE-MAY, CONFETTI BUSH 8 spp., W and E Cape

A. Flowers > 10 mm diam.

pulchrum Hook. Willowy shrub to 1.2 m. Leaves linear, erect, turpentine-scented, mucronate, ± 20 mm long. Flowers solitary, pink, 12–13 mm diam., petals gland-dotted. Aug.–Nov. Sandstone slopes, LB (Tradouw Pass).•

virgatum (Schltdl.) Eckl. & Zeyh. Erect shrub to 1 m. Leaves linear, ± 30 mm long. Flowers solitary, pink or white, ± 12 mm diam. June–Sept. Sandstone slopes, LB (Langeberg: Swellendam to Riversdale).•

A.' Flowers 5–10 mm diam.
B. Flowers pink

aspalathoides Juss. ex Don Dense shrub to 1.5 m. Leaves linear-oblong, scarcely scented. Flowers solitary, crowded, pink, petals not obviously clawed, 8–10 mm diam. Apr.–Nov. Sandstone slopes, SW, LB, SE (Potberg to E Cape: Zuurberg).

pulchellum I.Williams Dense shrub to 1 m. Leaves linear, pungent, sweet-smelling. Flowers solitary, often crowded, pink, 7–8 mm diam. Mar.–Oct. Coastal sands, SE (Plettenberg Bay to Port Elizabeth).•

B.' Flowers white

album (Thunb.) Bartl. & H.L.Wendl. Shrub to 2 m. Leaves linear-oblong, sweet-smelling. Flowers solitary, crowded at branch tips, white, 6–7 mm diam. Aug.–Oct. Coastal sandstone or granite outcrops, SW, AP (Saldanha to Cape Infanta).•

calycinum (Steud.) I.Williams Shrub to 3 m. Leaves linear, ± 15 mm long, rum-scented. Flowers solitary, white, 5.5–6.5 mm diam. Sept.–Oct. Sandstone and limestone slopes, SW, AP, KM, LB (Houwhoek to Riversdale).•

juniperinum Sond. Shrublet to 50 cm. Leaves linear-lanceolate, ascending-adpressed, resin-scented. Flowers solitary, white, 3–4 mm diam., petals papillate. May–Nov. Sandstone and shale slopes, NW, SW (Bokkeveld to Riviersonderend Mtns).•

nubigenum Esterh. Dense, rounded shrub to 1 m. Leaves linear-lanceolate, coconut-scented, ciliate at first. Flowers solitary, white, 7.5 mm diam., staminodes free from petals. Oct.–Feb. Sandstone slopes, SW (Du Toitskloof and Hottentots Holland Mtns).•

DIOSMA L. FALSE BUCHU 28 spp., winter-rainfall S Africa **gce**

A. Staminodes lacking
B. Leaves mostly opposite

dichotoma P.J.Bergius Like **D. oppositifolia** but leaves adpressed, short, to 4 mm long, with apical callus and fruits without horns. Nov.–Jan. Mainly coastal sands, SW (Hopefield to False Bay).•

oppositifolia L. Closely leafy, aromatic shrublet sometimes to 1 m, with many stems from a woody caudex. Leaves opposite and decussate, sessile, spreading-erect, loosely imbricate, linear to lanceolate, recurving towards tip. Flowers paired and aggregated in small, flat-topped corymbs, white. Mainly Sept.–Jan. Sandstone, granite and limestone slopes, SW, AP (Hopefield to Bredasdorp and Agulhas).•

subulata J.C.Wendl. Finely leafy, single-stemmed, aromatic shrub to 1.8 m. Leaves mostly opposite, incurved-erect, linear-lanceolate, pungent. Flowers crowded terminally on 1-flowered racemes, white, petals and ovary glabrous. Mainly July–Nov. Coastal dunes, SW, AP (Hawston to Cape Agulhas).•

B.' Leaves alternate

acmaeophylla Eckl. & Zeyh. Finely leafy, single-stemmed, aromatic shrub to 2.5 m. Leaves sessile, linear-subterete, with a recurved mucro. Flowers terminal, solitary on loosely clustered, short branchlets, white, petals minutely pubescent. Mainly Aug.–Oct. Rocky sandstone slopes, NW, KM (Namaqualand to Cold Bokkeveld and Witteberg). **gce**

arenicola I.Williams Like **D. subulata** but leaves alternate in mature plants, bracts and sepals long-crisped ciliate. Mainly Sept.–Dec. Calcareous sands on limestones, AP (Agulhas Peninsula).•

aspalathoides Lam. Finely leafy, aromatic shrub to 1 m, branching from a woody caudex. Leaves short-petiolate, ascending, linear-elliptic, mucronate. Flowers in small, terminal clusters on short racemes, white. Mainly Sept.–Nov. Sandy, mostly coastal flats, SW (Hopefield to Milnerton).•

awilana I.Williams Like **D. subulata** but leaves alternate, sessile, with recurved tip. Dec.–June. Stony, calcareous sands, AP (Baardskeerdersbos).•

hirsuta L. Finely leafy, aromatic shrublet sometimes to 50 cm, resprouting from a woody caudex. Leaves linear, mucronate. Flowers in compact racemes grouped in lax, terminal corymbs, white, petals persisting below fruit. Mainly Sept.–Nov. Sandstone and clay slopes, NW, SW, AP, LB, SE (Cedarberg to Humansdorp).•

meyeriana Spreng. Finely leafy, aromatic shrub to 1 m, sometimes branched from base. Leaves sessile, ascending, linear-lanceolate, sharply mucronate. Flowers in small, terminal clusters on short racemes, white. Mainly July–Dec. Rocky sandstone slopes, NW (Cedarberg and Olifants River Mtns).•

parvula I.Williams Finely leafy, single-stemmed, aromatic shrublet to 40 cm. Leaves linear, mucronate. Flowers in dense, terminal racemes, small, petals emarginate, disc much pitted. Mainly June–Oct. Peaty seeps on sandstone, SW (Bredasdorp and Potberg).•

pedicellata I.Williams Like **D. hirsuta** but plants robust, to 1 m, petals soon falling, fruits pedicellate above calyx when mature and not associated with petals. Mainly Aug.–Oct. Sandy and stony slopes and flats, NW, SW (Bokkeveld Mtns to False Bay).•

pilosa I.Williams Like **D. meyeriana** but leaves adpressed, flowers larger, petals with few, long, weak hairs and fruit horns short and spreading (not erect). Jan.–June. Sandstone slopes, SW (Riviersonderend Mtns).•

ramosissima Bartl. & H.L.Wendl. Finely leafy, aromatic shrub to 1.5 m, many-branched from base. Leaves sessile, linear-subterete, obtuse or with an apical callus. Flowers terminal, solitary or paired on loosely clustered, short branchlets, white, petals minutely pubescent outside. Mainly Aug.–Nov. Rocky sandstone slopes, NW (Namaqualand to Worcester). **gce**

sabulosa I.Williams Like **D. subulata** but leaves alternate, sessile, ovate. Mainly Aug.–Dec. Deep sands, AP, LB (De Hoop to Albertinia).•

A.' Staminodes present as small, apical glands on lobes of disc
C. Leaves shortly petiolate,

aristata I.Williams Single-stemmed, finely leafy, aromatic shrub to 70 cm. Leaves linear-attenuate, pungent. Flowers 3–5 in short racemes, white. Jan.–May. Coastal sands, AP (Mossel Bay).•

echinulata I.Williams Like **D. guthriei** but leaves alternate, short-petiolate, sparsely setose, pungent. Mainly Dec.–Apr. Limestone hills, AP, LB (De Hoop to Albertinia).•

rourkei I.Williams Like **D. thyrsophora** but leaves short-petiolate, linear-lanceolate, acute, flowers with sessile petals and style always erect. June–Aug. Rocky sandstone slopes, SE (Baviaanskloof Mtns).•

tenella I.Williams Finely leafy, aromatic shrublet to 50 cm, single- or multistemmed. Leaves linear-oblong, spreading to suberect. Flowers few in short, terminal racemes, white. June–Dec. Mainly on clays and gravel soils, AP, LB (De Hoop and Langeberg: Heidelberg to Albertinia).•

C.' Leaves sessile

apetala (Dummer) I.Williams Closely leafy, sprawling, aromatic, single-stemmed shrublet. Leaves sessile, lanceolate, adpressed-erect. Flowers sessile, 1 or 2 in a terminal tuft, tiny, white, petals caducous on opening. Mainly Aug.–Nov. Sandstone slopes above 900 m, KM, SE (Swartberg and Kouga Mtns).•

demissa I.Williams Like **D. guthriei** but leaves alternate, lanceolate, 5-ranked, obtuse. Mar.–June. Coastal in sandy pockets on limestones, SW, AP (Cape Peninsula and Stanford to Hagelkraal).•

fallax I.Williams Finely leafy, twiggy, aromatic shrublet sometimes to 40 cm. Leaves sessile, spreading, linear, pungent. Flowers few on short, terminal racemes, white. Sept.–Oct. Stony renosterveld, LB (Swellendam).•

guthriei P.E.Glover Closely leafy, spreading, aromatic shrublet to 40 cm, from a woody caudex. Leaves sessile, sometimes opposite, ovate, acute with a blunt, apical callus. Flowers sessile, 2 or 3 in a terminal cluster, white. Mainly Oct.–Dec. Mainly on limestones, SW, AP (Saldanha, Agulhas Peninsula).•

haelkraalensis I.Williams Like **D. guthriei** but plants decumbent, leaves opposite, recurving, and flowers small. Apr.–Sept. Limestone hills, AP (Pearly Beach to Hagelkraal).•

passerinoides Steud. Finely leafy, aromatic shrublet to 40 cm. Leaves sessile, elliptic to lanceolate, obtuse, minutely pubescent. Flowers solitary, terminal, white. June–Sept. Silcrete slopes, SW, KM, LB, SE (Caledon to Kouga Mtns and Little Karoo).•

prama I.Williams Like **D. passerinoides** but single-stemmed, branchlets glabrous and leaves with pustulate, gland dots mainly near midrib. Mainly Sept.–Dec. Dry sandstone slopes, KM, SE (Touwsberg and Klein Swartberg to Baviaanskloof Mtns).•

recurva Cham. Finely leafy, aromatic shrub to 1 m. Leaves sessile, elliptic, obtuse, recurved. Flowers in small, terminal clusters, white, petals gland-dotted. June–Dec. Rocky sandstone slopes, KM (Little Karoo Mtns).•

strumosa I.Williams Like **D. passerinoides** but style and filaments sparsely pubescent, anthers purple and fruits rough and pitted. June–Aug. Shale slopes in renosterveld, KM (Barrydale).•

thyrsophora Eckl. & Zeyh. Single-stemmed shrub to 3 m. Leaves sessile, linear-lanceolate, obtuse. Flowers 1–3 on short, terminal branchlets, white, style deflexed during anthesis. Nov.–Jan. Rocky sandstone slopes, SW (E Riviersonderend Mtns).•

EMPLEURUM Sol. ex Aiton• 2 spp., SW Cape

fragrans P.E.Glover Monoecious or polygamous, wand-like shrub to 1.7 m. Leaves oblong, 6–8 mm long. Flowers 1 or 2 in axils, greenish. Oct. Streamside seeps, LB (Langeberg: Grootvadersbos to Garcia's Pass).•

unicapsulare (L.f.) Skeels Monoecious or polygamous, willowy shrub or small tree to 4 m. Leaves linear-lanceolate, finely serrate, resin-scented, 20–60 mm long. Flowers 1 or 2 in axils, greenish. Mainly Apr.–Sept. Stream banks or seeps, NW, SW, KM, LB, SE (Cedarberg to Port Elizabeth).•

EUCHAETIS Bartl. & H.L.Wendl. 23 spp., winter-rainfall S Africa **gce**

A. Disc spreading-crenulate below ovary

diosmoides (Schltr.) I.Williams Like **E. schlechteri** but leaf apices incurved-apiculate and flowers many. July–Jan. Rocky, shale slopes, SW (Elim to Potberg).•

elsieae I.Williams Shrublet to 1(–1.5) m. Leaves ascending, oblong, fleshy, obtuse. Flowers 2–4 at branch tips, white. Throughout the year. Sandstone slopes, NW, KM (Cold Bokkeveld to Touws River and Rooiberg).•

linearis Sond. Slender, willowy shrublets to 40 cm. Leaves adpressed, linear. Flowers 4 in terminal clusters, white. Feb.–July. Sandstone slopes, NW, SW (Grootwinterhoek Mtns to Caledon Swartberg).•

longicornis I.Williams Foetid shrublet like **E. linearis** but leaves pungent and fruit horns longer, 7 mm long. May–June. Clay slopes, LB (Riversdale).•

schlechteri Schinz Diffuse shrublet to 40 cm. Leaves ascending, subsessile, lanceolate, finely hairy. Flowers to 9 in terminal clusters, white. May–Aug. Clay slopes, SW (Sir Lowry's Pass to Bredasdorp).•

A.' Disc collar-like around ovary

avisylvana I.Williams Diffuse shrub to 1 m. Leaves ascending, subsessile, linear-lanceolate, long-ciliate. Flowers several in terminal glomerules, white, petals acute. Apr.–June. Sandstone slopes, LB (Swellendam).•

cristagalli I.Williams Like **E. avisylvana** but petals obtuse and larger, 5.5 mm long. Feb.–Mar. Sandstone slopes, SE (Great Winterhoek Mtns).•

elata Eckl. & Zeyh. Diffuse shrublet to 40 cm. Leaves adpressed, lanceolate, sessile, minutely ciliate. Flowers several in terminal glomerules, white. Throughout the year. Sandstone slopes, SW (Slanghoek to Palmiet River Mtns).•

esterhuyseniae I.Williams Twiggy shrublet to 60 cm. Leaves spreading, fleshy, ovate. Flowers few in terminal glomerules, white. Dec.–May. Sandstone crevices, NW (Cold Bokkeveld Mtns).•

flexilis Eckl. & Zeyh. Like **E. elata** but leaves blunt and like the prow of a boat at tips and margins membranous. Feb.–June. Sandstone slopes, SW (Slanghoek to Riviersonderend Mtns).•

glabra I.Williams Shrublet to 50 cm. Leaves ascending, shortly petiolate, elliptic. Flowers ± 12 in terminal glomerules, white. Mar.–May. Sandstone slopes, SW (Jonkershoek to Kogelberg).•

glomerata Bartl. & H.L.Wendl. Like **E. elata** but fruit horns longer, ± 3 mm. Throughout the year. Sandstone slopes, NW (Pakhuis Mtns to Cold Bokkeveld and Olifants River Mtns).•

longibracteata Schltr. Shrublet to 80 cm. Leaves ascending, subsessile, ovate to lanceolate, ± 10 mm long, sometimes minutely hairy, upper whitish and forming a conspicuous involucre below flowers. Flowers 1-several in terminal clusters, pink. Dec.–Apr. Limestone hills, AP (Agulhas to Cape Infanta).•

A." Disc arching over and partly enclosing ovary

albertiniana I.Williams Like **E. burchellii** but single-stemmed at base and sparser. Throughout the year. Coastal sands and limestones, AP (Albertinia).•

burchellii Dummer Dense shrub to 1 m. Leaves opposite, ascending-recurved, sessile, ovate. Flowers 2 at branch tips, white or pink. Throughout the year. Coastal sands, AP, SE (Gansbaai to George).•

ericoides Dummer Diffuse shrublet to 70 cm. Leaves alternate or opposite, ascending, sessile, lanceolate. Flowers 3 or 4 at branch tips, white. Mar.–Sept. Sandstone slopes, NW (Cold Bokkeveld Mtns).•

intonsa I.Williams Like **E. meridionalis** but leaves, bracts and sepals shortly hairy and ciliolate. Apr.–Nov. Coastal limestones, AP (De Hoop).•

laevigata Turcz. Dense shrublet to 80 cm. Leaves opposite, fleshy, ascending-recurved, subsessile, suborbicular. Flowers 2–4 at branch tips, white. July–Nov. Limestone ridges, AP (Bredasdorp).•

meridionalis I.Williams Dense shrublet to 1.5 m. Leaves imbricate, decussate, ascending, subsessile, ovate, folded, ciliolate. Flowers 4–6 at branch tips, white or pink. Apr.–Nov. Coastal limestones, AP (Agulhas to Cape Infanta).•

pungens (Bartl. & H.L.Wendl.) I.Williams Like **E. burchellii** but leaves somewhat pungent and fruit horns short and bifid. Mar.–Nov. Deep, sandy flats, NW (Breede River Valley, Koekenaap). **gce**

scabricosta I.Williams Like **E. meridionalis** but leaves lanceolate. July–Nov. Coastal sands, AP (Gansbaai to Potberg).•

tricarpellata I.Williams Diffuse shrublet to 40 cm. Leaves adpressed, subsessile, linear. Flowers 2 or 3 at branch tips, white, ovary 3-carpellate. Sept.–Nov. Sandstone slopes, NW (Piketberg).•

vallis-simiae I.Williams Shrub to 1.2 m. Leaves ascending, elliptic, finely hairy, apex knobbed. Flowers 1–4 at branch tips, white. Aug.–Oct. Sandstone slopes, SE (Kouga and Baviaanskloof Mtns).•

MACROSTYLIS Bartl. & H.L.Wendl.• 10 spp., SW Cape

barbigera (L.f.) Bartl. & H.L.Wendl. Shrublet to 30 cm. Leaves opposite, sessile, spreading-reflexed, ovate-cordate, 6–12 mm long. Flowers to 8 in terminal, pendulous umbels, white. July–Jan. Sandstone slopes, NW (Cold Bokkeveld Mtns).•

cassiopoides (Turcz.) I.Williams Wand-like shrublet to 1.5 m. Leaves sessile, adpressed, imbricate, ovate, 5 mm long. Flowers 1–5 at branch tips, white. Aug.–Nov. Sandy flats and slopes, NW, SW (Nardouw Mtns to Bellville).•

cauliflora I.Williams Like **M. crassifolia** but leaves gland-dotted on midrib and margins only. Feb.–July. Rocky hills, SW (Elim to Bredasdorp).•

crassifolia Sond. Like **M. tenuis** but leaves thicker with prominent margins and midrib. June–Dec. Coastal sandy flats, NW, SW (Lambert's Bay to Hopefield).•

decipiens E.Mey. ex Sond. Like **M. villosa** but leaves smaller, 4–6 mm and flowers up to 8. Jan.–Sept. Sandstone slopes, NW (Gifberg to Ceres).•

hirta E.Mey. ex Sond. Twiggy shrublet to 1 m. Leaves sessile, spreading, ovate-cordate, 2–5 mm long. Flowers to 7 at branch tips, white. Aug.–Sept. Sandy slopes, NW (Paleisheuwel).•

ramulosa I.Williams Sprawling shrublet to 30 cm. Leaves imbricate, sessile, ascending, awl-shaped, softly hairy, 6–8 mm long. Flowers 4–6 at branch tips, white. Mar.–July. Sandstone slopes, NW (Cold Bokkeveld Mtns).•

squarrosa Bartl. & H.L.Wendl. Twiggy shrublet to 30 cm. Leaves sessile, recurved, elliptic, finely hairy, 2–3 mm. Flowers 5–7 at branch tips, white. Aug.–Feb. Sandstone slopes, NW (Bokkeveld Mtns to Cedarberg).•

tenuis E.Mey. ex Sond. Twiggy shrublet to 90 cm. Leaves sessile, ascending, imbricate, ovate, 2–3 mm long. Flowers to 6 at branch tips, white. Sept.–Mar. Sandstone slopes, NW (Gifberg to Worcester).•

villosa (Thunb.) Sond. Rounded shrublet to 30 cm. Leaves subsessile, ascending, imbricate, lanceolate, 4–14 mm long. Flowers 11–14 at branch tips, white. Dec.–July. Sandy coastal flats, SW (Hopefield to Cape Peninsula).•

PHYLLOSMA Bolus ex Schltr.• 2 spp., SW Cape

barosmoides (Dummer) I.Williams Shrublet to 30 cm. Leaves obovate, ciliate, conspicuously gland-dotted. Flowers crowded at branch tips, pink. Jan.–Sept. Sandstone crevices, NW (Hex River Mtns).•

capensis Bolus Shrublet to 40 cm. Leaves linear-oblong, leathery, margins revolute, foetid. Flowers crowded at branch tips, pale pink. July–Sept. Sandstone crevices, NW (Pakhuis to Cold Bokkeveld Mtns).•

PTAEROXYLON Eckl. & Zeyh. SNEEZEWOOD, NIESHOUT 1 sp., southern Africa

obliquum (Thunb.) Radlk. Dioecious, deciduous shrub or tree rarely to 20 m. Leaves opposite, paripinnate, leaflets in 3–7 pairs, oblique. Flowers in axillary thyrses, pale yellow. Apr.–Sept. Forests and bush, SE (Humansdorp to tropical Africa).

SHEILANTHERA I.Williams• 1 sp., SW Cape

pubens I.Williams Shrublet to 40 cm. Leaves oblong, leathery, margins revolute, thinly hairy when young. Flowers crowded at branch tips, pink to white. Oct. Sandstone crevices, NW (Cold Bokkeveld Mtns).•

VEPRIS Comm. ex A.Juss. WHITE IRONWOOD, WITYSTERHOUT ± 15 spp., Africa and Mascarene Islands

lanceolata (Lam.) G.Don Dioecious shrub or small tree to 5 m. Leaves trifoliolate, leaflets narrowly elliptic, undulate. Flowers unisexual, in terminal panicles, yellowish. Dec.–Mar. Evergreen forests, LB, SE (Swellendam to tropical Africa).

ZANTHOXYLUM L. KNOBWOOD, PERDEPRAM ± 250 spp., Africa, E Indies, America

capense (Thunb.) Harv. SMALL KNOBWOOD, KLEINPERDEPRAM Small, dioecious, prickly tree to 7 m. Leaves imparipinnate, leaflets obovate, lower smaller, toothed, with 4–8 pairs of veins. Flowers unisexual, in terminal or axillary panicles, whitish. Oct.–Dec. Evergreen forests, SE (George to tropical Africa).

davyi (I.Verd.) P.G.Waterman Like **Z. capense** but leaflets lanceolate, acute, with 16–20 pairs of veins. Oct.–Jan. Evergreen forests, SE (Knysna to tropical Africa).

SALICACEAE (= *FLACOURTIACEAE*)

1. Perianth 0; flowers unisexual, monoecious, in catkins; leaves lanceolate, serrulate ..... **Salix**
1.' Calyx at least present; flowers bisexual or dioecious:
2. Flowers unisexual; leaves 3–9-veined from base:
3. Petals 0; stamens not in bundles; styles 2–7; fruit a berry; much-branched spiny shrubs .. **Dovyalis**
3.' Petals usually present; stamens in bundles of 3 or 4, alternating with disc glands; styles 1 or 3; plants unarmed; fruit a capsule ..... **Trimeria**
2.' Flowers bisexual; leaves not several-veined from base:
4. Leaves opposite; ovary 1-locular with a single ovule on each of 2 placentas; style bilobed; fruit a 2-valved capsule ..... **Pseudoscolopia**
4.' Leaves alternate; ovary 1-locular with few ovules on 3 or 4 parietal placentas; style simple; fruit a berry ..... **Scolopia**

DOVYALIS E.Mey. ex Arn. SUURBESSIE ± 20 spp., Africa to Sri Lanka and New Guinea

lucida Sim BLINKBLAARSUURBESSIE Dioecious tree to 10 m. Leaves rhomboid, 3–5-veined from base. Flowers 1–few in axillary clusters, greenish. Fruits minutely papillose. July–Oct. Forests and scrub, SE (Port Elizabeth to Zimbabwe).

rhamnoides (Burch. ex DC.) Burch. & Harv. Like **D. rotundifolia** but leaves thinner in texture, narrower and usually truncate or cordate at base, sepals in fruits fringed with stalked glands and seeds hairy. Jan.–Feb. Forests and scrub, SE (George to Mpumalanga).

rotundifolia (Thunb.) Thunb. & Harv. DUINESUURBESSIE Dioecious, thorny tree or shrub with white, ridged bark to 6 m. Leaves leathery, rounded, 3–5-veined from base. Flowers 1-few in axillary clusters, greenish. Jan.–Mar. Coastal dune forests, SE (Humansdorp to E Cape).

PSEUDOSCOLOPIA Gilg. VALSROOIPEER 1 sp., S Africa

polyantha Gilg Shrub or tree to 5 m. Leaves opposite, elliptic, toothed. Flowers few in axillary cymes, white. Oct. Forests, NW (Twenty-Four Rivers Kloof only and E Cape to KwaZulu-Natal).

SALIX L. WILLOW ± 400 spp., mainly N hemisphere

mucronata Thunb. CAPE WILLOW Monoecious shrub or small tree to 12 m, with rough, scaly bark, branches sometimes drooping. Leaves lanceolate, silvery hairy, finely toothed, paler beneath. Flowers in spikes on axillary shoots; seeds woolly. Sept.–Oct. Along rivers and streams, NW, SW, AP, KM, LB, SE (throughout southern Africa).

SCOLOPIA Schreb. ROOIPEER ± 37 spp., palaeotropical and subtropical

mundii (Eckl. & Zeyh.) Warb. Small, sometimes spiny tree to 16 m. Leaves elliptic, closely toothed. Flowers few in axillary racemes, greenish white with reduced petals. Nov.–Dec. Forests, SW, LB, SE (Cape Peninsula to Mpumalanga).

zeyheri (Nees) Harv. DORINGROOIPEER Like **S. mundii** but leaves narrower and entire or sparsely toothed, often waxy above. Apr.–July. Forests and scrub, SE (Knysna to Mpumalanga).

TRIMERIA Harv. WILDEMOERBEI 5 spp., southern and tropical E Africa

grandifolia (Hochst.) Warb. Dioecious, small tree to 10 m. Leaves round, toothed, 5–7-veined from base. Flowers in axillary spikes or panicles, 4- or 5-lobed, greenish. Feb.–Apr. Forests, SE (George to Zimbabwe).

trinervis Harv. FYNBLAARWILDEMOERBEI Dioecious, small tree to 7 m. Leaves elliptic, toothed, 3(–5)-veined from base. Flowers in axillary spikes, 3-lobed, greenish. June–Oct. Forests and scrub forests, SE (Knysna to Mpumalanga).

SALVADORACEAE

AZIMA Lam. NEEDLE BUSH, SPELDEDORING ± 4 spp., palaeotropics and subtropics

tetracantha Lam. Dioecious shrub or scrambler to 9 m with 4 straight thorns at each node. Leaves ± opposite, leathery, elliptic to suborbicular. Flowers 1–few in axillary glomerules or cymes, greenish to yellow. Oct.–Feb. Lowland scrub and bush, LB, SE (Cape Infanta to tropical Africa).

SAMOLACEAE = THEOPHRASTACEAE

SANTALACEAE (= *VISCACEAE*)

1. Aerial parasites; flowers unisexual, monoecious ..... **Viscum**
1.' Rooted plants:
2. Leaves opposite, well developed; flowers bisexual; fruit fleshy:
3. Leaves subsessile, rounded or cordate at base; style relatively long; stigma 5-lobed ... **Rhoiacarpos**
3.' Leaves shortly petiolate, cuneate at base; style relatively short; stigma 4-lobed ..... **Colpoon**
2.' Leaves alternate, rarely subopposite, reduced; fruit dry or fleshy:
4. Flowers unisexual; perianth lobes and stamens 4 ..... **Thesidium**
4.' Flowers bisexual; perianth lobes and stamens 5 ..... **Thesium**

COLPOON P.J.Bergius (= *OSYRIS* of Cape Plants 2000) CAPE SUMACH, PRUIMBAS 6 or 7 spp., Africa to India

compressum P.J.Bergius (= *Osyris compressa* (P.J.Bergius) DC.) Glaucous, hemiparasitic shrub or small tree to 5 m. Leaves mostly opposite, ovate-elliptic, cuneate at base, leathery, margins thickened. Flowers in delicate, terminal, cymose panicles, greenish, buds 1.7–2.4 mm diam. Fruits a red to black drupe, to 17 × 12 mm. Dec.–June. Strandveld and rocky slopes, NW, SW, AP, KM, LB, SE (Namaqualand to Cedarberg to tropical Africa).

speciosa (A.W.Hill) P.A.Bean (= *Osyris speciosa* (A.W.Hill) J.C.Manning & Goldblatt) Many-stemmed resprouting shrublet to 2 m. Leaves ovate-elliptic, leathery, margins thickened. Flowers in robust, terminal, cymose panicles, greenish, buds 2.7–3.1 mm diam. Fruits a red to black drupe, to 25 × 21 mm. Sept.–May, after fire. Coastal sandstone and limestone flats and slopes, SW, AP (Houwhoek to Agulhas).•

RHOIACARPOS A.DC. 1 sp., S Africa

capensis (Harv.) A.DC. Straggling shrublet to 60 cm. Leaves opposite, ovate-elliptic, margins revolute and minutely crisped. Flowers in terminal, cymose panicles or racemes, greenish. Fruit a red drupe. Mar.–July. Coastal bush, SE (Mossel Bay to KwaZulu-Natal).

THESIDIUM Sond. 4 or 5 spp., W and E Cape

fragile (Thunb.) Sond. (incl. **T. microcarpum** (A.DC.) A.DC. & **T. podocarpum** (A.DC.) A.DC.) Dioecious, brittle, hemiparasitic shrublet to 50 cm, often yellowish. Leaves and bracts adpressed, scale-like, shorter than flowers, lower leaves sometimes longer and spreading. Flowers in spikes, greenish. Fruits whitish with orange calyx. Throughout the year. Sandy flats and slopes, SW, AP, KM, LB, SE (Little Karoo, Saldanha Bay to E Cape).

fruticulosum A.W.Hill (incl. **T. minus** A.W.Hill) Dioecious, sexually dimorphic, hemiparasitic shrublet to 40 cm. Leaves and bracts very much larger in female, spreading or ascending, lanceolate, keeled, longer than flowers. Flowers in spikes, greenish. Fruits greenish. Throughout the year. Sandstone and limestone flats and slopes, SW, AP, SE (?Namaqualand, Cape Peninsula to Humansdorp).?•

hirtum Sond. Dioecious, sexually dimorphic, roughly hairy, closely leafy, hemiparasitic shrublet to 20 cm. Leaves and bracts imbricate, incurved, lanceolate, keeled, margins and midrib roughly hairy, much longer than flowers. Flowers in spikes, greenish. Fruits pale with orange calyx. Throughout the year. Coastal sandstone slopes, SW (Cape Peninsula to Potberg).•

leptostachyum (A.DC.) Sond. Dioecious, sexually dimorphic, diffuse, slender, hemiparasitic shrublet to 50 cm. Leaves spreading, linear, margins revolute, bracts as long as flowers, ciliolate. Flowers in lax spikes, greenish. Throughout the year. Coastal forests, SE (Knysna).•

THESIUM L. >300 spp., Old World

A. Tepals glabrous or fringed with minute papillae (without an apical beard)
*B. Flowers solitary in bract axil and arranged in simple racemes or spikes (see also **T. squarrosum**)*

acutissimum A.DC. Sprawling, hemiparasitic shrublet to 30 cm, with flexuose, often grey-glaucous branches. Leaves linear, mucronate. Flowers in simple racemes, minute, white. Sept.–Jan. Marshy stream banks, SE (Great Winterhoek Mtns to KwaZulu-Natal).

foliosum A.DC. Densely leafy, hemiparasitic shrub to 90 cm with ribbed stems. Leaves linear, obtuse. Flowers in crowded spikes, whitish, with floral disc, tepals glabrous. May–Aug. Sandstone slopes, SE (Knysna to E Cape).

lineatum L.f. Rigid, nearly leafless, hemiparasitic shrub to 2 m, with stems grooved, rigid, spine-tipped. Leaves linear, soon deciduous. Flowers in short racemes on spinescent branchlets, whitish, bracteoles like bracts and as long as or longer than flowers. Aug.–Feb. Dry, stony slopes and flats, NW, KM (Namibia and Karoo to Cedarberg and Swartberg). **gce**

sedifolium A.DC. ex Levyns (= *Thesium crassifolium* A.DC.) Hemiparasitic shrublet to 20 cm, with angular branches. Leaves succulent, linear, recurved, convex beneath. Flowers sessile, in leafy spikes, bracts and bracteoles exceeding flowers, concealed by bracts, whitish. Feb.–Apr. Sandstone slopes, SW (Cape Peninsula to Riviersonderend Mtns).•

spinosum L.f. Densely branched, hemiparasitic shrub to 1 m, with spiny, often grey-glaucous branches. Leaves triangular-terete, spine-tipped. Flowers in simple racemes, whitish. Aug.–Jan. Coastal sands, NW, SW (Namaqualand coast to Yzerfontein). **gce**

spinulosum A.DC. Slender, hemiparasitic shrublet to 15 cm, with slender, angular, spine-tipped branches. Leaves needle-like, upper spine-tipped. Flowers in axillary, flexuose racemes, whitish. Oct.–Feb. Sandy slopes, NW, SW (Namaqualand to Caledon). **gce**

whitehillensis Compton Sprawling, sparsely leafy, hemiparasitic shrublet to 20 cm. Leaves linear, adpressed, mucronate. Flowers in simple racemes, whitish. Aug.–Sept. Stony slopes, NW (Namaqualand to Witteberg). **gce**

B.' Flowers in cymules variously arranged in loose heads, racemes or panicles

albomontanum Compton Robust, twiggy shrublet to 30 cm. Leaves reduced, scale-like. Flowers in small, globose heads, minute, white. Oct.–Jan. Rocky sandstone slopes, NW, KM (Cold Bokkeveld to Witteberg).•

archeri Compton Robust, thorny, nearly leafless shrub to 1.5 m, with grooved stems. Leaves obsolete. Flowers in rounded, head-like clusters on short peduncles, whitish. Aug.–Sept. Stony slopes and flats, KM (Witteberg and Gamkaberg).•

asperifolium A.W.Hill Sprawling, scabrid, hemiparasitic shrublet to 25 cm. Leaves linear to lanceolate, subacute, keeled beneath. Flowers in axillary cymules arranged in loose panicles, whitish. ?. Sandstone slopes, SE (George to Transkei).

commutatum Sond. Densely branched, nearly leafless hemiparasitic shrub to 30 cm. Leaves of 2 kinds, few and terete below, small and subulate-lanceolate above, decurrent. Flowers sessile, few, crowded in terminal clusters, whitish. Nov.–Mar. Flats and slopes, NW, SW, LB, SE (Cold Bokkeveld to Uitenhage).•

dissitiflorum Schltr. Sprawling, twiggy, hemiparasitic shrublet to 1 m, branchlets spine-tipped. Leaves sparse, linear-terete. Flowers in axillary cymules arranged in head-like clusters, whitish, bracts caducous. Sept.–Jan. Sandstone slopes, NW (Bokkeveld Mtns to Cold Bokkeveld).•

ericifolium A.DC. Densely leafy, much-branched, hemiparasitic shrublet to 20 cm. Leaves linear, keeled. Flowers sessile, in small, terminal, cymose clusters, bracts exceeding flowers, whitish, with conspicuous external glands. Sept.–Jan. Rocky slopes, NW, SW, LB, SE (Cedarberg to Uitenhage).•

euphorbioides L. Single-stemmed, slender, hemiparasitic shrub to 2 m, with angular branchlets. Leaves ovate to suborbicular, cordate at base, glaucous. Flowers in cymules arranged in terminal, head-like clusters, cream-coloured, bracts broad, yellowish. Aug.–Jan. Sandstone slopes, SW, LB, SE (Tulbagh: Elandskloof Mtns to Uitenhage).•

galioides A.DC. Sprawling hemiparasitic shrublet to 30 cm, with numerous short branchlets. Leaves small. Flowers in axillary cymules arranged in dichotomously branched panicles, whitish. Aug.–Oct. Sandstone slopes, SW, LB, SE (Sir Lowry's Pass to Graaff-Reinet).

glomeruliflorum Sond. Low, hemiparasitic shrublet to 40 cm with angular to winged branches. Leaves linear, flat, rounded beneath. Flowers in axillary cymules arranged in determinate racemes, whitish. May–June. Sandstone slopes, LB, SE (Swellendam to Humansdorp).•

juncifolium DC. Slender, rush-like, nearly leafless, hemiparasitic shrublet to 60 cm with minutely pustulate branchlets. Leaves mostly minute, terete. Flowers in lax corymbs, whitish. Oct.–Jan. Sandstone slopes, NW, SW (Cedarberg to Bain's Kloof and Hex River Mtns).•

leptocaule Sond. Like **T. nigromontanum** but flowers without visible external glands. July–Aug. Sandy slopes, SE (Port Elizabeth to Transkei).

nigromontanum Sond. Heath-like, hemiparasitic shrublet to 25 cm, with slender, suberect branches. Leaves linear, fleshy, subobtuse below, sparsely leafy above and adpressed, terete-lanceolate, acute. Flowers sessile, in axillary cymules aggregated in terminal panicles, whitish, with conspicuous external glands. Sept.–Nov. Sandstone slopes and flats, SW, LB, SE (Cape Flats to Sundays River).

nudicaule A.W.Hill Nearly leafless, divaricately branched, hemiparasitic shrublet to 1 m. Leaves scale-like, ovate-triangular, margins fimbriate-ciliate. Flowers in small, terminal clusters, whitish, with conspicuous external glands. Aug.–Jan.(–Feb.). Sandy slopes and flats, NW, SW (Olifants River Valley to Hopefield).•

oresigenum Compton Densely leafy shrublet to 45 cm. Leaves linear, upper surface flat. Flowers in axillary clusters, whitish. Feb.–Oct. Rocky upper slopes, NW (Cedarberg and Piketberg to Hex River Mtns).•

pinifolium A.DC. Leafy, hemiparasitic shrub to 2 m, with ribbed branches. Leaves terete, obtuse, slightly decurrent. Flowers in cymules arranged in terminal, head-like clusters, whitish. Oct.–Dec. Rocky, damp, upper sandstone slopes, often on ledges, SW, LB (Cape Peninsula to Riversdale).•

pseudovirgatum Levyns Sparsely leafy, much-branched shrublet to 30 cm. Leaves minute, adpressed or weakly spreading. Flowers in small, terminal clusters, whitish. Sept.–Feb. Lower slopes, SW (Cape Peninsula).•

quinqueflorum Sond. Densely leafy, hemiparasitic shrub to 1 m, with brittle, pustulate branches. Leaves linear, with brackish, subacute tips, finely pustulate. Flowers in small, terminal, cymose clusters, whitish. June–Sept. Sandstone slopes, SW (Sir Lowry's Pass to Houwhoek).•

scandens Sond. Scrambling, hemiparasitic undershrub with flexuose, trailing branches. Leaves fleshy, terete. Flowers in axillary cymules arranged in branched racemes, whitish. June–Dec. Rocky slopes in bush, SE (Uitenhage to Fort Beaufort).

schumannianum Schltr. Sparsely leafy, hemiparasitic shrublet to 40 cm with slightly angled, purplish branches. Leaves oblong-lanceolate, obtuse to subacute, keeled or convex beneath, with

thickened hyaline margins. Flowers in small, terminal clusters, whitish. Aug.–Feb. Lower sandstone slopes, SW (Cape Peninsula to Houwhoek).•

squarrosum L.f. Densely branched, hemiparasitic shrublet to 20 cm, branches angular when young. Leaves fleshy, linear, subacute, recurved at tips. Flowers in shortly pedunculate racemes, whitish, with prominent disc. Nov.–Jan. Flats or lower slopes, SE (Knysna to E Cape).

strictum P.J.Bergius TERINGBOS Sparsely leafy, broom-like shrub to 2 m. Leaves lanceolate to needle-like, adpressed. Flowers crowded in dense, terminal corymbs, whitish. Sept.–Feb. Sandstone slopes, NW, SW, KM, LB, SE (S Namaqualand to Grahamstown).

susannae A.W.Hill Leafy, hemiparasitic shrublet to 2.5 m, with willowy, angled branches. Leaves linear-terete, trigonous. Flowers in axillary cymules arranged in determinate racemes, whitish. Sept.–Nov. Damp sandstone slopes, LB (Langeberg: Heidelberg to Doodkisberg).•

triflorum Thunb. ex L.f. Scrambling, hemiparasitic undershrub with trailing branches angular and sulcate when young. Leaves linear, flat or subterete. Flowers in axillary cymules arranged in branched racemes, whitish. Nov.–Jan. Forests and coastal bush, SE (Humansdorp to Limpopo).

virgatum Lam. (incl. **T. corymbuligerum** Sond.) Much-branched, sparsely leafy, hemiparasitic shrublet to 60 cm with stems angled and minutely pustulate. Leaves small, terete. Flowers in lax corymbs, whitish. Aug.–Feb. Stony flats and lower slopes, NW, SW, LB, SE (Cedarberg to Port Elizabeth).•

A.' Tepals with an apical beard of stiff or woolly hairs
C. Tepals with tufts of hairs at throat, between filament bases
D. Flowers in elongated racemes or spikes

funale L. Slender, nearly leafless, hemiparasitic shrublet to 40 cm. Leaves few, or lacking, terete, acute. Flowers in lax, elongated, terminal spikes, whitish. Jan.–Dec. Dry to marshy lower slopes, NW, SW, KM, LB, SE (Tulbagh and Cape Peninsula to Uniondale).•

macrostachyum A.DC. Erect, nearly leafless, hemiparasitic shrub to 1 m. Leaves lanceolate to linear, flat and fleshy. Flowers 1–3 in bract axils, in elongate racemes, whitish. Sept.–Dec. Lower slopes and flats, NW, SW (Citrusdal to Cape Peninsula).•

micropogon A.DC. Sprawling, hemiparasitic shrublet to 15 cm. Leaves subulate, with recurved, subacute tips. Flowers in dense, slender spikes, whitish. Aug.–Sept. Clay slopes, SW (Caledon Swartberg).•

patulum A.W.Hill Nearly leafless, hemiparasitic shrublet to 30 mm. Leaves lanceolate to linear, acute, often pungent. Flowers in lax, flexuose spikes, whitish. Sept.–Dec. Stony flats and lower slopes, NW, SW (Piketberg to Cape Peninsula and Montagu).•

urceolatum A.W.Hill Sprawling, glaucous, hemiparasitic shrublet to 40 cm. Leaves linear, fleshy, rounded beneath. Flowers in spikes, dense at first, whitish. Dec.–Apr. Rocky slopes, NW (Namaqualand to Bokkeveld Mtns). **gce**

D.' Flowers in heads or spikes
E. Bracts imbricate, conspicuous

aggregatum A.W.Hill Hemiparasitic, nearly leafless shrublet to 50 cm. Leaves minute, terete, ascending. Flowers in oblong heads, whitish, with toothed, bract margins. Aug.–Jan. Sandstone flats and slopes, NW, SW, SE (Namaqualand to Bredasdorp, Humansdorp). **gce**

bathyschistum Schltr. Erect, hemiparasitic shrublet to 30 cm. Leaves fleshy, subterete, pungent. Flowers in short, dense, oblong, capitate spikes. Nov.–Apr. Sandstone slopes, SW (Kleinrivier Mtns).•

diversifolium Sond. Densely leafy, hemiparasitic shrublet to 80 cm, with finely ribbed branches. Leaves linear-lanceolate, recurved above, sometimes glandular-hairy on margins. Flowers in crowded, ovoid spikes, whitish, with toothed, bract margins. ?. Sandstone slopes, SW (Tulbagh: Elandskloof Mtns).•

spicatum L. LIDJIESTEE Sparsely leafy, hemiparasitic shrublet to 50 cm, with angled branches. Leaves terete, acute, adpressed with spreading tips. Flowers in dense, oblong spikes, whitish. July–Dec. Sandstone slopes, SW (Cape Peninsula to Riviersonderend Mtns).•

subnudum Sond. Broom-like, hemiparasitic shrub to 60 cm, only leafy below. Leaves sparse, needle-like. Flowers in slender, terminal spikes, whitish. July–Jan. Sandstone slopes, NW, SW, KM, LB, SE (Olifants River Mtns to Port Elizabeth).•

E.' Bracts inconspicuous

annulatum A.W.Hill Densely leafy, hemiparasitic shrublet to 10 cm. Leaves adpressed, linear to lanceolate, acute, rounded beneath. Flowers in small, dense, globose heads, minute, white. ? High rocky slopes, NW (Hex River Mtns).•

brachygyne Schltr. Sparsely leafy shrublet to 15 cm with slender, angular branches. Leaves scattered, spreading, subterete, acute. Flowers in small, globose, terminal clusters, whitish. Oct.–Nov. High sandstone slopes, SW (Franschhoek Mtns).•

elatius Sond. Twiggy, hemiparasitic shrublet to 30 cm. Leaves leathery, oblong, channelled above, keeled beneath, recurved at tips. Flowers in short spikes or heads, whitish. Aug.–Oct. Sandy slopes and coastal flats, NW (Namaqualand to Olifants River Valley and Bokkeveld Mtns). **gce**

frisea L. Sprawling, hemiparasitic shrublet with trailing stems rooting at nodes. Leaves linear, pungent. Flowers in cymules arranged in dense, terminal spikes, whitish, bracts with fringed margins. Aug.–Oct. Sandstone slopes and flats, often seasonally damp or even saline, NW, SW, LB, SE (Elands Bay to Uitenhage).•

patersoniae A.W.Hill Sparsely leafy, hemiparasitic shrublet to 25 cm. Leaves spreading, linear-subterete, acute. Flowers many in crowded, ovoid heads, whitish. ? Sandstone slopes, SE (Port Elizabeth).•

C.' Perianth without tufts of hairs between filaments but anthers attached to perianth by a tuft of hair
F. Flowers solitary or up to 5 at branch tips

capituliflorum Sond. Sprawling, much-branched, hemiparasitic shrublet to 15 cm. Leaves lanceolate, terete, acute and recurved above. Flowers in small, terminal clusters, whitish. Aug.–Jan. Flats and lower slopes, NW, SW (Cape Peninsula to Ceres and Riviersonderend Mtns).•

cuspidatum A.W.Hill Hemiparasitic shrublet to 20 cm, with slightly ribbed branchlets. Leaves scattered, of 2 kinds, the lower terete, spreading, the upper almost scale-like, adpressed, triangular-lanceolate. Flowers in small, terminal clusters, whitish. Nov.–Jan. Lower slopes, SW (Cape Peninsula to Elim).•

euphrasioides A.DC. Stout, hemiparasitic shrublet to 20 cm. Leaves of 2 kinds, the lower linear, the upper scale-like, adpressed below, recurved above. Flowers solitary or few at branch tips, whitish. Sept.–Nov. Sandstone slopes, NW, SW (Tulbagh to Cape Peninsula and Caledon).•

litoreum Brenan Broom-like, hemiparasitic shrublet to 30 cm. Leaves reduced, scale-like. Flowers 1–4 at branch tips, whitish. Dec.–Jan. Sandy coastal flats, SW (Melkbos).•

micromeria A.DC. Slender, hemiparasitic shrublet. Leaves almost scale-like, scattered, lanceolate, recurved above. Flowers subsessile, in small, terminal clusters, whitish, with exserted anthers. ?. Lower slopes, SW, LB (Paarl to Swellendam).•

paniculatum L. Slender, much-branched, hemiparasitic shrublet to 40 cm. Leaves usually few, linear, grooved above. Flowers in lax, dichotomous cymes, whitish. Oct.–Mar. Sandstone slopes, SW (Cape Peninsula to Paarl).•

rariflorum Sond. Slender, sparsely branched, hemiparasitic shrublet. Leaves scattered, fleshy, terete, subacute. Flowers 1–3, at tips of lateral branchlets, whitish. Nov.–Mar. Marshy places, SW (Cape Peninsula to Hermanus).•

sertulariastrum A.W.Hill Minutely puberulous, hemiparasitic shrublet with minutely puberulous branchlets. Leaves of 2 kinds, the lower terete, scattered, subobtuse, the upper subulate-lanceolate, with black, acute tips. Flowers sessile, 1–3 at branch tips, white. ?. Sandy slopes, SW (Stanford to Bredasdorp).•

F.' Flowers in heads, spikes or racemes

acuminatum A.W.Hill Sprawling, much-branched, hemiparasitic shrublet to 20 cm, much-branched from base. Leaves subterete, acute. Flowers in small, terminal clusters, minute, white. Mostly Sept.–Nov. Flats and lower slopes, NW, SW (Hex River Mtns to Hermanus).•

capitatum L. Densely leafy shrublet to 30 cm. Leaves adpressed to spreading, linear, with thickened pungent tip, strongly keeled, margins minutely translucent and scabrid. Flowers minute, in dense, terminal, bracteate heads, whitish. Jan.–Dec. Sandstone slopes, SW, LB, SE (Hopefield to Humansdorp).•

capitellatum A.DC. Sparsely leafy, hemiparasitic shrublet to 30 cm with angular branchlets. Leaves linear-lanceolate, fleshy, grooved above. Flowers few, in small, terminal heads, whitish. Aug.–Oct. Sandstone slopes, SW (Franschhoek to Elim).•

carinatum A.DC. Like **T. capitatum** but flowers with short style or stigma sessile. Jan.–Dec. Sandstone slopes, NW, SW, KM, LB, SE (Pakhuis to Great Winterhoek Mtns).•

densiflorum A.DC. Erect, sparsely leafy, hemiparasitic shrublet to 40 cm. Leaves linear-terete, rigid, subacute. Flowers in small, terminal clusters, whitish. Oct.–Mar. Sandstone slopes, NW, SW (Clanwilliam to Bredasdorp).•

ecklonianum Sond. Sprawling, hemiparasitic shrublet. Leaves large, linear to lanceolate, often falcate, convex beneath. Flowers few, in small, terminal clusters, whitish. Sept.–Apr. Sandy flats, SW, AP (Cape Peninsula to Bredasdorp).•

fallax Schltr. Robust, hemiparasitic shrublet. Leaves flat, linear-lanceolate, with thickened, hyaline margins. Flowers in head-like, terminal clusters, whitish. Nov.–Dec. Sandstone slopes, SW (Bredasdorp Mtns).•

fimbriatum A.W.Hill Hemiparasitic shrublet to 30 cm. Leaves linear, subacute, adpressed, becoming spreading towards branch tips. Flowers in dense, terminal clusters, whitish. ?. Lower slopes, NW (mountains near Tulbagh).•

flexuosum A.DC. Straggling, hemiparasitic shrublet to 30 cm, with whip-like, grooved branches. Leaves sparse, subterete, acute. Flowers crowded, in stout spikes, whitish. May–Sept. Dry lower slopes, KM, SE (Swartberg to Graaff-Reinet).

glaucescens A.W.Hill Sprawling, hemiparasitic shrub to 60 cm. Leaves mostly scale-like, linear, rigid, obtuse. Flowers in small, terminal clusters, whitish, with exserted anthers. ?. Dry flats, SW (Riviersonderend).•

glomeratum A.W.Hill Slender, hemiparasitic shrublet. Leaves linear, acute, flat or concave above, sometimes scabrous on margins. Flowers in short racemes of small, terminal heads, whitish. Oct.–Nov. Rocky slopes, SE (George and Langkloof).•

gnidiaceum A.DC. Closely leafy, hemiparasitic shrublet to 50 cm. Leaves ascending, terete, with recurved, white tips. Flowers in dense, terminal spikes, white. ?. Sandstone slopes, SW, SE (Caledon Swartberg to Transkei).

hillianum Compton Sprawling, hemiparasitic shrublet to 20 cm. Leaves oblanceolate. Flowers in lax racemes, whitish. Aug.–Sept. Stony slopes and flats, KM (Witteberg).•

hispidulum Lam. ex Sond. Sprawling, hemiparasitic shrublet to 20 cm, hispidulous on stems and leaves. Leaves subulate-apiculate, recurved, hispidulous. Flowers in terminal heads or head-like spikelets, whitish. Sept.–Dec. Sandstone and granite outcrops, NW, SW (Cedarberg and Cold Bokkeveld Mtns to Darling).•

hollandii Compton Like **T. scabrum** but flowers in oblong spikes. Aug.–Oct. Sandstone slopes, SE (Uniondale to Port Elizabeth).•

junceum Bernh. Sparsely leafy, hemiparasitic shrublet to 60 cm with slender, whip-like stems. Leaves few, terete. Flowers in slender, lax to dense spikes, whitish. Oct.–Feb. Moist lower slopes, NW, LB, SE (Clanwilliam to Transkei).

karooicum Compton Much-branched, pilose to scabrid, densely leafy, hemiparasitic shrublet to 35 cm. Leaves squarrose, fleshy, terete. Flowers whitish. July–Sept. Rocky sandstone slopes, NW, KM (Hex River Mtns to Witteberg).•

microcephalum A.W.Hill Densely leafy, hemiparasitic shrublet. Leaves adpressed, narrowly lanceolate, subacute. Flowers few, in compact, terminal clusters. ? High mountain slopes, NW (Hex River Mtns).•

paronychioides Sond. Slender, hemiparasitic annual to 12 cm. Leaves few, linear, obtuse to subacute. Flowers in lax spikes, whitish. Mar.–Apr. Lower slopes, LB, SE (Swellendam to George).•

penicillatum A.W.Hill (= *Thesium helichrysoides* A.W.Hill) Stout, hemiparasitic shrub to 1 m, branches purple-angled. Leaves fleshy, linear, with slightly thickened, hyaline margins. Flowers in dense, terminal corymbs, whitish. Sept.–Feb. Sandstone slopes, SW, LB, SE (Caledon to Tsitsikamma Mtns).•

phyllostachyum Sond. Leafy, hemiparasitic shrublet to 25 cm. Leaves linear, recurved above, acute. Flowers in lax spikes, whitish. Aug.–Oct. Low hills, KM, LB, SE (Swartberg and Riversdale to Port Elizabeth).•

prostratum A.W.Hill Slender, prostrate shrublet. Leaves fleshy, terete. Flowers in small, terminal clusters, whitish, with exserted anthers. Sept.–Oct. High sandstone slopes, NW (Cedarberg to Ceres).•

pubescens A.DC. Sprawling, densely leafy, hemiparasitic shrublet to 30 cm, with reflexed hairs on branchlets. Leaves linear, keeled beneath, triangular in section, shortly pubescent on margins or throughout. Flowers in small, crowded, leafy clusters, whitish. Aug.–Nov. Sandstone slopes, NW, SW, ?KM (Olifants River Mtns to Cape Peninsula, ?Witteberg).•

pycnanthum Schltr. Sprawling, hemiparasitic shrublet to 30 cm. Leaves linear, with a prominent midrib, rounded beneath. Flowers in small, terminal heads, white. Sept.–May. Sandstone slopes, NW, SW, LB (Hex River Mtns and Paarl to Swellendam).•

repandum A.W.Hill Sprawling, hemiparasitic shrublet to 15 cm, with ridged branches. Leaves linear, acute, recurved. Flowers sessile, in small, terminal heads, whitish. Aug.–Sept. Flats and lower slopes, SW (Malmesbury to Paarl).•

rufescens A.W.Hill Sprawling, densely leafy, hemiparasitic shrublet, branches red-brown, with short, reflexed hairs. Leaves spreading, linear, shortly pubescent or glabrous. Flowers in dense, oblong spikes, whitish. Oct.–Nov. Stony slopes, SW, LB (Bredasdorp to Riversdale).•

scabrum L. Densely leafy, hemiparasitic shrub to 1 m. Leaves linear, triquetrous, margins scabrid-serrulate. Flowers in dense, globose heads, whitish. June–Jan. Sandstone slopes, NW, SW, AP (Hex River Mtns to Cape Peninsula and Agulhas).•

selagineum A.DC. Slender, much-branched, hemiparasitic shrublet to 20 cm, with angular to subterete branchlets. Leaves linear-lanceolate, recurved, acute. Flowers sessile, in small clusters at branch tips, whitish. Sept.–Nov. Sandstone slopes, NW (Piketberg and Cold Bokkeveld to Hex River Mtns).•

sonderianum Schltr. Densely leafy, hemiparasitic shrub to 1 m. Leaves linear, pungent, recurved, scabridulous on margins. Flowers in crowded, oblong spikes, whitish. Aug.–Sept. Sandstone slopes, SE (George to Grahamstown).

translucens A.W.Hill Leafy shrublet to 45 cm, with angular branches. Leaves ascending, linear-terete, pungent, keeled beneath. Flowers in small, dense, bracteate heads, whitish. Apr.–July. Sandstone slopes, SW, LB (Houwhoek Mtns to Riversdale).•

umbelliferum A.W.Hill Robust, hemiparasitic shrub to 2 m. Leaves fleshy, subterete, obtuse. Flowers in dense, terminal corymbs, whitish. Dec.–Jan. Rocky sandstone slopes, KM, SE (Swartberg and George to Humansdorp).•

viridifolium Levyns Densely leafy, hemiparasitic shrublet to 50 cm. Leaves linear, spreading, margins scabrid. Flowers in dense heads, white, bracts nearly as long as flowers. July–Dec. Sandy flats, SW (Cape Peninsula to Caledon).•

VISCUM L. MISTLETOE, LIDJIESTEE, VOËLENT ± 100 spp., Old World, mainly tropical

capense L.f. Dioecious stem parasite to 50 cm. Leaves scale-like. Inflorescences unisexual. Berries sessile, smooth, white. July–Oct. Parasitic on various shrubs including *Osteospermum* (*Chrysanthemoides*), *Euclea, Maytenus* and *Pterocelastrus*, NW, SW (S Namibia to Caledon). **gce**

continuum E.Mey. ex Sprague Dioecious stem parasite to 1 m, leafless. Inflorescences unisexual. Berries pedicellate, smooth, pale yellow. July–Aug. Parasitic on *Acacia* only, NW, SW, KM, LB (Worcester to E Cape).

crassulae Eckl. & Zeyh. Dioecious stem parasite to 50 cm. Leaves orbicular, fleshy. Inflorescences unisexual. Berries pedicellate, smooth, bright orange. July–Aug. Parasitic mainly on *Portulacaria afra* but also *Euphorbia,* SE (Patensie to Port Elizabeth and Steytlerville).

hoolei Wiens Monoecious stem parasite to 50 cm. Leaves scale-like or lacking. Inflorescences bisexual. Berries sessile, smooth, white. June–July. Parasitic mainly on *Searsia* (*Rhus*), SW, AP, KM, LB, SE (Caledon to Lesotho).

minimum Harv. Minute, monoecious, leafless, stem parasite to 3 mm. Inflorescences bisexual. Berries pedicellate, smooth, bright orange. June–July. Parasitic on *Euphorbia polygona* and *E. horrida*, KM, SE (Rooiberg to E Cape).

obscurum Thunb. Dioecious stem parasite to 1 m. Leaves oblanceolate, 3-veined from base. Inflorescences unisexual. Berries pedicellate, smooth, cream-coloured to pale pink. June–July. Parasitic on various trees including *Acacia*, *Maytenus*, *Olea* and *Searsia* (*Rhus*), KM, LB, SE (Touws River to KwaZulu-Natal).

pauciflorum L.f. Monoecious stem parasite to 75 cm. Leaves large, elliptic, leathery, often 3-veined from base. Inflorescences bisexual. Berries pedicellate, smooth, orange. Apr.–Oct. Parasitic on *Euclea, Maytenus* and *Searsia* (*Rhus*), NW, SW (Bokkeveld Plateau to Hangklip).•

rotundifolium L.f. Like **V. pauciflorum** but leaves smaller, up to 12 mm long, and usually obtuse at base. Feb.–May. Parasitic on various trees including *Acacia, Euclea, Olea* and *Searsia* (*Rhus*), NW, SW, KM, LB, SE (southern Africa).

SAPINDACEAE

1. Petals absent; ovary 2–6-locular with 2 ovules in each locule; fruit 2 or 3-angled or -winged (subfamily DODONAEOIDEAE) ..... **Dodonaea**
1.' Petals absent or present; ovary 2- or 3-locular with a single ovule in each locule (subfamily SAPINDOIDEAE):
2. Leaves simple ..... **Pappea**
2.' Leaves compound (rarely 1-foliolate and apparently simple):
3. Leaves (1–)3(–5)-foliolate; sepals 4 ..... **Allophylus**
3.' Leaves paripinnate:
4. Fruit a broadly winged samara ..... **Atalaya**
4.' Fruit a drupe or berry, not winged:
5. Fruit globose, obscurely 3-lobed; leaf rachis ± winged; sepals unequal, fimbriate or ciliate; petals simple ..... **Hippobromus**
5.' Fruit conspicuously lobed; sepals small, ovate; petals with conspicuous appendage ..... **Smelophyllum**

ALLOPHYLUS L. ± 180 spp., pantropics and subtropics

decipiens (Sond.) Radlk. BASTER-TAAIBOS Dioecious shrub or small tree to 4 m, velvety on young parts. Leaves trifoliolate, discolorous, leaflets elliptic, crenate, vein axils furry beneath. Flowers in axillary spikes, white. Fruits globose. Nov.–Jan. Coastal bush, LB, SE (Gourits River to Mpumalanga).

ATALAYA Blume WING-NUT, KRANS-ESSEBOOM ± 9 spp., Old World tropics

capensis R.A.Dyer CAPE WING-NUT, KAAPSE KRANS-ESSEBOOM Small tree to 5(–10) m. Leaves paripinnate, leaflets lanceolate, undulate. Flowers in terminal panicles, white. Fruits winged. Dec.–Jan. Coastal forests, SE (Humansdorp to Port Elizabeth).•

DODONAEA Mill. ± 60 spp., widespread, mostly Australia

viscosa Jacq. KOORSBOOM, YSTERHOUT, SANDOLIEN (= *Dodonaea angustifolia* L.f.). Dioecious, small tree to 5(–10) m. Leaves linear-oblanceolate, resinous. Flowers in small, rounded, axillary and terminal panicles, greenish yellow. Fruits winged. July–Oct. Riverine thickets and rocky outcrops, NW, SW, KM, LB (Namaqualand to Stellenbosch through Little Karoo to tropical Africa).

HIPPOBROMUS Eckl. ex Zeyh. BASTERPERDEPIS 1 sp., S Africa

pauciflorus (L.f.) Radlk. Monoecious or polygamous, aromatic, small tree to 5 m, velvety on young parts. Leaves paripinnate, rachis winged, leaflets obovate, toothed above, margins slightly revolute. Flowers in axillary panicles, golden velvety. Fruits globose. July–Nov. Riverine thickets and forest margins, SE (Humansdorp to Mpumalanga).

PAPPEA Eckl. ex Zeyh. DOPPRUIM 1 sp., Africa

capensis Eckl. & Zeyh. Monoecious (or functionally dioecious), spreading tree to 7(–13) m, velvety on young parts. Leaves oblong, minutely toothed, crowded at branch tips. Flowers in axillary, catkin-like, compound cymes, yellowish. Fruits globose, velvety. Nov.–Mar. Rocky slopes and open woodlands, KM, SE (S Namibia, and W Karoo, Little Karoo from Montagu to Willowmore to E tropical Africa).

SMELOPHYLLUM Radlk.• BUIG-MY-NIE 1 sp., SW Cape

capense (Sond.) Radlk. Shrub or small tree to 4 m. Leaves imparipinnate, leaflets obliquely elliptic, deeply scalloped. Flowers in small, axillary panicles, greenish. Fruits deeply 2-lobed. Dec.–Jan. Evergreen forests, SE (Baviaanskloof Mtns to Port Elizabeth).•

SAPOTACEAE

SIDEROXYLON L. ± 100 spp., pantropical and subtropical

inerme L. WITMELKHOUT, UMQWASHU Shrub or small tree to 10 m with white latex. Leaves dark green, leathery, elliptic, obtuse. Flowers 1–few in axillary clusters or cauliflorous, greenish white. Fruits fleshy, black. Dec.–June. Sand dunes and coastal bush, SW, AP, LB, SE (Melkbosstrand to tropical Africa).

SCROPHULARIACEAE (= *BUDDLEJACEAE*)

Alonsoa, Colpias, **Diascia**, **Hemimeris** and **Nemesia** by K.E. Steiner

1. Flowers actinomorphic and tetramerous with 4 sepals, 4 petals and 4 stamens; pubescence scaly or stellate:
 2. Inflorescence cymose, paniculate; shrubs or trees with discolorous leaves ..... **Buddleja**
 2.' Inflorescence racemose; virgate subshrub ..... **Gomphostigma**
1.' Flowers usually pentamerous and ± zygomorphic:
 3. Anther thecae parallel; stigma capitate; shrubs:
  4. Fruit capsular ..... **Freylinia**
  4.' Fruit fleshy:
   5. Ovules usually 4 in each locule; flowers solitary, white ..... **Oftia**
   5.' Ovules many in each locule; flowers in cymes or subfasciculate, blue ..... **Teedia**
 3.' Anther thecae confluent; stigma various; shrubs or herbs:
  6. Stigma very short, stigmatic surface ± terminal:
   7. Leaves alternate (rarely opposite); corolla without basal inflation or spur; flowers blue or purple:
    8. Anthers all perfect; capsule ovoid-conical ..... **Peliostomum**
    8.' Anthers of posterior pair of stamens smaller than others, often empty; capsule short, obcordate ..... **Aptosimum**
   7.' Leaves opposite, at least near base; flowers variously coloured:
    9. Corolla tube without pockets or spurs; corolla tube cylindrical, abruptly dilated at throat:
     10. Marsh or aquatic herbs, glabrous; calyx campanulate, tube usually longer than lobes ..... **Limosella**
     10.' Terrestrial herbs or shrubs, ± glandular; calyx deeply cleft:
      11. Leaves decurrent to form ridges or narrow wings down stem; seeds black ..... **Lyperia**
      11.' Leaves not decurrent; seeds brown ..... **Jamesbrittenia**
    9.' Corolla tube pocketed, sacculate or spurred, never cylindrical:
     12. Corolla often personate, with 1 pocket or spur at base:
      13. Capsule septicidal; plants never creeping; flowers various colours ..... **Nemesia**
      13.' Capsule loculicidal; plants creeping with suborbicular leaves; flowers white to mauve ..... **Diclis**
     12.' Corolla cup-shaped, with 2 pockets:
      14. Corolla tube longer than lobes; lithophytic, softly pilose shrublet; seeds arillate ... **Colpias**
      14.' Corolla tube shorter than lobes; annual or perennial herbs or shrublets:
       15. Stamens 2; flowers bright yellow; capsule mostly loculicidal ..... **Hemimeris**
       15.' Stamens 4; flowers usually pink to orange; capsule septicidal:
        16. Corolla split to base between 2 smaller lobes; pedicels resupinate, largest corolla lobe uppermost ..... **Alonsoa**
        16.' Corolla not split; pedicels not resupinate, largest corolla lobe lowermost ..... **Diascia**
  6.' Stigma long and tongue-like, stigmatic surface comprising 2 marginal bands:
   17. Ovary with 1 apical, pendulous ovule in each fertile locule:
    18. Calyx 1- or 2-lobed; corolla split down front for ± half length of tube, lacking lower lip and expanded above into 4-lobed upper lip; stamens 4:
     19. Calyx spathe-like, subhyaline, adnate to supporting bract ..... **Hebenstretia**
     19.' Calyx 2-lobed, free from supporting bract ..... **Dischisma**
    18.' Calyx 3–5-lobed; corolla usually with a lower lip but if not then stamens 2:
     20. Ovary with one locule aborted or barren:
      21. Calyx adnate to subtending bract ..... **Microdon**
      21.' Calyx free from subtending bract:
       22. Calyx very shortly toothed; corolla limb herbaceous; herbs or shrublets .. **Globulariopsis**
       22.' Calyx lobed at least halfway to base; corolla limb leathery; shrublet with ± fascicled leaves ..... **Gosela**

20.' Ovary bilocular with both locules fertile (rarely one aborting):
23. Leaves alternate, usually in axillary fascicles on short shoots; upper lip glabrous; perennial herbs or shrublets ..... **Selago**
23.' Leaves opposite, at least below, never on short shoots; annual or perennial herbs; upper lip usually bearded:
24. Calyx deeply 5-lobed, usually indurated in fruit; fruit soft-walled; perennial herbs or shrubs, often with decurrent leaves ..... **Pseudoselago**
24.' Calyx unequally lobed, lower lip bifid, not indurated in fruit; annual or perennial herbs:
25. Upper corolla lip 4-lobed, lower lip 1-lobed, minute or absent; annual herbs with spikes of minute, sessile flowers subtended by densely pubescent bracts ..... **Chenopodiopsis**
25.' Upper corolla lip 1- or 2-lobed, lower lip 3-lobed; annual or perennial herbs, often prostrate, with dense heads or short racemes of flowers ..... **Cromidon**
17.' Ovary with 4–many ovules in each locule:
26. Bract ± free from pedicel; posticous filaments not decurrent down corolla tube:
27. Posticous stamens included, inserted halfway up corolla tube or higher, anticous stamens either included or anthers just visible in mouth ..... **Manulea**
27.' One or both pairs of stamens exserted at anthesis:
28. Flowers solitary in leaf axils; corolla lobes glabrous on upper surface ..... **Chaenostoma**
28.' At least some cymules present in every inflorescence; mouth of corolla hairy ..... **Sutera**
26.' Bract adnate to pedicel and/or calyx tube; posticous filaments decurrent down corolla tube, often to base:
29. Bract adnate to pedicel and at most base of calyx tube; corolla with an orange/yellow patch at base of anticous lip; seeds pallid, greenish or amber, sinuously wrinkled; soft herbs with broad, toothed leaves, montane under rock overhangs ..... **Trieenea**
29.' Bract adnate at least halfway up calyx tube (rarely less):
30. Calyx distinctly bilabiate, anticous lip ± 2-toothed, posticous lip 3-toothed, strongly 5-ribbed and plicate in flower; staminodes absent; corolla actinomorphic and hypocrateriform, or strongly zygomorphic with one lip 4-lobed ..... **Zaluzianskya**
30.' Calyx bilabiate or not but never plicate; corolla various, often zygomorphic but then lips either 2- or 3-lobed:
31. Hairs on stems always spreading, gland-tipped; seeds 3-angled or 3-winged, testa translucent and loose ..... **Polycarena**
31.' Hairs on stems either eglandular or mixed, nearly always downward facing; seeds never winged, testa opaque and tight ..... **Phyllopodium**

ALONSOA Ruíz & Pav. MASKED MEN, RUITERTJIES ± 12 spp., mostly S and central America, S Africa

peduncularis (Kunze) Wettst. Erect or decumbent perennial to 50 cm. Leaves ovate, incised-serrate. Flowers in racemes, resupinate, shallowly 2-saccate, split to base above, pink, 10–15 mm long, tube deep pink to maroon with two yellow patches, filaments straight or ± curved, anthers yellow and glabrous. Oct.–Mar. Stony slopes, KM, SE (Touwsberg, Rooiberg and Uitenhage).•

unilabiata (L.f.) Steud. (= *Diascia unilabiata* (L.f.) Benth.) Erect annual to 40 cm. Leaves lanceolate to ovate, dentate to pinnatifid. Flowers in racemes, resupinate, split to base above, pink to orange, 12–24 mm long, filaments magenta to purple, strongly curved and thickened below, anthers yellow to blue-green with blue to purple cilia. July–Sept. Coastal and inland sands or clay, NW (Elands Bay hills and Bokkeveld Plateau and W Karoo). **gce**

APTOSIMUM Burch. ex Benth. KAROO VIOLET ± 20 spp., southern and tropical Africa

indivisum Burch. ex Benth. Dwarf, tufted shrublet. Leaves oblong and spine-tipped, exceeding flowers, narrowed below into a petiole. Flowers blue and violet, whitish on outside, tube filiform below. Aug.–Dec. Dry stony flats, KM (Swartberg and Little Karoo, Namaqualand to Botswana).

procumbens (Lehm.) Steud. Gnarled, woody, prostrate shrublet to 1 m diam. Leaves small, rounded, narrowed below into a petiole. Flowers blue and violet, whitish on outside, tube filiform below. Aug.–Dec. Dry stony flats, KM, SE (Swartberg to Uitenhage, Namaqualand, Karoo and Botswana).

spinescens (Thunb.) Emil Weber Spreading shrublet with erect branches to 25 cm. Leaves linear, rigid becoming spiny with age, sessile. Flowers blue and purple, fawn on outside. Mainly Oct.–Dec. Rocky karroid slopes and flats, NW, KM (Namibia to Clanwilliam and S Karoo).

BUDDLEJA L. SAGEWOOD ± 100 spp., pantropical and subtropical

glomerata H.L.Wendl. Shrub to 4 m. Leaves petiolate, discolorous, ovate, margins incised and crenate. Flowers in pea-like glomerules in panicles, cup-shaped, yellow. Sept.–Mar. Dry hillsides, KM, SE (Uniondale to Free State).

saligna Willd. WITOLIENHOUT, UMNCEBA Shrub or tree to 7 m. Leaves petiolate, discolorous, lanceolate. Flowers in velvety, paniculate cymes, cup-shaped with anthers exserted, cream-coloured with orange throat. Aug.–Jan. Rocky slopes and scrub, SW, KM, LB, SE (Berg River to tropical Africa).

salviifolia (L.) Lam. IGQANGE Willowy shrub or tree to 8 m. Leaves sessile, discolorous, lanceolate, margins crenate, base auriculate. Flowers in terminal, paniculate cymes, tubular with anthers included, white to purple with orange throat. Aug.–Oct. Forest margins, along streams and rocky slopes, NW, SW, KM, LB, SE (Kamiesberg and Clanwilliam to tropical Africa).

CHAENOSTOMA Benth. (= *SUTERA* in part) SKUNK BUSH, STINKBOSSIE 46 spp., mainly S Africa but also tropical Africa

A. All 4 stamens exserted

affine Bernh. (= *Sutera affinis* (Bernh.) Kuntze) Minutely hairy perennial, 15–30 cm. Leaves narrow, ± entire. Flowers in racemes or loosely paniculate, tube broadly funnel-shaped, mauve with a yellow tube. Oct.–Feb. Dry, stony ground, KM, SE (Oudtshoorn to Langkloof).•

caeruleum (L.f.) Kornhall (= *Sutera caerulea* (L.f.) Hiern) Erect, glandular-hairy perennial to 1 m. Leaves sometimes coarsely toothed. Flowers in long racemes, tube shortly funnel-shaped, mauve or violet with a yellow tube, style glandular-hairy. July–Oct. NW, SW, KM, LB, SE (S Namaqualand to Humansdorp). **gce**

calciphilum (Hilliard) Kornhall (= *Sutera calciphila* Hilliard) Sprawling or creeping, glandular-hairy perennial to 30 cm. Leaves often coarsely toothed. Flowers shortly racemose, tube broadly funnel-shaped, mauve to violet with orange tube. Oct. Limestone in scrub, AP (Bredasdorp to Still Bay).•

campanulatum Benth. (= *Sutera campanulata* (Benth.) Kuntze) Glandular-hairy perennial to 50 cm. Leaves coarsely toothed. Flowers in racemes, tube broadly funnel-shaped, mauve with a yellow tube. Jan.–Dec. Sandy places in scrub or grasslands, AP, SE (Still Bay to Port Alfred).

cinereum (Hilliard) Kornhall (= *Sutera cinerea* Hilliard) Sprawling, cobwebby woolly shrublet with slender stems. Leaves narrow. Flowers axillary forming short racemes, tube broadly funnel-shaped, mauve with a yellow tube. Sept.–Feb. Sandy slopes in scrub, SE (Baviaanskloof Mtns).•

halimifolium Benth. (= *Sutera halimifolia* (Benth.) Kuntze) Gnarled, glandular shrublet to 35 cm, hairs granular. Leaves sometimes coarsely toothed. Flowers in long racemes, tube shortly funnel-shaped, pink or mauve with a yellow tube. Nov.–Jan. Rocky slopes, SE (Humansdorp, S Namibia to E Cape).

pauciflorum Benth. (= *Sutera pauciflora* (Benth.) Kuntze) Twiggy, glandular-hairy shrublet to 45 cm. Leaves suborbicular and toothed. Flowers axillary, tube broadly funnel-shaped, mauve with a yellow tube. Sept.–Apr. Rocky mountain slopes, NW, KM, SE (W Karoo and Upper Karoo to Humansdorp).

placidum (Hilliard) Kornhall (= *Sutera placida* Hilliard) Sprawling, glandular-hairy perennial to 30 cm, stems narrowly winged. Leaves often with a few teeth above. Flowers in racemes or panicles, tube broadly funnel-shaped, mauve with yellow throat. Mar.–Aug. Limestone hills, AP (Still Bay).•

polyanthum Benth. (= *Sutera polyantha* (Benth.) Kuntze) Soft, glandular-hairy, short-lived perennial to 30 cm. Leaves mostly toothed. Flowers in leafy racemes, tube shortly funnel-shaped, white or mauve with a yellow tube. Sept.–May. Mostly coastal dunes, SE (Knysna to Peddie).

subnudum N.E.Br. (= *Sutera subnuda* (N.E.Br.) Hiern) Glabrescent perennial to 45 cm. Leaves narrow. Flowers usually paniculate, tube short and broadly funnel-shaped, pink to mauve with a yellow tube. Nov.–May. Stony mountain slopes, KM, LB, SE (Barrydale through Little Karoo to De Rust).•

A.' Upper 2 stamens included

aethiopicum L. (= *Sutera aethiopica* (L.) Kuntze) Twiggy, minutely glandular-hairy shrublet to 30 cm. Leaves crowded above, mostly coarsely toothed above. Flowers in short racemes, tube long, narrowly funnel-shaped, white, pink to violet with yellow throat. Aug.–Sept. SW, LB (Caledon to Heidelberg, ?Mossel Bay).•

comptonii (Hilliard) Kornhall (= *Sutera comptonii* Hilliard) Like **C. paniculatum** but main leaves shorter than 20 mm, flower tube 10.5–12.5 mm long. Oct.–Nov. Sandstone slopes, NW, KM (W Karoo and Swartruggens to Witteberg). **gce**

cordatum (Thunb.) Benth. (= *Sutera cordata* (Thunb.) Kuntze) Sprawling, softly hairy perennial. Leaves bluntly toothed. Flower tube funnel-shaped, white with a yellow tube. Jan.–Dec. Forests and forest margins, SE (George to East London).

decipiens (Hilliard) Kornhall (= *Sutera decipiens* Hilliard) Tufted or twiggy, softly and glandular-hairy perennial. Leaves usually coarsely toothed. Flowers axillary, forming racemes, white, pink or mauve with a yellow tube. (Mar.–)Aug.–Dec. Sheltered places in kloofs or below rocks, NW, SW, KM (Bokkeveld to Franschhoek Mtns to Avontuur).•

denudatum Benth. (= *Sutera denudata* (Benth.) Kuntze) Glabrescent perennial to 45 cm. Leaves narrow. Flowers in racemes or loose panicles, tube funnel-shaped, pink to purple with a yellow tube. Jan.–Dec. Rocky hills, SE (Uniondale to Humansdorp).•

glabratum Benth. (= *Sutera glabrata* (Benth.) Kuntze) Minutely glandular-hairy shrublet to 45 cm, branches slender. Leaves linear and obtuse. Flowers in axillary racemes or narrow panicles, tube funnel-shaped, white, pink or mauve with a yellow tube. July–Dec. Stony shale slopes and cliffs, NW, KM (Worcester to Barrydale).•

hispidum Thunb. (= *Sutera hispida* (Thunb.) Druce) Roughly glandular-hairy, bushy shrublet to 50 cm. Leaves coarsely toothed. Flowers axillary, sometimes in racemes or narrow panicles, tube narrowly funnel-shaped, pink to mauve with yellow throat. Jan.–Dec. Rocky sandstone or limestone, SW (Cape Peninsula to Bredasdorp).•

integrifolium L.f. (= *Sutera integrifolia* (L.f.) Kuntze) Twiggy, shortly glandular-hairy shrublet to 60 cm. Leaves sometimes toothed. Flowers axillary forming leafy racemes or panicles, tube narrowly funnel-shaped, white or rarely mauve with yellow throat. Jan.–Dec. Coastal scrub and forest margins, LB, SE (Albertinia to Humansdorp).•

langebergense (Hilliard) Kornhall (= *Sutera langebergensis* Hilliard) Tangled, sparsely glandular-hairy perennial to 30 cm. Leaves coarsely toothed. Flowers in laxly arranged racemes or panicles, tube narrowly funnel-shaped, white or mauve with yellow throat. May–Sept. Rocky sandstone slopes, LB (Langeberg: Tradouw Pass to Garcia's Pass).•

longipedicellatum (Hilliard) Kornhall (= *Sutera longipedicellata* Hilliard) Like **C. uncinatum** but longest pedicels to 20 mm. Mainly June–Sept. Rocky sandstone slopes, NW (Bokkeveld Escarpment).•

marifolium Benth. (= *Sutera marifolia* (Benth.) Kuntze) Cobwebby woolly shrublet with slender stems. Leaves mostly toothed. Flowers axillary eventually forming leafy panicles, tube narrowly funnel-shaped, pink to mauve with a yellow tube. Jan.–Dec. Rocky slopes, SE (Avontuur to Port Elizabeth).•

multiramosum (Hilliard) Kornhall (= *Sutera multiramosa* Hilliard) Like **C. uncinatum** but flowers arising in axils of upper leaves (not bract-like). Apr.–July. Sandy soils among rocks, NW (Vredendal to Lambert's Bay).•

paniculatum (Hilliard) Kornhall (= *Sutera paniculata* Hilliard) Like **C. revolutum** but hairs on stem 0.3–1 mm long, flower tube 6.5–9.5 mm. Mostly May–Sept. Sandy stream banks or rocky slopes in scrub, NW (Kamiesberg to Clanwilliam). **gce**

revolutum Thunb. (= *Sutera revoluta* (Thunb.) Kuntze) Glandular-hairy shrublet to 60 cm. Leaves narrow. Flowers axillary forming racemes or narrow panicles, tube funnel-shaped, 5–13 mm, white, pink or mauve with yellow throat. Mar.–Nov. Stony shale slopes, SW, AP, KM, LB, SE (W Karoo to Botrivier to Baviaanskloof Mtns). **gce**

subsessile (Hilliard) Kornhall (= *Sutera subsessilis* Hilliard) Tufted, softly and glandular-hairy perennial to 35 cm. Leaves mostly entire, soft. Flowers axillary forming leafy racemes or narrow panicles, tube funnel-shaped, mauve with yellow throat. Oct.–Dec. Sheltered places, often below rocks, NW (Cedarberg).•

subspicatum Benth. (= *Sutera subspicata* (Benth.) Kuntze) Gnarled, dwarf shrublet to 30 cm, hairs confined to narrow bands. Leaves leathery, coarsely toothed. Flowers axillary forming short, crowded racemes or panicles, tube narrowly funnel-shaped, white, pink or mauve with yellow throat. Apr.–Oct. Coastal dune scrub, AP (Stanford to Cape Infanta).•

tenuicaule (Hilliard) Kornhall (= *Sutera tenuicaulis* Hilliard) Glabrescent perennial, 15–45 cm. Leaves narrow. Flowers laxly racemose or paniculate, tube narrowly funnel-shaped, pink with yellow throat. Oct.–May. Rocky slopes in scrub, KM (Swartberg).•

titanophilum (Hilliard) Kornhall (= *Sutera titanophila* Hilliard) Closely leafy, glandular-hairy, gnarled shrublet to 20 cm. Leaves mostly coarsely toothed. Flowers in short racemes, tube narrowly funnel-shaped, white, pink to mauve with yellow throat. Oct. Cracks on limestone cliffs, AP (De Hoop).•

uncinatum (Desr.) Kornhall (= *Sutera uncinata* (Desr.) Hilliard) Glandular-hairy shrublet to 60 cm with narrowly winged stems, leafy throughout. Leaves mostly entire. Flowers in racemes or narrow panicles, tube narrowly funnel-shaped, pink to purple with yellow throat. May–Oct. Sandy or rocky places in scrub, NW, SW (Gifberg to Cape Peninsula to Bonnievale).•

violaceum Schltr. (= *Sutera violacea* (Schltr.) Hiern) Glandular-hairy shrublet, 50–150 cm. Leaves linear. Flowers axillary forming simple racemes, mauve to purple with orange throat. Apr.–Nov. Rocky slopes, NW, KM (W Karoo and Bokkeveld Plateau to De Rust). **gce**

CHARADROPHILA see **STILBACEAE**

CHENOPODIOPSIS Hilliard• 3 spp., SW Cape

chenopodioides (Diels) Hilliard Hairy annual to 12 cm. Leaves narrowly elliptic, closely toothed. Flowers in spikes, 4–20 mm long in fruit, white, 4-lobed, corolla tube 0.8 mm long, stamens 2. Aug.–Sept. Seasonally damp, clay slopes, NW (Nieuwoudtville to Botterkloof).•

hirta (L.f.) Hilliard (= *Selago hirta* L.f.) Hairy annual to 25 cm. Leaves obovate. Flowers crowded in spikes, 35–120 mm long in fruit, white, 5-lobed, corolla tube ± 1.5 mm long, stamens usually 2. Sept.–Nov. Moist sandy slopes, NW, SW (Bokkeveld Mtns to Riviersonderend Mtns).•

retrorsa Hilliard Retrorsely hairy annual to 15 cm. Leaves oblanceolate. Flowers crowded in spikes, 10–40 mm long in fruit, white, 5-lobed, corolla tube 2–2.5 mm long, stamens 4. Oct., after fire. Sandstone slopes, SW (Kogelberg, Kleinrivier Mtns and Caledon Swartberg).•

COLPIAS E.Mey. ex Benth. KLIPBLOM 1 sp., N Cape and Namaqualand **gce**

mollis E.Mey. ex Benth. Softly hairy, sometimes glabrous, tufted shrublet to 20 cm. Leaves ovate, dentate. Flowers axillary on slender pedicels, funnel-shaped, 2-saccate below, yellow to white, scented, 20–30 mm diam. July–Sept.(–Dec.). Rock crevices, mostly in granite, NW (Namaqualand to Bokkeveld Mtns). **gce**

CROMIDON Compton 12 spp., S Africa and Namibia

decumbens (Thunb.) Hilliard Sprawling, glandular-hairy, much-branched perennial to 10 cm. Leaves ovate, glandular-hairy, toothed. Flowers in heads grouped in loose corymbs, (4)5-lobed, white with orange patch, sometimes flowers female and then stigma well exserted. Sept.–Jan. Scree and rock overhangs, NW (W Karoo to Waboomsberg). **gce**

gracile Hilliard Sprawling, glandular-hairy, much-branched annual or perennial to 10 cm. Leaves elliptic, glandular-hairy, sometimes coarsely toothed. Flowers in small racemes, 4-lobed, white with orange patch. Dec.–Apr. Sandstone slopes, 2 000–2 200 m, NW, KM (Hex River and Swartberg).•

microechinos Hilliard Sprawling, hairy annual to 10 cm. Leaves elliptic, hairy, sometimes obscurely toothed. Flowers in heads, sometimes these in panicles, 4-lobed, white. Sept.–Nov. Rocky slopes, NW, KM (Namaqualand to Hex River Mtns to Swartberg). **gce**

plantaginis (L.f.) Hilliard (= *Polycarena plantaginea* (L.f.) Benth.) Sprawling, shortly hairy annual to 10 cm. Leaves mostly radical, ovate. Flowers in heads, 1–few in corymbs or panicles, 5-lobed, white, bracts densely hairy above. Aug.–Nov. Shale slopes, NW (Swartruggens to Cold Bokkeveld and W Karoo). **gce**

varicalyx Hilliard Shortly hairy annual to 10 cm. Leaves elliptic, glandular-hairy, sometimes coarsely toothed. Flowers in heads in corymbs, 5-lobed, white with orange patch, bracts glabrescent above. Sept.–Oct. Clay flats, NW, KM (Hex River Pass and W Karoo). **gce**

DIASCIA Link & Otto TWINSPURS, HORINKIES ± 70 spp., southern Africa

In Diascia the morphologically lower (anterior) stamens are twisted to lie **above** *the morphologically upper (posterior) ones.*

A. Flowers in racemes

parviflora Benth. (incl. **D. burchellii** Benth.) Annual to 40 cm. Leaves ovate, serrate. Flowers in racemes, 2-saccate, greyish to reddish violet with round, yellow windows, 6–12 mm long, sacs ± 2.5–3.5 mm long, posterior stamens strongly recurved just below anthers. Capsules oblong-ovate, 4–12 × 2–4.5 mm. Mainly Aug.–Oct. Renosterveld and karroid flats in loam, NW, KM, LB, SE (W Karoo and Worcester to Kouga Mtns). **gce**

patens (Thunb.) Grant ex Fourc. (incl. **D. dielsiana** Schltr. ex Hiern) Perennial to 1 m. Leaves linear to ovate, entire or with a few, sharp teeth. Flowers in racemes, 2-spurred, pink to red with a yellow window, 12–17 mm long, spurs projecting backwards and down or diverging at nearly right angles, ± 4–7 mm long. Capsules ovate, 4.5–15 × 4–6 mm. (Mar.–)July–Sept. Fynbos and renosterveld in sand or clay, AP, KM, LB, SE (Bredasdorp and Huisrivier Pass to Joubertina).•

veronicoides Schltr. Annual to 75 cm. Leaves ovate, serrate. Flowers in racemes, 2-spurred, deep violet with yellow windows, 8–13 mm long, spurs ± 3–4.5 mm long, projecting backwards and diverging, posterior stamens straight. Capsules linear, ± straight or curved. Aug.–Sept. Renosterveld and karroid flats in clay loam, NW (Namaqualand to Porterville). **gce**

A.' Flowers axillary
B. Flowers long-spurred, spurs 8–25 mm long

bicornuta K.E.Steiner *ined.* Annual to 43 cm. Leaves obovate to elliptic, pinnatifid to pinnatisect. Flowers axillary, 2-spurred, greyish magenta with darker centre and 0–5 yellow spots below each upper lobe, limb 13–19 mm long, spurs mostly brown mottled purple, 14–17 mm long. Capsules ovate and falcate, 5.5–7 × 2.5–3 mm. Aug.–Sept. Karroid flats in clay, NW (Botterkloof Pass to Cedarberg, ?Ceres Mtns: Slab Peak).•

hexensis K.E.Steiner Annual to 22 cm. Leaves ovate or obovate to elliptic, pinnatifid to pinnatisect. Flowers axillary, 2-spurred, light violet with greyish magenta centre and 2 or 3 small yellow dots in an oblique line below each upper lobe, limb 11–15 mm long, spurs ± 9.5–11.5 mm long. Capsules lanceolate and falcate, 9–10.5 × ± 2.5 mm. June–Oct. Renosterveld and karroid flats in loam, KM (W and Little Karoo). **gce**

insignis K.E.Steiner Annual to 21 cm. Leaves ovate to elliptic, rounded to acute, irregularly divided. Flowers axillary, 2-spurred, greyish violet, upper lip with concave depression below each corolla lobe, visible on outside as two, dark purple bosses with yellow markings, limb 15.5–21 mm long, spurs 14–18 mm long, projecting backwards and diverging distally; stamens erect, posterior filaments forked just below middle into an erect, fertile arm and a long, forwardly projecting, sterile, apically flattened, villous arm. Capsule ovoid, 5.7–6.6 mm long, exceeding calyx at maturity. Aug.–Sept. Openings in renosterveld, NW (Nieuwoudtville).•

longicornis (Thunb.) Druce Annual to 32 cm. Leaves obovate to elliptic, sinuate to pinnatisect. Flowers axillary, 2-spurred, reddish or white with deep magenta centre and a large and small, yellow spot below each upper lobe, limb 9–19 mm long, spurs turned upwards or projecting downwards, short or long, 4–18 mm. Capsules linear to lanceolate and falcate, 8–10 × 1.5–2 mm. Aug.–Oct. Renosterveld in loam, NW, SW, KM (Olifants River Mtns to Moorreesburg and Montagu).•

oblongata K.E.Steiner *ined.* Annual to 40 cm. Leaves obovate to elliptic, irregularly lobed or divided. Flowers axillary, 2-spurred, greyish violet with oblique line of 1–4 yellow spots below each upper lobe, limb 15–21 mm long, spurs projecting backwards and diverging, 16–25 mm long; stamens projecting forwards, filaments ± straight, mostly glabrous. Capsule linear to falcate, 10–16 mm long, 2–3 times longer than calyx. Aug.–Sept. Openings in renosterveld or arid fynbos, NW (Nieuwoudtville to southern Cedarberg).•

whiteheadii K.E.Steiner *ined.* Annual to 45 cm. Leaves elliptic, oblong or obovate, sinuate to pinnatisect, sometimes entire. Flowers axillary, 2-spurred, pink with deep magenta centre and 1–4, small, yellow spots below each upper lobe, limb 13–20 mm long, spurs projecting backwards and diverging, 18–22 mm long. Mainly July–Sept. Fynbos in loam, NW (Bokkeveld Mtns to Citrusdal).•

*B.' Flowers short-spurred or deeply saccate, spurs or sacs 3–8 mm long (see also **D. longicornis**)*

albicornis K.E.Steiner *ined.* Annual to 30 cm. Leaves ovate, obovate or elliptic, sinuate or sparsely toothed. Flowers axillary, 2-spurred, lilac with dark violet centre and no yellowish spots, limb 10–15 mm long, spurs obtuse, white, ± 6–8 mm, long. Capsules lanceolate, 10–15 × 1.5–2 mm. July–Oct. Renosterveld and stream banks in loam, LB, SE (Garcia's Pass to Joubertina).•

albiloba K.E.Steiner *ined.* Annual to 22 cm. Leaves oblong or elliptic, sinuate or dentate, sometimes pinnatifid. Flowers axillary, 2-spurred, white to reddish lilac with maroon centre and pale yellow windows, limb 9–13.5 mm long, spurs acute, ± 4–6 mm long. Capsules oblong-ovate, 7–10 × 2–2.5 mm. Aug.–Sept. Renosterveld, LB, SE (Garcia's Pass to Grahamstown).

dimorpha K.E.Steiner *ined.* Annual to 15 cm. Leaves obovate to elliptic, dentate. Flowers axillary, 2-saccate or 2-spurred, reddish lilac with dark violet centre and 0–5 small, yellow dots below each upper lobe, limb 11–12 mm long, spurs dark violet, 3–7 mm long. Capsules lanceolate, 10–14 × ± 2.5 mm. Sept.–Oct. Renosterveld, KM (Montagu to Calitzdorp).•

lewisiae K.E.Steiner Annual to 28 cm. Leaves ovate to elliptic, irregularly divided. Flowers axillary, 2-saccate, reddish lilac with two, yellow markings on each side of stamens below each upper lobe, comprising a large, rounded spot and a smaller, linear mark, limb 11–18 mm long, sacs 3–5 mm long, obtuse; stamens erect with scattered purple trichomes, posterior filaments with short, terete projection at midpoint. Capsule falciform-ovate, 5–7.6 mm long. Aug.–Sept. Seasonally moist, clay flats in renosterveld, NW (Bokkeveld Mtns).•

sacculata Benth. Annual to 30 cm. Leaves ovate to elliptic, dentate, sometimes entire. Flowers axillary, 2-spurred, greyish magenta with darker centre and 2–4 yellow spots in an oblique line below each upper lobe, limb 9–11 mm long, spurs upturned and ± straight, ± 3–3.5 mm long. Capsules linear to oblong and falcate, 10–12 × ± 2 mm. July–Oct. Renosterveld and karroid flats in clay, NW, KM, SE (Namaqualand to Worcester to Joubertina). **gce**

stenocarpa K.E.Steiner *ined.* Annual to 38 cm. Leaves ovate, elliptic or obovate, dentate, sometimes pinnatifid to laciniate. Flowers like those of **D. sacculata** but larger, limb 10–16.5 mm long, spurs 3–6 mm long, capsules slightly longer and narrower. Aug.–Oct. Fynbos in sandy loam, NW (Lambert's Bay to Clanwilliam).•

variabilis K.E.Steiner *ined.* Annual to 26 cm. Leaves elliptic, oblong or obovate, sinuate to pinnatisect. Flowers like those of **D. sacculata** but with a yellow spot in tube below sinus of lateral and lower lobes and sometimes with much longer, attenuate spurs, spurs 3.5–11 mm long. July–Sept. Fynbos in sandy loam, NW (Citrusdal to Piketberg).•

B." Flowers saccate, sacs to 3 mm deep
C. Flowers yellow with violet centre

bicolor K.E.Steiner Erect or decumbent annual to 30 cm. Leaves ovate or elliptic to obovate, sinuate or pinnatifid. Flowers axillary, 2-saccate, light yellow with red or violet centre and greenish yellow sacs, limb 13–23 mm long, sacs ± 1.5–3 mm long, stamens projecting forward, filaments greyish ruby with yellow hairs above. Capsules ovate-falcate. May–Oct. Succulent, karroid flats in clays and silts, KM (Little Karoo: Barrydale to Zebra).•

cuneata E.Mey. ex Benth. Like **D. bicolor** but flowers smaller, limb 6.5–10 mm long, with sacs absent or vestigial, upper half of centre greenish yellow and filaments with hairs absent or purple. Mar.–Oct., after rains. Succulent, karroid flats in clays or silts, KM (Little and Great Karoo to western Free State).

decipiens K.E.Steiner Like **D. bicolor** but sacs deep violet, stamens erect and filaments with purple hairs. May–Oct. Succulent, karroid flats in clays and silts, KM (Little Karoo).•

C.' Flowers not yellow
D. Fruiting pedicels S-shaped

caitliniae K.E.Steiner Annual to 40 cm. Leaves pinnatifid to pinnatisect. Flowers axillary, greyish magenta with 4 yellow spots in tube, limb 12–27 mm long, 2-saccate, sacs yellow, shallow and inconspicuous, stamens and style strongly arching forward away from upper lip. Capsules ovate, fruiting pedicels S-shaped, flattened and ribbon-like. Sept. Renosterveld and fynbos in sandy loams, local after fire, NW (Piketberg).•

elongata Benth. Annual to 40 cm. Leaves lanceolate to ovate or elliptic, pinnatifid to pinnatisect. Flowers axillary, 2-saccate, greyish pink, apricot or white with red centre and yellow patch below

sinus of each lobe, limb 9–21 mm long, sacs yellow, 1–1.6 mm long, posterior filaments geniculate and swollen. Capsules broadly ovate, 5–10 × 4–7 mm, fruiting pedicels S-shaped. Aug.–Oct. Renosterveld and fynbos in loams or sands, NW, SW, LB (Bokkeveld Mtns to Riversdale).•

grantiana K.E.Steiner *ined.* Annual to 23 cm. Leaves ovate to elliptic, sinuate to pinnatisect. Flowers axillary, 2-saccate, reddish lilac to greyish magenta with darker centre and 2 or 4 yellow spots, limb 8–15 mm long, sacs bulbous, yellow, 1–2 mm long, tube with a horn-shaped callus behind stamens. Capsules ovate, fruiting pedicels S-shaped. Aug.–Sept. Renosterveld and fynbos in sand and loam, NW, SW, LB (Piketberg to Swellendam).•

speciosa K.E.Steiner *ined.* Like **D. grantiana** but flowers often larger, limb 11–24 mm long and greyish magenta. Sacs compressed-oblong and usually longer, ± 1.6–3 mm long, and anterior filaments strongly downcurved. Leaves pinnatifid to pinnatisect. Aug.–Sept. Renosterveld in seasonally moist, loams, NW, SW (Piketberg to Bredasdorp).•

*D.' Fruiting pedicels not S-shaped (see also **D. dimorpha**)*
E. Posterior filaments with sterile branch ± 1 mm long from knee-bend

appendiculata K.E.Steiner Decumbent annual to 22 cm. Leaves oblong, mostly pinnatifid to pinnatisect. Flowers axillary, 2-saccate, reddish lilac, with dark red or purplish centre with yellow sacs and stamen-bearing boss, limb 7.5–14 mm long, sacs very shallow, ± 0.5–0.7 mm long, stamens erect, glabrous, posterior filaments geniculate with a sterile branch ± 1 mm long from knee. Capsules ovate-falcate. Aug.–Sept., especially after fire. Fynbos in alluvial sand, NW (Citrusdal to Piketberg).•

diffusa Benth. Annual to 30 cm. Leaves ovate, elliptic, oblong to obovate, pinnatifid to pinnatisect, sometimes entire to dentate. Flowers like those of **D. appendiculata** but mostly larger, limb 12–24 mm long, with larger sacs, ± 1–2 mm long, stamens pubescent, projecting forwards and downwards and posterior filaments with a sterile branch that is expanded, rounded and flattened near tip. Aug.–Nov. Fynbos and renosterveld in sands or loams, NW, SW (Piketberg to Cape Peninsula).•

E.' Posterior filaments simple or lobed

arenicola K.E.Steiner *ined.* Like **D. capensis** but posticous stamens straight or upcurved, anterior stamens downcurved and style upcurved. Aug.–Oct. Fynbos and sandveld in sands or loams, NW (Elands Bay to Piketberg).•

capensis (L.) Britten (incl. **D. bergiana** Link & Otto) Erect or decumbent annual to 35 cm. Leaves pinnatifid to pinnatisect. Flowers axillary, 2-saccate, greyish violet with dark magenta centre, yellow sacs and a yellow, stamen-bearing boss, limb 12–23 mm long, sacs ± 2–5.5 mm long, stamens and style strongly arching away from upper lip. Capsules ovate-falcate. Aug.–Oct. Mainly coastal sandveld, NW, SW, AP (Piketberg to Still Bay).•

catherineae K.E.Steiner *ined.* Erect or decumbent annual to 13 cm. Leaves ovate to elliptic, sinuate to pinnatisect. Flowers axillary, 2-saccate, pastel red with dark magenta centre and yellow sacs, stamen-bearing boss and base of lateral lobes, with a small, callus-like outgrowth behind stamens, limb 8.5–10 mm long, sacs ± 1 mm long, stamens erect, posterior filament thickened and bilobed, pollen orange. Capsules ovate-falcate. Aug.–Oct. Renosterveld in clay loam, LB, SE (Barrydale to Langkloof).•

collina K.E.Steiner Decumbent annual to 20 cm. Leaves elliptic to oblong, pinnatifid to pinnatisect. Flowers axillary, 2-saccate, greyish magenta with dark magenta centre and yellow sacs and stamen-bearing boss, limb 13–20 mm long, sacs ± 4–5 mm long, stamens yellow, posterior filaments with a prominent protuberance at bend, pollen orange. Capsules ovate-falcate. Aug.–Sept. Strandveld in sandy loams, SW (Postberg to Vredenburg).•

dilatata K.E.Steiner *ined.* Like **D. catherineae** but flowers without callus or reddish purple patches below upper lobes and with a sterile lobe on posterior filament that is thicker and more bulbous. Aug.–Oct. Renosterveld in loams, NW, KM (Hex River Pass to Montagu).•

ellaphieae K.E.Steiner Like **D. pachyceras** but leaves elliptic to oblong, sinuate to dentate (not pinnatifid to pinnatisect), stamen-bearing boss reddish purple, capsules narrower, linear to lanceolate, to 2 mm wide and seeds semicircular (not nearly circular). July–Aug. Fynbos and karroid shrubland in sands or loams, NW (Matsikamma to Nardouw Mtns).•

gracilis Schltr. Annual to 30 cm. Leaves elliptic to oblong, sinuate or dentate. Flowers like those of **D. maculata** but stamens erect and capsules linear-oblong, 5–10 × 1.5–2 mm. Aug.–Sept. Fynbos in loams, NW (Bokkeveld to Olifants River Mtns).•

humilis K.E.Steiner Erect or decumbent annual to 25 cm. Leaves ovate, elliptic, oblong or obovate, dentate to pinnatifid, upper leaves pinnatisect. Flowers axillary, 2-saccate, pastel red to greyish magenta with yellow below lateral lobes, limb 6–7.5 mm long, sacs ± 1.5–2 mm long, yellow, upper filaments swollen or lobed at knee, pollen orange. Capsules ovate-falcate, 5–6.5 × 2.5–3 mm. Aug.–Oct., especially after fire. Renosterveld or fynbos in loams, NW (Namaqualand and W Karoo to Worcester). **gce**

maculata K.E.Steiner Annual to 32 cm. Leaves ovate, elliptic or oblong, pinnatifid to pinnatisect, sometimes entire, upper leaves pinnatisect. Flowers axillary, obscurely 2-saccate, greyish magenta to peachy orange with dark magenta centre and yellow patches below upper and lower corolla lobes and stamen-bearing boss, limb 6.5–11 mm long, sacs to 1 mm long, pale greyish magenta, stamens projecting forward. Capsules ovate-falcate, 5–6 × ± 3 mm. Aug.–Oct. Fynbos or renosterveld in loams, NW (Namaqualand to Hex River Pass). **gce**

minutiflora Hiern Annual to 35 cm. Leaves obovate to elliptic, incised to pinnatisect. Flowers axillary, 2-spurred, greyish magenta to violet with darker centre and 1 or 2 yellow patches below upper lobes, limb 7–14 mm long, spurs 1–1.5 mm long. Capsules ovate and falcate, 4–5.5 × 2–2.5 mm. July–Sept. Renosterveld or karroid flats in sandy loams, KM (Namaqualand and Swartberg). **gce**

occidentalis K.E.Steiner *ined.* Like **D. arenicola** but flowers smaller, limb 9.5–13 mm long with smaller sacs, ± 2–3 mm long. Aug.–Sept. Sandveld in loose sands, NW (Lambert's Bay to Elands Bay).•

pachyceras E.Mey. ex Benth. Annual to 32 cm. Leaves elliptic to obovate, pinnatifid or pinnatisect. Flowers axillary, 2-saccate, greyish magenta with dark centre, yellow stamen-bearing boss and a small, yellow spot below each upper corolla lobe and 3 larger spots at base of lower corolla lobe, limb 12.5–26.5 mm long, sacs ± 2.5–4 mm long, greyish magenta. Capsules 6–8.5 × 2–3 mm, ovate to oblong-ovate. July–Oct. Coastal sands, NW (S Namaqualand to Leipoldtville). **gce**

pusilla K.E.Steiner Like **D. collina** but flowers smaller, limb 9–13 mm long, sacs shorter and not strongly divergent, ± 2 mm long and posterior filaments thickened. Aug.–Sept. Sandveld in loose sands, NW, SW (Lambert's Bay to Langebaanweg).•

DICLIS Benth. DWARF SNAPDRAGON ± 10 spp., Africa and Madagascar

reptans Benth. Spreading to prostrate, slightly hairy perennial rooting at nodes. Leaves rounded, toothed. Flowers on long pedicels in axils of upper leaves, bilabiate and spurred, white to violet. Aug.–Jan. Forests and shady places, SE (George to Mpumalanga).

DISCHISMA Choisy FALSE SLUGWORT, BASTERSLAKBLOM 11 spp., S Namibia to W Cape **gce**

A. Annuals
B. Flowers > 10 mm long

spicatum (Thunb.) Choisy Hairy annual to 30 cm, with ascending branches. Leaves narrow and spreading with sparse teeth, 10–30(–50) × 1–3(–8) mm, bracts woolly below, not strongly ciliate. Flowers in elongate spikes, white, 10–20 mm long, calyx lobes narrow and ciliate. July–Oct. Sandy flats, NW (S Namibia to Piketberg). **gce**

B.' Flowers < 10 mm long

arenarium E.Mey. Sprawling annual to 15 cm, branched near base. Leaves narrow, spreading, entire or scarcely toothed, 5–15 × 1–2.5 mm, bracts broad and ciliate below. Flowers in numerous, rounded, capitate spikes elongating somewhat in fruit, tiny, white, 2.5–4 mm long, calyx lobes narrow and ciliate. Aug.–Oct. Sandy flats, NW, SW, AP (Clanwilliam to Bredasdorp).•

capitatum (Thunb.) Choisy Annual to 10 cm, branched near base. Leaves linear, spreading, minutely toothed, 10–25 × 1–2 mm, bracts broad and ciliate below, drawn into long, leaf-like tips. Flowers in dense, rounded, capitate spikes becoming indurated in fruit, tiny, white, 3–5 mm long, calyx lobes narrow and ciliate. Aug.–Sept. Sandy flats, NW, SW, AP (Bokkeveld Escarpment to Bredasdorp).•

clandestinum E.Mey. Erect, hairy annual, 10–20 cm. Leaves narrow, spreading, 20–30 × 1–2 mm, bracts broad and hairy below, drawn into leaf-like tips. Flowers in elongate spikes, small, white, 5–7 mm long, calyx lobes narrow and ciliate. Aug.–Nov. Rocky slopes and flats, NW (Namaqualand to N Cedarberg). **gce**

A.' Shrublets or subshrubs
C. Leaves ovate-cordate

crassum Rolfe Shrublet, 30–50 cm. Leaves broadly ovate and overlapping, fleshy, crenulate, 3–5 mm diam. Flowers in dense spikes, white, fragrant, ± 12 mm long, calyx lobes narrow and sparsely ciliate. Sept.–Oct. Sandy coastal dunes, NW, (Lambert's Bay to Saldanha Bay).•

squarrosum Schltr. Minutely hairy shrublet to 60 cm. Leaves broadly ovate and overlapping, sometimes minutely toothed, 4–5 × 2–3 mm. Flowers in compact spikes, white, ± 12 mm long, calyx lobes ciliate. Aug.–Oct. Sandy flats, NW (S Namaqualand to Clanwilliam and Graafwater). **gce**

C.' Leaves linear-lanceolate

ciliatum (P.J.Bergius) Choisy Shrublet to 40 cm. Leaves narrow, spreading, 10–20(–40) × 0.5–6 mm, bracts strongly ciliate and sparsely hairy below. Flowers crowded in elongate spikes, white, 11–16 mm long, calyx lobes narrow and ciliate. Mainly Aug.–Nov. Rocky slopes and flats, NW, SW, AP, LB, SE (Lokenberg to Port Elizabeth).•

fruticosum (L.f.) Rolfe Glabrous shrublet to 50 cm. Leaves narrow, deeply toothed, 8–15 × 1.5–3 mm. Flowers in dense spikes, white, ± 15 mm long, calyx lobes broadly ovate, glabrous, folded in midline. ?. Sandstone slopes, NW (Lambert's Bay to Piketberg).•

leptostachyum E.Mey. Erect, hairy subshrub to 30 cm, with ascending, cobwebby branches. Leaves narrow and spreading, sparsely toothed, 10–25 × 1–3 mm, bracts woolly below. Flowers in elongate spikes, white, 13–15 mm long, calyx lobes narrow and ciliate. Sept.–Oct. Coastal dunes, NW (Port Nolloth to Rocher Pan). **gce**

tomentosum Schltr. White-woolly shrublet with sprawling to ascending branches. Leaves narrow, ascending, woolly, ± 5–10 × 1 mm, bracts densely woolly. Flowers in dense, oblong spikes, white, 10–15 mm long, calyx lobes hairy. Sept.–Oct. Rocky sandstone flats, NW (Cold Bokkeveld and Swartruggens).•

FREYLINIA Pangella ex Colla BELL BUSH, KLOKKIESBOS 9 spp., southern and central Africa

A. Leaves lanceolate

densiflora Benth. (= *Freylinia decurrens* Levyns ex Van Jaarsv.) Erect, slender shrub to 2 m. Leaves spreading or recurved, lanceolate, channelled, 15–25 mm long. Flowers in short narrow panicles, spreading, white to purple, ± 16 mm long, petals recurving, stamens unequal, style 12–14 mm long. June–Sept. Rocky slopes, KM, SE (Montagu to Grahamstown).

lanceolata (L.f.) G.Don HEUNINGKLOKKIESBOS Small tree, 2–4(–6) m. Leaves linear-lanceolate, glabrous or shortly hairy, ascending, margins slightly revolute, 40–120 mm long. Flowers in densely branched panicles, cream-coloured to yellow fading orange to brown, honey-scented, 10–15 mm long, stamens unequal, style 6–10 mm long. Feb.–July. Stream banks, often on sandstone, NW, SW, AP, KM, LB, SE (Namaqualand to E Cape).

visseri Van Jaarsv. Erect, wand-like shrub, 1.5–3 m. Leaves oblanceolate, margins slightly revolute, 15–30 mm long. Flowers crowded in short racemes, spreading, purple, 20–30 mm long, stamens unequal, style 15 mm long. Sept.–Nov. Strandveld, NW (Aurora).•

A.' Leaves elliptic to ovate

crispa Van Jaarsv. Erect, slender shrub to 2.5 m. Leaves ovate, margins thickened and strongly crisped, 8–15 mm long. Flowers in short racemes, subpendent, purple, 22–25 mm long, stamens subequal, style exserted, 22–25 mm long. Apr.–Oct. Rocky sandstone scree, SE (Kouga Mtns).•

helmei Van Jaarsv. Erect, slender, resprouting shrub to 2.5 m. Leaves narrowly elliptic, 20–30 mm long. Flowers in short racemes, subpendulous, tubular, white to mauve, 25–27 mm long, stamens unequal, style over half as long, 15–17 mm long. Oct.–Nov. S-facing, shale slopes in renosterveld, SW (Botrivier).•

longiflora Benth. Erect, slender shrub to 1.5 m. Leaves elliptic, 15–30 mm long. Flowers in elongate racemes, spreading, narrowly tubular, white to mauve, 15–20 mm long, stamens unequal, style half as long, 5–7 mm long. Sept.–Oct. Stony slopes, SW (Elgin: Arieskraal).•

undulata (L.f.) Benth. Erect, rigid shrub to 2 m. Leaves ovate, glabrous or sparsely hairy, often minutely crisped or undulate, 5–15 mm long. Flowers in lax, narrow racemes, subpendent, white

to purple, 15–20 mm long, stamens unequal, style 10–15 mm long. June–Dec. Shale slopes, SW, AP, KM, LB, SE (Grabouw to Port Elizabeth).•

vlokii Van Jaarsv. Erect, slender shrub, 2–3 m. Leaves elliptic, ascending, velvety hairy, 10–20 mm long. Flowers in short racemes or panicles, subpendent, purple, 20 mm long, stamens subequal, style 17–18 mm long. July–Aug. Dry sandstone slopes in succulent karoo, KM (Rooiberg).•

GLOBULARIOPSIS Compton• 7 spp., SW Cape

adpressa (Choisy) Hilliard (= *Selago adpressa* Choisy) Perennial, 15–45 cm. Leaves fascicled, linear, margins thinly hairy. Flowers in small glomerules arranged in long, narrow panicles, white, back of throat yellow to orange, bracts hairy. Mainly Nov. Sandy or stony slopes, NW, SW (Piketberg and Ceres to Cape Peninsula and Somerset West).•

montana Hilliard (= *Selago wittebergensis* Compton) Dwarf shrublet. Leaves opposite, fascicled, elliptic, minutely hairy. Flowers in racemes, 1–4 cm long, arranged in panicles, white, back of throat orange, bracts hairy. Nov. Rock ledges and scree, KM (Witteberg).•

obtusiloba Hilliard Perennial to 40 cm. Leaves fascicled, linear, subglabrous. Flowers in small glomerules arranged in corymbose panicles, white, back of throat yellow, calyx lobes obtuse, bracts hairy on margins. Nov.–Jan. Sandstone slopes, NW (Grootwinterhoek Mtns).•

pumila Hilliard Annual to ± 22 cm. Leaves opposite below, weakly fascicled, narrowly elliptic, hairy beneath. Flowers in terminal glomerules, white, back of throat yellow, bracts hairy. Oct. Sandstone slopes, NW (Piketberg).•

stricta (P.J.Bergius) Hilliard (= *Selago stricta* P.J.Bergius) Annual to 45 cm. Leaves fascicled, linear-elliptic, margins and midrib hairy. Flowers in small glomerules arranged in a corymbose panicle, white, back of throat yellow to orange, bracts hairy. Sept.–Oct. Stony or sandy slopes and flats, NW, SW (Bokkeveld Mtns to Paarl).•

tephrodes (E.Mey.) Hilliard (= *Selago laxiflora* Choisy, *S. tephrodes* E.Mey.) Perennial to 1 m. Leaves fascicled, linear, subglabrous. Flowers in small racemes arranged in elongated panicles, white, back of throat yellow to orange, bracts hairy. Sept.–Oct. Sandstone slopes and flats, NW, SW (Bokkeveld Mtns to Stellenbosch).•

wittebergensis Compton Dwarf shrublet, 6–15 cm. Leaves mostly opposite and decussate, minute, elliptic-oblong, toothed, leathery, subglabrous. Flowers in terminal glomerules, white, ?back of throat yellow, bracts hairy beneath. Oct.–Dec. Rocky sandstone slopes, NW, KM (Bonteberg to Witteberg).•

GOMPHOSTIGMA Turcz. 2 spp., southern Africa

virgatum (L.f.) Baill. Slender, willowy, closely leafy shrublet to 1 m. Leaves opposite, linear, usually greyish. Flowers in long, narrow racemes, white, scented, tube subcampanulate, 2–4 mm long, tepals spreading. Nov.–Sept. Along watercourses in running water among boulders, NW, KM (Namaqualand, Bokkeveld and Swartberg, Namibia and Zimbabwe).

GOSELA Choisy• 1 sp., SW Cape

eckloniana Choisy Shrublet to 80 cm, with slender, ascending branches. Leaves narrow, in tufts. Flowers in compact spikes, corolla tube long and slender, light brown. Sept.–Dec. Sandstone slopes, NW (Cedarberg and Cold Bokkeveld Mtns).•

HALLERIA see **STILBACEAE**

HEBENSTRETIA L. SLUGWORT, SLAKBLOM ± 40 spp., southern and tropical Africa

A. Perennials or shrublets
B. Mericarps ± equal, vacuolate

cordata L. Shrublet to 30 cm, with closely leafy, suberect branches. Leaves heart-shaped, succulent, sessile. Flowers crowded in short, dense spikes, white, anthers subsessile, calyx large; fruit ± circular, mericarps equal, vacuolate. Mainly Sept.–Feb. Coastal sands, NW, SW, AP, LB, SE (Namaqualand to Port Alfred).

dregei Rolfe Subshrub, 25–45 cm, with slender branches. Leaves lanceolate, with prominent teeth. Flowers cream-coloured, papillate below lobes, anthers subsessile, calyx toothed above; fruit top-shaped, pointed, mericarps equal, vacuolate. Sept.–Dec. Stony mountain slopes, SW, LB (Genadendal to Swellendam).•

lanceolata (E.Mey.) Rolfe Hairy shrub to 60 cm. Leaves broad and toothed, bracts hairy. Flowers on elongate spikes, white with orange marks, papillate below lobes, calyx toothed at tip; fruit ellipsoid, mericarps ± equal, vacuolate. Sept.–Nov. Rocky sandstone slopes, NW, SW (Cedarberg to Stellenbosch).•

B.' Mericarps unequal, the lower grooved above

paarlensis Roessler Shrublet to 40 cm, branches erect, densely leafy. Leaves linear, slightly toothed, deflexed. Flowers in elongate spikes, white with orange marks, anthers subsessile, calyx glabrous; fruit ellipsoid, upper mericarp shield-shaped. Sept.–Dec. Rocky sandstone slopes, NW, SW (S Cedarberg to Somerset West).•

robusta E.Mey. Shrublet with erect branches. Leaves linear, slightly toothed, spreading. Flowers in elongate spikes, white with orange to red marks, honey-scented, anthers subsessile, calyx glabrous; fruit ellipsoid, upper mericarp shield-shaped. Aug.–Oct. Rocky sandstone soils, NW, SW, KM, LB, SE (Namaqualand to Uniondale and E Cape).

sp. 1 (aff. **H. paarlensis**) Shrublet to 40 cm, branches erect, densely leafy. Leaves short, needle-like, slightly toothed, deflexed. Flowers in elongate spikes, white with orange marks, anthers stalked, calyx glabrous; fruit ellipsoid, upper mericarp shield-shaped. Sept.–Oct. Rocky slopes, KM (Bonteberg).•

A.' Annuals
C. Mericarps ± equal

neglecta Roessler Erect annual to 30 cm, with ascending branches. Leaves narrow, slightly toothed. Flowers in elongate spikes, white, papillate at base of lobes, anthers stalked, calyx slightly hairy on margins; mericarps ± equal, ± subcylindrical. July–Sept. Sandstone slopes and plateaus, NW (Bokkeveld Mtns to Piketberg).•

ramosissima Jaroscz Slender annual branching from base, to 15 cm. Leaves narrow, sparsely toothed, glabrous. Flowers in elongate spikes, white, small, anthers subsessile, calyx broad and hairy; mericarps ± equal, ± subcylindrical. Aug.–Oct. Rocky sandstone slopes, NW, SW (Piekenierskloof to Riviersonderend).•

repens Jaroscz Sprawling, branched annual to 45 cm, branches erect terminally. Leaves narrow, sparsely toothed. Flowers in elongate spikes, white, anthers stalked, calyx glabrous; fruit top-shaped, pointed, mericarps ± equal. July–Oct. Sandy flats and slopes, NW, SW, AP, KM, LB (Namaqualand to Albertinia).•

C.' Mericarps unequal

dentata L. Erect, sparsely hairy annual to 40 cm, with ascending branches. Leaves linear and toothed. Flowers white with orange marks, anthers subsessile, calyx glabrous; fruit ellipsoid, upper mericarp shield-shaped. July–Oct. Rocky sandstone soils, NW, SW, AP (Namaqualand to Cape Peninsula and to Still Bay). **gce**

fastigiosa Jaroscz Annual to 45 cm, with suberect branches. Leaves narrow, slightly toothed. Flowers in elongate spikes, white, anthers sessile, calyx glabrous; fruit top-shaped, pointed, upper mericarp larger. Aug.–Oct. Rocky slopes, NW, SW (Pakhuis to Cape Peninsula).•

integrifolia L. Subglabrous, erect annual to 60 cm, with ascending branches. Leaves linear and slightly toothed. Flowers white with red or orange marks, anthers subsessile, calyx glabrous; fruit oblong, upper mericarp shield-shaped. Oct.–Jan. Rocky soils, often in grasslands, LB, SE (Namibia to E Cape).

parviflora E.Mey. Erect, sparsely hairy annual to 30 cm, with ascending branches. Leaves linear and toothed. Flowers white with orange marks, anthers subsessile, calyx glabrous; fruit oblong, upper mericarp shield-shaped. July–Oct. Rocky sandstone soils, NW, KM (Namibia to Oudtshoorn and Karoo).

HEMIMERIS L.f. YELLOW-FACES, GEELGESIGGIE 6 spp., N and W Cape **gce**

A. Flowers spurred, spurs longer than lower corolla lip

centrodes Hiern Annual, branching from base, 2–30 cm. Leaves ovate, entire or toothed. Flowers axillary, umbelliform, 2-spurred, pale yellow with paired, brown spots on upper lip, 8–14 mm long, spurs projecting backwards, ± 3–6 mm long. Aug.–Oct. Karroid flats in clay, NW, KM, SE (Bokkeveld Mtns and W Karoo to Baviaanskloof Mtns). **gce**

gracilis Schltr. Annual, 2–30 cm. Leaves ovate, toothed to crenate. Flowers axillary, umbelliform, 2-spurred, yellow, 5–8 mm long, spurs divergent, ± 4–5 mm. July–Oct. Moist, shaded spots around rocks or small streams, NW, KM, SE (Bokkeveld and W Karoo to Baviaanskloof Mtns).**gce**

A.' Flowers saccate or minutely spurred, sacs much shorter than lower corolla lip

racemosa (Houtt.) Merr. (incl. **H. montana** L.f.) Annual, 3.5–44 cm. Leaves ovate, toothed, sometimes pinnatifid. Flowers enantiostylous, axillary, umbelliform, 2-spurred, yellow, ± 7.5–13 mm long, spurs ± 1.5–3 mm long. July–Oct. Coastal and inland sands and clays, NW, SW, AP, KM, LB, SE (Richtersveld to Port Elizabeth). **gce**

sabulosa L.f. Annual, 3–50 cm. Leaves pinnatifid, sometimes toothed. Flowers axillary, umbelliform, 2-saccate with invaginations over stamens, yellow, 9–11.5 mm long, sacs ± 1–2 mm long. July–Oct. Sandy coastal flats, NW, SW, AP (Namaqualand to Still Bay). **gce**

sp. 1 Like **H. sabulosa** but plants clammy glandular-hairy, leaves ovate, toothed and flowers pale yellow with fruiting pedicels much longer, ± 5–6 cm long. Aug.–Oct. Granite, limestone and coastal sands, SW (Saldanha Bay).•

sp. 2 Like **H. sabulosa** but leaves ovate, toothed and flowers with 2, tail-like extensions over stamens. Aug.–Oct. Sandstone slopes, NW (Piketberg).•

ILYSANTHES Raf.= **LINDERNIA (LINDERNIACEAE)**

IXIANTHES see **STILBACEAE**

JAMESBRITTENIA Kuntze 83 spp., mainly central and southern Africa, 1 sp. extending to India

A. Flowers green to brown, yellow or orange

albomarginata Hilliard Dwarf, glandular-hairy shrublet to 40 cm. Leaves small, often toothed above. Flowers axillary, tube long and inflated above, lobes orange to maroon with white margins. Jan.–Dec. Coastal limestone flats and dunes in scrub, AP (Gansbaai to Still Bay).•

atropurpurea (Benth.) Hilliard (= *Sutera atropurpurea* (Benth.) Hiern SAFFRAANBOSSIE Wiry glandular shrublet to 1 m. Leaves mostly entire. Flowers axillary, long-tubed and 2-lipped with narrow lobes, yellowish to brown. Dec.–Apr. Stony or rocky slopes in karroid scrub, KM, SE (Caledon to Joubertina, W Karoo to Botswana).

A.' Flowers white, pink, blue or mauve

albanensis Hilliard Sprawling, glandular-hairy shrublet to 45 cm. Leaves lobed. Flowers axillary, pink to mauve with orange throat. Jan.–Dec. Karroid scrub, SE (Uniondale to Alice).

argentea (L.f.) Hilliard (= *Sutera argentea* (L.f.) Hiern Erect or straggling, glandular shrub to 1 m. Leaves mostly toothed. Flowers axillary, tube inflated above, white with yellow throat. Jan.–Dec. Rock outcrops or forest margins in moist, shaded places, KM, SE (Montagu to Port Elizabeth).•

aspalathoides (Benth.) Hilliard (= *Sutera aspalathoides* (Benth.) Hiern) Spreading, glandular-hairy and often glistening, dwarf shrublet to 50 cm. Leaves crowded, very small, mostly entire, narrow. Flowers axillary, tube inflated above, pink to blue, rarely white, with yellow throat. Jan.–Dec. Scrub, SW, KM, LB, SE (Elim to Baviaanskloof Mtns).•

calciphila Hilliard Gnarled, very twiggy, glandular-hairy shrublet to 45 cm. Leaves minute, mostly entire, rotund. Flowers axillary, tube inflated above, pink to blue, rarely white, with yellow throat. Jan.–Dec. Coastal limestone rocks and cliffs, AP (Pearly Beach to Still Bay).•

foliolosa (Benth.) Hilliard (= *Sutera foliolosa* (Benth.) Hiern) Densely leafy, glandular shrublet to 40 cm. Leaves lobed, leathery. Flowers axillary among reduced leaves, purple to mauve, rarely white, with yellow throat. Jan.–Dec. Karroid scrub, KM, SE (Karoo to Alexandria).

microphylla (L.f.) Hilliard (= *Sutera microphylla* (L.f.) Hiern) Glandular-hairy shrublet to 50 cm. Leaves small, imbricate, leathery, entire. Flowers axillary, tube inflated above, purple to mauve with red, median streaks and yellow throat. Jan.–Dec. Coastal scrub or grasslands, SE (Knysna to Port Alfred).

pinnatifida (L.f.) Hilliard Straggling, glandular-hairy ?perennial to 45 cm. Leaves lobed. Flowers axillary, tube inflated above, white with yellow throat. Jan.–Dec. Scrubby grasslands, SE (Kouga Mtns to Grahamstown).

stellata Hilliard (= *Sutera pedunculata* auct.) Glandular-hairy shrublet to 40 cm. Leaves small, often toothed above. Flowers axillary, tube inflated above, white or pink with wedge-shaped, yellow to red patch at base of each lobe. Jan.–Dec. Sheltered places on coastal limestone cliffs, SW, AP (Cape Peninsula, Struis Bay to Gouritsmond).•

tenuifolia (Bernh.) Hilliard (= *Sutera atrocaerulea* Fourc.) Glandular-hairy shrublet to 60 cm. Leaves sparsely toothed. Flowers axillary tending to racemose, tube inflated above, purple to blue, rarely white to pink. Jan.–Dec. Sandy and rocky slopes and dunes, SE (Mossel Bay to Humansdorp).•

thunbergii (G.Don) Hilliard (= *Manulea thunbergii* G.Don) Glandular-hairy annual to 60 cm. Leaves opposite below, subpetiolate, toothed. Flowers axillary, tube inflated above, mauve with trifid, yellow patch outlined in purple at base of each lobe. June–Oct. Sandy or shale flats in open scrub, NW, KM (Vanrhynsdorp and Kenhardt through W Karoo to Gamkaberg).

tortuosa (Benth.) Hilliard (= *Sutera tortuosa* (Benth.) Hiern) Glandular-hairy shrublet to 20 cm. Leaves mostly entire, small and tufted. Flowers in racemes, white to mauve with dark median streaks. Sept.–Dec. Stony and shaly slopes or flats in karroid scrub, KM, SE (Prince Albert to E Cape).

LIMOSELLA L. MUDWORT ± 15 spp., cosmopolitan

africana Glück Small, tufted, amphibious or submerged annual or perennial, stems mostly short, corm-like, sometimes with short, bare runners producing leaf rosettes. Leaves long-petioled, ovate-oblong. Flowers on pedicels much shorter than leaves, small, petals shorter than calyx, white or lilac. Aug.–Nov. Pools and marshes, NW, SW, LB, SE (Bokkeveld Plateau to tropical Africa).

grandiflora Benth. Like **L. africana** but stems sometimes with long runners with well-spaced nodes, bearing rosettes of leaves and flowers, flowers on pedicels somewhat shorter than leaves, larger with petals longer than calyx, white or lilac with yellow throat. Aug.–Nov. Pools and marshes, NW, SW, LB, SE (Clanwilliam to Mpumalanga).

LINDERNIA see **LINDERNIACEAE**

LYPERIA Benth. WIDOW'S-PHLOX, TRAANBLOMMETJIE 6 spp., Namibia to W Cape **gce**

A. Flowers pink to mauve

tenuiflora Benth. (= *Sutera tenuiflora* (Benth.) Hiern) Glandular-hairy annual to 20 cm. Leaves sometimes toothed. Flowers in racemes, 16–18 mm diam., tube funnel-shaped, 24–32 mm long, pink to mauve with yellow star in throat, fertile stamens 2. June–Oct. Sandy or gravelly flats, NW, KM (W Karoo and Swartruggens to Groot Swartberg). **gce**

violacea (Link ex Jaroscz) Benth. Sparsely glandular-hairy annual to 45 cm. Leaves coarsely toothed. Flowers laxly racemose, ± 6–14 mm diam., tube funnel-shaped, 9–15 mm long, pink to blue with dark streaks at base of each lobe, fertile stamens 2. June–Sept. Sandy or stony ground, including limestones, SW, LB, SE (Cape Peninsula, Swellendam to Uniondale).•

A.' Flowers white to green or brownish

antirrhinoides (L.f.) Hilliard (= *Sutera antirrhinoides* (L.f.) Hiern, *S. ochracea* Hiern) Glandular-hairy annual to 30 cm. Leaves coarsely toothed. Flowers laxly racemose, ± 6–10 mm diam., tube funnel-shaped, 14–18 mm long, white to cream-coloured with dark patch at base of each lobe, fertile stamens 2. July–Oct. Stony ground, NW, SW, KM (Springbok, Piketberg to Oudtshoorn). **gce**

formosa Hilliard Like **L. antirrhinoides** but flowers larger, ± 14 mm diam. and tube ± 24 mm long. Aug. Shallow, rocky soils, NW (Langeberg: Robertson to Montagu).•

lychnidea (L.) Druce (= *Sutera lychnidea* (L.) Hiern) Leafy, glandular-hairy, glistening perennial to 1 m. Leaves mostly in axillary tufts, shortly toothed above. Flowers in racemes, ±15–20 mm diam., tube abruptly inflated above, 23–28 mm long, lobes narrow, greenish to yellow, clove-scented at night, fertile stamens 4. Aug.–Nov. Coastal sands in scrub, SW, AP (Saldanha Bay to Still Bay).•

tristis (L.f.) Benth. (= *Sutera tristis* (L.f.) Hiern) Glandular-hairy annual to 60 cm. Leaves sometimes toothed. Flowers in racemes, ± 9–23 mm diam., tube abruptly inflated above, 20–29 mm long, lobes narrow, whitish to yellow or brown, clove-scented at night, fertile stamens 4. Mainly July–Oct. Sandy, gravelly or stony ground, often in scrub, NW, SW, AP, KM, LB (Namibia through W Cape and Karoo to Willowmore).

MANULEA L. FINGER-PHLOX, VINGERTJIES 74 spp., southern and S tropical Africa, mainly W Cape

A. Stigma usually shortly exserted, much longer than style

adenocalyx Hilliard Glandular-hairy annual to 45 cm. Leaves crowded basally, deeply toothed. Flowers crowded in capitate racemes, tube dilated above, lobes rounded, creamy white with orange centre. Aug.–Oct. Sandy slopes, NW (Piketberg to Karoopoort).•

annua (Hiern) Hilliard Glandular-hairy annual to 30 cm. Leaves mostly toothed. Flowers in racemes, tube short and narrowly funnel-shaped, white with yellow on tube. July–Oct. Damp, sandy places, NW (Pakhuis Pass to Porterville).•

arabidea Schltr. ex Hiern Minutely glandular-hairy annual to 21 cm. Leaves sometimes toothed. Flowers in racemes, tube shortly funnel-shaped, white with yellow tube. Aug. Sandy soil, NW (Clanwilliam).•

augei (Hiern) Hilliard Minutely glandular-hairy annual to 15 cm. Leaves toothed. Flowers in racemes, tube cylindric, lobes broad, white to mauve with yellow tube. Aug.–Oct. Sandy lowlands, SW (Saldanha to Hopefield).•

calciphila Hilliard Glandular-hairy annual to 15 cm. Leaves mostly basal, usually toothed. Flowers in racemes, tube shortly funnel-shaped, white with yellow tube. July–Nov. Damp, sandy soil on coastal limestone outcrops, AP (Namaqualand and Bredasdorp to Still Bay). **gce**

corymbosa L.f. Glandular-hairy annual to 45 cm. Leaves crowded basally, toothed. Flowers crowded in capitate racemes, tube dilated above, lobes rounded, creamy white with orange centre. July–Nov. Sandy soils near the coast, SW (Velddrif to Cape Peninsula).•

derustiana Hilliard Glandular-hairy annual to 20 cm. Leaves crowded basally. Flowers in racemes, tube shortly funnel-shaped, lobes rounded, white with yellow tube. July–Aug. Deep sands in karroid scrub, KM (De Rust).•

latiloba Hilliard Minutely glandular-hairy annual to 12 cm. Leaves crowded basally, sometimes shallowly toothed. Flowers in racemes, tube shortly funnel-shaped, white with yellow tube. July–Oct. Damp sand or clay soils, KM (Tanqua Karoo to Ladismith). **gce**

paucibarbata Hilliard Glandular-hairy annual to 40 cm. Leaves toothed. Flowers laxly racemose, tube narrowly funnel-shaped, white to lilac with yellow tube. Aug.–Oct. Sandy or stony slopes, NW (Botterkloof to Cedarberg).•

psilostoma Hilliard Glandular-hairy annual to 23 cm. Leaves crowded basally, toothed. Flowers in cymules crowded above, tube inflated above, lobes rounded, white with yellow centre. Aug. Sandy flats, NW (Graafwater).•

A.' Stigma well included, shorter than to longer than style
B. Stamens inserted in middle of corolla tube; tube 6.5–15 mm long

altissima L.f. Glandular-hairy, foetid, short-lived perennial to 1 m. Leaves crowded basally, obscurely toothed. Flowers crowded in capitate racemes, tube inflated above, lobes rounded, white

with yellowish centre, scented. July–Sept. Deep sandy soils, NW, SW (Namaqualand to Malmesbury). **gce**

cephalotes Thunb. Coarse, glandular-hairy ?perennial to 1 m, stems ridged. Leaves coarsely toothed. Flowers in panicles, tube inflated above, lobes rounded, yellow to brown. Dec.–Apr. Rocky sandstone slopes, NW (Kamiesberg, Bokkeveld Mtns to Ceres). **gce**

juncea Benth. Glandular-hairy, short-lived perennial to 75 cm, stems ridged. Leaves coarsely toothed. Flowers in moderately dense racemes, tube inflated above, lobes rounded, dull yellow to red. Jan.–May. Rocky sandstone slopes, NW (N Cedarberg to Ceres Mtns).•

linearifolia Hilliard Coarse, glabrous ?perennial to 1 m. Leaves very narrow and usually entire. Flowers in panicles, tube inflated above, lobes rounded, orange. Jan.–Dec. Rocky sandstone slopes, NW (Cedarberg to Hex River Mtns).•

multispicata Hilliard Shortly glandular-hairy, short-lived perennial to 70 cm, stems ridged. Leaves deeply toothed. Flowers laxly racemose, tube short and inflated above, lobes rounded, dull yellow to brown. June–Jan. Rocky sandstone slopes, NW, KM (Cold Bokkeveld to Montagu).•

rigida Benth. Coarse, glandular-hairy, softly woody shrub to 1 m, with ridged, spreading branches. Leaves sharply toothed. Flowers in panicles, tube inflated above, lobes rounded, white with yellow tube. June–Dec. Rocky sandstone slopes in wet places, NW (Cedarberg to Citrusdal).•

B.' Stamens inserted in upper third of corolla tube
C. Annuals

adenodes Hilliard Glandular-hairy annual to 15 cm. Leaves lobed or toothed. Flowers laxly racemose, bilabiate, tube short and expanded above, lobes very narrow, orange. Sept.–Oct. Rocky slopes, NW (N Cedarberg).•

cheiranthus (L.) L. Glandular-hairy annual to 30 cm. Leaves coarsely toothed. Flowers in racemes, bilabiate, tube short and inflated above, lobes very narrow, ochre to brown. July–Nov. Sandy and rocky slopes and flats, NW, SW, AP, LB, SE (Piketberg to Knysna).•

chrysantha Hilliard Minutely glandular-hairy annual to 15 cm. Leaves crowded basally, ± toothed. Flowers in racemes, sometimes bilabiate, tube short and inflated above, bright yellow with orange patch down back of throat. Apr.–Oct. Riverbeds and gravel patches, KM, SE (S Karoo and Swartberg to Uitenhage).

decipiens Hilliard Glandular-hairy annual to 40 cm. Leaves toothed. Flowers in cymules, bilabiate, tube short and inflated above, lobes very narrow, cream-coloured or yellow to brown or maroon. Aug.–Oct. Sandy and stony slopes, NW (Namaqualand to Clanwilliam). **gce**

exigua Hilliard Annual to 37 cm, shortly glandular-hairy below. Leaves toothed. Flowers in cymules, bilabiate, tube short and inflated above, white with back of tube orange. July–Nov. Mainly sandy flats and slopes, SW, AP (Betty's Bay to Gansbaai).•

minor Diels Minutely glandular-hairy annual to 30 cm. Leaves crowded basally, usually toothed. Flowers in racemes or cymules, somewhat bilabiate, tube short and inflated above, lobes rounded, white with a yellow centre. July–Oct. Stony slopes, NW (Hex River Valley).•

praeterita Hilliard Glandular-hairy annual to 30 cm. Leaves crowded basally, obscurely toothed. Flowers in racemes, tube short and inflated above, white to mauve with a yellow centre. May–Dec. Sandy slopes, NW (Bokkeveld Mtns to Clanwilliam).•

pusilla E.Mey. ex Benth. Minutely glandular-hairy annual to 12 cm. Leaves crowded basally, rounded and mostly entire. Flowers in racemes, bilabiate, tube short and inflated above, lobes very narrow, yellow to brown or maroon. July–Sept. Dry, rocky places in sand, NW, KM (S Namaqualand and W Karoo to Little Karoo). **gce**

C.' Perennials or shrublets

caledonica Hilliard Hairy, somewhat bushy perennial to 75 cm. Leaves sometimes crowded below, usually toothed. Flowers in cymules, tube inflated above, reddish brown to orange. Apr.–Jan. Sandy, calcareous soils, SW, AP (Stanford to Still Bay).•

glandulosa E.Phillips Perennial to 55 cm, shortly hairy below. Leaves narrow, toothed. Flowers in laxly arranged cymules, tube inflated above, lobes narrow, orange to brown. Sept.–Oct. Dry, sandy flats, NW (Gifberg to N Cedarberg).•

laxa Schltr. Erect perennial to 80 cm, hairy below. Leaves greyish, mostly entire. Flowers in racemes or lax cymules, tube inflated above, lobes narrow, brown. Sept.–Oct. Mountain slopes, NW, KM, LB, SE (Klawer to George).•

leiostachys Benth. Perennial to 1.2 m, hairy below. Leaves toothed. Flowers in laxly arranged cymules, tube inflated above, brownish. Sept.–Nov. Rocky mountain slopes, NW, SW (Cedarberg to Du Toitskloof Mtns).•

montana Hilliard Perennial to 45 cm, shortly hairy below. Leaves narrow, sharply toothed. Flowers in laxly arranged cymules, tube inflated above, lobes narrow, brown. Sept.–Dec. Mountain slopes, NW (N Cedarberg).•

obovata Benth. Annual or short-lived perennial to 90 cm, hairy below. Leaves toothed. Flowers in cymules, bilabiate, tube inflated above, yellow to orange with yellow patch in back of throat, turning brown. Aug.–Dec. Sand dunes or coastal scrub, SE (Humansdorp to Port Alfred).

obtusa Hiern Bushy, hairy perennial. Leaves mostly entire. Flowers in crowded cymes, tube inflated above, dull orange. Known only from the type, possibly a hybrid, no other information.•

ovatifolia Hilliard Slender, hairy shrublet to 75 cm. Leaves toothed. Flowers in laxly arranged cymules, tube inflated above, yellowish brown. Oct.–Nov. Rocky sites, NW (Piketberg).•

pillansii Hilliard Minutely hairy shrub to 1 m, stems reddish. Leaves sometimes with blunt teeth. Flowers in racemes or laxly arranged cymules, tube inflated above, lobes narrow, orange. Mar.–Sept. Sandy soils, NW (Lambert's Bay to Clanwilliam).•

rubra (P.J.Bergius) L.f. Glabrescent perennial to 70 cm. Leaves crowded basally. Flowers in laxly arranged cymes, tube inflated above, reddish brown. May–Nov. Sandy flats near the coast, SW (Velddrif to Somerset West).•

stellata Benth. Similar to **M. virgata** and possibly not distinct. NW (Lambert's Bay and Elands Bay).•

thyrsiflora L.f. Densely hairy shrub to 1 m. Leaves toothed. Flowers in bracteate cymules, bilabiate, tube inflated above, greenish to golden-yellow with yellow patch in back of throat, turning brown. Aug.–Oct. Coastal dunes in scrub, SW, AP (Velddrif to Blouberg and De Hoop to Still Bay).•

tomentosa (L.) L. Grey-hairy perennial to 60 cm. Leaves toothed. Flowers in crowded cymes, tube inflated above, orange to brown. Aug.–Dec. Coastal sands, SW, AP (Saldanha Bay to Pearly Beach).•

turritis Benth. Softly hairy perennial to 1 m. Leaves doubly toothed. Flowers in laxly arranged cymules, tube inflated above, brownish yellow to reddish brown. Sept.–Jan. Rocky slopes, NW, SW (Piketberg to Breede River Valley).•

virgata Thunb. Densely hairy, erect shrublet to 45 cm. Leaves toothed. Flowers in lax, delicately arranged cymules, bilabiate, tube inflated above, lobes narrow, yellow with orange patch in back of throat, turning brown. Aug.–Oct. Rocky slopes in scrub, NW (N Cedarberg and Olifants River Mtns).•

MICRODON Choisy (= *AGATHELPIS*) CAT'S-TAIL BUSH, KATSTERTBOS

7 spp., Namaqualand and SW Cape **gce**

A. Stamens 2

dubius (L.) Hilliard (= *Agathelpis angustifolia* Choisy, *A. dubia* (L.) Hutch. ex Wijnands) Densely leafy shrublet to 70 cm. Leaves oblong-linear, bracts ovate, keeled, < half as long as corolla tube. Flowers in a long spike, long-tubed, yellow often with maroon to brown lobes. Mainly Sept.–Jan. Rocky sandstone slopes, NW, SW, AP, KM, LB (Kamiesberg to Ladismith). **gce**

nitidus (E.Mey.) Hilliard (= *Agathelpis nitida* E.Mey.) Densely leafy shrublet to 80 cm with pubescent stems. Leaves long and linear-oblanceolate, bracts ovate, keeled, shiny, > half as long as corolla tube. Flowers in a compact spike, long-tubed, creamy white. Aug.–Sept. Rocky sandstone slopes, SW (Cape Peninsula).•

A.' Stamens 4

capitatus (P.J.Bergius) Levyns (= *Microdon linearis* Choisy) Ericoid shrublet to 60 cm. Leaves fascicled, short, needle-like, bracts large, heart-shaped. Flowers in dense, ovoid heads, white with orange throat. Oct.–Dec. Sandy slopes, NW, SW (Clanwilliam to Cape Peninsula).•

orbicularis Choisy Twiggy shrublet to 30 cm. Leaves narrowly elliptic, bracts large, rounded, papery. Flowers in dense, ovoid heads, white. July–Nov. Rocky sandstone and clay slopes, NW (Bokkeveld Mtns to Olifants River Valley).•

parviflorus (P.J.Bergius) Hilliard (= *Agathelpis parviflora* (P.J.Bergius) Choisy, *Microdon bracteatus* (Thunb.) I.H.Hartley, *M. lucidus* (Vent.) Choisy) Densely leafy shrub to 60 cm. Leaves ovate, imbricate, bracts heart-shaped. Flowers in elongate spikes, white. Sept.–Jan. Shale bands at middle to upper elevations, NW, SW (Cedarberg to Hex River Mtns and Du Toitskloof).•

polygaloides (L.f.) Druce (= *Microdon cylindricus* E.Mey.) Ericoid shrublet to 45 cm. Leaves needle-like, ascending, bracts ovate. Flowers in elongate spikes, white. Sept.–Oct. Rocky sandstone slopes and middle to upper elevations, NW, SW, LB (Gifberg to Swellendam).•

NEMESIA Vent. CAPE SNAPDRAGON, LEEUBEKKIES ± 60 spp., southern Africa

A. Corolla pouched or saccate

acornis K.E.Steiner (= *Nemesia latifrons* Grant *ms*.) Softly hairy, short-lived perennial to 60 cm. Leaves opposite, ovate, sharply toothed, 5-veined from base. Flowers in racemes, saccate, white, lower lip with a yellow palate, upper lobes rounded. Capsules slightly longer than wide. Mainly Aug.–Dec. Sheltered, sandstone outcrops, NW (Piketberg).•

bodkinii Bolus Short-lived perennial to 20 cm. Leaves opposite, elliptic-lanceolate, margins revolute, toothed. Flowers few in racemes, strongly saccate, purple to blackish, lobes rounded, velvety in throat. Capsules longer than wide. Mainly Sept.–Nov., mainly after fire. Sandstone slopes, NW, SW (Bokkeveld Mtns to Hex River Valley).•

glandulosa (E.Phillips) K.E.Steiner *ms*. (= *Diascia glandulosa* E.Phillips) Like **N. strumosa** but flowers blue, sometimes white, lower lip with inflated, black, velvety palate. Sept. Sandstone slopes, NW (Gifberg and Nardouw Mtns).•

leipoldtii Hiern Annual to 30 cm. Leaves opposite, ovate, toothed. Flowers in racemes, saccate, sac sometimes acute, white to mauve with a raised, yellow palate, upper lobes oblong, sepals broadly ovate. Capsules as long as wide. Aug.–Sept. Clay flats, NW (W Karoo and Bokkeveld Mtns). **gce**

picta Schltr. Short-lived perennial to 30 cm. Leaves opposite, lanceolate, toothed. Flowers in lax racemes, deeply and narrowly saccate, red with a raised, dark red palate, throat yellow, hairy, upper lobes oblong. Capsules as long as wide. Sept.–Nov., especially after fire. Rocky sandstone slopes, SW (Bain's Kloof Mtns).•

regalis K.E.Steiner *ms*. Annual like **N. strumosa** but to 1 m and flowers always pink and with a distinctly spurred pouch. Leaves opposite, linear-oblanceolate, margins toothed. Flowers subcorymbose, base of corolla tube yellow or purple, palate red with long, white hairs. Sept.–Oct. Sandveld, SW (Sauer to Hopefield).•

strumosa (Benth.) Benth. Annual to 80 cm. Leaves opposite, linear-oblanceolate to ovate, slightly toothed. Flowers in subumbellate racemes, saccate, throat coarsely hairy, white, yellow, orange, pink, magenta, or red, purple, yellow or mottled purple and yellow in throat, lobes rounded. Capsules longer than wide. Aug.–Oct. Sandveld, SW (Hopefield to Melkbos).•

sp. 1 Annual to 30 cm. Leaves opposite, ovate, toothed. Flowers in racemes, acutely saccate or minutely spurred, purple-blue with a raised, yellow palate, upper lobes oblong. Capsules as long as wide. Aug.–Sept., mainly after fire. Clay slopes, NW (W Karoo to Hex River Pass). **gce**

A.' Corolla spurred
B. Annuals or short-lived perennials or soft shrublets; leaves mostly 3–5-veined from base

acuminata Benth. Diffuse, sprawling perennial to 40 cm. Leaves opposite, ovate, 3–5-veined from base, sharply toothed. Flowers in terminal and axillary, flexuose racemes, pedicels filiform, white to lilac, lower lip with raised, velvety, orange palate, hairy within, upper lobes rounded, spur ± 2 mm long. Capsules triangular. Mainly Oct.–Feb. Sheltered, sandstone slopes often near streams, NW, SW (Cold Bokkeveld to Hottentots Holland Mtns).•

brevicalcarata Schltr. Short-lived, sprawling perennial to 30 cm. Leaves opposite, lanceolate to ovate, toothed, 3–5-veined from base. Flowers in lax racemes, upper lip white with bluish grey lines and lilac reverse, lower lip white with a raised, greenish-yellow palate, palate glabrous, lower corolla tube with raised, medial ridge, spurs ± 2 mm long, capsules as long as wide or sometimes longer than wide. Mainly Oct.–Jan. Fynbos in seasonally damp areas, especially after fire, SW (Tulbagh to Franschhoek Mtns.).•

diffusa Benth. (incl. **N. anfracta** Hiern) Short-lived perennial to 30 cm. Leaves opposite, lanceolate, toothed, 3–5-veined from base. Flowers often in flexuose racemes, lilac with darker veins and a raised, velvety, yellow palate, upper lobes oblong, spur ± 2.5 mm long. Capsules longer than wide. Mainly Sept.–Feb. Sandstone slopes, NW, SW, LB, SE (Cedarberg to Humansdorp).•

elata K.E.Steiner (= *Nemesia petiolina sensu* Cape plants 2000) Like **N. diffusa** but more robust, to 1 m, leaves ovate, sharply toothed, calyx glabrous, flowers ± 9.2–12 mm long, upper lip white

with lilac reverse, lower lip white with raised, white or greyish yellow palate, palate pubescent, spurs ± 3.4–4.1 mm long, basal half lavender to purple, distal half greenish yellow. Moist slopes in gorges and ravines, LB, SE (Langeberg to Outeniqua Mtns).•

fourcadei Grant ex K.E.Steiner Annual to 74 cm. Leaves opposite, ovate, sharply dentate, up to 4.5 cm long, short petiolate, 5-nerved, flowers in short racemes, elongating in fruit, white with yellowish orange, pubescent palate, spurs mostly 3–4.5 mm long. Aug.–Nov. Forest margins in grassy places, sandy loams, SE (Nature's Valley to Witelsbos).•

fruticans (Thunb.) Benth. (= *Nemesia capensis* (Spreng.) Kuntze, *N. foetens* Vent.) Shrublet to 40 cm. Leaves opposite, linear-lanceolate, slightly toothed, margins slightly revolute. Flowers in racemes, pink or lilac with a raised, yellow palate, hairy in throat, upper lobes oblong, spur ± 4 mm long. Capsules as long as or longer than wide. Mainly Sept.–Nov. Stony slopes, KM, LB, SE (widespread in southern Africa).

macrocarpa (Aiton) Druce Short-lived perennial to 40 cm. Leaves opposite, ovate, 3–5-veined from base, sharply toothed. Flowers crowded in upper axils, white to pink, lips subequal, lower lip with a raised, velvety palate, upper lobes rounded, spur ± 2 mm long, sepals leaf-like. Capsules slightly longer than wide. Nov.–Jan. Sheltered slopes and forest margins, SW, LB (Cape Peninsula to Langeberg).•

B.' Annuals; leaves mostly with a single main vein from base
C. Upper corolla lobes linear to narrowly oblong, often white with lower lip yellow

anisocarpa E.Mey. ex Benth. Annual to 40 cm. Leaves opposite, elliptic-lanceolate, slightly toothed. Flowers in racemes, white or pink, sometimes orange, with yellow, lower lip and raised palate, velvety within, upper lobes narrowly oblong, spur ± 3 mm long. Capsules longer than wide, oblique at base. Aug.–Sept. Stony flats, NW, KM (Namaqualand to Bokkeveld Mtns and W Little Karoo). **gce**

bicornis (L.) Pers. Diffuse annual to 80 cm, branching above. Leaves narrowly elliptic-lanceolate, toothed to pinnatifid. Flowers in branched racemes, white to pale lilac with grey veins, lower lip with 4 velvety bosses, upper lobes linear-oblong, spur swollen, ± 4 mm long. Capsules triangular. Mostly July–Sept. Coastal sands, NW, SW, AP (Namaqualand to Still Bay). **gce**

cheiranthus E.Mey. ex Benth. Annual to 40 cm. Leaves opposite, elliptic-lanceolate, slightly toothed. Flowers in racemes, white, sometimes marked purple, with yellow lower lip with a slightly raised palate with 2 velvety bosses, upper lobes linear, elongate, spur 3–5 mm long. Capsules as long as wide. Aug.–Sept. Mainly sandy slopes and flats, NW (Namaqualand: Komaggas and Bokkeveld Mtns to Piketberg). **gce**

ligulata E.Mey. ex Benth. (incl. **N. calcarata** E.Mey. ex Benth., **N. macroceras** Schltr.) Annual to 40 cm. Leaves opposite, elliptic-lanceolate, slightly toothed. Flowers in racemes, white and yellow to orange or blue, sometimes entirely yellow, palate with 2 velvety bosses, upper lobes linear to narrowly oblong, spur curving forward and often blunt or slightly swollen at tip, 6–12 mm long. Aug.–Oct. Sandy slopes and flats, NW, SW, KM (Namaqualand to Bonteberg). **gce**

sp. 2 Sprawling annual to 20 cm. Leaves opposite, ovate to orbicular, distinctly petiolate below, toothed. Flowers axillary and in short racemes, white with a yellow palate and orange spur, lower lip with 2 velvety bosses, upper lobes narrowly oblong, spur ± 3 mm long. Capsules longer than wide. Sept.–Nov. Limestone slopes, AP (Agulhas coast).•

C.' Upper corolla lobes oblong to rounded

affinis Benth. (= *Nemesia versicolor* auct.; incl. **N. floribunda** Lehm., **N. psammophila** Schltr.) Annual to 30 cm. Leaves opposite, elliptic-lanceolate, toothed. Flowers in racemes, white, blue, yellow, sometimes red with a raised, cream-coloured to yellow palate with 2 velvety bosses, upper lobes oblong, spur 3–5 mm long. Capsules as long as to slightly longer than wide. Aug.–Nov. Sandy and granite slopes and flats, NW, SW, AP, KM, SE (S Namibia to E Cape).

barbata (Thunb.) Benth. (= *Nemesia guthriei* Hiern; incl. **N. grandiflora** Diels) Annual to 30 cm. Leaves opposite, ovate, toothed. Flowers in compact racemes, white to cream-coloured with sky-blue to deep purple, lower lip and a raised, hairy palate, upper lobes small, rounded, spur short, obtuse, to 2 mm long. Capsules longer than wide. Aug.–Oct., often after fire. Sandy or loamy flats and slopes, Fynbos and renosterveld, NW, SW, AP, KM, LB (Kamiesberg to Riversdale). **gce**

deflexa Grant ex K.E.Steiner Softly glandular-hairy annual or short-lived perennial to 20 cm. Leaves opposite, broadly ovate, toothed, the lower petiolate. Flowers in racemes, white with red

at base of upper lobes, lower lip with a raised, yellow, rugose palate, spur ± 4.5 mm long. Capsules on deflexed pedicels, slightly longer than wide. Oct.–Mar. Shaded overhangs and slopes, KM, LB, SE (Swartberg and Langeberg to Langkloof).•

gracilis Benth. Slender annual to 25 cm. Leaves opposite, ovate-elliptic, slightly toothed. Flowers in racemes, tiny, yellow to orange with a purple spur, lower lip with 2, raised, velvety bosses, upper lobes minute, oblong, spur ± 2 mm long. Capsules small, triangular. July–Sept. often after fire, Sandstone slopes and sandy flats, fynbos, NW, SW, KM, LB (Nieuwoudtville to Cape Flats to Swellendam and Touws River).•

lucida Benth. Annual to 30 cm. Leaves opposite, ovate, toothed. Flowers in lax racemes, white with purple lines, palate yellow or orange with 2 papillose bosses, upper lobes rounded, spur 0.5–2 mm long. Capsules large, oblong, twice as long as wide. Mainly Aug.–Oct., mainly after fire. Mainly clay and gravel slopes, NW, SW, AP (Ceres: Michell's Pass to Bredasdorp).•

micrantha Hiern Leafy annual to 15 cm. Leaves opposite, lanceolate, slightly toothed. Flowers in racemes, white with grey veins, upper lobes oblong, with spur ± 1 mm long. Capsules ? June–Aug. Wet rocks, SW (Cape Peninsula).• EXTINCT

pageae L.Bolus Annual to 15 cm, sometimes to 40 cm. Leaves opposite, elliptic-lanceolate, toothed. Flowers in racemes, orange with yellow palate, lower lip narrowed proximally, with inflated, velvety boss, upper lobes oblong, spur blunt, 1–2 mm long. Capsules longer than wide. Aug.–Sept. Clay flats and slopes, NW, KM (Worcester and Robertson to Ladismith).•

pinnata (L.f.) E.Mey. ex Benth. Slender annual to 25 cm. Leaves opposite, narrowly pinnatisect. Flowers in racemes, orange-yellow, sometimes white, lower lip with a velvety palate with 2 raised bosses, upper lobes minute, rounded, spur ± 1 mm long. Capsules small, triangular. Aug.–Sept. Seasonally moist, sandy flats. SW, LB (Darling to Cape Peninsula to Riversdale).•

[**Excluded species** Incompletely known and probably conspecific with one of the above: **N. parviflora** Benth.; outside our area: **N. pubescens** Benth.]

OFTIA Adans. LAZY BUSH, SUKKELBOSSIE 3 spp., Namaqualand to S Cape **gce**

africana (L.) Bocq. Sprawling, roughly hairy shrublet with trailing branches to 1 m. Leaves large, 10–40 mm long, toothed. Flowers in axils of upper leaves, white, fragrant. Mainly Sept.–Dec. Rocky sandstone and granite slopes, NW, SW, AP, KM, LB, SE (Bokkeveld Mtns to Uitenhage).•

glabra Compton Sprawling, glabrous shrublet with ascending branches to 50 cm. Leaves small, 7–12 mm long, toothed, spreading. Flowers in axils of upper leaves, white to pale mauve. Sept.–Oct. Rocky sandstone slopes, KM (Witteberg, Anysberg and Warmwaterberg).•

PELIOSTOMUM E.Mey. ex Benth. ± 7 spp., Africa

leucorrhizum E.Mey. ex Benth. Laxly branched shrublet to 25 cm. Leaves linear to narrowly obovate, nearly glabrous. Flowers purplish, anthers long-hairy. Sept.–Mar. Karroid flats, KM (Namaqualand to Botswana and S tropical Africa).

virgatum E.Mey. ex Benth. Laxly branched shrublet to 30 cm. Leaves narrowly ovate, glandular-hairy. Flowers violet, anthers shortly hairy. Aug.–Nov. Stony slopes and flats, NW (S Namibia, Bushmanland and W Karoo to Clanwilliam).

PHYLLOPODIUM Benth. CAPEWORT, OPSLAG 26 spp., Namibia and S Africa, mostly W Cape

A. Flowers in rounded heads

alpinum N.E.Br. (= *Polycarena alpina* (N.E.Br.) Levyns) Hairy perennial. Leaves elliptic-spathulate, thick-textured, glandular-punctate, sometimes toothed. Flowers massed in crowded heads on leafy twiglets, pink, mauve or white. Oct.–Dec. Sandstone slopes, 600–1 750 m, NW, SW (Skurweberg to Riviersonderend Mtns).•

capillare (L.f.) Hilliard (= *Polycarena capillaris* (L.f.) Benth., *P. parvula* Schltr.) Glandular-hairy annual to 26 cm. Leaves elliptic-oblanceolate, slightly toothed. Flowers in compact heads on naked peduncles, tube very short, white. July–Oct. Sandy or stony places below 120 m, NW, SW, AP (Lambert's Bay to Albertinia).•

cephalophorum (Thunb.) Hilliard (= *Polycarena cephalophora* (Thunb.) Levyns) Hairy annual to 30 cm. Leaves oblanceolate, slightly toothed. Flowers many in crowded heads arranged in corymbs, mauve, pink or white. Sept.–Oct. Sandy flats, below 300 m, NW, SW (S Namaqualand to Cape Peninsula). **gce**

cordatum (Thunb.) Hilliard Hairy annual to 30 cm. Leaves mostly basal, ovate-elliptic, toothed. Flowers in small heads elongating into racemes on naked scapes, white or cream-coloured. July–Oct. Sandy or stony places up to 750 m, NW, SW, LB (Bokkeveld Mtns to Albertinia).•

heterophyllum (L.f.) Benth. (= *Polycarena capitata* (L.f.) Levyns, *P. heterophylla* (L.f.) Levyns) Annual to 30 cm. Leaves elliptic, toothed. Flowers in small heads elongating into racemes, cream-coloured to pale yellow with patches of orange at base of upper lobes and inside tube. Aug.–Sept. Sandy flats and slopes, NW, SW, AP (S Namaqualand to Port Beaufort). **gce**

mimetes Hilliard Glandular-hairy annual to 20 cm. Leaves basal, ovate-elliptic, slightly toothed. Flowers in rounded heads on long, naked peduncles, mauve. Sept.–Oct. Sandy soils, NW, SW (Aurora to Mamre).•

phyllopodioides (Schltr.) Hilliard (= *Polycarena selaginoides* Schltr. ex Hiern) Hairy annual to 25 cm. Leaves oblanceolate, slightly toothed. Flowers few to several in crowded heads arranged in corymbs, mauve or rarely white. July–Sept. Sandy flats, below 300 m, NW, SW (S Namaqualand to Saldanha Bay). **gce**

pubiflorum Hilliard Hairy annual to 15 cm. Leaves basal, elliptic-oblanceolate, slightly toothed. Flowers in crowded, solitary heads on long, naked peduncles, finely hairy on outside of tube, yellow. Sept.–Oct. Sandstone slopes, NW (Pakhuis Mtns).•

A.' Flowers in elongated racemes

anomalum Hilliard (= *Polycarena plantaginea* auct.) Minutely glandular-hairy annual to 25 cm. Leaves ovate-elliptic, slightly toothed, grading into floral bracts. Flowers in leafy racemes, white, stamens only 2. July–Sept. Sandy and gravelly places, NW, KM (Namaqualand and W Karoo to Montagu). **gce**

bracteatum Benth. (= *Polycarena bracteata* (Benth.) Levyns) Hairy annual to 30 cm. Leaves elliptic-ovate, toothed, grading into floral bracts. Flowers in lax, leafy racemes, white with orange patch at base of upper lobes. Jan.–Dec. Damp, sandy places, SE (Mossel Bay to KwaZulu-Natal).

caespitosum Hilliard Hairy, tufted, cushion-like annual to 5 cm. Leaves elliptic, slightly toothed. Flowers in heads rapidly elongating into racemes, tube very short, white possibly with yellow patch at base of upper lobes. Sept.–Oct. Rock ledges and shallow basins, 1 200–2 075 m, NW (Cedarberg and Hex River Mtns).•

cuneifolium (L.f.) Benth. (= *Polycarena cuneifolia* (L.f.) Levyns) Hairy annual to 40 cm. Leaves elliptic-ovate, toothed, sharply differentiated from bracts. Flowers in rounded heads rapidly elongating into long racemes, mauve with orange patch at base of upper lobes. Jan.–Dec. Damp, sandy places, SE (Humansdorp to Kentani).

diffusum Benth. (= *Polycarena diffusa* (Benth.) Levyns) Hairy annual to 35 cm. Leaves elliptic-ovate, toothed. Flowers in crowded heads rapidly elongating into lax racemes, white with orange patch at base of upper lobes and violet patch in tube. July–Jan. Sandy grasslands, SE (Uitenhage to King William's Town).

dolomiticum Hilliard Twiggy, glandular-hairy perennial to 30 cm. Leaves elliptic-ovate, slightly toothed. Flowers few in lax racemes, white or light mauve with orange patch at base of upper lobes. Aug. Dolomite hills in low scrub, KM (Swartberg).•

elegans (Choisy) Hilliard (= *Polycarena linearifolia* (Bolus) Levyns, *Selago elegans* Choisy) Glandular-hairy annual or short-lived perennial to 45 cm. Leaves linear-oblanceolate, slightly toothed, often seemingly fascicled below. Flowers in crowded heads rapidly elongating into long spikes, white ?with yellow patch at base of upper lobes. Jan.–Dec. Sandstone slopes, KM, LB, SE (Napier and Montagu to Humansdorp).•

micranthum (Schltr.) Hilliard Glandular-hairy annual to 15 cm. Leaves elliptic-oblanceolate, toothed. Flowers in slender racemes on bare peduncles, tube very short, white or cream-coloured. Sept.–Oct. Rocky sandstone slopes or cliffs, NW, KM (Cedarberg to Anysberg).•

multifolium Hiern (= *Polycarena multifolia* (Hiern) Levyns) Glandular-hairy annual to 37 cm. Leaves ovate-oblanceolate, often seemingly fascicled below. Flowers in crowded heads rapidly elongating into spikes, blue or mauve with yellow patch at base of upper lobes. Sept.–Nov. Mountain scrub, SW, LB, SE (Potberg to George).•

rustii (Rolfe) Hilliard (= *Selago rustii* Rolfe) Glandular-hairy annual to 30 cm. Leaves elliptic, toothed, upper leaves progressively narrower. Flowers in crowded heads rapidly elongating into

somewhat lax racemes, white or mauve with orange patch at base of upper lobes. Aug.–Nov. Loamy or deep sand mostly below 250 m, LB SE (Swellendam to Hankey).•

tweedense Hilliard Like **P. micranthum** but flowers larger, with prominent dark anthers. Sept.–Oct. Sandy slopes, NW, KM (Swartruggens to Tweedside).•

viscidissimum Hilliard Like **P. micranthum** but to 6 cm, bracts glandular-pubescent. Oct. Sandstone ledges, NW (Swartruggens).•

POLYCARENA Benth. CAPE-PHLOX 17 spp., N and W Cape **gce**

A. Perianth tube up to 8 mm long

aurea Benth. Shortly glandular-hairy annual to 20 cm. Leaves narrow and sparsely toothed. Flowers in small, terminal heads, yellow or upper lip white tipped yellow, tube short and glabrous, 3–6 mm long. Sept. Sandy or clay flats and slopes, NW (Bokkeveld Plateau to Ceres and W Karoo). **gce**

exigua Hilliard Glandular-hairy annual to 13 cm. Leaves broad and mostly coarsely toothed. Flowers few in lax racemes, white or cream-coloured with yellow patch at base of upper lobes, reddish on back, shortly salver-shaped, tube short and mostly glabrous, 4–8 mm long. Aug.–Oct. Damp, silt places, NW (Cedarberg).•

formosa Hilliard Glandular-hairy annual to 20 cm. Leaves narrow and mostly toothed. Flowers in terminal heads, cream-coloured to yellow, upper lobes tipped orange and with orange patch at base, tube mostly glabrous, 5–6.5 mm long. Aug.–Sept. Sandy or clay slopes or flats, NW (Bokkeveld to Pakhuis Mtns).•

pubescens Benth. Glandular-hairy annual to 28 cm. Leaves narrow and obscurely toothed. Flowers in small, terminal heads, white with yellow patch in throat, tube short and glabrous, 3.5–5 mm long. July–Sept. Moist, rocky sites, NW, KM (Namaqualand and W Karoo to Montagu). **gce**

rariflora Benth. Glandular-hairy annual to 25 cm. Leaves sparsely toothed. Flowers in lax spikes, often cleistogamous, white or cream-coloured with orange patch at base of upper lobes and lobes often tipped orange, tube short and glabrous, 3–5 mm long. July–Oct. Moist, sandy patches, NW, KM (Namaqualand to Malmesbury, W Karoo to Outeniqua Mtns). **gce**

silenoides Harv. ex Benth. Glandular-hairy annual to 14 cm. Leaves often coarsely toothed. Flowers in spikes, cream-coloured, salver-shaped, tube short and minutely hairy, 6–8 mm long. Aug.–Sept. Granite slopes, SW (Cape Peninsula).•

A.' Perianth tube mostly > 8 mm long

aemulans Hilliard Glandular-hairy annual to 13 cm. Leaves broad and coarsely toothed. Flowers few in lax racemes, often small and autogamous, cream-coloured with yellow patch at base of upper lobes, flushed purple on back and on tube, salver-shaped, tube hairy, 7–16 mm long. Aug.–Oct. Sandy places among rocks, NW (Bokkeveld Mtns to Cold Bokkeveld).•

batteniana Hilliard Glandular-hairy annual to 18 cm. Leaves obscurely toothed. Flowers in terminal heads, cream-coloured to white with yellow patch at base of upper lip, salver-shaped, tube mostly glabrous, 10–17 mm long. Sept. Sandy slopes, NW (Garies to Wuppertal). **gce**

capensis (L.) Benth. Glandular-hairy annual to 28 cm. Leaves narrow and mostly toothed. Flowers in corymbosely arranged heads, cream-coloured to yellow, darker around throat, salver-shaped, tube hairy, 8–14 mm long. Aug.–Oct. Sandy soils, SW (Hopefield to Cape Peninsula).•

gilioides Benth. Glandular-hairy annual to 20 cm. Leaves sometimes coarsely toothed. Flowers in small, terminal clusters, white or cream-coloured with orange patch below upper lobes, flushed purple on back, salver-shaped, tube hairy, 8–25 mm long. Aug.–Oct. Sandy soils, NW, SW (Gifberg to Paarl).•

gracilis Hilliard Glandular-hairy annual to 23 cm. Leaves narrow and coarsely toothed. Flowers in lax racemes, white to cream-coloured with orange patch at base of upper lobes, salver-shaped, tube glabrous, 8–25 mm long. Aug.–Nov. Sandstone slopes, NW (Pakhuis Pass to Piketberg).•

lilacina Hilliard Shortly glandular-hairy annual to 28 cm. Leaves narrow and often toothed. Flowers in corymbosely arranged heads, white or pale mauve with yellow patch at base of upper lip, salver-shaped, tube hairy, 13–16 mm long. Sept.–Oct. Sandy places below 200 m, NW, SW (Piketberg to Bokbaai).•

nardouwensis Hilliard Glandular-hairy annual to 16 cm. Leaves narrow and often toothed. Flowers in small heads, cream-coloured flushed orange in throat, purplish on back, salver-shaped, tube long and hairy, 22–40 mm long. Aug.–Sept. Sandstone slopes, NW (Nardouw Mtns).•

subtilis Hilliard Glandular-hairy annual to 24 cm. Leaves narrow, often toothed. Flowers in small heads, yellow with orange throat, salver-shaped, tube mostly glabrous, 11–26 mm long. July–Sept. Sandy flats, NW (Clanwilliam to Piketberg).•

PSEUDOSELAGO Hilliard• POWDERPUFF 29 spp., SW Cape

A. Corolla tube narrowly cylindric, abruptly expanded above

arguta (E.Mey.) Hilliard (= *Selago arguta* E.Mey.) Perennial to 45 cm, stems narrowly winged. Leaves elliptic, toothed, bracts minutely glandular-hairy beneath. Flowers in loose corymbs, tube narrowly cylindric, upper lip 2-lobed, white or mauve, anthers included. Oct.–Nov. Sandy slopes, NW (Nieuwoudtville to Cold Bokkeveld).•

burmanii (Choisy) Hilliard (= *Selago burmanii* Choisy) Annual to 80 cm. Leaves short, elliptic, adpressed, bracts glabrous. Flowers in compact corymbs, tube narrowly cylindric, upper lip 2-lobed, white or mauve with orange patch. Nov.–Dec. Rocky slopes, NW (N Cedarberg and Olifants River Valley).•

candida Hilliard Annual to 75 cm, hairy below. Leaves narrowly oblanceolate, toothed, subpetiolate, bracts glabrous. Flowers in loose corymbs, tube narrowly cylindric, upper lip 2-lobed, white with orange patch. Sept.–Dec. Stony sandstone slopes, LB (Swellendam to Riversdale).•

densifolia (Hochst.) Hilliard Like **P. subglabra** but densely leafy. Oct.–Dec. Damp slopes, NW, SW (Pakhuis Mtns to Du Toitskloof).•

hilliardiae J.C.Manning & Goldblatt Like **P. burmanii** but leaves longer, deeply toothed and anticous corolla lobe larger. Oct.–Feb. Rocky slopes, NW (Piketberg and Cold Bokkeveld to Hex River Mtns).•

rapunculoides (L.) Hilliard Like **P. subglabra** but completely glabrous. Oct.–Feb. Sandy flats, SW, AP (Cape Peninsula to Pearly Beach).•

subglabra Hilliard Annual to 80 cm. Leaves linear, sometimes toothed, margins often sparsely hairy, bracts glabrous. Flowers in compact corymbs, tube narrowly cylindric, upper lip 2-lobed, white or mauve with orange patch. Oct.–Dec. Sandy slopes, NW, SW (Piketberg and Grootwinterhoek to Hottentots Holland Mtns).•

A.' Corolla tube flared, gradually widening above
B. Upper lip 4-lobed

bella Hilliard Prostrate, deflexed-hairy perennial to 15 cm. Leaves obovate, toothed above, bracts hairy. Flowers crowded in spikes, tube funnel-shaped, upper lip 4-lobed, mauve with orange patch. Jan. Stony slopes, SW, KM (Wemmershoek to Riviersonderend, Hex River Mtns and Swartberg).•

diplotricha Hilliard Glandular-hairy perennial to 75 cm. Leaves ascending, elliptic, toothed, bracts glandular-hairy. Flowers crowded in spikes or panicles, tube funnel-shaped, upper lip 4-lobed, mauve with orange patch. Dec.–Jan. Stony slopes, NW (Hex River Mtns and Kwadouwsberg).•

humilis (Rolfe) Hilliard (= *Selago rudolphii* (Hiern) Levyns) Spreading perennial to 20 cm, hairy below. Leaves obovate, toothed, bracts glabrescent. Flowers crowded in spikes, tube funnel-shaped, upper lip 4-lobed, white with orange patch. Dec.–Feb. Stony slopes, NW (Cedarberg to Cold Bokkeveld Mtns).•

prolixa Hilliard Like **P. humilis** but plants hairy. Leaves sparsely toothed and flowers mauve. Dec.–Apr. Stony slopes, NW (Hex River Mtns).•

prostrata Hilliard Like **P. bella** but smaller with leaves entire or sparsely toothed and flowers white, with corolla tube to 4 mm. Dec.–May. Stony slopes, KM (Klein Swartberg).•

similis Hilliard Glabrescent, sprawling perennial to 50 cm. Leaves ascending, narrowly elliptic, sparsely toothed, bracts sparsely hairy. Flowers crowded in spikes or panicles, tube funnel-shaped, upper lip 4-lobed, mauve with white patch. Dec.–Jan.(–Apr.). Stony slopes, NW (Cedarberg to Hex River Mtns).•

B.' Upper lip 2-lobed

ascendens (E.Mey.) Hilliard (= *Selago ascendens* E.Mey., *S. incisa* Hochst.) Spreading, glabrescent, short-lived perennial to 20 cm, stems narrowly winged. Leaves oblanceolate, toothed, bracts glabrous. Flowers crowded in corymbs, tube funnel-shaped, upper lip 2-lobed, white with orange patch. Mainly Nov.–Jan. Rocky slopes, NW, SW (Cold Bokkeveld to Riviersonderend Mtns).•

caerulescens Hilliard Sprawling, hairy annual to 60 cm, branches narrowly winged. Leaves oblanceolate, toothed, often tufted in axils, bracts glabrous. Flowers in small corymbs in panicles, tube funnel-shaped, upper lip 2-lobed, blue with orange patch. Nov.–Mar. Rocky slopes, SW, LB (Riviersonderend Mtns to Langeberg: Swellendam).•

gracilis Hilliard Like **P. spuria** but stems usually branched. Leaves ascending and not crowded below and flowers typically white. Sept.–Dec. Rocky slopes, NW, SW, AP, LB (Bokkeveld Mtns to Cape Peninsula to Agulhas).•

guttata (E.Mey.) Hilliard (= *Selago guttata* E.Mey.) Like **P. ascendens** but stems erect almost from base with leaves ascending and bracts glandular beneath. Nov.–Jan. Rocky slopes, NW (Pakhuis Mtns to Cold Bokkeveld).•

langebergensis Hilliard Shrublet with narrowly winged, rod-like branches to 50 cm. Leaves narrowly oblanceolate, toothed, often tufted in axils, bracts minutely glandular at base. Flowers in corymbs, tube funnel-shaped, upper lip 2-lobed, mauve with orange patch. Dec.–Mar. Scrub on flats and slopes, KM, LB (Swartberg, Langeberg and Outeniqua Mtns).•

outeniquensis Hilliard Glabrescent annual to 75 cm, stems narrowly winged. Leaves ascending, linear, toothed, often tufted in axils, bracts glabrous. Flowers in loose corymbs, tube funnel-shaped, upper lip 2-lobed, white with orange patch. Jan.–Dec. Flats and slopes, SW, LB, SE (Riviersonderend Mtns to Tsitsikamma Mtns).•

parvifolia Hilliard Glabrous perennial to 90 cm, stems wand-like, narrowly winged. Leaves overlapping, ascending, small, oblong, toothed, bracts glabrous. Flowers in spikes or sparse corymbs, tube funnel-shaped, upper lip 2-lobed, white with orange patch. Nov.–Dec. Stony slopes, NW, KM (Bokkeveld Mtns to Montagu).•

peninsulae Hilliard Like **P. violacea** but leaves toothed only in upper part and flowers white (rarely pale lilac). Sept.–Jan. Upper sandstone slopes, SW (Cape Peninsula: Table Mt and Constantiaberg).•

pulchra Hilliard Stout, leafy perennial to 40 cm, stems with tapering wings. Leaves imbricate, ovate-oblong, toothed, bracts glabrous. Flowers crowded in corymbs, tube funnel-shaped, upper lip 2-lobed, mauve ?with orange patch. Dec.–Jan. Stony slopes, SW (Kleinrivier Mtns to Bredasdorp).•

quadrangularis (Choisy) Hilliard (= *Selago quadrangularis* Choisy) Sparsely hairy ?perennial to 75 cm, stems with tapering wings. Leaves oblanceolate, toothed, bracts glandular-hairy. Flowers crowded in corymbs, tube funnel-shaped, upper lip 2-lobed, white to mauve ?with orange patch. Dec.–Jan. Upper sandstone slopes, NW (Grootwinterhoek and Ceres Mtns).•

recurvifolia Hilliard Tufted perennial to 50 cm, stems rod-like with narrow wings. Leaves recurved, folded, toothed, bracts glandular. Flowers crowded in corymbs, tube funnel-shaped, upper lip 2-lobed, white to mauve with orange patch. Dec.–Feb. Stony slopes, NW, SW (Pakhuis Mtns to Wolseley).•

serrata (P.J.Bergius) Hilliard (= *Selago serrata* P.J.Bergius) Like **P. pulchra** but leaves recurved at ends and sparsely toothed and floral axis glandular-hairy. Sept.–Mar. Stony slopes, SW (Cape Peninsula and Bain's Kloof to Palmiet River Mtns).•

spuria (L.) Hilliard (= *Selago spuria* L.) Sparsely hairy perennial to 75 cm, stems rod-like, narrowly winged. Leaves linear-oblanceolate, toothed above, often tufted in axils, crowded below, bracts glabrous. Flowers in loose corymbs, tube funnel-shaped, upper lip 2-lobed, mauve with orange patch. Aug.–Feb. Slopes and flats, NW, SW (Tulbagh to Hangklip).•

verbenacea (L.f.) Hilliard (= *Selago verbenacea* L.f.) Glabrescent, short-lived perennial to 2 m. Leaves opposite throughout, oblanceolate, toothed, bracts minutely glandular-hairy. Flowers in corymbs, tube funnel-shaped, upper lip 2-lobed, mauve with orange patch. Sept.–Feb. Seeps or streamsides, NW, SW, AP (Hex River Mtns to Agulhas).•

violacea Hilliard Sprawling, glandular-hairy, short-lived perennial to 40 cm, stems narrowly winged. Leaves oblanceolate, toothed, bracts glandular-hairy. Flowers crowded in corymbs, tube funnel-shaped, upper lip 2-lobed, mauve with orange patch. Nov.–Feb. Shaded, rocky slopes, NW (Piketberg, Olifants River Mtns to Ceres).•

SELAGO L. (= *WALAFRIDA*) BITTER BUSH, AARBOSSIE ± 190 spp., southern Africa

(with O.M. Hilliard)

Group 1:
Dwarf shrublets; leaves not tufted; flowers in spikes or racemes, either solitary or in loose panicles, white (mauve in *S. pinea*); calyx 5-fid halfway or more; anthers all well exserted or posterior in mouth

albomontana Hilliard Dwarf, densely branched shrublet. Leaves obtuse, without a mucro. Flowers in racemes, white, posterior anthers included. Aug.–Sept. Rocky slopes, KM (Voetpadsberg and Witteberg).•

aspera Choisy Densely leafy, glandular-hairy, dwarf shrublet. Leaves not tufted, linear, with midrib raised beneath. Flowers in dense, oblong spikes, white. Mostly Sept.–Dec. Dry, flats and slopes, NW, AP, KM, LB (Brandvlei to Gouriqua and Gamkaberg).•

bilacunosa Hilliard Like **S. mundii** but cocci with 2 large lacunae. Oct.–Dec. Dry, sandstone slopes, KM (Voetpadsberg to Swartberg).•

cryptadenia Hilliard Like **S. ramosissima** but leaves spreading to recurved, spikes larger (15–50 × 8–10 mm *vs.* 5–12 × 6–7 mm) and cocci with seed occupying whole loculus. Aug.–Sept. Sandstone and granite slopes, NW, SW (Pakhuis Mtns to Malmesbury).•

cupressoides Hilliard Like **S. triquetra** but leaves small, adpressed, bracts broader and glandular on adaxial surface, often sticking to calyx. Sept.–Oct. Dry, stony slopes, NW (Gydo Pass to Hex River Mtns).•

curvifolia Rolfe Densely leafy, dwarf shrublet to 30 cm. Leaves not tufted, linear, spreading to recurved. Flowers in dense, oblong spikes, white. Mostly Aug.–Nov. Dry, sandstone slopes, NW, KM (Hex River Mtns to Anysberg).•

diffusa Thunb. (= *Selago diosmoides* Rolfe) Dwarf, densely branched shrublet. Leaves not tufted, linear, imbricate. Flowers in loose panicles or spikes, white, calyx baggy and strongly keeled, pair of cocci cohering, bony, subglobose. Oct.–Nov. Coastal slopes, SW, AP (Gansbaai to Still Bay).•

dregeana Hilliard Like **S. glutinosa** but stamens all well exserted. Sept.–Oct. Sandstone slopes, NW (Pakhuis Mtns and N Cedarberg).•

eckloniana Choisy (= *Selago elata* Choisy) Dwarf shrublet to 30 cm, branches with hairs mostly in longitudinal bands and often longitudinally channelled. Leaves not tufted, crowded, linear, glabrous except for sunken glands. Flowers in racemes, distinctly pedicellate, white, bracts nipped below to clasp pedicel, calyx glandular and sticky. Mostly Nov.–Feb. Rocky slopes, NW, SW, KM, LB (Hex River Valley and Hessaquaskloof to Uniondale and W Karoo). **gce**

fruticosa L. (= *Selago fruticulosa* Rolfe in part) Dwarf, divaricately branched shrublet with many, short, lateral branchlets. Leaves not tufted, linear to oblong, often grey-hairy. Flowers in terminal, oblong to rounded spikes congested even in fruit, white, calyx hairs reflexed. Mostly Sept.–Dec. Stony slopes, NW, SW, AP (Olifants River Mtns to De Hoop).•

gloiodes Hilliard Closely leafy shrublet to 40 cm. Leaves not tufted, linear, spreading,. Flowers in crowded spikes, white. Aug.–Oct. Stony slopes, NW, KM (Hex River Mtns to Witteberg and W Karoo). **gce**

glutinosa E.Mey. Dwarf shrublet with adpressed-hairy stems. Leaves not tufted, crowded, linear to terete. Flowers in dense, oblong spikes, white, posterior stamens in mouth or included in tube. Mostly Aug.–Nov. Sandy and stony slopes, NW, KM (Namaqualand to Montagu). **gce**

grandiceps Hilliard Like **S. aspera** but spikes very broad (15–40 × 15–18 mm) and bracts and calyx strongly glandular. Aug.–Oct. Sandstone slopes, SW, LB (Riviersonderend Mtns to Garcia's Pass).•

heterotricha Hilliard Like **S. fruticosa** but branches virgate and lax, spikes elongate, leaves slender with midrib raised beneath, and acute and obtuse patent hairs on calyx. July–Aug. Sandy flats, NW (Graafwater).•

hispida L.f. Densely leafy shrublet to 30 cm. Leaves not tufted, linear, spreading or recurved, strongly hispid. Flowers in dense, oblong spikes, white. Sept.–Nov. Sandstone slopes, NW (Olifants River Mtns to Tulbagh).•

lamprocarpa Schltr. ex Rolfe Dwarf shrublet. Leaves not tufted, linear-lanceolate, spreading, puberulous. Flowers in dense, short spikes, white. Oct.–Jan. Sandstone slopes, NW, KM (Cedarberg to Porterville Mtns and Witteberg).•

morrisii Rolfe Like **S. fruticosa** but branches virgate and lax, and spikes more elongate. Aug.–Sept. Rocky slopes, NW (Namaqualand to Bokkeveld Mtns). **gce**

mucronata Hilliard Dwarf, densely branched shrublet. Leaves terete, almost clavate, tipped with a conspicuous, recurved mucro. Aug.–Sept. Dry, rocky slopes, KM (Witteberg to Klein Swartberg).•

neglecta Hilliard Like **S. ramosissima** but style pubescent and cocci with seed occupying entire loculus. Oct.–Nov. Rocky slopes, SW (Potberg).•

nigrescens Rolfe Like **S. aspera** but more loosely branched, leaves narrower, and bracts and corolla tube shorter. Oct.–May. Sandstone slopes, SW, LB, SE (Riviersonderend Mtns to Plettenberg Bay).•

oresigena Compton Like **S. lamprocarpa** but stems minutely globular-glandular, leaves larger (1.4–2.8 mm *vs.* 0.7–1.2 mm wide) and posterior anthers in mouth of tube or shortly exserted. Mostly Dec.–Feb. High rocky slopes, NW (Cedarberg to Grootwinterhoek Mtns).•

perplexa Hilliard Like **S. lamprocarpa** but posterior anthers included or barely exserted, leaves short, spreading. Mostly Sept.–Dec. Stony slopes, NW, KM (Grootwinterhoek to Witteberg and Langeberg).•

pinea Link (= *Selago spinea* orth. var.) Densely leafy shrublet to 45 cm. Leaves not tufted, crowded, linear, hispidulous. Flowers in dense, oblong spikes, mauve. Nov.–Dec. Coastal slopes and flats, SW, AP (Kleinmond to Arniston).•

pustulosa Hilliard Like **S. glutinosa** but leaves pustulate. Mainly Sept.–Nov. Sandstone slopes, NW (Cedarberg and Cold Bokkeveld Mtns).•

ramosissima Rolfe Dwarf, closely branched shrublet. Leaves not tufted, crowded, adpressed, linear, 2–4 mm long. Flowers on short spikes crowded together, white, calyx shaggy, cocci broad, with bony tissue filling one-third of the volume. Sept.–Dec. Clay flats, SW, LB (Riviersonderend to Great Brak River).•

scabribractea Hilliard Like **S. glutinosa** but stems with spreading, glandular hairs, bracts and calyx with broad-based, gland-tipped and acute hairs on outside. Sept.–Oct. Stony slopes, NW, SW (Namaqualand and W Karoo to Pakhuis Mtns and St Helena Bay).•

thomii Rolfe Like **S. ramosissima** but bracts and calyx less hairy and cocci with seed occupying entire loculus. Mostly Dec.–June. Stony slopes, NW, SW, AP, KM, LB, SE (Hermanus and Hex River Valley to Avontuur).•

trichophylla Hilliard Like **S. ecklonii** but leaves with long hairs and bracts with long, coarse hairs on outside (*vs.* hairs mostly on margins).?. Stony slopes, NW, KM (Grootwinterhoek Mtns to Witteberg).•

triquetra L.f. Dwarf shrublet with virgate branches. Leaves not tufted, linear-oblong, spreading, usually shortly grey-hairy. Flowers in long, narrow spikes, solitary at tips of lateral branchlets, white. July–Oct. Sandstone slopes, NW, SW, KM (Piketberg to Montagu).•

valliscitri Hilliard Like **S. triquetra** but leaves terete, to 0.3 mm diam., flowers distinctly pedicellate and bracts narrower. Aug.–Sept. Rocky sandstone slopes, NW (Cold Bokkeveld Mtns).•

Group 2:
Dwarf shrublets or subshrubs; leaves various; inflorescence a dense spike or raceme, often solitary, or in corymbs or panicles; calyx divided at least halfway into 5 (or 3) narrow, acute, subequal lobes; corolla white; anthers shortly exserted, posterior ones often included

cedrimontana Hilliard Like **S. mundii** but branches with spreading, glandular hairs, primary leaves mostly 1.5–2.2 mm long (*vs.* 0.8–1.2 mm). Jan.–Feb. Sandstone slopes at high alt., NW (Cedarberg and Cold Bokkeveld Mtns).•

glandulosa Choisy Dwarf shrublet to 40 cm. Leaves tufted, linear, margins closely revolute. Flowers in dense spikes, often several at branch tips, white. Mainly Oct.–Apr. Limestone and clay slopes, AP, LB (Arniston to Albertinia).•

impedita Hilliard Like **S. scabrida** but loosely branched with weak stems, leaves glabrous or hairy only on margins, not in tufts, and spikes usually solitary. Nov.–Feb. Sandstone slopes, SW (Wemmershoek Mtns to Kogelberg).•

levynsiae Hilliard (= *Selago scabrida* auct.) Like **S. scabrida** but branches divaricate, leaves loosely tufted and blades mostly wider (1.2–2 mm *vs.* 1–1.3 mm). Mainly Jan.–Mar. Stony slopes, SW (Cape Peninsula to Shaw's Mtns).•

micradenia Hilliard Like **S. mundii** but branching divaricate, leaves spreading, bracts and calyx minutely glandular and corolla lobes shorter and minutely puberulous. Nov.–Dec. Stony slopes, NW (Nardouwsberg to Cold Bokkeveld).•

mundii Rolfe Slender, closely leafy shrublet to 1 m, branches with retrorse, often grey hairs in decurrent lines. Leaves not tufted, ascending, ± spreading above, oblanceolate to linear, glaucous or minutely grey-hairy. Flowers in dense, capitate to oblong spikes, white, corolla hairy, bracts and calyx minutely glandular. Sept.–Nov. Stony slopes, NW, SW (Grootwinterhoek to Elandskloof Mtns).•

oppositifolia Hilliard Dwarf shrublet. Leaves tufted, opposite and decussate. Flowers in dense spikes, white. Nov.–Dec. Rocky slopes, KM (Swartberg: Seweweekspoort).•

polystachya L. Densely leafy shrublet to 60 cm, young stems with recurved hairs but leaf bases decurrent into ± glabrous wings. Leaves tufted, linear-oblanceolate. Flowers in short, oblong spikes, white. Oct.–Mar. Rocky slopes, SW (Saldanha to Gansbaai).•

praetermissa Hilliard Like **S. psammophila** but flowering spikes only to 25 × 15 mm (*vs.* 30–40 × ± 12 mm) and glandular hairs few, only at base of outside of bracts. Sept.–Oct. Rocky slopes, NW (Bokkeveld Mtns to N Cedarberg).•

prostrata Hilliard Like **S. setulosa** but stems divaricately branched, primary leaves reflexed and with weakly developed, white scales and flowers in spikes 30–35 mm long (*vs.* 10–15 mm long). Feb.–Mar. Limestone slopes, AP (Bredasdorp Poort).•

psammophila Hilliard Like **S. polystachya** but stems hairy all around, leaves not or scarcely tufted, bracts with coarse hairs covering minute glands and corolla often densely hairy. Nov.–Dec. Stony slopes, NW, SW (Aurora to Blouberg).•

scabrida Thunb. (incl. **S. cylindrica** Levyns) Densely leafy, virgately branched shrublet to 45 cm, with adpressed-hairy stems. Leaves tufted, oblong. Flowers in narrow spikes mostly clustered in corymbose panicles, white. Mostly Oct.–Mar. Rocky slopes, SW, AP, LB (Cape Peninsula to Swellendam).•

seticaulis Hilliard Like **S. levynsiae** but with long, coarse, spreading hairs on stems, leaves, bracts and calyx, and corolla minutely glandular on reverse. Mainly Sept.–Oct. Stony slopes, SW, AP (McGregor to Agulhas).•

setulosa Rolfe Dwarf shrublet, stems with long, patent hairs. Leaves tufted, ovate, hispid mainly on margins, often with numerous white scales. Flowers in spikes 10–15 mm long, white. Oct.–Nov. Limestone hills, AP (Hagelkraal to Mossel Bay).•

Group 3:
Dwarf shrublets; leaves tufted, glabrous, ericoid; flowers in dense spikes or racemes, solitary or arranged in corymbose or elongate panicles, white; calyx divided more than halfway into 5 subequal lobes; anthers mostly all well exserted (posterior ones in mouth or shortly exserted in *S. brevifolia, S. karooica, S. nigromontana*)

brevifolia Rolfe Densely leafy shrublet to 30 cm, branches with coarse, patent hairs. Leaves tufted, oblong, fleshy, glossy, apiculate. Flowers in short, oblong spikes, white, bracts and calyx hairy, cocci deeply concave on inner face. Mostly Oct.–Nov. Sandstone slopes, KM, LB (Langeberg: Riversdale to Kammanassie Mtns).•

dolichonema Hilliard Like **S. venosa** but filaments very long in relation to corolla tube, thus anthers strikingly exserted, bracts narrower (0.6–1 mm *vs.* 1.2–2 mm), hairy towards adaxial base and veins not raised. Nov.–Dec. Rocky sandstone slopes, NW (S Cedarberg).•

esterhuysenii Hilliard Like **S. nigromontana** but primary leaves 0.8–1.1 mm wide (*vs.* 1.5–2 mm) and minutely glandular-hairy, corolla tube 2.2–3 mm long (*vs.* 4–6 mm), bracts minutely glandular, longer than calyx. Mar.–Apr. Sandstone slopes at high alt., KM (Klein Swartberg: Towerkop).•

glomerata Thunb. Densely leafy shrub to 1 m, with shortly pubescent branches, hairs ± recurved. Leaves tufted, linear-oblong, glossy, glabrescent. Flowers in spikes aggregated in corymbose panicles, white, bracts glabrous, with sunken veins, cocci deeply concave on adaxial surface. Mostly Sept.–Mar. Sandstone slopes, SE (Outeniqua to Great Winterhoek Mtns).•

karooica Hilliard Like **S. glomerata** but habit lax, spikes solitary or few in lax clusters, bracts longer and with veins on outside raised, and anthers barely exserted or included. Nov.–Dec. Rocky slopes, KM, SE (Witteberg to Kouga Mtns).•

luxurians Choisy (= *Selago dregei* Rolfe) Densely leafy shrublet to 40 cm, branches with coarse, patent hairs. Leaves tufted, linear-oblong, thick, apiculate. Flowers crowded in short spikes arranged in well-branched, corymbose panicles, white, inner face of cocci plane with a median groove. Nov.–Feb. Rocky slopes, KM, LB, SE (Swartberg and Swellendam to Port Elizabeth).•

mediocris Hilliard Like **S. glomerata** but leaves narrower, the primary up to 0.6–1 mm wide (*vs.* 0.8–2 mm), bracts usually longer than calyx (not shorter) and cocci with interior face plane. Mainly Apr.–May. Rocky slopes, SE (Baviaanskloof Mtns to E Cape: Zuurberg).

myriophylla Hilliard Like **S. venosa** but flowering branchlets closely leafy, bracts ± 0.9 mm wide (*vs.* 1.2–2 mm) and corolla and filaments slightly shorter. Oct.–Nov. Sandstone slopes, KM, LB, SE (Witteberg and Langeberg to Kouga Mtns).•

nigromontana Hilliard Like **S. luxurians** but primary leaves mostly longer (3.5–9.5 mm *vs.* 2.4–4.5 mm), and bracts larger and glabrous abaxially. Dec.–Jan. Rocky sandstone slopes, KM (Groot Swartberg).•

parvibractea Hilliard Like **S. glomerata** but bracts mostly smaller, to 1 mm wide and calyx shorter and lobes obtuse. Jan.–Feb. Sandstone slopes, SW, AP, KM (W Little Karoo to Napier and Mossel Bay).•

rubromontana Hilliard Like **S. brevifolia** but leaves obtuse to subacute, thinner, bracts glabrous on outside or minutely hairy at base, cocci plane on inner surface. Aug.–Sept. Stony lower slopes, KM (Rooiberg).•

venosa Hilliard Like **S. glomerata** but leaves and bracts with raised veins beneath (not sunken), bracts sticky and cocci almost flat on inner surface. Jan.–Feb. Sandstone slopes, NW, SW (Bokkeveld Mtns to Riviersonderend).•

Group 4:
Dwarf shrublets; leaves in loose to tight tufts, primary leaves often fairly broad; flowers in congested or lax racemes, solitary or in panicles, white or shades of blue to violet or pink; calyx often lobed to about halfway, mostly 3-lobed or irregularly 3–5-lobed; anthers all well exserted

chalarantha Hilliard Twiggy shrublet to 30 cm. Leaves tufted, linear. Flowers in spikes, usually on distinct peduncles, often only female, white, bracts long and recurved, staminodes well exserted, calyx irregularly 3–5-lobed. Aug.–Sept. Stony flats in renosterveld, NW (Bokkeveld Plateau).•

linearifolia Rolfe Loosely branched shrublet to 30 cm. Leaves tufted, linear, puberulous. Flowers in small, compact panicles, white. July–Sept. Stony slopes, NW (Olifants River Valley: Bulshoek).•

pinguicula E.Mey. Twiggy shrublet to 40 cm, with glabrescent branches. Leaves in loose tufts, oblanceolate, margins slightly revolute. Flowers in short, compact, rounded racemes, white, calyx inflated, including at least half the corolla tube, bracts pouched, wrinkled at base. Aug.–Oct. Stony, clay soils in renosterveld, NW (Namaqualand and Karoo to Hex River Valley). **gce**

polygala S.Moore Glabrescent shrublet to 40 cm. Leaves tufted, lanceolate, primary ones 2–5 mm wide. Flowers in dense racemes, white, calyx with scattered, minute glands on outside. July–Sept. Stony, karroid slopes, NW (W Karoo to Hex River Valley). **gce**

Group 5:
Dwarf shrublets or subshrubs; leaves not tufted, relatively broad; flowers in congested spikes sometimes arranged in loose panicles, white, violet or pink; calyx deeply 3-lobed, one or both lateral lobes bifid; anthers all well exserted or posterior ones included or shortly exserted

ciliata L.f. (= *Walafrida ciliata* (L.f.) Rolfe) Densely leafy shrublet to 60 cm. Leaves not tufted, crowded, ovate-lanceolate, prominently ciliate. Flowers in crowded, oblong spikes, mauve or white. Mostly Apr.–Sept. Gravel flats and lower slopes, SW, LB (Caledon to Little Brak River).•

elsiae Hilliard Like **S. myrtifolia** but stems hairy all around, leaves with upcurved hairs on margins and midline, flowers mauve and ovary glabrous in upper half. Mar.–Apr. Rocky slopes, SE (Great Winterhoek Mtns).•

myrtifolia Rchb. (= *Selago nitida* (E.Mey.) Schltr., *Walafrida myrtifolia* (Rchb.) Rolfe) Twiggy shrublet to 70 cm, branches with hairs in longitudinal bands. Leaves not tufted, ovate, leathery, glandular-punctate, sometimes hairy on margins. Flowers in dense, ovoid spikes, magenta-pink, corolla tube unusually long, cocci with 2, large, spurious cells. Mainly July–Nov. Stony slopes, SE (Langkloof to Port Elizabeth).•

recurva E.Mey. (= *Walafrida recurva* (E.Mey.) Rolfe Divaricately branched shrublet to 60 cm. Leaves not tufted, linear-lanceolate, recurved apically, margins hispid. Flowers in ovoid spikes, mauve or white. Apr.–Sept. Gravel flats and lower slopes, SE (Langkloof to Alexandria).

zeyheri Choisy (= *Walafrida zeyheri* (Choisy) Rolfe) Densely leafy shrublet to 35 cm, branches pubescent. Leaves not tufted, linear-oblong, fleshy, recurved at tip. Flowers in short, dense spikes, mauve. Nov.–Mar. Dry flats, SE (Port Elizabeth to E Cape).

Group 6:
Subshrubs; leaves tufted; flowers in large, congested spikes either solitary or in loose panicles, white or violet; calyx deeply 3-lobed, 2-lobed in *S. congesta*; posterior anthers included or shortly exserted, anterior anthers well exserted

cinerea L.f. (= *Walafrida cinerea* (L.f.) Rolfe) Densely leafy shrublet to 75 cm, branches puberulous. Leaves tufted, linear-oblong, glaucous or grey-hairy. Flowers in dense, corymbose panicles, mauve or white. Aug.–Jan. Gravel or limestone slopes and flats, AP, KM, LB, SE (Swartberg and De Hoop to East London).

congesta Rolfe Dwarf shrublet. Leaves tufted, elliptic-lanceolate, hairy only on margins of clasping base. Flowers in congested, mostly solitary spikes, white, calyx deeply 2-lobed, bracts lanceolate, concave, with stiff hairs on margins and base. ?. ?, SE (Langkloof to Port Elizabeth).•

decipiens E.Mey. (= *Walafrida decipiens* (E.Mey.) Rolfe) Sprawling, finely leafy shrublet to 60 cm, branches minutely puberulous. Leaves tufted, linear-oblong. Flowers in short spikes aggregated in corymbose panicles, mauve or white. Aug.–Dec. Gravel flats, SE (Uitenhage to Grahamstown).

polycephala Otto ex Walp. Subshrub to 30 cm. Leaves tufted, linear. Flowers in dense spikes, ?white, bracts linear-lanceolate with recurved tips. ?. ?, SE (Uitenhage to Port Elizabeth).•

rotundifolia L.f. (= *Walafrida rotundifolia* (L.f.) Rolfe) Densely leafy shrublet to 60 cm, branches puberulous. Leaves tufted, oblong to rounded, glaucous. Flowers in short spikes arranged in dense panicles, white or mauve. Aug.–Mar. Grassy flats, SE (Knysna to Port Elizabeth).•

Group 7:
Dwarf shrublets or subshrubs; leaves usually tufted; flowers in racemes arranged in elongate or corymbose panicles, usually mauve, sometimes white (*S. pulchra*); calyx either 5-lobed in upper half, tending to be 3-lobed, or 3-toothed; lateral lobes sometimes bifid; anthers all well exserted

adenodes Hilliard Like **S. pulchra** but lowermost bracts 3–4 × 1.4–2.3 mm (*vs.* 2.3–3 × 1–1.3 mm), obtuse, with minute, glandular hairs on both surfaces, and cocci without spurious cells. Sept.–Nov. Sandstone slopes, KM (Swartberg).•

burchellii Rolfe (= *Selago pubescens* Rolfe) Densely leafy shrub to 50 cm, with branches pubescent, mainly in decurrent lines. Leaves tufted, lanceolate, minutely puberulous. Flowers in small heads forming compact, narrow panicles, mauve or white. Mostly Aug.–Jan. Coastal slopes and flats, SE (George to Plettenberg Bay).•

canescens L.f. (= *Selago forbesii* Rolfe, *S. ramulosa* E.Mey., *S. thunbergii* Choisy) Densely leafy shrublet to 50 cm, with puberulous branches. Leaves tufted, linear-lanceolate, minutely puberulous. Flowers in small, round heads forming narrow, compact panicles, mauve. Mostly July–Sept. Dry, mostly clay slopes, SW, AP, LB, SE (Bellville to Port Elizabeth).•

lilacina Hilliard Like **S. canescens** but leaves broader, and flowers few in small heads arranged in lax panicles, lilac. Sept.–Apr. Rocky slopes, KM, SE (Kammanassie Mtns and Langkloof).•

pulchra Hilliard Like **S. canescens** but leaves broader, panicles shorter, flowers white, calyx 3-lobed, bracts glabrous except for minute hairs on margins and cocci with 2 spurious cells. Aug.–Apr. Rocky sandstone slopes, KM, SE (Swartberg, Rooiberg and Outeniqua Mtns).•

villicaulis Rolfe Densely leafy shrublet to 45 cm, with villous branches. Leaves tufted, linear, puberulous. Flowers in compact racemes arranged in rounded panicles, mauve. Apr.–Oct. Limestone and sandy slopes, AP, SE (Still Bay to Knysna).•

Group 8:
Dwarf shrublets; leaves usually tufted; flowers white or mauve, in spikes or racemes either solitary or in loose panicles; calyx mostly obliquely 5-lobed in upper half, or irregularly 3–5-lobed; anthers all well to far exserted

acocksii Hilliard (= *Selago zeyheri* Rolfe) Densely leafy, minutely puberulous shrublet to 30 cm. Leaves tufted, oblong, minutely glandular throughout. Flowers in oblong spikes, white, bracts minutely glandular and with few to many, acute hairs. Feb.–Oct. Dry, stony slopes, NW, KM (W Karoo and Swartberg to Karoo and Free State).

articulata Thunb. (= *Walafrida loganii* Hutch.) Finely leafy, dwarf shrublet to 20 cm. Leaves tufted, needle-like, spreading. Flowers in short spikes, white to pale mauve. Sept.–Oct. Stony flats and slopes, NW (Bokkeveld Mtns and W Karoo). **gce**

distans E.Mey. (= *Walafrida distans* (E.Mey.) Rolfe) Densely leafy shrublet to 30 cm. Leaves in loose tufts, linear, glandular-punctate, often becoming viscid, margins thickened. Flowers in short spikes, white, calyx with minute, globular glands. Apr.–Sept. Sandstone slopes, KM (S Karoo, Witteberg and Anysberg). **gce**

exigua Hilliard Minutely glandular-pubescent shrublet to 30 cm. Leaves tufted, linear, puberulous. Flowers in narrow, mostly solitary spikes, ?white. Jan.–Feb. Sandstone slopes, KM (Swartberg).•

ferruginea Rolfe Finely leafy, densely glandular shrublet to 30 cm. Leaves tufted, oblong, hispidulous. Flowers in oblong to elongate spikes, mauve. Sept.–Oct. Gravel flats, KM, SE (Little Karoo to George).•

fourcadei Hilliard Densely leafy shrublet to 30 cm. Leaves in loose tufts, linear, minutely glandular-punctate, margins thickened. Flowers in short spikes, purple or whitish flushed mauve. Sept.–Nov. Stony slopes, SE (Witteberg and Swartberg to Avontuur and Karoo).

geniculata L.f. (= *Walafrida geniculata* (L.f.) Rolfe) Grey-hairy, finely leafy shrublet to 60 cm. Leaves tufted, linear. Flowers in elongate, narrow spikes, violet, sometimes white, calyx 3–5-lobed, bracts with abruptly acute to shortly acuminate, recurved tips. Nov.–Apr. Stony slopes and flats, NW, KM, LB, SE (Hex River Valley to E Cape and Free State).

thermalis Hilliard Finely leafy shrublet to 40 cm, with short, divaricate branchlets each ending in a broad spike, stem hairs in longitudinal bands. Leaves not or scarcely tufted, linear, glabrescent except for globular or sunken glands. Flowers in short, subcapitate spikes on leafy, divaricate branches, white. June–July. Rocky flats, SW, KM (Worcester Karoo to Warmwaterberg).•

Group 9:
Dwarf shrublets or subshrubs; leaves tufted, ericoid; flowers in small spikes or racemes either solitary or in loose panicles, white or mauve; calyx obliquely 3- or 5-lobed, sometimes irregularly 3–5-lobed; anthers all exserted

confusa Hilliard Like **S. gracilis** but primary leaves longer and broader, spikes arranged in narrow panicles. Nov.–Feb. Stony slopes, SE (Hankey to Fort Beaufort) .

gracilis (Rolfe) Hilliard (= *Walafrida gracilis* Rolfe, *W. pubescens* Rolfe, *W. squarrosa* Rolfe) Sprawling, finely leafy shrublet to 30 cm. Leaves tufted, linear, puberulous. Flowers in short, oblong spikes, either solitary at tips of leafy branchlets or branchlets forming panicles, white. Mostly June–Nov. Gravel slopes, NW, SW, KM, LB, SE (Caledon and Hex River Valley to Port Elizabeth).•

linearis Rolfe Densely leafy shrub to 30 cm. Leaves tufted, linear, glabrous. Flowers in short, terminal spikes, mauve, bracts sparsely hairy on lower margins. Mostly Nov.–Jan. Along streams, LB, SE (Langeberg: Attaquas Kloof to Port Elizabeth).•

Group 10:
Dwarf shrublets or subshrubs; leaves tufted, often ericoid; flowers in a long, narrow panicle of small, globular spikes or racemes, white or shades of violet; calyx mostly 5-lobed, rarely irregularly 3–5-lobed; anthers all well exserted

albida Choisy Finely pubescent to velvety shrublet to 40 cm. Leaves in tufts, linear. Flowers in notably pedunculate racemes forming loose panicles, usually shades of violet, bracts narrow. Mainly May–Sept. Stony, karroid slopes, NW, KM (Worcester and Little Karoo to Free State and Great Karoo).

capituliflora Rolfe (= *Selago albida sensu* Rolfe *p.p.*) Like **S. albida** but leaves, bracts and calyx much less hairy and flowers in large, lax panicles. Aug.–Sept. Rocky slopes, NW (Bokkeveld Mtns to Piketberg).•

divaricata L.f. (= *Selago albida sensu* Rolfe *p.p.*, *S. minutissima* Choisy) Twiggy, divaricately branched, sometimes lax, minutely puberulous shrublet to 60 cm, with pale bark. Leaves tufted, linear-oblong, sometimes glabrescent, primary leaf much larger and strongly reflexed. Flowers in small, rounded clusters, axes becoming spiny, white to violet. Mostly Sept.–Dec. Stony slopes and flats, KM (S Namibia to Little Karoo and E Cape).

glabrata Choisy Densely leafy, virgate shrublet to 35 cm. Leaves tufted, linear, calyx 3–5(–6)-lobed. Flowers in dense spikes arranged in narrow, lax panicles, white, calyx 5-lobed. Sept.–Oct. Stony slopes in renosterveld and karroid scrub, NW, SW, KM (Namaqualand to Worcester and Little Karoo). **gce**

inaequifolia Hilliard Like **S. multiflora** but branching virgate, hairs on stem spreading and primary leaves 8–20 mm long (*vs.* 2.5–8 mm). Aug.–Oct. Sandy flats, NW, ?SW (Klawer, ?Langebaan).•

michelliae Hilliard Like **S. singularis** but leaves, stems, bracts and calyx with shaggy, simple hairs, leaf margins plane, flowers white and calyx irregularly 3–5-lobed. Sept.–Oct. Rocky slopes, NW (Hex River Mtns). •

multiflora Hilliard Like **S. divaricata** but bark dark, leaves markedly pilose and glandular-punctate, larger bracts 2.2–3.2 mm long (*vs.* 1.4–2.4 mm) and corolla tube longer (2.3–3.8 mm *vs.* 1.3–2.4 mm). Sept.–Nov. Sandstone slopes, NW (Namaqualand to Hex River Valley and Bonteberg). **gce**

singularis Hilliard Like **S. albida** but stems with branched (not simple) hairs on young branches, primary leaves 2–7 mm long (*vs.* 6–15 mm), velvety, margins strongly revolute, and corolla tube shorter than 3 mm. Sept.–Oct. Rocky slopes, NW (Cedarberg to Karoo Poort).•

stenostachya Hilliard Like **S. inaequifolia** but with branches with retrorse hairs, leaves glandular-punctate and sparsely hairy. Aug.–Sept. Stony slopes, NW (S Namaqualand and Bokkeveld Mtns to Klawer). **gce**

Group 11:
Shrublets; leaves tufted and ericoid; flowers in corymbose panicles, white; calyx shallowly and subequally 5-toothed (irregularly 3–5-lobed in *S. variicalyx*); anthers mostly well exserted

corymbosa L. Densely leafy shrub to 60 cm, with pubescent branches. Leaves tufted, linear, the primary 5–15 × 0.5–1 mm, margins revolute, puberulous to subglabrous. Flowers in rounded, corymbose panicles, white, calyx subequally and obtusely 5-toothed, bracts narrow, obtuse, the lowermost 0.4–0.7 mm wide. Mostly Feb.–Apr. Stony slopes and flats, NW, SW, KM, SE (Cape Peninsula and Gydo Pass to Hankey).•

dolosa Hilliard Like **S. corymbosa** but leaves glabrous, shorter, relatively broader, the primary 2–7 × 0.5–1.2 mm and broader bracts, the lowermost 0.7–1.25 mm wide. Mainly Sept.–Mar. Stony and gravelly slopes, SW, AP, LB, SE (Hottentots Holland Mtns to Karoo and Transkei).

variicalyx Hilliard Like **S. corymbosa** but major bracts larger, acute, 0.8–1.1 mm wide (*vs.* 0.4–0.7 mm) and calyx acutely and irregularly 3–5-lobed. Sept.–Dec. Stony slopes, SE (Van Staden's Mtns to Grahamstown).

SUTERA Roth (see also **CHAENOSTOMA**) SKUNK BUSH, STINKBOSSIE
3 spp., S Africa

foetida Roth Minutely glandular annual to 60 cm, foetid, leafy throughout. Leaves coarsely serrate. Flowers in racemose or paniculate cymules, tube narrowly funnel-shaped, white, pink or violet with orange throat. July–Dec. Damp, sheltered spots, often below rocks, NW, SW, KM, LB, SE (Kamiesberg to Malmesbury and east to Kouga Mtns). **gce**

TEEDIA Rudolphi 2 spp., Namaqualand to Swaziland

lucida (Sol.) Rudolphi Sprawling shrublet to 1.2 m. Leaves with winged petioles, finely toothed, shiny. Flowers mauve. Sept.–Jan. Rocky outcrops at middle to upper elevations, NW, SW, AP, KM, LB, SE (Namaqualand to Swaziland).

pubescens Burch. Shrublet to 60 cm, stems densely hairy. Leaves toothed. Flowers pink or mauve. Sept.–Nov. Rock outcrops at middle to upper elevations, NW, SW, KM, LB, SE (Gifberg to Kouga Mtns).•

TRIEENEA Hilliard 10 spp., SW Cape and Karoo, mostly Cedarberg

elsiae Hilliard Glandular-hairy ?annual. Leaves opposite below becoming alternate above. Flowers in rounded heads on naked peduncles, tube short and glandular-hairy, white with orange patch at base of upper lobes and down back of tube. Oct.–Dec. Sheltered, upper sandstone slopes, NW (S Cedarberg and Cold Bokkeveld Mtns).•

frigida Hilliard Glandular-hairy ?annual. Leaves opposite. Flowers in lax racemes, tube short and minutely glandular-hairy, colour unknown. Jan.–Feb. Sheltered, upper sandstone slopes, NW (Cold Bokkeveld Mtns).•

glutinosa (Schltr.) Hilliard (= *Polycarena glutinosa* (Schltr.) Levyns) Glandular-hairy annual or short-lived perennial. Leaves opposite becoming alternate above and passing into bracts. Flowers in heads elongating into racemes, tube glandular-hairy, white to pale mauve with 2 orange patches at base of upper lobes. Mainly Sept.–Dec. Sheltered, upper, sandy, peaty slopes from 1 500–2 100 m, NW, KM, SE (Gifberg to Great Winterhoek, Nieuweveld Mtns to Sneeuberg).

lanciloba Hilliard Glabrous shrublet to 20 cm. Leaves opposite. Flowers in round heads, white or cream-coloured with orange patch at base of upper lobes and down back of tube. Dec.–Jan. Sheltered, upper sandstone slopes, NW (N Cedarberg).•

lasiocephala Hilliard Hairy shrublet to 30 cm. Leaves opposite. Flowers in rounded heads, minutely glandular-hairy, white or cream-coloured with orange at base of upper petals and down back of tube. Dec.–Jan. Sheltered, upper sandstone slopes, NW (N Cedarberg).•

laxiflora Hilliard Shrublet to 45 cm, glandular-hairy on inflorescence axes. Leaves opposite. Flowers in lax heads arranged in open, corymbose panicles, mauve with orange at base of upper petals and on back of tube. Dec.–Jan. Sheltered, upper sandstone slopes, NW (N Cedarberg).•

longipedicellata Hilliard Glandular-hairy perennial with sprawling, rooting branches. Leaves opposite becoming alternate above and passing into bracts. Flowers solitary in upper axils on long pedicels, tube short and glandular-hairy, white with orange patch at base of lower lobes and down back of tube. Mainly Nov.–Feb. Damp places under sandstone overhangs, SW (Paarl to Genadendal).•

occulta J.C.Manning & Goldblatt Glandular-hairy perennial or soft shrublet to 45 cm. Leaves opposite. Flowers in lax, leafy racemes or panicles, tube funnel-shaped, minutely glandular-hairy, white with mauve lobes, anthers all included. Dec.–Jan. Sheltered, upper sandstone slopes, NW (Swartruggens).•

schlechteri (Hiern) Hilliard (= *Polycarena schlechteri* (Hiern) Levyns) Glandular-hairy perennial. Leaves mostly opposite. Flowers in lax racemes, often autogamous, tube short and glandular-hairy, white with orange patch at base of lower lobes and down back of tube. Nov.–Dec. Under sandstone overhangs, NW (Cedarberg and Cold Bokkeveld Mtns).•

taylorii Hilliard Hairy perennial to 30 cm. Leaves opposite, sometimes alternate above. Flowers in rounded heads elongating in fruit, tube short, minutely glandular-hairy, upper lip dark violet with orange patch running down tube, lower lip white or cream-coloured. Oct.–Dec. Sheltered, sandstone slopes, NW (Cedarberg).•

VERONICA see PLANTAGINACEAE

ZALUZIANSKYA F.W.Schmidt (= *REYEMIA*) DRUMSTICKS, VERFBLOMMETJIE 57 spp., southern Africa, annuals mainly W Cape, perennials mainly E southern Africa

A. Petals entire

acrobareia Hilliard Like **Z. glandulosa** but flower tube 22–30 mm long. Aug. Moist, sandstone pavements, NW (Bokkeveld Mtns to Gifberg).•

benthamiana Walp. (= *Zaluzianskya ramosa* Schinz ex Hiern) Annual to 33 cm, stems with spreading hairs. Leaves glandular-hairy. Flowers in a crowded spike, tube glandular-hairy, 10–20 mm long, lobes rounded, white to yellow inside with star-shaped, orange centre and maroon outside, stamens 2. June–Aug. Sandy or gravelly flats and slopes, KM (S Namibia, Bushmanland and W Karoo to Oudtshoorn).

divaricata (Thunb.) Walp. Annual to 25 cm, stems with retrorse hairs. Leaves thinly hairy. Flowers in a crowded spike, tube long, 18–20 mm long, lobes rounded, yellow inside with a red, star-shaped centre and brown outside, stamens 4. July–Oct. Stony or gravelly slopes, below 750 m, NW, SW, LB (Pakhuis Mtns to Albertinia).•

glandulosa Hilliard Dwarf annual to 4 cm, stems with spreading, glandular hairs. Leaves glandular-hairy. Flowers few in a crowded spike, tube minutely glandular-hairy, ± 10 mm long, lobes rounded, yellow inside and brown outside, stamens 4. Aug.–Sept. Sandy soil, 900 m, NW (Pakhuis Mtns).•

isanthera Hilliard Dwarf annual to 4 cm, stems with spreading hairs. Leaves hairy. Flowers in a dense spike, tube minutely glandular-hairy, 9–11 mm long, lobes rounded, creamy white inside with a yellow centre and mauve outside, stamens 4. Sept.–Oct. Sand on rock sheets, 900–1 300 m, NW (Cold Bokkeveld Mtns).•

lanigera Hilliard Annual to 5 cm, simple or with a short pair of branches near top of stem, stems mostly leafless, with retrorse hairs. Leaves basal and terminal, puberulous. Flowers in terminal head, tube subglabrous, 11–12 mm long, lobes rounded, bright yellow with orange bar at base, stamens 4. Sept. Sandy flats, NW (Doorn River and Tanqua). **gce**

peduncularis (Benth.) Walp. (= *Zaluzianskya gilioides* Schltr.) Annual to 25 cm, stems with retrorse hairs. Leaves thinly hairy. Flowers in a terminal head, tube long and glandular-hairy, 17–25 mm long, lobes rounded, cream-coloured to lemon-yellow inside with a yellow or red centre and maroon outside, opening at dusk, stamens 4. June–Sept. Sandy or stony places, 100–1 900 m, KM (S Namibia and W Karoo to Matroosberg to Lesotho).

pusilla (Benth.) Walp. (= *Zaluzianskya collina* Hiern) Annual to 15 cm, stems with retrorse hairs. Leaves thinly hairy. Flowers initially in a crowded spike, tube sometimes sparsely glandular-hairy, 6–17 mm long, lobes rounded, white or cream-coloured inside with star-shaped, orange

centre and maroon outside, stamens 4. July–Oct. Rocky or sandy slopes and flats, 150–950 m, NW, LB (Namaqualand and W Karoo to Swellendam). **gce**

A.' Petals bifid or notched
B. Flowers nocturnal, white with maroon reverse

capensis (L.) Walp. Annual or short-lived perennial, stems with retrorse hairs. Leaves usually hairy. Flowers in a spike, tube 25–40 mm long, lobes deeply notched, white inside and red outside, opening at dusk and then scented, stamens 4. Mainly July–Oct. Sandy places, NW, SW, LB, SE (Namaqualand to E Cape).

maritima (L.f.) Walp. Annual or short-lived perennial, stems with retrorse hairs. Leaves often fleshy, nearly glabrous. Flowers in a crowded head, tube 25–50 mm long, lobes deeply notched, white inside and crimson outside, opening at dusk and then scented, stamens 4. Jan.–Dec. Coastal dunes along foreshore, SE (George to E Cape).

muirii Hilliard & B.L.Burtt Annual or short-lived perennial, stems with retrorse hairs. Leaves narrow and thinly hairy. Flowers in a spike, tube 15–20 mm long, glabrous in mouth, lobes deeply notched, white or pink inside and red outside, probably opening at dusk, stamens 4. June–Sept. Sandy soil in scrub, AP, LB (Potberg to Still Bay).•

ovata (Benth.) Walp. Twiggy shrublet to 45 cm, usually coarsely hairy. Leaves shaggy. Flowers few in spikes, tube 30–60 mm long, lobes deeply notched, white inside (sometimes orange in centre) and red outside, opening at dusk, stamens 4. Nov.–Dec. NW, KM (W Karoo to Tulbagh, Little Karoo to KwaZulu-Natal).

B.' Flowers diurnal, white to mauve with yellow centre
C. Stamens 2

affinis Hilliard Like **Z. villosa** but leaves and bracts lanceolate, acute, mostly entire and glabrescent. June–Nov. Sandy flats and slopes, to 900 m, NW (Richtersveld to Vredenburg). **gce**

gracilis Hilliard Like **Z. parviflora** but spikes not floriferous from near base. Aug.–Oct. Calcareous sands near the coast, AP (De Hoop to Still Bay).•

parviflora Hilliard Annual to 30 cm, stems with spreading hairs. Leaves thinly hairy. Flowers in long, leafy spikes, very small and shorter than bracts, tube 8–10 mm long, lobes deeply bifid, cream-coloured with a yellow centre, stamens 2. Aug.–Sept. Limestone and granite outcrops, SW (Paternoster to Saldanha Bay).•

villosa F.W.Schmidt Annual to 30 cm, stems with retrorse hairs. Leaves ± oblanceolate, densely hairy. Flowers in crowded spikes later elongating, tube 10–25 mm long, lobes deeply bifid, white to mauve with yellow or red star in centre, stamens 2. July–Nov. Sandy flats along the coast, to 200 m, SW, AP (Langebaan to Pearly Beach).•

C.' Stamens 4

minima (Hiern) Hilliard Annual to 10 cm, stems with spreading hairs. Leaves few, hairy. Flowers crowded in a head, tube minutely glandular-hairy, 4–9 mm long, lobes bifid, mauve to pink inside with star-shaped, orange centre and orange outside, stamens 4. June–Sept. Stony or gravelly flats, 800–1 500 m, NW, KM (W Karoo and Swartruggens to western Little Karoo). **gce**

synaptica Hilliard Annual to 24 cm, stems with spreading hairs. Leaves thinly glandular-hairy. Flowers in dense spikes, tube glandular-hairy, 17–26 mm long, lobes notched or almost entire, white or orange inside with star-shaped, orange centre and coppery orange outside, stamens 4. Aug.–Oct. Sandy or shale slopes, 600–1 200 m, NW, KM, SE (Hex River Valley to Graaff-Reinet).

venusta Hilliard Annual to 15 cm, stems with spreading hairs. Leaves glandular-hairy. Flowers crowded in a head, tube glandular-hairy, 15–26 mm long, lobes bifid, mauve to pink inside with star-shaped, orange centre and orange outside, stamens 4. June–Nov. Sandy or gravelly soils, 350–1 500 m, KM (W Karoo and Great Karoo to Free State).

SOLANACEAE

Solanum by W.G. Welman

1. Fruit a capsule; slender shrub with drooping, tubular yellow flowers ..... **Nicotiana**
1.' Fruit a berry; unarmed or prickly or thorny herbs and shrubs with rotate or campanulate, white to purple flowers:

2. Stamens inserted in mouth or throat of corolla; anthers dehiscing by pores . . . . . **Solanum**
2.' Stamens inserted near base of corolla tube; anthers dehiscing by longitudinal slits . . . . . **Lycium**

LYCIUM L. HONEY THORN ± 200 spp., cosmopolitan in warm and temperate regions

A. Anthers and style well exserted

amoenum Dammer (= *Lycium campanulatum* E.Mey. ex C.H.Wright) Stiffly branched, thorny shrub to 3 m. Leaves in tufts on short shoots, leathery, elliptic-obovate, 12–24 × 3–7 mm. Flowers bisexual, bell-shaped, cream-coloured and purple, tube 10–17 mm long with petals 3–4 mm long, stamens inserted just below middle of tube, well exserted. Berries 8–12 mm diam., red. (June–)July–Sept. Rocky slopes and dry riverbeds, NW, SW (S Namibia and Bushmanland to Bredasdorp). **gce**

cinereum Thunb. KRIEKDORING Stiffly branched, thorny shrub to 2 m. Leaves in tufts on short shoots, leathery, obovoid, 7–17 × 1–2 mm. Flowers bisexual, tubular, white and purple, tube 5–7 mm long with petals 2–3.5 mmm long, stamens inserted ± halfway up tube, well exserted; calyx < half as long as corolla tube. Berries 3–5 mm diam., red. Mainly July–Sept. Sandy or karroid flats, NW, SW, AP, KM, LB, SE (Little Karoo and Breede River Valley to Agulhas Plain, widespread though drier parts of S Africa).

ferocissimum Miers SLANGBESSIE Stiffly branched, thorny shrub to 3 m. Leaves in tufts on short shoots, succulent, bright green, obovate-elliptic, 12–35 × 4–10 mm. Flowers bisexual, bell-shaped, white and purple, tube 6–8 mm with petals 3–4 mm long, stamens inserted ± halfway up tube, well exserted. Berries 8–10 mm diam., red. Mainly Apr.–Sept. Dry, stony and sandy flats and slopes, SW, AP, SE (Saldanha to Agulhas, Knysna through interior S Africa to Mpumalanga). [Hybridizes with **L. afrum**]

pumilum Dammer SOETKRIEKDORING Stiffly branched, thorny shrub to 1.2 m. Leaves in tufts on short shoots, succulent, obovate, 10–15 × 1–2 mm. Flowers bisexual, bell-shaped, white and purple, tube 3–5 mm long with petals 3–4 mm long, stamens inserted just below mouth of tube, well exserted. Berries ± 4 mm diam., red. Sept.–Apr. Sandy and stony flats, often calcareous, AP, KM (Namibia through Karoo and Little Karoo to Bredasdorp).

schizocalyx C.H.Wright KAREEDORING Like **L. cinereum** but calyx deeply lobed, with sepals ± as long as tube. Sept.–Apr. Dry flats, KM, SE (Little Karoo through drier parts of southern Africa).

tenue Willd. Like **L. ferocissimum** but leaves pale green, 8–16 × 1–3 mm, and berries 5–7 mm diam. Mainly Aug.–Jan. Sandy slopes and river banks, AP, KM, LB (Tanqua and Bredasdorp through Little Karoo). **gce**

A.' Anthers and style included or shortly exserted
B. Flowers bisexual

afrum L. (= *Lycium bachmannii* Dammer, *L. crassifolium* Salisb., *L. rigidum* Thunb.) KRAAL HONEY THORN, KRAALDORING Stiffly branched, thorny shrub or small tree to 2 m. Leaves in tufts on short shoots, leathery, linear-oblong, 11–24 × 1–2 mm. Flowers bisexual, tubular, purple, tube 13–20 mm long with petals 2–3 mm long, stamens inserted halfway up tube, just included. Berries 8–13 mm diam., black. (June–)July–Sept.(Oct.). Mostly sandy, coastal flats, NW, SW (Lambert's Bay to Caledon).• [Hybridizes with **L. ferocissimum**]

oxycarpum Dunal WOLWEDORING Thorny shrub or small tree to 3 m. Leaves alternate and in tufts on short shoots, herbaceous or leathery, oblanceolate, 20–50 × 3–11 mm. Flowers bisexual, tubular, cream-coloured and purple, tube 15–24 mm with petals 2–3 mm long, stamens inserted ± halfway up tube, included or slightly exserted. Berries 5–6(–10) mm diam., red. Mainly July–Oct. Stony slopes and flats, stream banks and ravines, NW, SW, KM, SE (Clanwilliam to Worcester and through Little Karoo to E Cape).

B.' Flowers functionally unisexual (style lacking in male flowers; anthers sterile in female flowers)

horridum Thunb. BOKSDORING Dioecious, stiffly branched, thorny shrub to 2 m. Leaves in tufts on short shoots, succulent, linear-oblanceolate, 7–18 × 1.5–3 mm. Flowers functionally unisexual, tubular, white and purple, tube 6–9 mm long with petals 1.5–2 mm long, stamens inserted ± halfway up tube, included or shortly exserted. Berries 4–6 mm diam., red. (July–)Aug.–Sept.

(–Apr.). Flats and lower slopes, NW, SW, AP, KM, LB, SE (widespread through drier parts of S Africa into Zimbabwe).

strandveldense A.M.Venter Dioecious, thorny shrub to 1.5 m. Leaves in tufts on short shoots, succulent, bright green, narrowly ovate or obovate, 9–13 × 2–3 mm. Flowers functionally unisexual, tubular, deep purple, often paler outside, 11–13 mm long with petals 2.5 mm long, stamens inserted just below middle of tube, included or shortly exserted. Berries 7–8 mm diam., red. Sept.–Dec. Sandy flats and dunes, NW (Namaqualand to Velddrif). **gce** [Possibly of hybrid origin **L. afrum** × **L. tetrandrum**]

tetrandrum Thunb. MUISBOS Dioecious, stiffly branched, thorny shrub to 3 m. Leaves in tufts on short shoots, very succulent, bright green, obovoid-ellipsoid, 5–20 × 2–3 mm. Flowers functionally unisexual, tubular, cream-coloured or with mauve petals, tube 5–6 mm long with petals 1.5–2 mm long, stamens inserted ± halfway up tube, shortly exserted or included. Berries ± 3 mm diam., red. June–Oct. Mainly coastal sands, NW, SW, AP (N Namibia to Cape Peninsula and Bredasdorp).

*NICOTIANA L. WILD TOBACCO 67 spp., America, Australasia, 1 sp., Namibia

***glauca** Graham TABAKBOOM Slender shrublet or small tree to 3 m. Leaves ovate-elliptic, long-petioled. Flowers in loose, terminal cymes, tubular, 35–40 mm long, yellow. Aug.–Mar. Stony slopes and dry river courses, NW, SW, KM, LB, SE (American weed, widespread in dry areas).

SOLANUM L. NIGHTSHADE ± 1 400 spp., cosmopolitan, mainly tropical

A. Plants unarmed

africanum Mill. (= ?*Solanum aggerum* Dunal, *S. quadrangulare* Thunb. ex L.f.) DRONKBESSIE Scrambling or prostrate, semisucculent shrub to 3 m, stems squared when young. Leaves lanceolate to ovate, lower often lobed, to 6 cm long. Flowers ± 30 in terminal panicles, white, mauve or purple, 10 mm diam. Berries purplish black, to 15 mm diam. Mainly Jan.–Oct. Coastal dunes in bush, SW, AP, LB, SE (Cape Peninsula to KwaZulu-Natal).

crassifolium Lam. Sprawling perennial with bristly stems to 30 cm, rooting at nodes. Leaves leathery, softly hairy, ovate or sinuately angled, to 4 cm long. Flowers in terminal cymes, blue-mauve, 5 mm diam. Berries ?black, 5 mm diam. Feb.–Apr. Coastal dunes in scrub, SW, AP (Gordon's Bay to Bredasdorp).•

guineense L. Erect or sprawling shrub to 1.5 m. Leaves ovate to elliptic, softly leathery, to 7 cm long. Flowers 1–few in axils, mauve to light blue, to 18 mm diam. Berries yellow, orange or red, to 15 mm diam. Mar.–Aug. Coastal dunes, slopes and river banks, NW, SW, AP, LB, SE (Namaqualand to E Cape).

***mauritianum** Scop. BUGWEED, LUISBOOM Whitish felted, small tree to 5 m. Leaves ovate to elliptic, discolorous, to 25 cm long. Flowers crowded in terminal corymbs, purple, to 10 mm diam. Berries yellow, 10 mm diam., velvety. Mainly May–July. Weed of disturbed places, scrub and forests, SW, LB, SE (S American weed).

nigrum L. NASTERGAL Glabrous to thinly hairy annual to 1 m. Leaves soft, ovate-lanceolate, often toothed, to 10 cm long. Flowers 5–10 in clusters, white, to 5 mm diam. Berries black, to 10 mm diam. Mainly Oct. Sheltered sites and disturbed places, SW, AP, LB, SE (Cape Peninsula to Eurasia).

***pseudocapsicum** L. JERUSALEM CHERRY, BOSGIFAPPEL Softly woody shrublet to 1 m. Leaves bright green, elliptic to lanceolate, to 12 cm long. Flowers 1–few in clusters, white, 5 mm diam. Berries orange-red, 10–15 mm diam. Oct.–Jan. Weed of disturbed areas and forest margins, NW, SW, LB, SE (S American weed, widely cultivated).

retroflexum Dunal Like **S. nigrum** but leaves deeply serrate, to 8 cm long, flowers 3–7 in clusters, white with purple keels, to 6 mm diam. Jan.–Dec. Usually forest margins or clearings, also weedy, SW, KM, LB, SE (Cape Peninsula to Arabia).

A.' Plants armed
B. Berries yellow (rarely red), 25–50 mm diam.

aculeastrum Dunal GOAT APPLE, BOKAPPEL Shrub or small tree to 5 m with young stems whitish woolly; spines to 15 mm long, recurved, brownish. Leaves deeply lobed, dark green glabres-

cent above, whitish tomentose beneath, to 15 cm long. Flowers in clusters of 5–10, whitish, 10 mm diam. Berries yellow, to 50 mm diam. Mar.–Oct. Grassy slopes and forest margins, also roadsides, LB, SE (Riversdale to tropical Africa).

aculeatissimum Jacq. Softly hairy shrublet to 1 m with purple and green stems; spines to 15 mm long, straight. Leaves lobed, spiny, to 12 cm long. Flowers in clusters of 3–5, white, sometimes purplish, 10 mm diam. Berries yellow, to 25 mm diam. Nov.–Feb. Weedy on forest margins and roadsides, SE (George to tropical Africa).

linnaeanum Hepper & Jaeger (= *Solanum hermannii* Dunal) BITTER APPLE, BITTERAPPEL Shrub to 1 m; spines to 12 mm long, straight, yellow. Leaves deeply lobed, usually spiny, to 15 cm long. Flowers 1–few in axils, mauve to purple, 15 mm diam. Berries yellow, 25 mm diam. Mainly June–Sept. Rocky slopes and flats and roadsides, NW, SW, AP, KM, LB, SE (Worcester and Darling to KwaZulu-Natal).

macowanii Fourc. Shrub to 1.8 m; spines long, straight. Leaves deeply lobed, to 18 cm long. Flowers paired, white, to 12 mm diam. Berries red, 25 mm diam. Apr. Forests, SE (Humansdorp to E Cape: perhaps not distinct from **S. aculeatissimum** Jacq. or the exotic **S. casicoides** Allioni).

B.' Berries orange to red, 8–20 mm diam.

capense L. Sprawling or prostrate shrublet to 60 cm; spines to 5 mm long, recurved, yellow. Leaves elliptic, often deeply lobed, midrib spiny beneath, to 5 cm long. Flowers few in clusters, white, to 5 mm diam. Berries orange to red, to 10 mm diam. Mainly Dec. Rocky slopes and disturbed areas, KM, SE (Little Karoo to E southern Africa).

coccineum Jacq. KLEINGRYSBITTERAPPEL Softly hairy shrublet to 60 cm; spines to 5 mm long, straight. Leaves ovate, sinuate, rarely spiny, to 5 cm long. Flowers few in clusters, mauve to violet, to 5 mm diam. Berries orange-red, to 10 mm diam. Mainly Mar.–Apr. Sandy and rocky slopes and flats and waste places, NW, KM, LB, SE (Worcester to Mpumalanga and Botswana).

giftbergense Dunal Shrub to 1.5 m; spines to 12 mm long, slender, straight, yellow to reddish brown. Leaves ovate, obtusely lobed, spiny on veins, to 4 cm long. Flowers 1–4 in clusters, mauve to purple, to 10 mm diam. Berries orange to red, 10 mm diam. May–Sept. Rocky sandstone slopes, NW (Namaqualand to Pakhuis Mtns). **gce**

giganteum Jacq. GENEESBLAARBOOM Shrub or small tree to 3 m; white-woolly on young parts; spines to 4 mm long, stout. Leaves elliptic, white-woolly beneath, to 15 cm long. Flowers crowded in terminal corymbs, mauve to purple, 6 mm diam. Berries red, to 8 mm diam. Dec.–Apr. Forest margins, river banks and disturbed places, SW, LB, SE (Cape Peninsula to tropical Africa).

rigescens Jacq. WILDE-LEMOENTJIE Hairy, erect or scrambling shrub to 1 m; spines to 8 mm long, straight. Leaves lobed, spiny on main veins, to 8 cm long. Flowers few in clusters, mauve, blue or purple, to 12 mm diam. Berries yellow to orange, to 15 mm diam. May–Sept. Coastal scrub and forests, SW, AP, LB, SE (Caledon to Limpopo).

tomentosum L. SLANGAPPELBOS Yellowish green, densely felted shrub to 1 m; spines to 12 mm, straight or slightly curved. Leaves ovate, sinuate, rarely spiny, to 8 cm. Flowers few in clusters, mauve or purple, to 15 mm long. Berries orange, to 20 mm. Mainly Aug.–Oct. Stony slopes and flats, NW, SW, KM, LB, SE (Namaqualand to E Cape).

STILBACEAE (= *RETZIACEAE*)

1. Ovules many per locule; anther thecae diverging; leaves never revolute, often toothed:
   2. Corolla regular or weakly bilabiate, tubular-campanulate, not pouched at base; shrubs or trees with broad, petiolate leaves:
      3. Flowers in terminal panicles, white; corolla tube included in calyx; anther thecae confluent above; fruit a small capsule < 5 mm diam. ..... **Nuxia**
      3.' Flowers in axillary clusters or fascicles, sometimes on old wood, orange; corolla tube well exserted from calyx; fruit a berry ..... **Halleria**
   2.' Corolla strongly bilabiate, pouched at base:
      4. Stamens 2; erect shrub with densely whorled, linear leaves, serrated in upper half, and glandular-haired; yellow flowers ..... **Ixianthes**
      4.' Stamens 4(5); soft, pubescent herb with rosulate leaves; pale blue flowers ..... **Charadrophila**
1. Ovule 1(–3) per locule; anther thecae parallel; leaves ericoid with revolute margins, entire:

5. Flowers axillary; leaves 30–70 mm long; corolla tube silky outside, 45–55 mm long, orange-red with black tips; stamens 5; ovules 2 or 3 per locule ..... **Retzia**
5.' Flowers in terminal spikes or heads; leaves < 20 mm long; corolla tube glabrous outside, < 10 mm long, white, mauve or purple; stamens 4; ovules 1 per locule:
6. Corolla lobes pubescent or bearded on inner or outer face:
7. Corolla 4-lobed, bilabiate, upper lip large and galeate, lobes setose on outer face ... **Thesmophora**
7.' Corolla 5-lobed, actinomorphic, lobes bearded on inner face ..... **Kogelbergia**
6.' Corolla lobes glabrous:
8. Corolla bilabiate, with 2 larger erect posterior lobes and 3 narrow anterior lobes; calyx tubular, hard; leaves ascending ..... **Stilbe**
8.' Corolla actinomorphic or bilabiate but then posterior lobes smaller; calyx tube short or sepals free; leaves spreading-reflexed:
9. Sepals free, glabrous, sticky ..... **Campylostachys**
9.' Sepals fused below, pubescent ..... **Euthystachys**

CAMPYLOSTACHYS Kunth• 2 spp., SW Cape

cernua (L.f.) Kunth Closely leafy, resprouting shrublet to 80 cm, with velvety branchlets. Leaves in whorls of 4, oblong-lanceolate, apiculate, 2-grooved below, spreading to recurved. Flowers in nodding, subglobose spikes, white, funnel-shaped, 4-merous, corolla hairy in throat, petals acute. Nov.–Mar. Sandstone slopes, SW (Cape Peninsula and Du Toitskloof to Bredasdorp Mtns).•

helmei J.C.Manning & Goldblatt Compact, closely leafy, resprouting shrublet to 50 cm, with velvety branchlets. Leaves in whorls of 4, oblong-elliptic, obtuse, thickened and keeled at tips, acute, 2-grooved below, spreading or reflexed. Flowers few at branch tips, white, bilabiate, 5-merous, corolla hairy in throat, petals rounded. Oct.–Nov. Rocky sandstone slopes, SW (Riviersonderend Mtns: Dasberg).•

CHARADROPHILA Marloth• CAPE GLOXINIA 1 sp., SW Cape

capensis Marloth Rosulate, hairy perennial to 10 cm. Leaves elliptic, coarsely toothed. Flowers several in a terminal raceme, nodding on long pedicels, mauve. Nov. Damp, mossy rocks, SW (Jonkershoek and Betty's Bay Mtns).•

EUTHYSTACHYS A.DC.• 1 sp., SW Cape

abbreviata (E.Mey.) A.DC. Closely leafy, resprouting shrublet to 80 cm. Leaves linear, in whorls of 4, 2-grooved below, spreading to recurved. Flowers minute, in compact, nodding, subglobose spikes, concealed by long, leafy bracts, white, calyx bilabiate, corolla hairy in throat. Aug.–Oct. Sandstone slopes, at high alt., SW (Bain's Kloof to Franschhoek Mtns).•

HALLERIA L. TREE FUCHSIA, NOTSUNG ± 4 spp., W Cape to tropical Africa, Madagascar

elliptica Thunb. Shrub to 1.2 m. Leaves elliptic, sharply toothed, margins revolute. Flowers orange, corolla tubular, 4-lobed. Sept.–Apr. Rocky slopes, often near streams, NW, SW, LB, SE (Clanwilliam to Swellendam, also tropical Africa).

lucida L. UMBINZA Shrub or small tree to 12 m. Leaves ovate, shiny, toothed. Flowers orange or greenish yellow, corolla tubular, curved, 5-lobed. July–Feb. Inland or coastal bush or forests, NW, SW, AP, KM, LB, SE (Gifberg to tropical Africa).

ovata Benth. Shrub to 3.5 m. Leaves ovate, bluntly serrate. Flowers orange, corolla flared, straight, 5-lobed. Aug.–Sept. Stream banks, NW (Olifants River Mtns).•

IXIANTHES Benth.• WATERBOSSIE 1 sp., SW Cape

retzioides Benth. Glabrescent shrub to 2 m. Leaves linear-oblanceolate, toothed above. Flowers crowded among leaves, bilabiate, yellow. Sept.–Nov. Streams on sandstone slopes in fynbos, NW, SW (Cedarberg to Elandskloof Mtns).•

KOGELBERGIA Rourke• 2 spp., SW Cape

phylicoides (A.DC.) Rourke (= *Stilbe phylicoides* A.DC.) Like **K. verticillata** but leaves erect to spreading, in whorls of 6 or 7. Oct.–Nov. Sandstone slopes, LB, SE (Langeberg: Swellendam to Robinson Pass).•

verticillata (Eckl. & Zeyh.) Rourke (= *Stilbe mucronata* N.E.Br., *S. verticillata* (Eckl. & Zeyh.) Moldenke) Closely leafy, resprouting shrub to 1 m, branches velvety. Leaves lanceolate, spreading to reflexed, in whorls of 4 or 5, 2-grooved below, glabrescent. Flowers in subglobose spikes, petals densely silky, grey-mauve, corolla hairy in throat. May–Oct. Moist slopes at high alt., SW, AP (Hottentots Holland Mtns to Agulhas coast).•

NUXIA Comm. ex Lam. WILD ELDER ± 40 spp., Africa

floribunda Benth. INGQOTA Tree to 7 m. Leaves usually 3-foliolate, leaflets elliptic. Flowers in large, terminal, cymose panicles, white. May–Aug. Forests, SE (Knysna to tropical Africa).

RETZIA Thunb.• HEUNINGBLOM 1 sp., SW Cape

capensis Thunb. Stiffly erect, densely leafy shrublet to 1 m, branches velvety. Leaves in whorls of 4, ascending, imbricate, linear-lanceolate, 2-grooved beneath, glabrescent. Flowers few in axils, tubular, silky hairy, red with black lobes tipped with a tuft of white hairs. Sept.–Mar. Sandstone slopes, SW (Hottentots Holland to Bredasdorp Mtns).•

STILBE P.J.Bergius• (= *EURYLOBIUM, XEROPLANA*) BOTTLEBRUSH 7 spp., SW Cape

albiflora E.Mey. Erect, resprouting shrublet to 1.2 m, with velvety branches. Leaves imbricate, ascending to spreading, linear, in whorls of 4–6, 2-grooved below, recurved at tips, mucronate. Flowers in ovoid spikes, white, calyx cartilaginous, corolla hairy in throat. Nov.–Feb. Sandstone slopes, NW, SW, LB (Cedarberg to Langeberg: Swellendam).•

ericoides (L.) L. Erect or straggling, resprouting shrublet to 80 cm, with velvety branches. Leaves imbricate, ascending, linear, in whorls of 4, 2-grooved below. Flowers in subglobose spikes, pink, calyx membranous, corolla hairy in throat. Apr.–Sept. Sandy flats or limestone hills, SW, AP (Hopefield to De Hoop).•

gymnopharyngia (Rourke) Rourke (= *Xeroplana gymnopharyngia* Rourke) Sprawling, densely branched shrublet to 30 cm. Leaves imbricate, sometimes spreading, in whorls of 3 or 4, linear, 2-grooved below. Flowers in dense spikes, pink, corolla weakly bilabiate, throat glabrous. Oct.–Nov. Sandstone slopes, LB (Langeberg: Riversdale).•

overbergensis Rourke (= *Xeroplana zeyheri* Briq.) Like **S. ericoides** but single-stemmed, leaves mainly in whorls of 3. Apr.–July. Lower sandstone and limestone slopes, SW, AP (Riviersonderend Mtns to Agulhas coast and De Hoop).•

rupestris Compton Sprawling shrublet to 20 cm. Leaves becoming spreading or reflexed, linear, in whorls of 2–4, 2-grooved below, glabrescent. Flowers in crowded spikes, pink to white, corolla hairy in throat. Dec.–Apr. Rock crevices on sandstone slopes, SW (Hottentots Holland to Kleinrivier Mtns).•

serrulata (Hochst.) Rourke (= *Eurylobium serrulatum* Hochst.) Closely leafy shrub to over 1 m. Leaves imbricate, ascending, linear-elliptic, in whorls of 4, minutely serrate, punctate above, 2-grooved below. Flowers in crowded spikes, white, calyx membranous, corolla weakly bilabiate, hairy in throat. Jan.–Feb. Sandstone slopes, SW (Riviersonderend Mtns).•

vestita P.J.Bergius Like **S. albiflora** but petals ± silky hairy along margins, whitish. Mostly July–Dec. Sandstone slopes, SW (Cape Peninsula to Houwhoek).•

THESMOPHORA Rourke• 1 sp., SW Cape

scopulosa Rourke Sprawling, closely leafy shrublet to 30 cm. Leaves imbricate, lanceolate, in whorls of 4, minutely serrate, punctate above, 2-grooved beneath. Flowers in spikes, pinkish mauve, lobes woolly at tips. Sept.–Nov. High sandstone slopes, NW (Ceres).•

TAMARICACEAE

TAMARIX L. ± 54 spp., Eurasia and Africa

usneoides E.Mey. ex Bunge Willowy tree with slender, drooping branches, to 9 m. Leaves scale-like. Flowers in massed panicles, minute, pink to grey. Mainly Mar.–June. Stream banks or dry river courses, KM (Little Karoo to Great Karoo and E Cape).

THEOPHRASTACEAE (= *SAMOLACEAE*)

SAMOLUS L. WATER-PIMPERNEL ± 12 spp., cosmopolitan, mostly in saline marshes

porosus (L.f.) Thunb. Rhizomatous perennial with stiff stems to 60 cm. Leaves radical, oblanceolate. Flowers in racemes with bracteoles basal, white to pale pink. Nov.–Feb. Coastal marshes, NW, SW, AP, LB, SE (Olifants River to KwaZulu-Natal).

***valerandi** L. BROOK WEED Tufted perennial or biennial to 60 cm. Leaves basal and cauline, obovate. Flowers in racemes or panicles with bracteoles in middle of bent pedicel, minute, white. Nov.–Jan. Moist places, NW, SW, AP, LB, SE (scattered cosmopolitan weed).

THYMELAEACEAE

Gnidia by A. Beaumont, **Lachnaea** and **Struthiola** by J.B.P. Beyers, **Passerina** by C.L. Bredenkamp

1. Flowers without petaloid scales; stamens 8, well exserted ..... **Passerina**
1.' Flowers usually with petaloid scales, rarely lacking but then stamens included or shortly exserted:
2. Scales 8, arising in hypanthium below level of stamen insertion ..... **Lachnaea**
2.' Scales 4–12, arising at mouth of hypanthium above level of stamen insertion:
3. Stamens 4 in a single whorl; anthers usually with an apical appendage; flowers solitary in axils in elongate racemes ..... **Struthiola**
3.' Stamens 8 or 10 in 2 whorls, rarely upper whorl lacking; flowers usually terminal in clusters, rarely solitary in upper axils:
4. Flowers 4-merous, white to pale yellow ..... **Gnidia**
4.' Flowers 5-merous, bright yellow ..... **Lasiosiphon**

GNIDIA L. SAFFRON BUSH, SAFFRAAN ± 120 spp., mainly Africa, also India

A. Petaloid floral scales absent

inconspicua Meisn. Shrublet to 25 cm. Leaves opposite or whorled, oblong-ovate to lanceolate, moderately silky hairy (sparkle in direct light); involucral leaves similar. Flowers solitary or paired at branch tips, pale yellow, hypanthium silky hairy. Sept.–Dec. Flats and lower slopes, NW, SW (Ceres to Cape Peninsula).•

laxa (L.f.) Gilg Shrub to 1 m. Leaves subopposite, linear-oblong, pilose when young; involucral leaves similar. Flowers 4–8 at branch tips, greenish yellow, sometimes tinged dark pink, hypanthium funnel-shaped, hairy. Jan.–Dec. Lower slopes, usually on shales, SW, LB (Cape Peninsula to Swellendam).•

ornata (Meisn.) Gilg (= *Gnidia vesiculosa* Eckl. & Zeyh. ex Drège) Shrublet to 30 cm or more. Leaves opposite, sometimes alternate, oblong-lanceolate, sparsely hairy beneath; involucral leaves similar but pilose on margins and beneath. Flowers 1–few at branch tips, white, hypanthium silky villous. July–Oct. Marshy flats and lower slopes, SW (Kleinrivier Mtns to Bredasdorp).•

spicata (L.f.) Gilg Shrublet to 80 cm. Leaves scattered, ovate to broadly lanceolate, hairy beneath. Flowers in racemes, cream-coloured to pale pink, hypanthium funnel-shaped, hairy, bracteoles 2. Aug.–Oct. Marshy flats and dune slacks, SW, AP (Malmesbury to Bredasdorp).•

A.' Petaloid floral scales 4, sometimes divided or fringed
B. Floral scales fleshy

chrysophylla Meisn. Shrublet to 60 cm. Leaves opposite, elliptic-obovate, densely and smoothly silky hairy; involucral leaves similar. Flowers 6–9 at branch tips, cream-coloured, hypanthium densely silky hairy, petaloid floral scales 4, fleshy. June–Sept. Coastal flats, SW, AP, LB (Bredasdorp to Riversdale).•

geminiflora E.Mey. ex Meisn. Shrub to 60 cm. Leaves opposite, linear-lanceolate, glabrous or silky hairy above; involucral leaves similar. Flowers paired at branch tips, cream-yellow, hypanthium silky hairy, petaloid floral scales 4, fleshy, bifid. June–Dec. Sandy flats and slopes, NW, SW (Namaqualand to Langebaan). **gce**

insignis Compton Large-leaved, resprouting shrub to 1 m. Leaves opposite, broadly ovate to orbicular; involucral leaves slightly smaller. Flowers 6–15 at branch tips, yellow, hypanthium minutely hairy, ribbed, petaloid floral scales 4, fleshy. Sept.–Oct. S-facing, sandstone slopes, SW (Du Toitskloof: Molenaar's Peak).•

nana (L.f.) Wikstr. Shrub to 3 m. Leaves scattered, narrowly lanceolate, minutely warty, pilose on margins and beneath when young; involucral leaves similar. Flowers 3–5 at branch tips, grey-lilac to dull purple, sometimes cream-coloured, hypanthium densely hairy above, sepals reflexed, hairy above and beneath, petaloid floral scales in 4 groups of ± 3, slender, fleshy segments forming a continuous ring interspersed with hairs, yellow, upper row of stamens abortive. Jan.–Dec. Sandstone slopes, SW (Tulbagh: Elandskloof Mtns to Bredasdorp Mtns).•

oppositifolia L. Erect, willowy shrub to 3 m. Leaves opposite-decussate, oblong-lanceolate to elliptic-lanceolate; involucral leaves similar but crimson-edged. Flowers 4–6 at branch tips, pale yellow, hypanthium silky villous, ribbed, petaloid floral scales 4, fleshy, pale yellow (brown when dry). Jan.–Dec. Sandstone and granite slopes, NW, SW, LB, SE (Clanwilliam to E Cape).

orbiculata C.H.Wright Like **G. oppositifolia** but leaves broadly elliptic to orbicular. Jan.–Aug. Sandy flats, SE (George to Humansdorp).•

penicillata Licht. ex Meisn. Shrublet to 40 cm. Leaves opposite, linear, margins densely ciliate, becoming glabrous; involucral leaves similar. Flowers 2–6 at branch tips, bright blue or pink, hypanthium slightly funnel-shaped, silky hairy, petaloid floral scales 4, divided into 4, slender, fleshy segments each, hairy, upper stamens occasionally reduced. Aug.–May. Marshy flats and lower slopes, SW (Cape Peninsula to Riviersonderend Mtns).•

pinifolia L. Shrub to 1 m. Leaves crowded, alternate, needle-like, narrowly linear-oblong, pungent-acuminate; involucral leaves wider. Flowers ± 10 at branch tips, white, hypanthium villous, petaloid floral scales 4, anther-like, fleshy, densely villous. Jan.–Dec. Flats to middle slopes, NW, SW, LB, SE (Piketberg to E Cape).

racemosa Thunb. Shrub to 60 cm. Leaves scattered, obovate to lanceolate. Flowers racemose, pale yellow-green, hypanthium puberulous, petaloid floral scales 4, deeply bifid, fleshy. ?. River banks, LB, SE (Riversdale to E Cape).

tomentosa L. Shrub to 1 m. Leaves alternate, ovate to lanceolate, warty beneath; involucral leaves similar. Flowers ± 6 at branch tips, white, hypanthium densely silky hairy, petaloid floral scales 4, fleshy, yellow, hairy. Jan.–Dec. Marshy, sandstone slopes, SW (Du Toitskloof to Palmiet River Mtns).•

sp. 1 (*Gnidia struthioloides* Moss *ms*.) Shrublet to 30 cm. Leaves alternate, obovate-lanceolate; involucral leaves shorter, linear-oblong. Flowers 1–4 at branch tips, green-yellow, hypanthium silky hairy, petaloid floral scales 4. June–Aug. Coastal flats, SE (Humansdorp).•

B.' Floral scales membranous

coriacea Meisn. Much-branched shrublet to 30 cm, blackening when dried. Leaves opposite, ovate-oblong; involucral leaves slightly larger. Flowers 2–4 at branch tips, yellow, hypanthium glabrous, petaloid floral scales 4, pale and membranous. Oct.–Apr. Middle slopes, SW, SE (Kogelberg and Outeniqua Mtns to KwaZulu-Natal).

galpinii C.H.Wright Slender-branched shrublet to 60 cm. Leaves opposite, oblong-lanceolate; involucral leaves slightly wider. Flowers paired at branch tips, yellow; hypanthium funnel-shaped, glabrous, petaloid floral scales 4, membranous, pale. Sept.–May. Sandstone slopes, SW, KM, LB (Somerset West to Joubertina).•

humilis Meisn. Shrublet to 30 cm, branches slender, hairy. Leaves opposite, oblong-ovate, pilose; involucral leaves similar. Flowers solitary or paired at branch tips, yellow, hypanthium funnel-shaped, pilose, petaloid floral scales 4, membranous. Oct.–Mar. Damp, sandstone slopes and seeps, SW (Cape Peninsula to Babilonstoring Mtns).•

juniperifolia Lam. Erect or spreading shrublet to 50 cm. Leaves scattered, linear-subulate; involucral leaves slightly wider. Flowers paired at branch tips, yellow, hypanthium funnel-shaped, glabrous; petaloid floral scales 4, membranous, pale yellow. Jan.–Dec. Mountain slopes, SW, LB (Cape Peninsula to Riversdale).•

linearifolia (Wikstr.) B.Peterson Shrublet to 30 cm. Leaves alternate to subopposite, lanceolate-ovate, white-dotted, pilose on margins and beneath when young; involucral leaves similar. Flowers few at branch tips, rose-pink to magenta, hypanthium hairy, petaloid floral scales 4, membranous, deeply and narrowly laciniate, hairy, upper stamens often abortive. Sept.–Dec. Mountain slopes, SW, AP (Stellenbosch to Bredasdorp Mtns).•

linoides Wikstr. Delicate shrublet to 20 cm. Leaves opposite, linear-subulate. Flowers solitary in upper axils, white, hypanthium funnel-shaped, hairy, petaloid floral scales 4, membranous, bilobed. Oct.–Mar. Moist mountain slopes and seeps, NW, SW, LB, SE (Slanghoek Mtns to Limpopo).

parviflora Meisn. Shrublet to 20 cm. Leaves opposite, linear-lanceolate; involucral leaves similar. Flowers usually solitary at branch tips, yellow, hypanthium glabrous, petaloid floral scales 4, small, membranous. Apr.–May. Loamy mountain slopes, SW (Piketberg to Riviersonderend Mtns).•

simplex L. (incl. **G. subulata** Lam.) Shrublet to 30 cm. Leaves linear-lanceolate to awl-shaped, leathery; involucral leaves similar. Flowers 2–4 at branch tips, yellow, hypanthium funnel-shaped, glabrous, petaloid floral scales 4, membranous. Nov.–Apr. Mountain slopes, SW, LB (Cape Peninsula to Langeberg).•

sonderiana Meisn. Slender shrublet. Leaves opposite, leathery, ovate-lanceolate, hairy on margins and beneath. Flowers yellow, axillary or paired or single at branch tips, hypanthium funnel-shaped, sparsely hairy, petaloid floral scales 4, membranous. June–Dec. Rocky slopes, SW (Babilonstoring).•

styphelioides Meisn. (incl. **G. quadrifaria** C.H.Wright) Spreading or erect shrublet to 30 cm. Leaves opposite, lanceolate-pungent; involucral leaves slightly larger. Flowers 1–3 at branch tips, yellow, hypanthium funnel-shaped, glabrous to sparsely hairy, petaloid floral scales 4, membranous. Aug.–Apr. Lower and middle slopes, SE (Humansdorp to E Cape).

tenella (Meisn.) Meisn. (= *Gnidia albicans* var. *tenella* Meisn.) Lax, silvery shrub to 2 m. Leaves opposite, oblong-oval, densely silky hairy. Flowers 2–4 at branch tips, cream-coloured, hypanthium densely silky hairy, petaloid floral scales 4, membranous to slightly fleshy. May–Nov. Mountain slopes, NW, SW (Ceres to Bredasdorp).•

sp. 2 (*Gnidia fourcadei* Moss *ms*.) Shrublet to 20 cm. Flowers yellow, petaloid floral scales 4, membranous. Sept.–Oct. Lower slopes, SW (Cape Peninsula to Caledon).•

A." Petaloid floral scales 8
C. Leaves persistently densely silky on one or both surfaces

anomala Meisn. Lanky shrub up to 2 m. Leaves opposite, ovate-oval to oval-oblong, densely silky; involucral leaves similar. Flowers few at branch tips, pale yellow, hypanthium densely silky hairy, petaloid floral scales 8, upper stamens reduced or lacking. Sept.–Dec. Mountain slopes, SW, AP, LB, SE (Cape Peninsula to Knysna).•

denudata Lindl. Graceful shrub to 4 m. Leaves opposite, oblong-elliptic, densely silky, becoming glabrous beneath; involucral leaves similar. Flowers 4–9 at branch tips, pale yellow, hypanthium densely pilose, petaloid floral scales 8, small. Aug.–Jan. Coastal forest margins, LB, SE (Langeberg to Tsitsikamma Mtns).•

imbricata L.f. Shrublet to 30 cm, silvery hairy. Leaves opposite to subopposite, elliptic-lanceolate, densely silky; involucral leaves similar. Flowers 2–4 at branch tips, cream-coloured, hypanthium densely silky hairy, petaloid floral scales 8, anther-like. June–Jan. Lower and middle slopes, NW, SW (Namaqualand and W Karoo to Cape Peninsula). **gce**

leipoldtii C.H.Wright Spreading, slender shrublet to 60 cm. Leaves opposite, ovate, densely silky; involucral leaves similar. Flowers 2–6 at branch tips, cream-coloured, hypanthium densely silky hairy, petaloid floral scales 8, anther-like. Mainly July–Jan. Sandstone slopes, NW (Bokkeveld Mtns).•

C.' Leaves glabrous/glabrescent or ciliate

caniflora Meisn. Shrublet to 50 cm. Leaves alternate or subopposite, oblong or lanceolate; involucral leaves similar. Flowers few at branch tips, cream-coloured; hypanthium densely villous, petaloid floral scales 8, anther-like. Apr.–July. Lower slopes, NW, SW, LB (Bokkeveld Mtns to Riversdale).•

clavata Schinz Lax shrublet to 1 m. Leaves opposite, lanceolate, hispidulous; involucral leaves 2, similar. Flowers 2, terminal, cream-yellow; hypanthium tomentose, purple-striped longitudinally, petaloid floral scales 8, yellow, fleshy. July–Oct. Sandy or stony, N-facing slopes and kloofs, NW (Namaqualand and W Karoo to Olifants River Mtns). **gce**

ericoides C.H.Wright Dwarf shrub. Leaves opposite, ericoid, glabrescent, slightly pubescent when young; involucral leaves similar. Flowers 6–9 at branch tips, greenish yellow; hypanthium funnel-shaped, silky, petaloid floral scales 8, anther-like. June–Sept. Lower shale slopes, SW, LB (Bredasdorp to Riversdale).•

francisci Bolus Shrublet to 60 cm. Leaves opposite, subulate, acuminate; involucral leaves shorter and wider, silky. Flowers few–5 at branch tips, cream-coloured, hypanthium silky, petaloid floral scales 8, slightly fleshy. Nov.–Apr. Mountain slopes, KM, SE (Swartberg to Outeniqua Mtns).•

meyeri Meisn. Spreading, slender shrublet to 80 cm. Leaves alternate, linear-lanceolate; involucral leaves similar. Flowers few–8 at branch tips, pale yellow to yellow-green, hypanthium minutely hairy, petaloid floral scales 8, membranous. Aug.–Oct. Dry slopes, NW, SW (Namaqualand and W Karoo to Malmesbury). **gce**

nitida Bolus ex C.H.Wright Small shrub. Leaves opposite, crowded towards branch tips, elliptic-subacute, smoothly silky, becoming glabrous. Flowers paired at branch tips, cream-coloured to yellow, hypanthium densely silky, petaloid floral scales 8, anther-like. Mar.–Oct. Rocky sandstone slopes, KM (Namaqualand and W Karoo to Ladismith). **gce**

nodiflora Meisn. Shrublet to 30 cm. Leaves alternate to verticillate, linear-oblong, hairy becoming subglabrous. Flowers 3–6 at branch tips, surrounded by a whorl of leaves, pale blue and white, hypanthium silky, petaloid floral scales 8, linear. July–Dec. Coastal bush and slopes, often on shales, SW, LB, SE (Bredasdorp to KwaZulu-Natal).

obtusissima Meisn. Shrub to 30 cm. Leaves opposite, oblong-subulate; involucral leaves elliptic-lanceolate. Flowers 2 or 3 at branch tips, cream-coloured, hypanthium slightly funnel-shaped, silky, petaloid floral scales 8, slightly fleshy, oblong. Sept.–Oct. Mountain slopes, NW, SW, KM, SE (Hex River Mtns to Uitenhage).•

parvula Wolley-Dod Shrublet to 30 cm. Leaves scattered, narrowly lanceolate; involucral leaves similar. Flowers 6–8 at branch tips, yellowish, hypanthium sparsely hairy, petaloid floral scales 8, oblong, as long as sepals. Aug.–Nov. Granite slopes, SW (Cape Peninsula, Durbanville).•

scabra Thunb. Shrub to 1 m. Leaves alternate or subopposite, oblong-lanceolate to linear-lanceolate. Flowers up to 3 at branch tips, cream-yellow, hypanthium puberulous, petaloid floral scales 8. Sept.–Apr. Lower slopes, watercourses, NW, KM (Cold Bokkeveld and W Karoo to Little Karoo). **gce**

scabrida Meisn. Shrub to 1.3 m. Leaves linear to linear-lanceolate, long-ciliate when young, later sparsely hairy; involucral leaves more hairy. Flowers few at branch tips, cream-yellow, hypanthium densely villous, petaloid floral scales 8, lanceolate-acuminate. July. Middle slopes, SW, LB, SE (Du Toitskloof to George).•

setosa (Thunb.) Wikstr. Shrublet to 45 cm. Leaves alternate, lanceolate. Flowers in condensed spikes elongating in fruit, yellow, hypanthium silky, sepals very small, petaloid floral scales 8, subulate. Fruits teardrop-shaped, hairy. Sept. Lower slopes, SW, LB (Malmesbury to Riversdale).•

squarrosa (L.) Druce (incl. **G. polystachya** P.J.Bergius) Lax, much-branched, willowy shrub to 2 m. Leaves alternate, linear-lanceolate; involucral leaves whorled, slightly broader, margins sometimes ciliate. Flowers 6–30 at branch tips, pale cream-green, ovary portion and sepal tips often pink, hypanthium pilose, petaloid floral scales 8, finger-like, variable. June–Oct. Coastal limestones, sandy slopes, SW, AP, SE (Cape Peninsula to E Cape).

strigillosa Meisn. Shrublet to 15 cm. Leaves opposite, linear-oblong, glabrescent. Flowers paired at branch tips, cream-coloured, hypanthium densely silky, petaloid floral scales 8, awl-shaped. June. Lower slopes, LB (Swellendam).•

LACHNAEA L.• MOUNTAIN-CARNATION, BERGANGELIER, LETJIESBOS 40 spp., SW Cape

A. Flowers solitary, terminal (may appear axillary when much-reduced, lateral branches comprise 1 pair of leaves); leaves usually decussate; floral scales usually included

axillaris Meisn. (= *Lachnaea micrantha* Schltr.) Compact, flexuose shrublet to 75 cm. Leaves ascending, narrowly ovate to lanceolate. Flowers cream-coloured to dark pink, glabrous outside,

stigma capitate, papillate. Jan.–Dec. Sandy flats, SW, AP, LB (Hopefield and Darling, Elim to Gouritsmond).•

filicaulis (Meisn.) Beyers Erect, flexuosely branched shrublet to 40 cm. Leaves ascending to patent, lanceolate. Flowers cream-coloured or pink, silky outside, stigma conical, papillate. Jan.–Dec. Flats and lower mountain slopes SW, AP, LB (Betty's Bay to Riversdale).•

gracilis Meisn. Erect, laxly branched shrub to 2 m, compact and decumbent when grazed. Leaves adpressed to ascending, narrowly elliptic to obovate. Flowers cream-coloured, usually turning pink with age, silky outside, stigma capitate, papillate. Mostly July–Jan. Sandy flats and slopes, 300–1 660 m, NW, SW, KM (Cedarberg to Touws River and Elandskloof Mtns).•

grandiflora (L.f.) Baill. (= *Cryptadenia breviflora* Meisn.) Erect, usually compact, rounded, resprouting shrub, 20–60 cm, sometimes to 1 m. Leaves subadpressed to ascending, narrowly ovate to obovate or elliptic. Flowers large, pink or white, silky outside, stigma capitate, long papillate. Aug.–June. Sandy flats and lower slopes, 15–1 000 m, NW, SW, AP (Cedarberg to Agulhas).•

laxa (C.H.Wright) Beyers Erect to sprawling shrublet to 30 cm. Leaves opposite, adpressed to ascending, narrowly elliptic to lanceolate. Flowers cream-coloured to pink, silky outside, scales exserted, stigma brush-like. Oct.–Dec. Damp, sandstone slopes, 600–2 150 m, SW (Jonkershoek Mtns to Caledon Swartberg and Elim).•

leipoldtii Beyers Erect to sprawling, much-branched shrublet to 40 cm. Leaves adpressed, narrowly elliptic to ovate. Flowers white, silky outside, stigma conical, papillate. Dec.–Feb. Sandstone slopes, ± 1 000 m, NW (Cedarberg).•

pudens Beyers Erect to sprawling, much-branched shrublet to 60 cm. Leaves ascending-incurved, elliptic. Flowers on declinate branches, dark red, silky outside, stigma brush-like. Aug.–May. Rocky northern slopes, 330–1 530 m, SW (Riviersonderend Mtns).•

pusilla Beyers Like **L. leipoldtii** but leaves narrowly elliptic, flowers white or tinged pink, lower part of hypanthium with ascending, obtuse hairs, stigma linear-conical, papillate. Oct.–Mar. Sandstone slopes, 70–1 000 m, SW (Tulbagh: Elandskloof Mtns).•

ruscifolia Compton Moderately branched, resprouting shrub to 80 cm, multistemmed at base. Leaves elliptic to orbicular, palmately ribbed beneath. Flowers creamy white, hairy outside, scales exserted, stigma capitate, long papillate. Jan.–Dec. Sandstone slopes, 650–1 830 m, KM, LB (Little Karoo Mtns).•

uniflora (L.) Crantz Like **L. grandiflora** but to 45 cm, single- or multistemmed at base, branches flexuose, leaves narrowly elliptic. Flowers pink, sometimes white, silky outside but hairs on lower hypanthium not acicular but blunt, stigma narrowly conical to ellipsoid, long papillate. July–Mar. Sandy flats and rocky sandstone slopes, 15–860 m, NW, SW (Porterville to Yzerfontein and Hottentots Holland Mtns).•

A.' Flowers several in terminal umbels or heads

Group 1:
Inflorescence a terminal, pedunculate, ebracteate capitulum; leaves alternate; floral scales usually exserted; stigma brush-like

alpina (Eckl. & Zeyh.) Meisn. Woody, much-branched shrublet to 1 m. Leaves ascending, narrowly elliptic to spathulate. Flowers in capitula, 15–25 mm diam., pale blue or cream-coloured, honey-scented. Nov.–Jan. Sandstone slopes, 1 600–2 100 m, NW (Tulbagh, Ceres).•

capitata (L.) Crantz Slender, erect shrub to 1.8 m. Leaves ascending, linear to narrowly elliptic. Flowers in capitula, 5–16 mm diam., few open at a time, cream-coloured, receptacle hemispherical, becoming conical, floral scales included. June–Mar. Sandy flats and lower slopes, NW, SW (Clanwilliam to Cape Peninsula).•

densiflora Meisn. Like **L. capitata** but to 50 cm, branching corymbose, flowers many and cream-coloured to dark pink, scales exserted. Aug.–Mar. Flats and lower slopes, SW, AP (Cape Peninsula to Bredasdorp).•

filamentosa Meisn. BERGASTER Erect, moderately branched, shrub to 1.5 m. Leaves ascending, shape variable, narrowly ovate to obovate. Flowers many in globose capitula, 3–10 cm diam., cream-coloured, lilac-blue or blue, sepals unequal, anterior sepal 2–3 times the size of others. July–Feb. Sandy or stony slopes in seasonally damp areas, 660–1 900 m, NW (Cedarberg to Waaihoek Mtns).•

macrantha Meisn. Like **L. filamentosa** but leaves obovate, capitula daisy-like, 35–60 mm diam., and flowers white, sometimes tinged pink or purplish. Sept.–Jan. Rock outcrops, 1 330–2 250 m, SW, LB (Slanghoek Mtns to Langeberg).•

pomposa Beyers (= *Lachnaea buxifolia* Lam.) Erect, moderately branched shrub to 1.7 m. Leaves ascending to patent, shape variable, narrowly ovate to obovate. Flowers many in capitula, 27–55 mm diam., cream-coloured, sometimes tinged blue, sweetly scented. Aug.–Jan. Sandstone slopes, 500–2 160 m, SW, NW, KM (Olifants River Mtns to Du Toitskloof and to Witteberg and Klein Swartberg).•

Group 2:
Inflorescence a terminal, sessile, bracteate, capitulum-like umbel; floral scales usually exserted; stigma various

aurea (Eckl. & Zeyh.) Meisn. Slender, erect shrub to 1 m. Leaves alternate, adpressed to ascending, sometimes patent to reflexed, narrowly elliptic or narrowly obovate. Flowers many in capitula, 20–55 mm diam., yellow, sepals unequal, posterior sepal much smaller than others, stigma brush-like. July–Sept., sometimes Mar.–June. Coastal slopes below 900 m, SW, AP (Hermanus to Agulhas).•

funicaulis Schinz Erect, felted shrublet to 45 cm. Leaves decussate, adpressed, narrowly elliptic or narrowly obovate. Flowers in capitula, 4–8 mm diam., cream-coloured, scales included, stigma capitate, papillate to long papillate. July–Mar. Sandy or stony slopes, 500–1 000 m, NW (mountains S of Ceres).•

globulifera Meisn. Slender, adpressed-hairy or felted shrublet to 60 cm, sometimes to 1 m. Leaves decussate, adpressed or ascending, narrowly elliptic. Flowers in capitula, 5–20 mm diam., pale mauve or cream-coloured, stigma brush-like. Jan.–Dec. Sandy flats and slopes, 200–1 660 m, NW, SW (Cedarberg to Stettynsberg).•

montana Beyers Erect, moderately branched shrublet to 60 cm. Leaves decussate, linear, narrowly elliptic or narrowly ovate. Flowers in capitula to 30 mm diam., cream-mauve or dirty violet, stigma brush-like. Oct.–Feb. Rocky slopes, 1 330–2 330 m, NW (Piketberg, Hex River Mtns and Keeromsberg).•

oliverorum Beyers Like **L. funicaulis** but leaves adpressed to ascending, narrowly elliptic or lanceolate and inflorescence and flowers larger, stigma subcapitate, long papillate. June–Aug. Sandy soils, 1 280–1 400 m, KM (Waboomsberg, Moedverloreberg, Montagu).•

pedicellata Beyers Like **L. montana** but capitula to 15 mm diam., flowers cream-coloured, shorter and almost enclosed by bracts and flattened pedicels narrowly obovate to obovate usually with emarginate apex. Oct.–Jan. Sandy, loam soils probably on underlying shales, 1 760–1 830 m. NW (Cold Bokkeveld).•

pendula Beyers Erect to decumbent, felted to silky shrublet to 45 cm. Leaves decussate, adpressed, narrowly ovate to elliptic. Flowers in nodding capitula, 3–5 mm diam., cream-coloured or pale yellow, stigma capitate, long papillate. Sept.–Dec. Sandstone slopes, 1 330–2 000 m, NW (Witzenberg to Hex River Mtns).•

penicillata Meisn. (= *Lachnaea passerinoides* N.E.Br.) Felted, compact, rounded shrublet to 40 cm. Leaves decussate, adpressed, narrowly elliptic or lanceolate. Flowers apparently solitary in capitula, 3–4 mm diam., cream-coloured, stigma capitate, long papillate. Jan.–Dec. Sandstone slopes, 300–1 330 m. LB (Montagu to Langeberg and Gourits River).•

Group 3:
Inflorescence a terminal, sessile, pseudobracteate, capitulum-like umbel; floral scales exserted; stigma various

elsiae Beyers Like **L. penicillata** but capitula pseudobracteate and with up to 4 open flowers at once. Jan.–Dec. Shale and sandstone slopes, 1 260–2 300 m, NW, KM (Cedarberg to Seweweekspoort).•

eriocephala L. (= *Lachnaea purpurea* Andrews) BERGANGELIER Erect, sparsely to moderately branched shrublet to 60 cm. Leaves decussate, ascending or subadpressed, lanceolate or narrowly elliptic. Flowers many in a capitulum, 25–55 mm diam., cream-coloured or mauve, sepals unequal, the posterior the smallest, stigma brush-like. July–Nov. Sandstone slopes, 100–500 m, NW, SW (Tulbagh and Malmesbury to Betty's Bay).•

greytonensis Beyers Like **L. funicaulis** but inflorescence pseudobracteate, hypanthium and sepals villous-tomentose outside. Sept.–Jan. Sandstone slopes, 640–830 m, SW (Riviersonderend Mtns: Genadendal to Greyton).•

laniflora (C.H.Wright) Bond Rounded, much-branched shrub to 1 m. Leaves decussate, ascending, slightly incurved, narrowly oblong or narrowly elliptic. Flowers in capitula, 8–15 mm diam., pink, white, or white tinged violet-blue or pink, stigma brush-like. July–Jan. Rock outcrops, 1 000–2 200 m, NW (Cedarberg to Brandwag Peak, Worcester).•

marlothii Schltr. Slender, erect to spreading, thinly tomentose to felted shrublet to 28 cm. Leaves decussate, adpressed or ascending, narrowly elliptic. Flowers in capitula, 5–10 mm diam., cream-coloured or creamy pink, stigma capitate, long papillate. Dec. Rocky slopes, 1 800–2 330 m., NW (Hex River Mtns).•

naviculifolia Compton Erect, sparsely to moderately branched shrub to 1.5 m. Leaves decussate, ascending, sometimes patent, narrowly elliptic to elliptic, sometimes narrowly ovate to ovate. Flowers in capitula, 18–35 mm, white, pale blue, mauve or pale yellow, scented, stigma brush-like. Aug.–Nov. Sandy flats, rocky slopes, 1 000–1 860 m, NW (Cedarberg and E of Cold Bokkeveld).•

rupestris Beyers Like **L. marlothii** but branches covered with adpressed hairs admixed with short, crisped ones, flowers mauve, scales narrowly obovoid to ellipsoid, not capitate, stigma brush-like. July–Oct. Rocky slopes above 1 500 m, SW (Villiersdorp: Stettynsberg to Riviersonderend Mtns: Genadendal).•

villosa Beyers Like **L. funicaulis** but flowers with sepals villous-tomentose outside, scales inserted at mouth of hypanthium and exserted, skunk-scented. Sept.–July. Sandstone slopes and flats, 480–1 500 m, NW (Cold Bokkeveld).•

Group 4:
Inflorescence a terminal, ebracteate umbel; floral scales usually exserted; stigma various

burchellii Meisn. Erect to sprawling shrublet to 30 cm. Leaves decussate occasionally subopposite, ascending to spreading, lanceolate to narrowly elliptic. Flowers in ebracteate umbels, apparently bracteate on short, lateral branches, cream-coloured to pale pink, stigma brush-like. June–Mar. Mountain slopes, 30–1 660 m, LB, SE (Langeberg: Albertinia to Port Elizabeth).•

diosmoides Meisn. Moderately branched, flexuose shrub to 1.5 m. Leaves alternate, ascending to spreading, linear-elliptic to narrowly elliptic. Flowers in ebracteate umbels, cream-coloured, stigma capitate, papillate. Jan.–Dec. Lower and middle slopes, 250–1 660 m, LB, SE (Attaquas Mtns to Tsitsikamma).•

ericoides Meisn. Erect to straggling, much-branched shrublet to 50 cm. Leaves alternate, subadpressed to ascending, narrowly elliptic to obovate, tufted at tip. Flowers in ebracteate umbels, cream-coloured, outside sericeo-villous but basal portion of hypanthium glabrous, stigma capitate, long papillate. July–Dec. Lower slopes, 330–660 m, LB (Swellendam to Riversdale).•

glomerata Fourc. Erect shrublet to 45 cm. Leaves decussate, ascending to spreading, linear-elliptic to elliptic or obovate. Flowers in ebracteate umbels, apparently bracteate on short, reduced, lateral branches, cream-coloured or pale pink, tomentose outside, sweetly skunk-scented, stigma capitate, long papillate. Aug.–Oct. Sandstone slopes, 330–1 130 m, KM, SE (Rooiberg to Humansdorp).•

nervosa (Thunb.) Meisn. (= *Lachnaea ambigua* Meisn.) Erect, moderately to much-branched shrublet, 20–60 cm, sometimes to 1 m. Leaves alternate, ascending, rarely spreading, narrowly elliptic. Flowers in ebracteate umbels, cream-coloured, pink or cream-coloured with mauve tinge, silky outside, stigma brush-like. July–Dec. Rocky slopes, summit ridges, 830–2 000 m, NW, SW, LB (Elandskloof to Langeberg: Swellendam).•

sociorum Beyers Like **L. ericoides** but a resprouter, leaf apex glabrous and flowers white or white tinged pink, skunk-scented, stigma brush-like. Aug.–Jan. Stony sandstone slopes, 300–1 100 m, LB (E Langeberg to Attaquas Mtns).•

stokoei Beyers Like **L. ericoides** but to 20 cm and hypanthium pink, obconic and scales included. Dec.–Jan. Peaty, upper S slopes, LB (Langeberg: Lemoenshoek Peak to Horingberg).•

striata (Poir.) Meisn. (= *Lachnaea elegans* Compton) Corymbosely branched shrublet to 60 cm. Leaves alternate, ascending, narrowly elliptic to elliptic or ovate, 1–5-ribbed abaxially. Flowers in ebracteate umbels, cream-coloured, purple or pale rose, stigma brush-like. Sept.–Jan. Seasonally damp areas, 800–1 160 m, NW (N Cedarberg to Witzenberg).•

LASIOSIPHON Fresen. (= *ARTHROSOLEN*) YELLOW-HEAD, KERRIEBLOM

± 30 spp., tropical and southern Africa, Madagascar

A. Leaves silky

anthylloides (L.f.) Meisn. (= *Gnidia anthylloides* (L.f.) Gilg) Slender shrub to 1.5 m. Leaves alternate, oblong-elliptic to elliptic, silky beneath; involucral leaves slightly smaller, with robust bases.

Flowers ± 10–20 in terminal heads, 5-merous, bright yellow, hypanthium silky, petaloid floral scales 5, tiny. Jan.–Dec. Coastal scrub and grasslands, SE (Mossel Bay to N provinces).

meisnerianus Endl. (= *Gnidia cuneata* Meisn.) KOORSBOSSIE Shrub to 1 m. Leaves alternate, obovate-oblong to lanceolate, smoothly silky; involucral leaves shorter, with robust bases. Flowers 3–12 in terminal clusters, 5-merous, ochre, hypanthium densely silky, petaloid floral scales 5, membranous. Mar.–July. Lower slopes, SE (Humansdorp to KwaZulu-Natal).

A.' Leaves glabrous or hispidulous

capitatus (L.f.) Burtt Davy (= *Gnidia capitata* L.f.) KERRIEBLOM Multistemmed shrublet to 70 cm from a fleshy rootstock. Leaves linear-lanceolate, bluish green; involucral leaves similar but with robust bases. Flowers 10–15 in terminal heads, 5-merous, bright yellow, petaloid floral scales 0–5, membranous. Oct.–Feb. Grasslands, SE (Humansdorp to N provinces).

deserticola (Gilg.) C.H.Wright (= *Gnidia deserticola* Gilg) SAFFRAAN Twiggy shrub to 30 cm. Leaves clustered at branch tips, alternate to subopposite, oblong-ovate, hispidulous; involucral leaves velvety, with swollen bases. Flowers 5–7 at branch tips, ochre-yellow, 5-merous, hypanthium densely silky, base with long, spreading hairs persisting in fruit, petaloid floral scales 5, small, membranous. Jan.–Dec. Dry flats and lower slopes, NW, KM (W Karoo and Bokkeveld Mtns to Worcester, Little Karoo to E Cape).

PASSERINA L. GANNA BUSH ± 17 spp., southern Africa

A. Fruits fleshy

ericoides L. CHRISTMAS BERRY, DRONKBESSIE Willowy shrublet to 1 m. Leaves 4-ranked, oblong, hairy beneath, 2–3 mm long, bracts leaf-like but dilated below. Flowers in spikes, tube initially 3 mm long but enlarging rapidly in fruit, neck absent. Fruits fleshy, red. Oct.–Nov. Coastal sands, SW (Blouberg to Hermanus).•

rigida Wikstr. SEEKOPPIESGONNA Robust shrub with branches nodding at tips and pendulous branchlets, to 2 m. Leaves ovate-lanceolate, compressed, hairy beneath, 2.5–4 mm long, bracts acuminate, furrowed. Flowers in spikes, tube ± 3 mm long, neck ± 1 mm. Fruits fleshy, orange. Nov. Coastal dunes, SW, AP, SE (Cape Peninsula to KwaZulu-Natal).

A.' Fruits dry

burchellii Thoday Perennial to 30 cm. Leaves ovate to obovate, softly hairy beneath with apical tuft, 2–3 mm long, bracts leaf-like, larger. Flowers in spikes, tube 3 mm long. Fruits dry. Oct.–Nov. Sandstone crevices and outcrops at high alt., SW (Blokkop and Riviersonderend Mtns: Baviaanskloof).•

comosa (Meisn.) C.H.Wright Willowy shrublet, branches often pubescent. Leaves linear, softly hairy beneath with apical tuft, 3 mm long, bracts broadly ovate, hairy beneath, larger. Flowers in spikes, tube 3 mm long, neck 1 mm long. Fruits dry. Mostly Oct.–Jan. Upper mountain slopes, NW, SW, KM, LB (Kamiesberg, W Karoo, and Cold Bokkeveld to Klein Swartberg). **gce**

corymbosa Eckl. ex C.H.Wright (= *Passerina vulgaris* (Meisn.) Thoday) Shrub or small tree to 2 m. Leaves linear, with a hairy groove beneath, 3.5–10 mm long, bracts ovate-acuminate, wings longitudinally folded. Flowers in spikes, tube ± 4 mm long, neck slender, ± 2 mm long. Fruits dry. Oct.–Nov. Sandy, often disturbed flats and slopes, NW, SW, AP, KM, LB, SE (Tulbagh to E Cape).

esterhuyseniae C.L.Bredenkamp & A.E.van Wyk Like **P. comosa** but bract helmet-shaped and brownish, and flowers pale yellow turning red to brown after pollen release. ?. High, rocky slopes and peaks, NW (Pakhuis Mtns and Redelinghuys).•

falcifolia (Meisn.) C.H.Wright Shrub or small tree, 1.5–3 m. Leaves falcate, hairy beneath, 4–10 mm long, bracts ovate-acuminate, wings prominently veined. Flowers in spikes, tube 5–6 mm long, neck slender and exserted. Fruits dry. Oct.–Nov. Rocky slopes and river banks, SW, KM, LB, SE (Caledon District and Outeniqua Mtns to Alexandria).

filiformis L. BRUINGONNA Shrub, 1.5–2 m. Leaves concave, linear, hairy beneath, 7–15 mm long, bracts membranous-winged. Flowers in spikes, tube ± 4 mm long, neck slender and exserted. Fruits dry. Aug.–Nov. Stony slopes, river banks and grasslands, NW, SW, LB (Clanwilliam to Peninsula, Hex River Mtns to Langeberg at Attaquaskloof).•

galpinii C.H.Wright Shrub or shrublet. Leaves linear, incurved, hairy beneath, 3–5 mm long, bracts membranous-winged. Flowers in dense spikes, tube ± 3 mm long, neck ± 1 mm. Fruits dry. Oct.–Nov. Coastal limestones, AP (Arniston to Mossel Bay).•

montivaga C.L.Bredenkamp & A.E.van Wyk Like **P. filiformis** but leaves below flowers swollen at the base. ?. Rocky slopes, LB, SE (Mossel Bay to N Tanzania).

nivicola C.L.Bredenkamp & A.E.van Wyk Shrub to 2 m. Leaves subterete, with a hairy groove beneath and tufted at apex when young, 2.5–4.5 mm long, bracts winged with a bulla on each side. Flowers in spikes, tube ± 3 mm long, neck ± 1.5 mm long, hairy. Fruits dry. Oct.–Nov. High mountain slopes, NW, SW, KM (W Karoo and Cold Bokkeveld to Wemmershoek and Waboomsberg). **gce**

obtusifolia Thoday Shrub to 1.5 m. Leaves linear-oblong, hairy beneath, 4–8 mm long, bracts dilated and ribbed below. Flowers in dense spikes, tube. ± 3.5 mm long, neck bent outwards. Fruits dry. Oct.–Nov. Rocky slopes and flats, KM, SE (W and Little Karoo to E Cape).

paleacea Wikstr. Shrublet to 1 m. Leaves small, compressed above, 1.5–2.5 mm long, bracts suborbicular, keeled above. Flowers in dense spikes, tube ± 2 mm long, neck absent. Fruits dry. Oct.–Nov. Coastal sands, SW, AP (Saldanha Bay to Agulhas).•

paludosa Thoday Shrub to 2 m. Leaves adpressed, lanceolate, hairy beneath and tufted at apex, 6–10 mm long, bracts ovate-acuminate, wings membranous and faintly veined. Flowers in spikes, tube ± 5 mm long, neck slender and longer. Fruits dry. Nov. Coastal marshes and seeps, SW, AP (Cape Flats near Muizenberg, Agulhas Peninsula).•

pendula Eckl. & Zeyh. ex Thoday Shrub to 1.5 m. Leaves adpressed, ovate-lanceolate, with a hairy groove beneath, 2.5–3 mm long, bracts rhombic, margins somewhat dry and ciliate, larger. Flowers in ± pendulous spikes, tube ± 3 mm long, neck ± 0.5 mm long. Fruits dry. Oct.–Nov. Sandstone slopes and river banks, SE (Uniondale to Port Elizabeth).•

quadrifaria C.L.Bredenkamp & A.E.van Wyk Like **P. comosa** but leaves less hairy. ?. Rocky sandstone slopes at high alt., KM, LB, SE (Langeberg and Little Karoo mountains to Great Winterhoek Mtns).•

rubra C.H.Wright Shrublet to 1 m. Leaves lanceolate, hairy beneath, 2.5–5 mm long, bracts spreading, ovate-acuminate. Flowers in long, lax spikes, tube ± 3 mm long, neck ± 1 mm long. Fruits dry. Oct.–Nov. Stony and sandy flats, LB, SE (Riversdale to E Cape).

truncata (Meisn.) C.L.Bredenkamp & A.E.van Wyk (= *Passerina glomerata* Thunb.) Shrub or shrublet. Leaves truncate or hump-backed, hairy beneath, 2–4 mm long, bracts obovate, ribbed, larger. Flowers few in dense spikes, tube ± 3.5 mm long, neck very short. Fruits dry. Oct.–Nov. Sandy and stony, usually arid flats, NW, SW, KM, LB, SE (Namaqualand and Bokkeveld Mtns to Baviaanskloof). **gce**

STRUTHIOLA L. FEATHERHEAD, KATSTERTJIE, ROEMENAGGIE, VEERTJIE

± 40 spp., tropical and southern Africa, mainly W Cape

A. Floral scales 4

striata Lam. Shrub to 1 m, hairy on young branches. Leaves opposite, imbricate, ovate-oblong, sub-acute, strongly striate below, ciliate at first. Flowers axillary, cream-coloured, yellow or pinkish. Sept.–June. Flats and lower slopes, SW, AP, LB, SE (Yzerfontein to Mossel Bay, Uitenhage).•

tetralepis Schltr. Shrublet to 30 cm, hairy on young branches. Leaves opposite, imbricate, lanceolate, acuminate, striate below when dry, ciliate. Flowers axillary, reddish, sepals lanceolate, acuminate. Oct.–Feb. Lower to middle slopes, SW (Paarl to Caledon).•

A.' Floral scales 8
B. Hypanthium hairy outside

ciliata (L.) Lam. (incl. **S. angustifolia** Lam., **S. flavescens** Gilg ex C.H.Wright, **S. longiflora** Lam., **S. lucens** Lam., **S. pillansii** Hutch., **S. rustiana** Gilg, **S. schlechteri** Gilg ex C.H.Wright, **S. virgata** L.) Shrub to 1.5 m with adpressed-hairy to white-woolly, tetragonal branches. Leaves opposite, linear-lanceolate to narrowly elliptic, faintly ribbed beneath, ciliate. Flowers axillary, cream-coloured, pink or reddish, hypanthium sometimes glabrescent, scales oblong, shorter to longer than perigonal hairs. Jan.–Dec. Flats and slopes, NW, SW, AP, KM, LB (Namaqualand to Albertinia and Little Karoo). **gce**

confusa C.H.Wright Slender shrublet to 60 cm with tetragonal branches. Leaves opposite, linear-lanceolate to narrowly elliptic, subacute, sparsely ciliate. Flowers axillary, cream-coloured or pink, hypanthium sparsely adpressed-hairy, scales oblong, as long as perigonal hairs. Aug.–Dec., sometimes Feb. Lower slopes, NW, SW, KM (Citrusdal to Little Karoo).•

leptantha Bolus Shrub to 2 m with densely to sparsely hairy, slightly tetragonal branches. Leaves opposite, narrowly elliptic to narrowly obovate, obtuse to subacute, at first hairy below, later glabrous and pustulate. Flowers axillary, cream-coloured, sometimes reddish, scales oblong, as long as or shorter than perigonal hairs. June–Oct. Sandy flats and mountain slopes, NW, SW, KM (Namaqualand to Malmesbury and Little Karoo). **gce**

linearilobа Meisn. Slender shrublet to 30 cm with tetragonal branches. Leaves opposite, lanceolate, ciliate. Flowers axillary, red, hypanthium adpressed-hairy only in lower half, sepals lanceolate, acute, scales oblong, as long as perigonal hairs. Sept.–Oct. Upper slopes, NW (Pakhuis Mtns).•

B.' Hypanthium glabrous outside

dodecandra (L.) Druce (= *Struthiola erecta* Lam.) Erect shrub to 80 cm with lax, tetragonal branches. Leaves opposite, lanceolate to narrowly elliptic, acute, smooth or faintly ribbed below. Flowers axillary, white or pink, scales narrowly ovoid, as long as or longer than perigonal hairs. Jan.–Dec. Flats and lower slopes, SW, AP, SE (Cape Peninsula to Bredasdorp, Knysna).•

eckloniana Meisn. Shrub to over 2 m with tetragonal, glabrous or sparsely adpressed-hairy branches. Leaves opposite, narrowly lanceolate to narrowly elliptic, acute. Flowers axillary, twice as long as leaves, white, cream-coloured, pink or sometimes yellow, scales linear, longer or shorter than perigonal hairs. Jan.–Dec. Mountain slopes, KM, LB, SE (Langeberg and Little Karoo to Uniondale).•

ericoides C.H.Wright Erect shrub to 80 cm with stiffly hairy, tetragonal branches. Leaves opposite, narrowly elliptic, at first ciliate, faintly striate below. Flowers axillary, deep yellow to red, scales ovoid, as long as the white, perigonal hairs. Oct.–Mar. Sand over limestone hills and mountain slopes, AP, SE (Cape Infanta to George).•

hirsuta Wikstr. (= *Struthiola epacridioides* C.H.Wright; incl. **S. pentheri** Moore, **S. tuberculosa** Lam.) Shrub to 2 m with stiffly hairy branches. Leaves alternate, densely adpressed-hairy to glabrous beneath, ciliate. Flowers axillary, white, scented, scales ovoid, longer than perigonal hairs. Oct.–Aug. Coastal hills and lower slopes, AP, LB, SE (Gansbaai to Uitenhage).•

macowanii C.H.Wright Shrub to 1.3 m, hairy on young branches. Leaves opposite or ternate. Flowers axillary, white, pale yellow to reddish, scales ovoid, as long as or shorter than perigonal hairs. Jan.–Dec. Mountain slopes and coastal hills, AP, LB, SE (Still Bay to E Cape).

myrsinites Lam. (= *Struthiola ovata* Thunb.) Erect, flexuose shrub to 2 m with tetragonal branches. Leaves opposite, narrowly elliptic, acute. Flowers axillary, twice as long as leaves, white or pale pink, scales narrowly ellipsoid, longer than perigonal hairs. Jan.–Dec. Sandy soils, NW, SW, LB, SE (Bokkeveld Mtns to E Cape).

parviflora Bartl. ex Meisn. Straggling shrublet to 60 cm with tetragonal branches, stiffly or woolly hairy on ridges. Leaves opposite, narrowly elliptic to lanceolate, obtuse, ciliate. Flowers axillary, deep cream-coloured, greenish yellow or sometimes red, scales oblong, shorter than the golden-yellow, perigonal hairs. Jan.–Dec. Flats or lower slopes, LB, SE (Riversdale to E Cape).

salteri Levyns Erect to spreading shrublet to 80 cm with hairy branches. Leaves in whorls of 3, sometimes 4, narrowly ovate to narrowly elliptic, acute or acuminate. Flowers axillary, cream-coloured, pinkish, sometimes yellow, scales narrowly ellipsoid, slightly shorter than perigonal hairs. Jan.–Dec. Limestone hills, SW, AP (Cape Peninsula to Agulhas).•

A." Floral scales 12
C. Hypanthium glabrous outside

mundii Eckl. ex Meisn. (incl. **S. ramosa** C.H.Wright) Shrublet to 60 cm with stiffly hairy branches. Leaves alternate, imbricate, narrowly elliptic, acute, 3–5-ribbed and sometimes adpressed-hairy below, densely white-ciliate. Flowers axillary, crowded at apex of branches, yellow, scales ovoid, shorter to longer than perigonal hairs. Aug.–Oct. Lower slopes, SW, LB (Gouda to Swellendam).•

rigida Meisn. Shrublet to 50 cm with crisped-hairy branches. Leaves alternate, imbricate, narrowly elliptic to narrowly ovate, subacute, ciliate. Flowers axillary, yellow, scales as long as or shorter than perigonal hairs. June–Jan. In sands on limestones, SW, AP (Potberg to Gouritsmond).•

C.' Hypanthium hairy outside

argentea Lehm. AANDGONNA Shrub to 2 m with adpressed-hairy branches. Leaves opposite, imbricate, elliptic to suborbicular, sometimes narrowly elliptic, faintly ribbed below, white-ciliate. Flowers axillary, yellow, sometimes reddish orange, scales ovoid, longer than perigonal hairs. Mar.–Dec. Coastal flats or slopes, SW, AP, KM, LB, SE (Hottentots Holland Mtns and Montagu to E Cape).

fasciata C.H.Wright Slender shrublet to 60 cm with crisped-woolly branches. Leaves opposite, lanceolate to narrowly elliptic, blunt, slightly keeled below, white-ciliate. Flowers axillary, cream-coloured or yellow, scales linear, slightly longer than perigonal hairs. Jan.–Aug. Flats or slopes, LB, SE (Swellendam to Knysna).•

garciana C.H.Wright Shrub to 1 m with adpressed-hairy branches. Leaves opposite, lanceolate, acute, 5- or 7-ribbed below. Flowers yellow, cream-coloured or pinkish, scales narrowly ellipsoid, as long as or shorter than perigonal hairs. Mar.–Nov. Forest margins and slopes, KM, LB, SE (Swellendam and Little Karoo to Humansdorp).•

martiana Meisn. (incl. **S. fourcadei** Compton, **S. leiosiphon** Gilg ex C.H.Wright) Shrub to 2 m with silky branches. Leaves alternate, narrowly elliptic, striate below, silky when young, later sparsely hairy and pustulate. Flowers axillary, white or pinkish; hypanthium softly hairy to almost glabrous, scales linear, as long as or shorter than perigonal hairs. May–Jan. Upper slopes, SW, LB, SE (Stellenbosch to Humansdorp).•

tomentosa Andrews Slender shrublet to 60 cm with silky woolly branches. Leaves opposite, imbricate, narrowly elliptic to obovate, acute to rounded, striate below, white-silky when young. Flowers axillary, yellow to pale orange, sometimes cream-coloured, hypanthium woolly, scales linear, shorter than yellow, perigonal hairs. July–Dec., sometimes Mar. Lower slopes, sometimes high, SW, LB, SE (Stellenbosch to George).•

[**Species excluded** Poorly known and probably conspecific with one of the above: **S. bachmanniana** Gilg, **S. cicatricosa** C.H.Wright, **S. concava** Moore, **S. floribunda** C.H.Wright, **S. galpinii** C.H.Wright, **S. longifolia** C.H.Wright, **S. recta** C.H.Wright]

ULMACEAE (= *CELTIDACEAE*)

CELTIS L. WHITE STINKWOOD, WITSTINKHOUT ± 80 spp., widespread

africana Burm.f. Monoecious, deciduous tree to 30 m, with smooth, grey bark, tawny velvety when young. Leaves obliquely ovate-lanceolate, toothed. Flowers 1–few in axillary cymes, greenish. Jan.–Apr. Forests, SW, LB, SE (Cape Peninsula to tropical Africa).

CHAETACME Planch. 1 sp., tropical and southern Africa, Madagascar

aristata Planch. Monoecious, scrambling shrub or small tree with zigzag branches and paired, axillary spines. Leaves elliptic, aristate, glossy. Flowers unisexual, in axillary cymes, greenish or cream-coloured. Oct.–Dec. Coastal and riverine forests, SW, SE (Knysna to tropical Africa and Madagascar).

URTICACEAE

1. Plants with stinging hairs; perianth segments free; stamens 4 or 5:
   2. Leaves opposite; achenes enclosed within accrescent, inner tepals ..... **Urtica**
   2.' Leaves alternate; achenes not enclosed by inner tepals ..... **Laportea**
1.' Plants without stinging hairs; perianth of female flowers absent or apparently so; stamen 1:
   3. Flowers bracteate but not enclosed by common involucre; annual herbs ..... **Didymodoxa**
   3.' Flowers almost completely enclosed by a common involucre of free or fused bracts; perennials or shrublets:
      4. Involucral bracts mostly free, accrescent; leaves with hooked hairs ..... **Forsskaolea**
      4.' Involucral bracts fused to tips in a cup; leaves without hooked hairs ..... **Droguetia**

DIDYMODOXA Wedd. 2 spp., southern Africa to Ethiopia

caffra (Thunb.) Friis & Wilmot-Dear (= *Australina acuminata* Wedd.) Like **D. capensis** but leaves lanceolate to ovate, sharply toothed with apical tooth longer than wide and stipules lanceolate. Nov.–Feb. Forest margins and among rocks, SE (Port Elizabeth to Ethiopia).

capensis (L.f.) Friis & Wilmot-Dear (= *Australina integrifolia* Wedd., *A. lanceolata* (Thunb.) N.E.Br., *A. procumbens* N.E.Br.) Monoecious, sprawling to upright, glabrescent or hairy annual to 30 cm. Leaves soft, ovate, entire or crenate to bluntly toothed, with ovate-lanceolate stipules. Flowers in axillary clusters, green. Aug.–Nov. Sheltered sites, forest margins and clearings, NW, SW, LB, SE (Namibia and Namaqualand to Knysna).

DROGUETIA Gaudich. 7 spp., southern Africa to Indonesia

iners (Forssk.) Schweinf. (= *Droguetia thunbergii* N.E.Br.) Monoecious, softly woody perennial, mostly to 50 cm. Leaves mostly opposite, lanceolate, toothed, apical tooth longer than wide, with tailed apices. Flowers in small, axillary clusters, greenish. July–Nov. Coastal forests, scrub, and among rocks, SW, LB, SE (Cape Peninsula to Indonesia).

FORSSKAOLEA L. 6 spp., southern Africa to Indonesia

candida L.f. Monoecious, softly woody, roughly hairy shrublet to 80 cm, often with red stems. Leaves ovate, discolorous, usually grey-felted beneath, coarsely toothed, margins revolute. Flowers in axillary, involucrate clusters, greenish, involucre lobes enlarging in fruit. Mainly Aug.–Oct. Dry rocky slopes, river beds, karroid flats, KM (Namibia to Karoo and Little Karoo).

LAPORTEA Gaudich. ± 15 spp., cosmopolitan

grossa (Wedd.) Chew Monoecious annual to 1 m, with deflexed stinging hairs on raised base. Leaves triangular, coarsely toothed to lobed, sparsely armed, often spotted white. Flowers in axillary panicles, small, greenish. Dec.–Mar. Coastal forests, SE (George to Kenya).

peduncularis (Wedd.) Chew Monoecious, scrambling to creeping annual to 1.5 m, woody at base, young plants with small, stinging hairs. Leaves ovate, thin-textured, finely serrate. Flowers in axillary panicles, small, greenish. Mainly Jan.–Mar. Forests and coastal bush, SE (George to E Africa).

URTICA L. NETTLE ± 80 spp., widespread but mostly N temperate

lobulata Blume Monoecious annual or short-lived perennial to 80 cm, woody at base, with dense, stiff, stinging hairs. Leaves broadly ovate-cordate, coarsely toothed, with scattered, stinging hairs, petiole 35–112 mm long. Flowers in cylindrical, axillary panicles, small, whitish, female with bristly hairs. Achenes pale ochre to brownish Sept.–Feb. Sheltered, often damp, rocky places, SW, AP, KM, LB, SE (Kamiesberg and SW Cape to Free State).

***urens** L. Monoecious annual to 50 cm, with stiff, stinging hairs. Leaves ovate-elliptic, coarsely toothed, with scattered, stinging hairs, petiole to 50 mm long. Flowers in dense, axillary panicles, small, whitish. May–Oct. Disturbed places, NW, SW, AP, KM, LB, SE (European weed, widespread throughout southern Africa).

VAHLIACEAE

VAHLIA Thunb. VERKLEURMANNETJIEKRUID 5 spp., Africa, Madagascar and India

capensis (L.f.) Thunb. Shortly hairy shrublet from a woody caudex, mostly to 30 cm. Leaves opposite, linear-oblanceolate. Flowers paired, axillary, yellow fading maroon or brown. Mainly Sept.–Nov. Sandstone and granite slopes, NW, SW (Namibia to Mamre, widespread in the drier parts of southern Africa).

VALERIANACEAE

VALERIANA L. VALERIAN ± 200 spp., N temperate and tropical mountains

capensis Thunb. WILDEBALDERJAN Tufted, rhizomatous perennial to 1 m. Leaves pinnatisect, leaflets smaller towards base, upper leaves opposite and sessile. Flowers in corymbose panicles, cream-coloured to pinkish. Fruits with a plumose, apical pappus. Nov.–Feb. Sandstone slopes in moist sites, SW, KM, LB, SE (Cape Peninsula to S tropical Africa).

VERBENACEAE

CHASCANUM E.Mey. (= *PLEXIPUS*) ± 25 spp., Africa

A. Leaves ternate, sessile

cernuum (L.) E.Mey. (= *Chascanum integrifolium* (H.Pearson) Moldenke) Twiggy shrublet, mostly to 30 cm. Leaves sessile, mostly ternate, imbricate, cuneate, 3–5-toothed above. Flowers in compact, terminal spikes, white or tinged mauve often with yellow throat. Cocci with large, lateral areole (excavation). All year but mainly Aug.–Nov. Rocky slopes and flats in karroid scrub and fynbos, often on limestones, SW, AP, KM, LB, SE (Cape Peninsula to KwaZulu-Natal).

A.' Leaves opposite, petiolate

cuneifolium (L.f.) E.Mey. (= *Chascanum dehiscens* (L.f.) Moldenke) Twiggy shrublet to 50 cm. Leaves opposite, obovate to round or flabellate, petiolate, mostly 5–7-toothed. Flowers in compact spikes, white or mauve. Cocci with small, basal areole (excavation). July–Nov. Shale and limestone slopes, KM (Little Karoo to coastal KwaZulu-Natal).

pumilum E.Mey. Twiggy shrublet to 50 cm. Leaves glaucous, opposite, ovate, petiolate, mostly 5–7-toothed. Flowers in subcapitate spikes, cream-coloured to orange. Cocci with large, lateral areole (excavation). July–Nov.(–Jan.) Sandy flats and washes, KM (drier parts of southern Africa into Little Karoo).

VIOLACEAE

1. Sepals without basal lobes; stipules small, narrow ..... **Hybanthus**
1.' Sepals with ear-like basal lobes; stipules foliaceous ..... **Viola**

HYBANTHUS Jacq. LADY'S-SLIPPER ± 100 spp., tropical and subtropical, mostly New World

capensis (Thunb.) Engl. Roughly hairy perennial from a woody rootstock, to 15 cm. Leaves obovate, shallowly toothed. Flowers solitary in axils, nodding, violet, mauve or white. Nov.–May. Grasslands, SE (Uitenhage to Mpumalanga).

VIOLA L. VIOLET ± 300 spp., cosmopolitan, mainly N temperate

decumbens L.f. CAPE VIOLET Shrublet to 25 cm. Leaves linear. Flowers solitary in axils, nodding, faintly scented, violet to purple. July–Dec. Damp, sandstone slopes, SW, AP, LB (Bain's Kloof to Riversdale).•

VISCACEAE = SANTALACEAE

VITACEAE

by E. Retief

1. Petals 5 or 6; stamens with anthers bending over gynoecium ..... **Rhoicissus**
1.' Petals 4; stamens not bending noticeably over gynoecium ..... **Cyphostemma**

CYPHOSTEMMA (Planch.) Alston WILDEDRUIF ± 150 spp., warm regions

cirrhosum (Thunb.) Desc. ex Wild & R.B.Drumm. DROOG-MY-KEEL Scrambling shrub or canopy climber. Leaves digitately 5-foliolate, leaflets sessile, margins broadly dentate, succulent. Flowers dull yellow. Fruits subglobose, ± 10 mm diam. Nov.–Feb. Coastal bush, SE (Port Elizabeth to KwaZulu-Natal).

RHOICISSUS Planch. BOSDRUIF 10 spp., southern and tropical Africa

digitata (L.f.) Gilg & M.Brandt BOBBEJAANDRUIF, WILDEPATAT Scrambling vine. Leaves digitately 3-foliolate, leaflets subsessile, lateral ones usually sessile, margins entire. Flowers yellowish green. Fruits subglobose, reddish brown to purple. Jan.–May. Coastal dunes, SW, AP, SE (Betty's Bay to Mozambique).

kougabergensis Retief & Van Jaarsv. Sprawling shrub. Leaves secund, simple, narrowly obovate. Flowers in leaf-opposed, reddish brown-hairy cymes, greenish yellow. Fruits globose, 8–10 mm diam. Oct.–Nov. Subtropical thickets, sandstone slopes, SE (Kouga Mtns).•

tomentosa (Lam.) Wild & R.B.Drumm. MONKEYROPE Scrambling shrub or canopy climber. Leaves simple, usually reniform, 3-veined from base, margins lobed with shallow serrations, dark green above, rusty velvety beneath. Flowers in dense, reddish brown-hairy cymes, greenish. Fruits large to 20 mm diam., red to dark purple. Oct.–Feb. Forests, SE (Knysna to Tanzania).

tridentata (L.f.) Wild & R.B.Drumm. DROOG-MY-KEEL, WILDEDRUIF Shrub with branches scandent or erect, to 1 m. Leaves 3-foliolate, leaflets with margins ± entire or terminal leaflet 1–4-toothed or -crenate, glabrescent or grey-hairy. Flowers yellowish green. Fruits subglobose, red to purplish black. Sept.–June. Scrub and thickets, LB, SE (Riversdale to E Cape).

ZYGOPHYLLACEAE

Roepera, Tetraena with L. van Zyl

1. Petals 0; sepals with horseshoe-shaped ridge on inner face with deflexed, glandular hairs from upper portion of ridge; stamens 5(–7 or 8); prostrate, woody annual with woolly nodes ..... **Seetzenia**
1.' Petals 4 or 5; sepals simple or outer 2 pouched at base; stamens 8–10 with ornamented filaments:
2. Leaves simple, clavate; petals 3-fid; succulent annual or short-lived perennial ..... **Augea**
2.' Leaves compound; petals simple; woody perennials or annuals:
3. Annuals; leaves pinnate; ovary bristly and fruit spiny ..... **Tribulus**
3.' Shrublets; leaves (1)2- or 3-foliolate; ovary and fruit glabrous:
4. Fruit a septicidal schizocarp with exarillate seeds; petals unmarked; nectar disc smooth ... **Tetraena**
4.' Fruit a loculicidal capsule with arillate seeds; petals usually marked at base; nectar disc papillate ..... **Roepera**

AUGEA Thunb. 1 sp., W Karoo and Namaqualand to Little Karoo **gce**

capensis Thunb. Brittle, succulent annual or short-lived perennial to 40 cm. Leaves opposite, clavate. Flowers few at nodes, whitish, petals 3-toothed. Fruits large, ellipsoid, splitting irregularly; seeds woolly. Aug.–Oct. Dry, sandy flats, NW, KM (Namaqualand and W Karoo to Little Karoo). **gce**

ROEPERA A.Juss. TWINLEAF, SPEKBOS southern Africa, Australia

A. Leaves simple

cordifolia (L.f.) Beier & Thulin (= *Zygophyllum cordifolium* L.f.) Erect or sprawling shrublet to 60 cm. Leaves obovate to suborbicular, glaucous, succulent. Flowers lime-yellow with red or brown

markings. Fruits oblong, 5-angled and 5-winged, wings 2 mm wide. Apr.–Oct. Sandy, coastal dunes and rocky slopes, NW, SW (S Namibia to Saldanha). **gce**

A.' Leaves bifoliolate
B. Leaves petiolate
C. Fruits angled and winged

debilis (Cham. & Schltdl.) Beier & Thulin (= *Zygophyllum debile* Cham. & Schltdl.) Spreading, soft shrublet to 20 cm. Leaves bifoliolate, leaflets elliptic, glaucous. Flowers pale yellow. Fruits oblong, 5-angled with wings, wings 2 mm wide, red-brown. May–Oct. Dry, shale slopes, KM, SE (Swartberg to Uniondale).•

lichtensteiniana (Cham. & Schltdl.) Beier & Thulin (= *Zygophyllum lichtensteinianum* Cham. & Schltdl.) VAALSPEKBOS Erect shrublet to 80 cm. Leaves bifoliolate, leaflets obovate, glaucous and waxy. Flowers lime-yellow. Fruits oblong, 5-angled with wings, wings 2 mm wide. Mainly Sept. Shale flats, KM (W and Little Karoo to Steytlerville).

morgsana (L.) Beier & Thulin (= *Zygophyllum morgsana* L.) SLAAIBOS Erect shrub or shrublet to 1.5 m. Leaves bifoliolate, leaflets asymmetric, obovate. Flowers yellow, with only 4 petals. Fruits large, 4-angled with wings, wings 15 mm wide. Apr.–Oct. Sandy and stony slopes and flats, mostly coastal, NW, SW, AP, KM, LB, SE (S Namibia to Grahamstown).

C.' Fruits lobed and ribbed

foetida (Schrad. & J.C.Wendl.) Beier & Thulin (= *Zygophyllum foetidum* Schrad. & J.C.Wendl.; incl. **Zygophyllum meyeri** Sond.) SLYMBOS Foetid, sprawling and scandent shrub to 2 m or more. Leaves bifoliolate, leaflets asymmetric, obovate. Flowers deep yellow with red markings. Fruits roundish when fresh, 5-lobed with prominent bony ribs when dry. July–Oct. Slopes, flats and stream banks, NW, KM, SE (S Namibia to Grahamstown).

leptopetala (E.Mey ex Sond.) Beier & Thulin (= *Zygophyllum leptopetalum* E.Mey ex Sond.) Rounded shrublet to 1 m. often striate. Leaves bifoliolate, leaflets asymmetric, obovate. Flowers white with red veins; staminal scales lacerate and curly-papillate. Fruits roundish when fresh, 5-lobed when dry. May–Sept. Stony flats in succulent karoo, NW (S Namibia to Trawal). **gce**

maculata (Aiton) Beier & Thulin (= *Zygophyllum maculatum* Aiton) Erect shrublet to 80 cm, stems striate. Leaves bifoliolate, leaflets linear. Flowers deep yellow with red markings. Fruits oblong, 5-lobed with ribs. Mar.–July. Shale flats and rocky ridges, KM (Tanqua Karoo to Witteberg). **gce**

maritima (Eckl. & Zeyh.) Beier & Thulin (incl. **Zygophyllum uitenhagense** Sond.) Trailing shrublet with branches to 2 m long. Leaves bifoliolate, leaflets obovate to elliptic. Flowers yellow with red or brown markings. Fruits round or oblong and 5-sutured when fresh, 5-angled with heavy ribs when dry. Mainly Sept. Coastal sands and limestones among scrub, AP, LB, SE (Bredasdorp to Grahamstown).

B.' Leaves sessile
D. Fruits rounded and not lobed when fresh

flexuosa (Eckl. & Zeyh.) Beier & Thulin (= *Zygophyllum flexuosum* Eckl. & Zeyh.) Sprawling shrublet to 70 cm. Leaves bifoliolate, leaflets obovate, often succulent. Flowers golden-yellow with red markings, tepals reflexed. Fruits subrotund, wider than long, 5-sutured seeds sticky. June–Oct. Coastal sands and limestones, SW, AP, SE (Velddrif to Knysna).•

fulva (L.) Beier & Thulin (= *Zygophyllum fulvum* L.) Erect or straggling shrublet to 1 m. Leaves bifoliolate, leaflets obovate with smooth, bony margins. Flowers cream-coloured to yellow with red markings. Fruits oblong, 5-sutured when fresh but 5-angled when dry. July–Oct. Sandy flats and rocky slopes, NW, SW, KM, LB, SE (Gifberg to Port Elizabeth).•

spinosa (L.) Beier & Thulin (= *Zygophyllum spinosum* L.; incl. **Zygophyllum procumbens** Adamson) Erect or sprawling shrublet to 1 m. Leaves bifoliolate, leaflets semi-terete to cylindrical, grooved beneath. Flowers yellow with or without red markings. Fruits round, acute and 5-sutured when fresh, 5-angled and slightly ribbed when dry. June–Sept. Coastal sands and rocky ridges, NW, SW (Namaqualand: Kleinzee, Lambert's Bay to Cape Peninsula). **gce**

D.' Fruits lobed or angled when fresh

cuneifolia (Eckl. & Zeyh.) Beier & Thulin (= *Zygophyllum cuneifolium* Eckl. & Zeyh.) Erect shrublet to 60 cm. Leaves bifoliolate, leaflets wedge-shaped, succulent. Flowers yellow with khaki

markings. Fruits oblong, 5-angled with ribs. June–Sept. Red sands and shale slopes, NW (Namaqualand to Klawer). **gce**

fuscata (Van Zyl) Beier & Thulin (= *Zygophyllum fuscatum* Van Zyl) Erect shrublet to 1 m. Leaves bifoliolate, leaflets elliptic to obovate. Flowers deep yellow with or without red markings. Fruits oblong, 5-angled with ribs. May–Aug. Sandy flats on coastal limestone, SW, AP (Betty's Bay to De Hoop).•

pygmaea (Eckl. & Zeyh.) Beier & Thulin (= *Zygophyllum pygmaeum* Eckl. & Zeyh.) Erect shrublet to 60 cm. Leaves bifoliolate, leaflets cylindrical, grooved beneath. Flowers yellow with red markings. Fruits oblong, 5-lobed and slightly ribbed. June–Sept. Sandstone and shale slopes, NW, KM, SE (Bokkeveld Mtns and Karoo to Uniondale).

rogersii (Compton) Beier & Thulin (= *Zygophyllum rogersii* Compton) Soft shrublet to 40 cm. Leaves bifoliolate, leaflets minute, cylindrical, grooved beneath. Flowers dark pink to red. Fruits round and 5-sutured when fresh, 5-angled and slightly ribbed when dry. Aug.–Oct. Sandstone and shale slopes, NW, KM (Swartruggens and Witteberg).•

sessilifolia (L.) Beier & Thulin (= *Zygophyllum sessilifolium* L.) WITSPEKBOS Sprawling or prostrate shrublet to 10 cm. Leaves bifoliolate, leaflets obovate with rough, bony margins, one stipule on ventral side. Flowers cupped, whitish with red veins and markings. Fruits round to oblong with acute apex, 5-angled when fresh, 5-lobed and ribbed when dry. July–Sept. Shale and sandy slopes, often under bushes, SW (Moorreesburg to Cape Peninsula).•

sp. 1 Like **R. sessilifolium** but erect, to 1.2 m, fruit with truncate apex and 2 stipules on ventral side. June–Sept. Sandy and stony, shale slopes, NW, SW (Graafwater to Villiersdorp).•

sp. 2 (*Zygophyllum calcaricum* Van Zyl *ms*.) Erect shrublet to 1 m. Leaves bifoliolate, leaflets obovate. Flowers cupped, whitish with red veins. Fruits oblong, 5-lobed and ribbed. Apr.–Sept. Coastal sands on limestones, AP (Gansbaai to Mossel Bay).•

sp. 3 Erect shrub to 1.5 m. Leaves bifoliolate, leaflets elliptic. Flowers deep yellow with red or brown markings. Fruits oblong, 5-angled and ribbed. May–Sept. Rocky slopes, KM (Rooiberg, Gamkaberg and Swartberg).•

sp. 4 Large shrub to 1.5 m, young stems red-brown. Leaves bifoliolate, leaflets obovate, cuneate below, dark green. Flowers yellow with or without red markings. Fruits oblong, 5-lobed and ribbed. June–Oct. Mostly shale slopes, NW, KM (Hex River Pass and Little Karoo to Garcia's Pass).•

SEETZENIA R.Br. ex Decne. KNIETJIESBOS, LIDJIESBOS 2 spp., southern Africa and N Africa to India

lanata (Willd.) Bullock Prostrate, succulent annual with jointed stems woolly at nodes. Leaves opposite, trifoliolate, leaflets obovate, fleshy. Flowers solitary, terminal, erect, sepals greenish yellow, with long filaments and styles. Sept.–Dec. Rocky sandstone slopes, NW (Bokkeveld Mtns to Twenty-Four Rivers Mtns).•

TETRAENA Maxim. ± 40 spp. Africa and Asia

chrysopteron (Retief) Beier & Thulin (= *Tetraena retrofracta* of Cape plants 2000) Divaricately branched shrub with arching stems to 1.5 m. Leaves often on short shoots, petiolate, bifoliolate or reduced, sessile and unifoliolate later, leaflets minute, obovate, succulent. Flowers white, ± 5 mm diam.; staminal scales bipartite. Fruits small, subglobose, 5-winged, yellow when mature. Sept.–Dec. Sandy and shale flats, KM, SE (S Namibia to Little Karoo and Steytlerville).

microcarpa (Licht. ex Cham.) Beier & Thulin Rounded shrub to 2 m, white-hairy on the young parts. Leaves bifoliolate, leaflets obovate, succulent. Flowers white or pale yellow, 10–15 mm diam.; staminal scales truncate. Fruits oblong, 5-winged, yellow or reddish when mature. Nov.–Jan. Deep soils on flats and river beds, KM (Calitzdorp to Oudtshoorn through dry areas of southern Africa).

TRIBULUS L. DUBBELTJIEDORING ± 20 spp., cosmopolitan in arid areas

terrestris L. Glabrescent or hairy, prostrate annual with stems radiating from a crown. Leaves opposite, unequal, pinnate, leaflets oblong, silky. Flowers solitary in axils, yellow. Fruits spiny, fragmenting into segments. Oct.–Apr. Sandy flats and roadsides, NW, SW, AP, KM, LB, SE (throughout southern Africa).

Taxonomic notes

Families recognized and generic realignments

This volume, a revised and updated edition of *Cape plants* (Goldblatt & Manning 2000), brings that account of the Cape flora up to date by incorporating numerous generic realignments, as well as new species and genera that have been described since then. Family realignments have also accumulated, some of which were published in a short paper with corrections and additions that had come to our attention at that stage (Goldblatt *et al.* 2005). The classification that we follow here is that of the Angiosperm Phylogeny Group II (APGII 2003) and the revisions to it that were published in the later paper by Haston *et al.* (2007). This version continues to recognize several optional, smaller, monophyletic families that were subsequently subsumed by APG III (2009) into more broadly circumscribed families, often without evident morphological synapomorphies. The earlier version is, in our view, more useful.

Notable among the adjustments adopted by APG II is the transfer of *Prionium*, traditionally included in Juncaceae and later in the monogeneric Prioniaceae, to **Thurniaceae**. Behniaceae, established for the monospecific *Behnia*, are now included in a broadly circumscribed **Agavaceae** along with Anthericaceae. Likewise, Convallariaceae, Dracaenaceae, and Eriospermaceae are subsumed in **Ruscaceae**. The aquatic monocot families Najadaceae and Zannichelliaceae have been transferred to **Hydrocharitaceae** and **Potamogetonaceae** respectively. Significant among the familial changes in the dicots is the dismemberment of **Euphorbiaceae**. *Hyaenanche* has been removed to the predominantly tropical **Picrodendraceae**, and **Phyllanthaceae** are now accorded family status, including *Andrachne, Flueggea*, *Lachnostylis*, and *Phyllanthus.* Generic circumscriptions and the constitution of **Scrophulariaceae** have continued to change and the family, shorn of its mainly northern hemisphere members that have been transferred to a much enlarged Plantaginaceae, is now a predominantly southern hemisphere family. *Buddleja* and *Gomphostigma*, previously Buddlejaceae, are now included in Scrophulariaceae, whereas *Charadrophila*, *Halleria*, and tribe Bowkerieae (*Anastrabe*, *Bowkeria*, and *Ixianthes*) have been transferred to **Stilbaceae**, which now also include *Nuxia*, transferred from **Loganiaceae**, and *Ilysanthes* has been subsumed in *Lindernia*, which is now included in **Linderniaceae**. *Samolus*, previously included in Primulaceae, has been transferred to **Theophrastaceae**.

Other notable familial changes since the publication of *Cape plants* (Goldblatt & Manning 2000) are the inclusion of Celtidaceae in **Ulmaceae** (a return to the pre-APG traditional classification) and the reduction of Flacourtiaceae (*Dovyalis*, *Pseudoscolopia*, *Scolopia*, and *Trimeria*) in **Salicaceae**. *Kiggelaria*, previously Kiggelariaceae, is now referred to **Achariaceae**, which are much enlarged and no longer restricted to sub-Saharan Africa. Both Sterculiaceae and Tiliaceae remain included in **Malvaceae**, but **Capparaceae** and **Cleomeaceae** have been segregated from **Brassicaceae**, and **Lobeliaceae** are recognized as distinct from **Campanulaceae**. Viscaceae are now known to be nested in a broadly circumscribed **Santalaceae** and are accordingly included in that family. Lastly, Portulacaceae, as traditionally treated, have been shown to be paraphyletic without the inclusion of Cactaceae (Nyffeler & Eggli 2010). The alternative to expanding Cactaceae to include the

various lineages in Portulacaceae is to recognize additional smaller families, and this is the option that has been proposed. Portulacaceae are now restricted to the genus *Portulaca*, and the single portulacaceous genus in the Cape flora, *Anacampseros*, is placed in the family **Anacampserotaceae**.

Generic changes are legion and cannot be listed here in detail: we mention some of the more significant changes below, beginning with the monocots. In **Amaryllidaceae**, *Cybistetes* is now included in *Ammocharis*. In **Colchicaceae**, several genera have seen major revision, with *Androcymbium* now included in *Colchicum* and *Neodregea* and *Onixotis* included in *Wurmbea* (Manning *et al.* 2007; Vinnersten & Manning 2007). In **Hyacinthaceae**, the review of subfamily Ornithogaloideae (Manning *et al*. 2009) has resulted in the transfer of *Ornithogalum* subgen. *Osmyne* and subgen. *Urophyllon* to *Albuca*, and the reduction of *Galtonia* and *Neopatersonia* in *Ornithogalum*. An alternative interpretation of the same data proposes the recognition of 19 genera in the subfamily (Martínez-Azorín *et al.* 2011) and is, in our opinion, impractical. Other important changes in the family are the reduction of *Polyxena* in *Lachenalia*, and the recognition of the monotypic *Spetaea* for the species previously known as *Scilla plumbea*. Major revision in the understanding of generic concepts in **Iridaceae** has left the family in southern Africa with fewer genera, many of them now understood to have been recognized on the basis of adaptations for particular pollination syndromes, often bird pollination. The reductions of *Homoglossum* and *Anomalesia* in *Gladiolus*, *Anapalina* in *Tritoniopsis*, *Antholyza* in *Babiana*, and *Galaxia*, *Gynandriris*, *Hexaglottis*, and *Homeria* in *Moraea* were reflected in *Cape plants* (Goldblatt & Manning 2000), leaving as the only generic change in that family the separation of *Afrocrocus* from *Syringodea* (Goldblatt & Manning 2008). Among **Orchidaceae**, a molecular analysis of *Pterygodium* and its allies has shown that *Pterygodium* is paraphyletic with the exclusion of *Corycium* and the latter is accordingly included in it, with the exception of *C. rubiginosum*, which is transferred to *Evotella*. In **Poaceae**, the previously endemic *Pentameris* has been expanded to include *Pentaschistis* and *Pseudopentameris* whereas *Merxmuellera* has been dismembered to yield *Capeochloa*, *Geochloa*, and *Tenaxia* (the latter endemic). **Restionaceae** have also been substantially revised (Linder & Hardy 2010): an enlarged *Restio* now includes *Calopsis* and *Ischyrolepis*, a new genus *Soroveta* has been erected for *R. ambiguus*, and *Chondropetalum* and *Dovea* have been subsumed in *Elegia.*

Among the dicots, the transfer of *Centella* from **Apiaceae** to **Araliaceae** has been reversed and it is now the largest genus of Apiaceae. Another significant change in that family has been the restriction of *Peucedanum* to the northern hemisphere, and southern African species included in that genus in *Cape plants* (Goldblatt & Manning 2000) have now been referred to *Bubon*, *Cynorhiza*, and *Nanobubon* (Winter *et al.* 2008). *Dasispermum* has been expanded to include the morphologically similar *Sonderina* as well as the southern African species of *Stoibrax* (Magee *et al*. 2009). In **Aizoaceae**, *Mesembryanthemum* is now the sole genus in subfamily Mesembryanthemoideae, and includes *Aptenia, Aridaria*, *Brownanthus*, *Phyllobolus*, *Platythyra*, *Prenia*, *Psilocaulon*, *Sceletium*, and *Sphalmanthus* (Klak *et al*. 2007). It becomes one of the larger genera of the family. Critical re-evaluation of several key genera is responsible for a decrease in species numbers in the family. Notably, *Lampranthus*, in the past one of the larger genera of the flora with ± 120 species, is now reduced to 68 species. Despite modest reduction in total species (currently 633 species), Aizoaceae remain a major family in the core Cape flora, and among the five largest in terms of species numbers, and are well represented and diverse in all major vegetation types, not only in succulent karoo habitats. For **Anacardiaceae**, a major taxonomic change is the transfer of African species of the well-known and ecologically important *Rhus* to *Searsia*.

In **Asteraceae**, molecular phylogenies are revealing numerous instances of paraphyly among current generic circumscriptions. In a recent example, *Ifloga* has been shown to be

paraphyletic with the exclusion of *Trichogyne*, and the latter is thus appropriately included in the former (Bergh *et al.* 2011). However, we reject the still only partially implemented treatment of Calenduleae that proposes the recognition of numerous generic segregates of *Osteospermum* (including *Chrysanthemoides*, *Gibbaria*, *Inuloides*, *Monoculus*, *Nephrotheca*, *Norlindhia*, *Oligocarpus*, and *Tripteris*) in favour of a simpler, synthetic system that recognizes just three genera: *Garuleum*, *Dimorphotheca*, and *Osteospermum*. We have made the necessary taxonomic changes below, where this action is discussed in detail. Also in Asteraceae, primarily on the basis of cytology and chemistry in combination with preliminary DNA data, *Vernonia* has been restricted to the New World, and Old World species are now segregated among 14 genera (Robinson 1999). The Cape flora species have been referred to *Distephanus*, *Hilliardiella*, and *Gymnanthemum*. Similarly, the African species of *Aster* represent a distinct lineage and are placed in the new genus *Afroaster*. In contrast, most native African species of *Conyza* are now known to actually belong in subtribe Grangeinae (Nesom & Robinson 2007), where they are comfortably accommodated in the genus *Nidorella*. The genera *Bolandia* and *Oresbia* have been established for selected species of *Cineraria* and *Senecio*, and the endemic genus *Cadiscus*, with only *C. aquaticus*, is now included in *Senecio* as a result of molecular phylogenetic study (Nordenstam *et al.* 2009).

It is necessary to reconsider the transfer of Cape honeysuckle, *Teconaria* (**Bignoniaceae)** to *Tecoma*, which was done on morphologial grounds. Recent molecular evidence places *Tecoma capensis* as sister to the African genus *Podranea* and not to the American *Tecoma* (Olmstead *et al.* 2009), which certainly makes biogeographical sense. It should therefore be retained as a separate genus.

The account of **Bruniaceae** reflects generic re-circumscriptions resulting from molecular study (Quint & Classen-Bockhoff 2006; Classen-Bockhoff *et al.* 2011). *Audouinia* now includes *Tittmannia* while *Lonchostoma, Mniothamnea, Nebelia, Raspalia*, and *Pseudobaeckea* have been subsumed in *Brunia*.

The most controversial generic changes are undoubtedly those involving *Acacia* (**Fabaceae**) (see Thiele *et al.* (2011) for a summary of the issues). There is now compelling phylogenetic evidence that *Acacia s.lat.* is polyphyletic, comprising five distinct clades widely separated within the tribes Ingeae and Mimoseae. Each of these is appropriately treated as a separate genus, and in order to reduce the number of new combinations required by this treatment, the genus *Acacia* Mill. has been conserved with the Australian *A. penninervis* Sieb. ex DC. as the conserved type in preference to the African *A. scorpioides* (L.) W.Wight (= *A. nilotica* (L.) Delile). The continental African species have in consequence been transferred to the genera *Senegalia* and *Vachellia*. As unpalatable as this may be to African botanists, it is now a *fait accompli*. Retaining the type of the genus in Africa would only have 'saved' less than one third of the African species from generic transfer (to *Vachellia*), with the majority of the species being transferred to *Senegalia* in any event.

In **Lamiaceae**, the most dramatic change stems from compelling evidence that the African species of *Leucas* are not immediately related to the Asian species (Singh 2001; Scheen & Albert 2007). We accordingly implement the recommendation that the African species be treated as part of an enlarged *Leonotis*. Significant generic changes are indicated for **Proteaceae** in the future as molecular analysis suggests that *Diastella* and *Orothamnus* are nested in *Mimetes*, that *Vexatorella* is nested in *Paranomus*, and that *Sorocephalus* and *Spatalla* should be combined (Barker *et al.* 2002). In **Rutaceae**–Diosmeae, a preliminary molecular phylogeny (Trinder-Smith *et al.* 2007) shows that *Agathosma* is paraphyletic and that a complete generic review is needed. At least *Acmadenia* is nested in *Adenandra*, *Coleonema* in part within *Diosma*, *Barosma* will likely be revived, and *Agathosma* may be further dismembered.

In **Scrophulariaceae**, a revised circumscription of *Sutera* defines that genus much more strictly, leaving it with just three species (only one in the core Cape flora). The remainder, previously treated as section *Chaenostoma*, are now recognized at generic level as the genus *Chaenostoma* (Kornhall & Bremer 2004).

Although the Cape flora is generally considered to be well known, some 350 new species have been added to the total since *Cape plants* (Goldblatt & Manning 2000), representing an increase of almost 4% to give a current total of 9 383 species. This increase is the result of both range extensions of known species into the Cape Floristic Region and more importantly of the discovery or recognition of new species. In Iridaceae, a surprising 95 species have been added since 2000, many the result of critical taxonomic study in *Geissorhiza* and *Ixia*. At least a modest number of species remain to be discovered in the wild, while future revisions and monographs will no doubt add more species while reducing others to synonymy.

Regrettably, there are still genera without revision since their treatment in *Flora capensis* (1865–1932). Even genera that were revised no more than 40 years ago now require re-evaluation as a result of the spectacular increase in the numbers of specimens available for study and the movement toward more natural (phylogenetic) classifications arising from the development of molecular techniques. As we wrote in 2000, several large genera with important centres within the Cape Flora Region urgently require thorough revision. These include *Drosanthemum, Lampranthus*, and *Ruschia* (Aizoaceae), *Arctotis*, *Othonna, Pteronia*, and *Senecio* (Asteraceae), *Thesium* (Santalaceae), and *Wahlenbergia* (Campanulaceae), to name only the most prominent examples. The accounts of several large genera that are currently under revision, including *Centella* (Apiaceae), *Indigofera*, *Otholobium*, and *Psoralea* (Fabaceae), and *Lobelia* (Lobeliaceae), were contributed by specialists so that their content includes a good deal of unpublished information.

The practice of including undescribed species, either as '**sp.**' or with an unpublished name if one is available, reflects our aim to most accurately record the flora. Likewise, species we believe to be conspecific with others but which have not yet formally synonymized are informally included under the earliest name, for example, '(incl. **Genus species** Author)'. Sometimes these actions result in a disregard for nomenclatural considerations, which we hope is justified. We are encouraged, however, by the fact that several of the species that we highlighted in this way in *Cape plants* (Goldblatt & Manning 2000) have since either been named or formally synonymized. As before, we take this opportunity to make some additional taxonomic changes, particularly when genera that are represented in our area have already been synonymized but outstanding combinations for our species have not yet been made. Taxonomic changes are listed below by family.

ACANTHACEAE

Chaetacanthus and **Dyschoriste**. *Chaetacanthus* Nees comprises ± four species from southern Africa and its status as a genus distinct from *Dyschoriste* Nees, with ± 75 species distributed widely in the tropics and subtropics, has been questioned for some time (Balkwill & Welman 2000). Although the species of *Chaetacanthus* were treated in *Dyschoriste* by Kuntze (1891), the genus is currently mostly treated as distinct, although Scotland & Vollesen (2000) explicitly treat it as a synonym of *Dyschoriste* in their classification of Acanthaceae. The distinction between the two genera rests on the reduction of two of the four stamens to ± sterile staminodes in *Chaetacanthus*, but since both conditions are present in *Dyschoriste* ['stamens 4, … all fertile or two sterile or reduced to staminodes']

as treated in the *Flora of tropical East Africa* (Vollesen 2008), sometimes within a single species, this difference is no longer valid. We therefore follow Kuntze (1891) and Scotland & Vollesen (2000) in treating them as congeneric, formalizing the synonymy of *Chaetacanthus* under *Dyschoriste*, and providing the single outstanding combination.

Dyschoriste *Nees* in Wallich, Plantae asiaticae rariores 3: 75 (1832). Type: *Dyschoriste depressa* Nees.
Chaetacanthus Nees in Lindley: 444 (1836), syn. nov. Type species: *Chaetacanthus persoonii* Nees = *C. setiger* (Pers.) Lindau.

Dyschoriste burchellii *(Nees) Kuntze*, Revisio genera plantarum 2: 486 (1891). *Chaetacanthus burchellii* Nees in DC.: 462 (1847).
Dyschoriste costata *(Nees) Kuntze*, Revisio genera plantarum 2: 486 (1891). *Chaetacanthus costatus* Nees in DC.: 462 (1847).
Dyschoriste setigera *(Pers.) J.C.Manning & Goldblatt*, comb. nov. *Ruellia setigera* Pers., Synopsis plantarum 2: 176 (1806). *Chaetacanthus setiger* (Pers.) Lindl.: 444 (1836).

Dicliptera and **Peristrophe**. The closely allied genera *Dicliptera* Juss., *Hypoestes* Sol. ex R.Br., and *Peristrophe* Nees are currently segregated as subtribe *Diclipterinae*, recognized by similar, cymose inflorescences comprising bibracteate subunits, bilabiate and often resupinate corollas with the adaxial lip lacking a median stylar groove (rugula), and paired stamens without staminodes. The three genera are distinguished by single characters, either of the anthers (monothecous in *Hypoestes*; bithecous in the other two) or mode of capsule dehiscence (dehiscing elastically in *Dicliptera*, with the thinner sides tearing away from the thickened raphe; not so in the other two). The correct generic placement of species of *Dicliptera* and *Peristrophe*, and thus often identification, requires either mature fruits or transverse sections of the ovary. Molecular studies are required to resolve relationships within the group but several authors (Ensermu 2003; Darbyshire & Vollesen 2007) have recently concluded that *Dicliptera* and *Peristrophe* at least should be combined, and have accordingly placed *Peristrophe* in synonymy. The relevant new combinations in *Dicliptera* have been made for *Flora of tropical East Africa* and for *Flora zambesiaca* (Darbyshire & Vollesen 2007), but not for southern Africa. We therefore list the southern African species below and provide the necessary combinations for those *Peristrophe* species not before included in *Dicliptera*, following the taxonomic revision of the genus by Balkwill (1996). The taxonomic status of *Hypoestes* remains to be determined.

Dicliptera cernua *(Hook.f. ex Nees) J.C.Manning & Goldblatt*, comb. nov. *Peristrophe cernua* Hook. ex Nees in Linnaea 15: 374 (1841).
Dicliptera cliffordii *(K.Balkwill) J.C.Manning & Goldblatt*, comb. nov. *Peristrophe cliffordii* K.Balkwill in South African Journal of Botany 51: 485 (1985).
Dicliptera decorticans *(K.Balkwill) J.C.Manning & Goldblatt*, comb. nov. *Peristrophe decorticans* K.Balkwill in South African Journal of Botany 55: 254 (1989).
Dicliptera gillilandiorum *(K.Balkwill) J.C.Manning & Goldblatt*, comb. nov. *Peristrophe gillilandiorum* K.Balkwill in South African Journal of Botany 51: 488 (1985).
Dicliptera grandibracteata *(Lindau) J.C.Manning & Goldblatt*, comb. nov. *Peristrophe grandibracteata* Lindau in Botanische Jahrbücher 49: 404 (1913).
Dicliptera hereroensis *Schinz* in Vierteljahrsschrift der Naturforschenden Gesellschaft in Zürich 61: 438 (1916).
Dicliptera namibiensis *(K.Balkwill) J.C.Manning & Goldblatt*, comb. nov. *Peristrophe namibiensis* K.Balkwill in South African Journal of Botany 54: 52 (1988).
Dicliptera namibiensis subsp. **brandbergensis** *(K.Balkwill) J.C.Manning & Goldblatt*, comb. nov. *Peristrophe nambiensis* subsp. *brandbergensis* K.Balkwill in South African Journal of Botany 54: 53 (1988).

Dicliptera paniculata *(Forssk.) J.C.Manning & Goldblatt*, comb. nov. *Dianthera paniculata* Forssk., Flora aegyptiaco-arabica: 7 (1775).
Dicliptera transvaalensis *Clarke* in W.T. Thiselton-Dyer, Flora capensis 5: 92 (1901).

Justicia and **Siphonoglossa**. There is consensus that the genus *Siphonoglossa* Oerst., which is largely South and Central American with three species in southern Africa, is polyphyletic as currently circumscribed (Hilsenbeck 1990; Immelman 1992). The type of the genus is South American and it is evident that the African species are not congeneric with it (Hilsenbeck 1990). *Aulojusticia* Lindau (1897), typified by *A. linifolia* Lindau, is available for the southern African species currently placed in *Siphonoglossa* should it be appropriate to segregate them at generic level. It is, however, difficult to uphold the genus in southern Africa as the only differences that have been identified are between it and *Justicia* are the relatively longer corolla tube in *Aulojusticia* (tube longer than the lips *vs.* shorter than the lips) and the fact that the stamens do not reflex after anthesis (Immelman 1995), despite a thorough investigation of fruit, seed, pollen, and inflorescence characters among the southern African taxa of both genera (Immelman 1992). At this time, Immelman (1992), suggested that the long-tubed species were justifiably included in *Justicia*, where they share specialized 2-colporate, areolate pollen and inflorescence of scattered, sessile cymes with sect. *Harnieria*. Hedrén (1989) had already concluded that the tropical African species were best included in *Justicia* sect. *Harnieria* and we follow this treatment here. It is not a justifiable alternative at this stage to segregate these species as a separate genus on the basis of the relatively trivial character of corolla length while retaining in *Justicia* other groups of species that differ in inflorescence, seed, or pollen characters. We provide the new combinations required among the southern African species.

Justicia leptantha *(Nees) Lindau* in Engler & Prantl, Die natürlichen Pflanzenfamilien, Nachträge zu 4, 3b: 349 (1895). *Gendarussa leptantha* Nees: 372 (1841).
Justicia leptantha subsp. **late-ovata** (C.B.Clarke) J.C.Manning & Goldblatt, comb. nov. *Justicia pulegioides* var. *late-ovata* C.B.Clarke in W.T. Thiselton-Dyer, *Flora capensis* 5,1: 62 (1901). *Siphonoglossa leptantha* subsp. *late-ovata* (C.B.Clarke) Immelman: 9 (1992).
Justicia linifolia *(Lindau) J.C.Manning & Goldblatt*, comb. nov. *Aulojusticia linifolia* Lindau in Botanische Jahrbücher 24: 325 (1897). *Siphonoglossa linifolia* (Lindau) C.B.Clarke: 75 (1901).
Justicia nkandlaensis *(Immelman) J.C.Manning & Goldblatt*, comb. nov. *Siphonoglossa nkandlaensis* Immelman in Bothalia 19: 209 (1989).

AGAPANTHACEAE

Agapanthus. The genus was last formally revised by Leighton (1965), who admitted 10 species, most of which were subdivided into subspecies. It is sharply divided between evergreen and deciduous species, and between taxa with tubular flowers in which the perianth tube is proportionally longer and the tepals are ± directed forward (*A. inapertus* P.Beauv. and *A. walshii* L.Bolus) and those with funnel-shaped flowers with a relatively shorter perianth tube and ± diverging tepals (remaining species). Differences among most of the open-flowered taxa are very slight, residing in subtle variation in floral shape and tepal orientation. All taxa share the same chromosome number, $2n = 30$. Nuclear DNA content (2C) (Zonneveld & Duncan 2003) of all species and subspecies was recently investigated in an attempt to clarify species boundaries, and four species were synonymized as a result of this study, primarily on the basis that their 2C values were similar/identical with those of other species. One of these was *A. walshii*, which was treated as a subspecies of *A. africanus* (L.) Hoffmanns.

Genome size (C-value) has been the subject of increasing interest among evolutionary biologists in recent years, and DNA C-values are also being investigated as a possible diagnostic tool by taxonomists (Bennet & Leitch 2005). A correlation between intraspecific C-value variation and morphological variation, and hence of the taxonomic role of C-values, remains to be fully demonstrated, however, and until then the importance of intraspecific C-value variation as a predictor of taxonomic heterogeneity (Murray 2005) remains uncertain. In contrast to this, it is abundantly clear that similar/identical C-values do occur in distantly related taxa and cannot be used alone to infer specific affinities. Most species of *Petunia* (Solanaceae), for instance, have very similar 2C values (data in Bennet & Leitch 2005). Shared C-values cannot thus constitute a basis for decisions on the specific status of taxa.

Although Zonneveld & Duncan (2003) cited a lack of significant morphological differentiation in three of the four instances in which they synonymized species, this is clearly not the case between *A. africanus* and *A. walshii*. The former has an open perianth 25–40 mm long, with a tube 9–14 mm long (thus < half as long) and tepals spreading from the mouth of the tube, whereas *A. walshii* has mostly larger, tubular flowers, 30–54 mm long, with a tube 16–39 mm (thus > half as long) and ± straight tepals directed forward. The range of *A. walshii* is contained completely within that of *A. africanus*, and no evidence of hybridisation between the two taxa has been documented (Zonneveld & Duncan 2003). This combination of morphological and biological characteristics is not generally compatible with infraspecific categories such as subspecies (Stuessy 1990) and suggests that the two taxa are best regarded as separate species until clear evidence to the contrary is forthcoming.

Agapanthus walshii *L.Bolus* in Annals of the Bolus Herbarium 3: 14 (1920). *Agapanthus africanus* subsp. *walshii* (L.Bolus) Zonn. & G.D.Duncan: 121 (2003).

AIZOACEAE

Acrosanthes. The genus *Acrosanthes* Eckl. & Zeyh. currently comprises five species, all endemic to the Cape Region (Adamson 1959). All are trailing or sprawling perennials or shrublets with the stems woody at least at the base and ± fleshy, opposite leaves that are exstipulate and connate basally. The genus is distinctive in its solitary, shortly pedunculate flowers, actually terminal but apparently solitary through sympodial growth (Adamson 1959). The five green and white sepals are basally connate, and the superior ovary is ± incompletely 2-chambered with a solitary basal ovule in each locule. The stamens, which vary among the known species from 8–numerous, are inserted at the mouth of the calyx. Most species occur on lower slopes but one is restricted to mountain summits at high altitude. A recent collection from the top of the Matroosberg in the Hex River Mountains above De Doorns in Western Cape resembles *A. humifusa* (Thunb.) Sond. in its bright green foliage and shortly pedunculate flowers with keeled sepals but differs from this species in its much smaller perianth, ± 2 mm long *vs.* 4–6 mm long, and stamens reduced to just 5–7 (vs. ± 10) per flower. *Acrosanthes humifusa* occurs along the coastal ranges from the Matsikamma and Gifberg ranges southwards through the Cedarberg and Cold Bokkeveld Mountains into the western Riviersonderend Mountains, but is not recorded inland on the Hex River Mountains. All other species in the genus have dark, almost blackish leaves, distinctly pedunculate flowers with peduncles >3 mm long, and sepals rounded on the back.

Acrosanthes parviflora *J.C.Manning & Goldblatt*, sp. nov.

Suffrutex prostratus, foliis oblanceolatis 5–6 × 1.0–1.5 mm, floribus pedunculis 1.5–2.0 mm longis, sepalis triangularibus apiculatis carinatis lobis 1.8–2.0 × 0.8–1.0 mm, staminibus 5–7 ad apicem calycis insertis, filamentis ± 1 mm longis, ovario compresso-suborbic-

ulari breviter stipitato ± 0.7 mm diam. biloculari, ovulo solitario in quoque loculo, stylis 2, 0.5 mm longis.

TYPE.—WESTERN CAPE, 3319 (Worcester): Ceres, Matroosberg Peak, (–BC), 11 November 2008 [cult.], *A.D. Harrower 1401* (NBG, holo.).

Prostrate shrublet, forming compact mats up to 30 cm across; stem woody, ± 5 mm diam. at base with numerous slender branches ± 0.7 mm diam., flushed reddish in current season but developing pale creamy brown bark, relatively laxly leafy with internodes ± 5 mm long. *Leaves* opposite, connate basally, oblanceolate, 5–6 × 1.0–1.5 mm, apiculate, narrowed below to a petiole-like base, convex abaxially and flat adaxially, fleshy, glossy apple-green when fresh. *Flowers* solitary on short peduncles 1.5–2.0 mm long, opening briefly in afternoon, segments green abaxially with transparent membranous margins (especially inner segments) and pure white adaxially; sepals triangular, apiculate, keeled, connate into calyx ± 0.5 mm long with lobes 1.8–2.0 × 0.8–1.0 mm. *Stamens* 5–7, inserted at top of calyx, filaments ± 1 mm long, white, anthers creamy yellow. *Ovary* compressed-subglobular, shortly stipitate, ± 0.7 mm diam., pale green, 2-locular with solitary basal ovule in each locule; styles 2, erect or suberect, apically recurved-stigmatic, 0.5 mm long, whitish. *Fruit* unknown. Flowering time: November–December.

APIACEAE

Arctopus. In their account of *Arctopus* (Magee *et al*. 2008), a collection of *A. echinatus* from the central Roggeveld Escarpment west of Middelpos was overlooked. This record extends the range of the species into the western Karoo.

NORTHERN CAPE, 3120 (Williston): Roggeveld, Rooiwal road near farm Blomfontein, (–CC), 18 August 1006, *Rösch 492* (NBG); 15 Sept. 2009, *Goldblatt & Manning 13346* (MO, NBG).

ASTERACEAE

Aster. It has been clear for some time that the African species of *Aster* are at best only distantly related to the type (Hilliard 1977) and are probably misplaced in the genus (see Herman *et al*. 2000), which is now considered to be restricted to the northern Hemisphere (Bremer 1994). This opinion has recently received support from molecular sequence data, which segregate the southern African species as a monophyletic clade in Astereae quite distinct from *Aster s.str.* (Brouillet *et al.* 2009), leading these authors to conclude unambiguously that the African asters represent a distinct, isolated lineage among the basal diversification of the tribe and should be removed from *Aster*. We implement this recommendation here. Although the South African asters were treated in the genus *Diplopappus* Cass. (1817) by Harvey (1865), this genus was effectively lectotypified against the American *Diplopappus graminifolius* (Mx.) Less. by Lessing (1830) and is thus unavailable for the African species. We therefore describe the new genus *Afroaster* to accommodate them, and make the necessary new combinations.

Afroaster J.C.Manning & Goldblatt, gen. nov.

Perennial herbs, resprouting from a woody base. Leaves alternate, entire or toothed, rarely incised, often amplexicaul. *Capitula* solitary on short or long peduncles, heteroga-

mous, radiate; involucral bracts 2- or 3-seriate, inner series ± equalling pappus. *Florets*: ray florets female, white to mauve; disc florets bisexual, yellow. *Anther bases* obtuse. *Style branches* linear, apex triangular with sweeping hairs on outer face. *Achenes* elliptical, compressed, pubescent and glandular. *Pappus* biseriate, outer series of small scales, inner series of barbellate bristles. Type species: *Afroaster perfoliatus* (Oliver) J.C.Manning & Goldblatt.

Afroaster ananthocladus *(Hilliard & B.L.Burtt) J.C.Manning & Goldblatt*, comb. nov. *Aster ananthocladus* Hilliard & B.L.Burtt in Notes from the Royal Botanic Garden Edinburgh 34: 254 (1976).
Afroaster hispida *(Thunb.) J.C.Manning & Goldblatt*, comb. nov. *Calendula hispida* Thunb.: 164 (1800). *Aster bakerianus* Burtt Davy ex C.A.Sm.: 413 (1930).
Afroaster bowiei *(Harv.) J.C.Manning & Goldblatt*, comb. nov. *Aster bowiei* Harv. in *Flora capensis* 3: 73 (1865).
Afroaster chimanimaniensis *(Lippert) J.C.Manning & Goldblatt*, comb. nov. *Aster chimanimaniensis* Lippert in *Mitteilungen der Botanischen Staatssammlung München* 11: 206 (1973).
Afroaster comptonii *(Lippert) J.C.Manning & Goldblatt*, comb. nov. *Aster comptonii* Lippert in *Mitteilungen der Botanischen Staatssammlung München* 11: 225 (1973).
Afroaster confertifolius *(Hilliard & B.L.Burtt) J.C.Manning & Goldblatt*, comb. nov. *Aster confertifolius* Hilliard & B.L.Burtt Notes from the Royal Botanic Garden Edinburgh 42: 228 (1985).
Afroaster erucifolius *(Thell.) J.C.Manning & Goldblatt*, comb. nov. *Felicia erucifolia* Thell. in Schinz & Thellung, *Vierteljahresschrift der Naturforschenden Gesellschaft in Zürich* 66: 236 (1921). *Aster erucifolius* (Thell.) Lippert: 246 (1973).
Afroaster laevigatus *(Sond.) J.C.Manning & Goldblatt*, comb. nov. *Diplopappus laevigatus* Sond. in Harv., *Flora capensis* 3: 85 (1865). *Aster laevigatus* (Sond.) Kuntze: 317 (1891).
Afroaster lydenburgensis *(Lippert) J.C.Manning & Goldblatt*, comb. nov. *Aster lydenburgenis* Lippert in *Mitteilungen der Botanischen Staatssammlung München* 11: 211 (1973).
Afroaster milanjiensis *(S.Moore) J.C.Manning & Goldblatt*, comb. nov. *Aster milanjiensis* S.Moore in *Journal of Botany* 54: 253 (1916)
Afroaster nubimontis *(Lippert) J.C.Manning & Goldblatt*, comb. nov. *Aster nubimontis* Lippert in *Mitteilungen der Botanischen Staatssammlung München* 11: 239 (1973).
Afroaster peglerae *(Bolus) J.C.Manning & Goldblatt*, comb. nov. *Aster peglerae* Bolus in *Transactions of the South African Philosophical Society* 18: 379 (1907).
Afroaster perfoliatus *(Oliv.) J.C.Manning & Goldblatt*, comb. nov. *Aster perfoliatus* Oliv. in Hooker, *Icones Plantarum* 8: t. 1717 (1887).
Afroaster pleiocephalus *(Harv.) J.C.Manning & Goldblatt*, comb. nov. *Diplopappus asper* var. *pleiocephalus* Harv. in *Flora capensis* 3: 85 (1865). *Aster pleiocephalus* (Harv.) Hutch. in Burtt-Davy: 570 (1935).
Afroaster pseudobakerianus *(Lippert) J.C.Manning & Goldblatt*, comb. nov. *Aster pseudobakerianus* [as *bakeranus*] Lippert in *Mitteilungen der Botanischen Staatssammlung München* 11: 243 (1973).
Afroaster serrulatus *(Harv.) J.C.Manning & Goldblatt*, comb. nov. *Diplopappus serrulatus* Harv. in *Flora capensis* 3: 86 (1865), non *Aster serrulatus* Harv. (1865). *Aster harveyanus* Kuntze: 316 (1891).
Afroaster tansaniensis *(Lippert) J.C.Manning & Goldblatt*, comb. nov. *Aster tansaniensis* Lippert in *Mitteilungen der Botanischen Staatssammlung München* 11: 232 (1973).
Afroaster zuluensis *(Lippert) J.C.Manning & Goldblatt*, comb. nov. *Aster zuluensis* Lippert in *Mitteilungen der Botanischen Staatssammlung München* 11: 218 (1973).

Conyza. Molecular analysis shows that all of the native African species of *Conyza* Less. (Astereae: Conyzinae) are misplaced here and that all except *Conyza gouanii* (L.) Willd. actually belong in subtribe Grangeinae (Nesom & Robinson 2007; Brouillet *et al.* 2009).

Here they are readily accommodated in the African genus *Nidorella* Cass., with which they conform in their heterogamous capitula with filiform, female-fertile marginal florets, epaleate receptacle, and numerous pappus bristles. Local treatments of the family have recognized the close similarity between African species of *Conyza* and *Nidorella* by relying solely on the colour of the marginal florets (whitish or pale yellow in *Conyza vs.* bright yellow in *Nidorella*) to separate them (Hilliard 1977; Herman *et al.* 2000). We accordingly make the necessary transfers from *Conyza* to *Nidorella*. *Conyza gouanii*, the only African *Conyza* that does not group with Grangeinae, should probably be assigned to a genus of its own (Brouillet *et al.* 2009). Conyzineae are thus entirely New World and Eurasian. *Conyza* itself is nested within the genus *Erigeron* and could be considered synonymous with it.

Nidorella aegyptiaca *(L.) J.C.Manning & Goldblatt*, comb. nov. *Erigeron aegyptiacus* L., Mantissa plantarum 1: 112 (1767). *Conyza aegyptiaca* (L.) Aiton: 183 (1789).
Nidorella attenuata *(DC.) J.C.Manning & Goldblatt*, comb. nov. *Conyza attenuata* DC., Prodromus systematis naturalis regni vegetabilis 5: 384 (1836).
Nidorella ivifolia *(L.) J.C.Manning & Goldblatt*, comb. nov. *Baccharis ivifolia* L. [as '*ivaefolia*'], Species plantarum: 860 (1753). *Conyza scabrida* DC.: 387 (1836).
Nidorella obscura *(DC.) J.C.Manning & Goldblatt*, comb. nov. *Conyza obscura* DC., Prodromus systematis naturalis regni vegetabilis 5: 387 (1836).
Nidorella pinnata *(L.f.) J.C.Manning & Goldblatt*, comb. nov. *Erigeron pinnatus* L.f., Supplementum plantarum: 368 (1782 '1781'); *Conyza pinnata* (L.f.) Kuntze: 142 (1898).
Nidorella pinnatifida *(Thunb.) J.C.Manning & Goldblatt*, comb. nov. *Erigeron pinnatifidus* Thunb., Prodromus plantarum capensium 2: 153 (1800). *Conyza pinnatifida* (Thunb.) Less.: 204 (1832).
Nidorella podocephala *(DC.) J.C.Manning & Goldblatt*, comb. nov. *Conyza podocephala* DC., Prodromus systematis naturalis regni vegetabilis 5: 387 (1836).
Nidorella ulmifolia *(Burm.f.) J.C.Manning & Goldblatt*, comb. nov. *Baccharis ulmifolia* Burm.f., Prodromus plantae capensium:26 (1768).

Dimorphotheca. The genus now includes *Castalis* Cass. as well as *Osteospermum* sect. *Blaxium* (Cass.) T.Norl. and *O.* sect. *Acanthotheca* (DC.) T.Norl. (Nordenstam 1994). Although no formal infrageneric classification was proposed by Nordenstam (1994), both *Castalis* and *Blaxium* were treated as sections in *Dimorphotheca* by De Candolle (1838) and we recommend that this classification is revived. We complete it by treating *Acanthotheca* as an aditional section in *Dimorphotheca*.

1. Sect. **Blaxium** *(Cass.) DC.* in Prodromus systematis naturalis regni vegetabilis 6: 71 (1837). *Blaxium* Cass.: 328 (1817).
   Osteospermum sect. *Blaxium* (Cass.) T.Norl.: 237 (1943).

2. Sect. **Castalis** *(Cass.) DC.* in Prodromus systematis naturalis regni vegetabilis 6: 72 (1837). *Castalis* Cass.: 332 (1817).

3. Sect. **Dimorphotheca**

4. Sect. **Acanthotheca** *(DC.) J.C.Manning & Goldblatt*, comb. nov. *Acanthotheca* DC. in Prodromus systematis naturalis regni vegetabilis 6: 73 (1837). Type species: *Acanthotheca pinnatisecta* DC. = *Dimorphotheca pinnata* (Thunb.) Harv.
   Osteospermum sect. *Acanthotheca* (DC.) T.Norl.: 191 (1943).

When Nordenstam (1994) transferred *Calendula tragus* Aiton to *Dimorphotheca* he overlooked the fact that the combination had already been made by De Candolle (1837) with a clear reference to Aiton (1789) through Jacquin (1797). The fact that Jacquin's figure is actually *D. acutifolia* has no bearing on the matter.

Dimorphotheca tragus *(Aiton) DC.* in Prodromus systematis naturalis regni vegetabilis 6: 71 (1837). *Calendula tragus* Aiton: 271 (1789).

Heterolepis. The small South African genus *Heterolepis* Cass. remains unplaced to tribe in subfamily Chicorioideae (Funk & Chan 2009). The three known species are leafy shrubs or subshrubs with linear, ericoid leaves and solitary, pedunculate capitula with yellow, female ray florets and bisexual disc florets. The ray florets are distinctive in possessing a filiform lobe in the sinus of the tube, and staminodes are generally present. The small, ± ovoid achenes are densely sericeous and crowned with a pappus of stout, yellowish brown, subulate, bristle-like scales that are marginally barbellate or subplumose. Two of the named species are restricted to the southwestern Cape (Goldblatt & Manning 2000), with the third evidently endemic to the Zuurberg in Eastern Cape (Harvey 1865). A fourth, unnamed species from the Langeberg was included as sp. 1 in *Cape plants* 2000 and is formally described here as *H. anomala* on account of its discoid capitula, unique in the genus.

Heterolepis anomala *J.C.Manning & Goldblatt*, sp. nov.

H. pedunculari DC. habitu suffruticoso amplitudine generali, capitulisque conspicue pedunculatis similis, sed foliis brevioribus mucronulatis subteretibus 5–12(–15) × 1.0–1.5 mm valde revolutis, capitulis discoideis, squamis pappi stramineis sine apice fusco differt.

TYPE.—Western Cape, 3321 (Ladismith): Muiskraal, foothills of Langeberg, 370 m, (–CC), 4 October 1990, *Bohnen 9129* (NBG, holo.).

Shrublet up to 300 mm high; branches closely leafy above, becoming leafless below, covered with silvery tissue-like indumentum when young, later subglabrous. *Leaves* alternate, imbricate or subsecund, sessile, rigid, subterete, 5–12(–15) × 1.0–1.5 mm, not diminishing markedly in size acropetally, suberect-incurved, straight or slightly twisted, apex mucronulate with small, straight or slightly recurved, yellowish mucro ± 0.5 mm long, base scarcely narrowed; margins strongly revolute, completely concealing abaxial surface except at base; glabrescent or thinly covered with silvery membrane-like indumentum adaxially but densely so abaxially, midrib not evident adaxially but raised adaxially and decurrent. *Capitula* solitary, pedunculate, discoid, florets yellow, ± 15 mm diam.; peduncle (30–)60–80(–100) mm long, ± leafless or with 1 or 2 scattered, leaf-like bracts, yellowish brown and densely glandular-scabrid with a mixture of small, gland-tipped hairs and larger, dark, patent, multicellular, gland-tipped scabrae. *Involucral bracts* 3- or 4-seriate, spreading distally, outer 2 or 3 series densely glandular-hairy with a mixture of dense, small, gland-tipped hairs across entire abaxial surface and scattered, larger, dark, gland-tipped scabrae concentrated along midline, outermost series linear, 6–7 × 1.0 mm, middle series lanceolate, 10–12 × 2.0 mm, inner series ovate-lanceolate, ± glabrous, with broad brown membranous margins and tips or ± entirely membranous, 12–15 × 3.0 mm. *Receptacle* areolate. *Corolla* funnel-shaped, glandular-pubescent on tube and abaxial surface of lobes extending to apexes, 11–12 mm long, tube ± 7 mm long, lobes recurved, lanceolate, ± 4.0 × 0.8 mm; anthers tailed with lanceolate apical appendage, ± 4.5 mm long, collar cylindrical; endothecial cells with inner periclinal wall reinforcements displaced towards connective; style slender but slightly thickened below style branches, branches ± 5 mm long, connate in basal ± 3 mm with free parts ± 2 mm long, puberulous abaxially with collar of longer hairs at base of branches; ovary obconic, ± 2.5 mm long, densely sericeous; *pappus scales* uniseriate, 18–20, subulate, bristle-like, marginally subplumose, mostly 6–8 mm long, uniformly pale straw-coloured. *Cypselas* obovoid, ± 2.5 × 1.0 mm, not angled, densely antrorsely sericeous with pale, apically bifid twin hairs. *Pollen* spinulose. *Flowering time*: October–March.

Distribution and ecology: currently known only from two collections from the Farm Muiskraal along the northern foothills of the Langeberg at the entrance to Garcia's Pass. The plants were collected in sandy loam in full sun on north-facing slopes.

Diagnosis and relationships: *Heterolepis anomala* is unique in the genus in its discoid capitula but otherwise resembles *H. peduncularis* in general habit, notably the well-developed peduncles, and moderate-sized capitula. It does, however, differ vegetatively from *H. peduncularis* in its more xeromorphic leaves that are uniformly shorter, 5–15 mm long, and thicker with the margins so strongly revolute that they meet on the lower surface, completely covering the midrib except at the base, and the apex is distinctly muticous. The stems in *H. anomala* are also generally more densely leafy, and the leaves do not diminish notably in size acropetally but cease abruptly at the peduncle, which is thus distinctly differentiated from the stem. This differentiation is emphasized by the abrupt change in vestiture, from the silvery, tissue-like covering on the stems to the glandular-scabrid hairs on the peduncle. *H. peduncularis*, in contrast, is more laxly leafy, with the lower leaves 20–30 mm long and diminishing significantly in length acropetally, the uppermost running out more gradually onto the peduncle, which is thus less clearly differentiated from the stem. The stem vestiture also continues for some distance onto the base of the peduncle, transforming only gradually into the characteristic peduncular vestiture. The leaves in *H. peduncularis*, especially the lower, have the abaxial midrib clearly exposed along the length of the leaves, and the apices are acute. In addition, the pappus bristles in *H. peduncularis* are invariably tinged smoky grey or blackish at their tips, giving them a characteristic bicoloured appearance, in contrast to the uniformly pale bristles in *H. anomala*.

Additional specimens

WESTERN CAPE.—3321 (Ladismith): Muiskraal, northern foothills of Langeberg, 370 m, (–CC), 7 March 1987, *Bohnen 8769* (NBG).

Lidbeckia. The small, Western Cape winter rainfall genus *Lidbeckia* P.J.Bergius is a member of Anthemidae subtribe Cotulinae, and closely allied to *Thaminophyllum* Harv. (Oberprieler *et al.* 2009), also endemic to the CCR and from which it is essentially distinguished by its pinnatisect leaves and conspicuously pedunculate heads. Only two species are currently recognised but a third was included in Cape Plants (2000) under the unpublished name *L. vlokii*. All are pubescent shrublets or subshrubs with pinnately or palmately lobed leaves and solitary, pedunculate capitula with a pilose receptacle, white ray florets, and bisexual, 4-lobed disc florets. The cypselas are ribbed and glandular. The two named species are restricted to the mountains along the West Coast, from the Cedarberg to Grootwinterhoek (Harvey 1865; Goldblatt & Manning 2000). We formalize the third, as yet unpublished species from the Langeberg/Outeniqua Mtns here under the name *L. pinnata*, alluding to its leaves that are distinctive compared with the other two species, whose epithets likewise describe their foliage.

Lidbeckia pinnata *J.C.Manning & N.A.Helme*, sp. nov.

TYPE.—Western Cape, 3422 (Mossel Bay): Berg Pass, (–AA), 4 April 1959, *W.F. Barker 8927* (NBG, holo.—3 sheets!).

Slender, erect, ± single-stemmed shrublet up to 400 mm high; branches closely leafy above, becoming leafless below, densely appressed-pubescent or felted. *Leaves* alternate, developing axillary tufts, sessile, 3 or 5 pinnatisect with terminal lobe and 1 or 2 pairs of lateral lobes, cuneate to obovate in outline, 6–12 × 4–12 mm, narrowed to a petiole-like

base, densely appressed-sericeous and gland-dotted, lobes linear to oblong, 1.5–5.0 × 0.5–1.5 mm, mucronulate, margins and midrib thickened beneath. *Capitula* pedunculate, solitary or up to 3 in loose terminal corymbs, radiate, 15–20 mm diam. across rays; peduncle 60–120 mm long, ± leafless or with 1 or 2 scattered, leaf-like bracts, appressed-pubescent. *Involucre* shallowly campanulate, ± 7 mm diam.; involucral bracts 3-seriate, lanceolate, ± 3 × 1 mm, appressed-pubescent, with small, purple, fimbriate, papery tips and margins, outermost series acute, middle series obtuse with more conspicuous papery tips, inner series slightly shorter and broader, pubescent only along midline. *Receptacle* conical, areolate, puberulous, epaleate. *Ray florets* 15–18, white, female, split to base and without corolla tube, oblong, 6–7 × 2.5–3.0 mm, papillose above with scattered glistening glands, thinly sericeous beneath with numerous glistening glands; ovary ovate, compressed, 1.8 × 0.8 mm, margins narrowly winged and ± sericeous distally on shoulders, inner face keeled, with glistening glands on both faces; style ± 1 mm long, branches linear, 0.5 mm long, truncate and penicillate with marginal stigma; pappus 0. *Disc florets* yellow, 4-lobed, 0.8 mm long, covered with glistening glands, tube compressed and 4-ribbed with lateral ribs narrowly winged, inflated above; anthers obtuse with suborbicular apical appendage; ovary narrowly ovoid, 1.8 mm long, 4-ribbed with marginal ribs narrowly winged distally, with glistening glands on outer face only; style ± 1.8 mm long, branches linear, 0.5 mm long, truncate and penicillate with marginal stigma; pappus 0. *Cypselas* unknown. *Flowering time*: March–August.

Distribution and ecology: currently known from just three scattered localities along the southern foothills of the Langeberg, 200–500 m, from near Robertson in the west to Mossel Bay in the east. The species favours richer soils derived from shale or granite at the renosterveld/fynbos ecotone and is recorded as rare and localized.

Diagnosis and relationships: *Lidbeckia pinnata* is distinguished by its smaller, 3 or 5-sect leaves, 6–12 mm long, with linear or oblong lobes 0.5–1.5 mm wide, and densely appressed-pubescent on both surfaces, and by its relatively smaller heads, 15–20 mm across the rays. *L. quinqueloba* has distinctive, petiolate, sub-palmately lobed leaves with a russet, villous pubescence on the vegetative parts, and *L. pectinata* has larger, 7 or 5-sect, subglabrous leaves, mostly 15–25 mm long, with villous margins and aristate lobes. Both species have larger heads, 25–40 mm across the rays.

Additional specimens

WESTERN CAPE.—3319 (Worcester): ± 10 km NW of Robertson on S slopes of Tierberg above Sandrivier Farm, 500 m, (–DD), 7 July 2003, *N.A. Helme 2698* (NBG). 3320 (Montagu): Broken Hill, E of Grootvadersbos, southern foothills of Langeberg, at 200m, (–DD), 1 June 2012, Helme 7392 (NBG). 3422 (Mossel Bay): 3 km along dirt track west of Brandwag, (–AA), 27 Nov. 1994 [sterile], *L.E. Watson & J. Panero 94–119* (NBG).

Mairia. The genus *Mairia* Nees, a member of the African Astereae: Homochrominae (Brouillet *et al.* 2009), was long recognized to be a somewhat artificial assemblage of species united by the feathery or plumose pappus bristles (Harvey 1865; Grau 1971). It was subsequently partitioned by Nesom (1994) into the three genera *Mairia, Gymnostephium* Less., and *Zyrphelis* Cass.; defined by a complex combination of characters, including the nature of the vestiture, foliage, involucral bracts, florets, and pappus. *Mairia* itself was reduced by Nesom (1994) to just three species of tufted, geophytic perennials with a basal rosette of leathery leaves, ± silky vestiture, and ± scapose inflorescences with fertile disc florets. *Gymnostephium* and *Zyrphelis* accommodated the remaining, mostly coarsely hairy, subshrubs or shrubs with branching stems bearing smaller heads with sterile disc florets, and were separated from one another by details of the pappus: absent or reduced to 1 or 2 bristles in the ray achenes in *Gymnostephium* but well developed and plumose in

Zyrphelis. *Z. burchellii*, anomalous in its tufted, geophytic habit and leathery leaves, was excluded from *Mairia* primarily on account of its sterile disc florets, although fertile disc florets are characteristic of *Z. perezioides* and this character is therefore not consistent. Nesom's synopsis included relevant new combinations, but was not concerned with the taxonomy at species level.

An unpublished monograph of the group had been produced a few years earlier by Zinnecker-Wiegand (1990), who also reviewed the generic circumscriptions in the group. Significantly, she redefined *Mairia* on the basis of the presence of glandular hairs on the achenes, which correlates with the distinctive tufted habit of the genus. *Gymnostephium* was downgraded to a section of *Zyrphelis* on the argument that the differences in the pappus used by Nesom (1994) to justify their separation at generic level were not consistent even within species.

Generic circumscriptions in Homochrominae are still poorly resolved (Brouillet *et al.* 2009) and we therefore prefer to retain the three taxa at generic level for the moment. We follow Zinnecker-Wiegand (1990), however, in her revised circumscription of *Mairia*, thus treating *M. burchellii* DC. in this genus. We also take this opportunity to publish an English translation of *M. petiolata*, which was treated as M. sp. 1 in *Cape plants* (Goldblatt & Manning 2000), and also review the status of *M. robusta*, which Zinnecker-Wiegand (1990) regarded as a subspecies of *M. hirsuta*.

Mairia burchellii DC., Prodromus systematis naturalis regni vegetabilis 5: 218 (1836). *Zyrphelis burchellii* (DC.) Kuntze: 374 (1891).

Mairia petiolata *Z.-Wiegand* in Taxon 60: 1195 (2011). Type: [Western Cape], Swellendam, Misty Point (Goedgeloof Peak), along rocky ridge leading to peak, 24 Dec. 1979, *Esterhuysen 35366* (M, holo.; BOL, iso.!).

Acaulescent perennial herb up to 150 mm high; roots thickened, ± 2 mm diam. *Leaves* rosulate, 6–10, blade obovate, 40–65(–90) × 23–40(–65) mm, with prominent midrib and inconspicuous lateral veins; margins revolute and irregularly lacerate-crenate; albo-lanate and glandular-haired or glabrescent adaxially but glabrous abaxially, narrowed into a petiole-like base (10–)20–50(–90) mm long, often flushed reddish. *Capitula* (1)2(3), scapose, radiate, 10–18 mm diam.; stems stiffly erect, 70–150 mm long, simple or with 1 or 2 branches, thinly lanate and glandular-haired, slightly swollen and albo-lanate apically, with 1–3 scattered bracts. *Involucral bracts* 3 or 4-seriate, lanceolate, sparsely albo-lanate and glandular-haired on stereome and ciliate along margins, outer series 5.5–7.0 × 1.5–1.8 mm, green with purple margins, inner series 8.0–10.5 × 1.8–2.0 mm, with broad scarious margins. *Ray florets* female, fertile, 12–15, pinkish, with staminodes, tube ± 4 mm long, laxly pilose, ligule 10–11 × 3.5–4.0 mm. *Disc florets* hermaphrodite, ± 6 mm long, yellow, tube medially laxly pilose; anthers 1.5 mm long; style branches 1.2–1.4 mm long, purple. *Pappus* 2-seriate, outer series of 20–27 laciniate setae 0.5–1.0 mm long, inner series of 20–27 bristles ± 5 mm long, barbellate basally and plumose distally. *Cypselas* fusiform, 4 or 5-ribbed, 5.5–6.0 mm long, densely pilose with short, eglandular hairs and scattered glandular hairs. *Flowering time*: December, only after fire.

Distribution and ecology: currently known from a single locality along a rocky ridge leading to Misty Point (Goedgeloof Peak) in the Langeberg above Swellendam. The species, like others in the genus, flowers only after fire.

Diagnosis and relationships: *Mairia petiolata* resembles *M. coriacea* in its unevenly toothed or lacerate leaves but is distinguished from it by the thinner textured, ± persistently lanate leaves with prominent midrib, and mostly branched scapes. *M. coriacea* has thickly leathery, subglabrous leaves with 5 prominent longitudinal veins and simple scapes.

Additional specimens

WESTERN CAPE.—3320 (Montagu): Swellendam, Misty Point (Goedgeloof Peak), along rocky ridge leading to peak, (–CD), 3 January 1981 (sterile), *Esterhuysen s.n.* (BOL); 4 December 1983 (sterile), *Esterhuysen s.n.* (BOL).

Mairia robusta (*Z.-Wiegand*) *J.C.Manning & Goldblatt*, stat. nov. *Mairia hirsuta* subsp. *robusta* Z.-Wiegand. in Taxon 60: 1194 (2011). Type: [Western Cape], Jonkershoek, slopes above head of valley along Panorama Path, 9 Jan. 1973, *Esterhuysen 33092* (M, holo.; BOL, iso.!).

Short-stemmed subshrub up to 300 mm high, with 1–3 basal tufts of leaves. *Leaves* ± 10–20 per tuft, blade oblanceolate to obovate, 70–90 × (10–)15–40(–50) mm, with prominent midrib beneath; margins revolute and regularly crenate in distal half; densely cream- or pale grey-felted on both surfaces when young but glabrescent adaxially and strongly discolorous at maturity, thickly leathery; narrowed into petiole-like base 10–25 mm long. *Capitula* 1–3 per leaf tuft, scapose, radiate, 40–55 mm diam.; stems stiffly erect, 150–200 mm long, simple, densely cream- or pale grey-felted, with ± 5 scattered, linear-oblancealate bracts. *Involucral bracts* ± 6-seriate, linear-lanceolate, densely albo-lanate haired on stereome and ciliate along margins, outer series 10–12 × 1.0–1.5 mm, inner series 15–18 × ± 1.5 mm, apices attenuate and flexuouse, greenish with broad scarious margins and purplish apices. *Ray florets* female, fertile, ± 30, pinkish, without staminodes, tube ± 5 mm long, laxly pilose, ligule 22–25 × 3.5–4.5 mm. *Disc florets* hermaphrodite, ± 11 mm long, yellow; perianth ± 3.5 mm long, tube medially laxly pilose; anthers 2.5 mm long; ovary 5-ribbed, 3.5 mm long, densely silky with acute, appressed hairs mixed with scattered gland-tipped hairs, style branches ± 1.5mm long. *Pappus* 2-seriate, outer series of 15–20 laciniate scales 1.0–1.5 mm long, inner series of 15–17 bristles 8–9 mm long, barbellate basally and plumose distally. *Cypselas* unknown. *Flowering time*: October to December, only after fire.

Distribution and ecology: on cooler, S-facing sandstone slopes at higher altitudes, mostly above 1 000 m, from Chavonnesberg and Limietberg southwards to the Hottentots Holland Mtns and Helderberg. The species, like others in the genus, flowers only after fire.

Diagnosis and relationships: *Mairia robusta* was considered by Zinnecker-Wiegand (1990) in her unpublished monograph to represent a subspecies of the Langeberg endemic, *M. hirsuta*, which it resembles in its ± shrubby habit, crenate leaves and in details of its achenes and ray florets, and the two are undoubtedly allied. There is, however, no evidence that the two taxa intergrade, and we feel that the several morphological differences between them justify separation at species level. *M. robusta*, as its name implies, is a more robust species, with larger, thicker-textured, strongly discolorous leaves and a much denser, ± felted, whitish pubescence on the flowering stems and leaves, which are dark green and glabrescent above but persistently felted beneath. The leaves of *M. hirsuta*, which are altogether thinner-textured, are scarcely discolorous, and the species has a characteristically rusty-coloured, silky or woolly indumentum on stems and leaves. There are differences between them also in the involucral bracts, which are ± 6-seriate and thickly felted in *M. robusta* with the inner series drawn out into flexuouse, reddish, almost petaloid apices but 4- or 5-seriate, more thinly silky, and merely apiculate in *M. hirsuta*.

Additional specimens

WESTERN CAPE.—3319 (Worcester): Bainskloof, Wellington Plateau, (–CA), 28 Oct. 1944, *Levyns 7643* (BOL); Chavonnesberg, 4 000′ [1 200 m], (–CB), 2 Dec. 1962, *Esterhuysen s.n.* (BOL); French Hoek [Franschhoek] Pass, (–CC), without date, *Jackson s.n.*

(NBG); Haalhoek Spitzkop, S aspect, 4 600′ [1 400 m], (–CC), 6 dec. 1964, *Esterhuysen 30868* (BOL). 3418 (Simonstown): between Landdrost Kop and Somerset Sneeuwkop, (–BB), Dec. 1948, *Stokoe s.n. SAM62006* (SAM); Helderberg, (–BB), 25 Dec. 1941, *Esterhuysen 7672* (BOL). 3419 (Caledon): Hottentots holland Mtns, Noordekloof Peak, 1 100 m, (–AA), 27 Dec. 2007 (sterile), *Helme 5188* (NBG).

Osteospermum. Recent molecular studies have prompted the description of several new genera in tribe Calenduleae in an effort to maintain monophyly of the existing genera, with the result that the tribe currently comprises *Calendula* L. (± 15 spp.), *Chrysanthemoides* Fabr. (2 spp.), *Dimorphotheca* Vaill. ex Moench. (20 spp.), *Garuleum* Cass. (8 spp.), *Gibbaria* Cass. (2 spp.), *Inuloides* B.Nord. (1 sp.), *Monoculus* B.Nord. (2 spp.), *Nephrotheca* B.Nord. & Källersjö (1 sp.), *Norlindhia* B.Nord. (3 spp.), *Oligocarpus* Less. (2 spp.), *Osteospermum* L. (± 45 spp.), and *Tripteris* Less. (20 spp.) (Nordenstam 2006; Nordenstam *et al*. 2006; Nordenstam & Källersjö 2009). The monotypic *Oxylaena* Benth. ex Anderb., which has been misunderstood for over a century, has recently been realised to be synonymous with *Gibbaria* (Koekemoer 2011). Despite these generic adjustments, *Osteospermum* and *Tripteris* are both still evidently paraphyletic as currently circumscribed (Nordenstam *et al*. 2006; Nordenstam & Källersjö 2009). The distinction between *Osteospermum* and *Chrysanthemoides* has already been blurred by the discovery of *O. potbergensis,* a species intermediate between them in cypsela morphology (Wood & Nordenstam 2003).

Few morphological synapomorphies are available for the recognition of many of these new segregates, several of which are mono- or oligotypic, and it is clear that additional genera will need to be recognized as further taxa are included in a molecular analysis if this treatment is to be carried to its logical conclusion (Nordenstam 2007; Nordenstam & Källersjö 2009). An alternative treatment, and in our opinion a more useful one, is to adopt a synthetic view of *Osteospermum* as constituting the monophyletic clade sister to *Dimorphotheca* as resolved in the phylogenetic analysis reproduced by Nordenstam *et al*. (2006), thus including the genera *Calendula*, *Chrysanthemoides*, *Gibbaria*, *Inuloides*, *Monoculus*, *Nephrotheca*, *Norlindhia*, *Oligocarpus*, and *Tripteris* in *Osteospermum*. Even with this broad circumscription, *Osteospermum* still includes < 100 species. In this circumscription, *Dimorphotheca* and *Osteospermum* are separated from *Garuleum* by the synapomorphy of disc florets with a shortly bilobed style with an annular collar of hairs. They are distinguished from one another by several macro- and micromorphological and chemical characters: *Dimorphotheca* by large flower heads with ray florets more than twice as long as the involucre, ± uniseriate involucre, ray florets white, orange, or purple (rarely pure yellow) and flushed dark beneath, fertile or functionally male disc florets, uniseriate corolla hairs, and the presence of dimorphecolic acid; and *Osteospermum* by the smaller flower heads with ray florets usually up to twice as long as the involucre, mostly bi- or triseriate involucre, yellow or orange-yellow ray florets, functionally male disc florets, biseriate corolla hairs and the presence of significant quantities of calendic acid (Nordenstam 1994). We provide the necessary generic synonymy here.

Curiously, no type appears to have been designated for the genus *Chrysanthemoides* Fabr. (Farr *et al.* 1979). Fabricius (1759) included two species in the genus, corresponding to the taxa known to Linnaeus (1753) under the names *Osteospermum spinosum* L. and *O. incanum* Burm.f. (= *C. incana* (Burm.f.) Norl.). In order to retain the traditional circumscription of the genus as applying to the drupe-fruited members of the tribe, we here designate *C. incana* as the lectotype. Names are available in *Osteospermum* for all but three of the southern African species and we provide new combinations for these below, as well as the new synonyms. Infraspecific taxa of *Chrysanthemoides* are as recognized by Norlindh (1943) with the exception of *C. monilifera* subsp. *subcanescens* (DC.) Norl., which is transferred to *O. incanum* following Griffioen (1995).

From the topology of the molecular analysis presented in Nordenstam & Källersjö (2009), it appears that fruits with an air chamber are plesiomorphic in the genus, and that the development of wings has occurred repeatedly within the group. The fenestrate or windowed air chamber that characterised *Tripteris* has evidently become secondarily lignified in some species, which thereby lose their 'generic' characteristic. Clearly, evolution of fruits within the group is highly complex, and the recognition of segregate genera on the basis of fruit adaptations is a hopeless endeavour.

Osteospermum amplectens *(Harv.) T.Norl.*, Studies in the Calenduleae: 339 (1943). *Tripteris amplectens* Harv.: 427 (1865). *Norlindhia amplectens* (Harv.) B.Nord.: 42 (2006).
Osteospermum apterum *(B.Nord.) J.C.Manning & Goldblatt*, comb. nov. *Norlindhia aptera* B.Nord. in Compositae Newsletter 44: 43 (2006).
Osteospermum breviradiatum *T.Norl.*, Studies in the Calenduleae: 345 (1943). *Norlindhia breviradiata* (T.Norl.) B.Nord.: 42 (2006).
Osteospermum calcicola *(J.C.Manning & Goldblatt) J.C.Manning & Goldblatt*, comb. nov. *Tripteris calcicola* J.C.Manning & Goldblatt in Bothalia 38: 86 (2008).
Osteospermum glabrum *N.E.Br.* in Bulletin of Miscellaneous Information, Kew 1901: 125 (1901). *Gibbaria glabra* (N.E.Br.) B.Nord. & Källersjö: 530 (2009).
Osteospermum hyoseroides *(DC.) T.Norl.*, Studies in the Calenduleae: 333 (1943). *Tripteris hyoseroides* DC.: 458 (1838). *Monoculus hyseroides* (DC.) B.Nord.: 40 (2006).
Osteospermum ilicifolium *L.*, Systema naturae, ed. 10: 1234 (1759). *Gibbaria ilicifolia* (L.) T.Norl.: 364 (1943), syn. nov. *Nephrotheca ilicifolia* (L.) B.Nord. & Källersjö: 33 (2006).
Osteospermum incanum subsp. **subcanescens** *(DC.) J.C.Manning & Goldblatt*, comb. nov. *Osteospermum subcanescens* DC., Prodromus systematis naturalis regni vegetabilis 6: 464 (1838).
Osteospermum moniliferum subsp. **pisiferum** *(L.) J.C.Manning & Goldblatt*, comb. nov. *Osteospermum pisiferum* L., Systema naturae, ed. 10: 1234 (1759); *Chrysanthemoides monilifera* subsp. *pisifera* (L.) T.Norl.: 383 (1943).
Osteospermum moniliferum subsp. **rotundatum** *(DC.) J.C.Manning & Goldblatt*, comb. nov. *Osteospermum rotundatum* DC., Prodromus systematis naturalis regni vegetabilis 6: 461 (1838); *Chrysanthemoides monilifera* subsp. *rotundata* (DC.) T.Norl.: 391 (1943).
Osteospermum moniliferum subsp. **canescens** *(DC.) J.C.Manning & Goldblatt*, comb. nov. *Osteospermum pisiferum* var. *canescens* DC., Prodromus systematis naturalis regni vegetabilis 6: 460 (1838); *Chrysanthemoides monilifera* subsp. *canescens* (DC.) T.Norl.: 395 (1943).
Osteospermum moniliferum subsp. **septentrionale** (T.Norl.) *J.C.Manning & Goldblatt*, comb. nov. *Chrysanthemoides monilifera* subsp. *septentrionalis* T.Norl., Studies in the Calenduleae: 396 (1943).
Osteospermum monstrosum *(Burm.f.) J.C.Manning & Goldblatt*, comb. nov. *Calendula monstrosus* Burm.f., Prodromus florae capensis: 28 (1768). *Monoculus monstrosus* (Burm.f.) B.Nord. in Compositae Newsletter 44: 39 (2006).
Tripteris clandestina Less. in Linnaea 6: 97 (1831).
Osteospermum sanctae-helenae *T.Norl.* in Botaniska Notiser 1939: 787 (1939). *Tripteris burchellii* J.D.Hook. in Melliss: 290 (1875). *Oligocarpus burchellii* (J.D.Hook.) B.Nord.: 45 (2006).
Osteospermum scabrum *Thunb.*, Prodromus plantarum capensium: 166 (1800). *Gibbaria scabra* (Thunb.) T.Norl.: 360 (1943).
Osteospermum tomentosum *(L.f.) T.Norl.*, Studies in the Calenduleae: 336 (1943). *Inuloides tomentosa* (L.f.) B.Nord.: 44 (2006).

A detailed infrageneric classification of *Osteospermum* requires much more extensive molecular sampling than is currently available (Nordenstam & Källersjö 2009). Until then,

we recommend that the arrangement of species adopted by Norlindh (1943) is retained for curatorial purposes, excluding those taxa that have since been transferred to *Dimorphotheca*. We provide a summary of Norlindh's (1943) sectional classification below with generic synonyms included for clarity.

Classification of *Osteospermum*

Osteospermum *L.*, Species plantarum: 923 (1753). Type species: *Osteospermum spinosum* L.

Calendula L.: 921 (1753), syn. nov. Type species: *Calenula officinalis* L.

Chrysanthemoides Fabr.: 79 (1759), syn. nov. Type species, here designated: *Chrysanthemoides incana* (Burm.f.) T.Norl. = *Osteospermum incanum* Burm.f.

Gibbaria Cass.: 139 (1817), syn. nov. Type species: *Gibbaria scabra* (Thunb.) T.Norl. = *Osteospermum scabrum* Thunb.

Oligocarpus Less.: 90 (1832). Type species: *Oligocarpus calendulaceus* (L.f.) Less. = *Osteospermum calendulaceum* L.f.

Tripteris Less.: 95 (1832). Type species: *Tripteris arborescens* (Jacq.) Less., typ. cons. = *Osteospermum dentatum* Burm.f.

Oxylaena Benth. ex Anderb.: 53 (1991), syn. nov. Type species: *Oxylaena acicularis* Benth. ex Anderb. = *Osteospermum scabrum* Thunb.

Monoculus B.Nord.: 39 (2006), syn. nov. Type species: *Monoculus monstrosus* (Burm.f.) B.Nord. = *Osteospermum monstrosum* (Burm.f.) J.C.Manning & Goldblatt

Nephrotheca B.Nord. & Kallersjö in Nordenstam et al.: 32 (2006), syn. nov. Type species: *Nephrotheca ilicifolia* (L.) B.Nord. & Kallersjö = *Osteospermum ilicifolium* L.

Norlindhia B.Nord.: 41 (2006), syn. nov. Type species: *Nordlindhia amplectens* (Harv.) B.Nord. = *Osteospermum amplectens* (Harv.) T.Norl.

Inuloides B.Nord.: 44 (2006), syn. nov. Type species: Inuloides tomentosa (L.f.) B.Nord. = Osteospermum tomentosum (L.f.) T.Norl.

1. sect. **Nephrotheca** (B.Nord. & Kallersjö) J.C.Manning & Goldblatt, stat. nov. *Nephrotheca* B.Nord. & Kallersjö in Nordenstam *et al.*: 32 (2006).
2. sect. **Calendula** (L.) J.C.Manning & Goldblatt, stat. nov. *Calendula* L.: 921 (1753).
3. sect. **Oppositifoliae** DC.
4. sect. **Homocarpae** Norl. (= *Chrysanthemoides* Fabr.)
5. sect. **Monticolae** Norl.
6. sect. **Polygalinae** DC.
7. sect. **Acerosae** Norl. (= *Gibbaria* Cass., *Oxylaena* Benth. ex Anderb.)
8. sect. **Coriaceae** Norl.
9. sect. **Diversifoliae** Harv.
10. sect. **Xenismia** (DC.) Norl. (= *Oligocarpus* Less.)
11. sect. **Trialatae** Norl.
12. sect. **Spinosae** Norl.
13. sect. **Confusae** Norl. (= *Norlindhia* B.Nord.)
14. sect. **Efenestratae** Norl. (= *Inuloides* B.Nord.)
15. sect. **Trifenestratae** Norl. (= *Tripteris* Less.)
16. sect. **Unifenestratae** Norl. (= *Monoculus* B.Nord.)

COLCHICACEAE

Wurmbea and **Colchicum**. Phylogenetic analyses of DNA sequence data in Colchicaceae (Vinnersten & Manning 2007; Manning *et al.* 2007) have shown that the northern hemisphere *Colchicum* and *Merendera* are nested in *Androcymbium*. Following the principles of phylogenetic classification, *Androcymbium* species are now treated as members of the genus *Colchicum*, the earlier name at generic rank. Synonyms for *Androcymbium* included in *Cape plants* (Goldblatt & Manning 2000) are indicated in the synonymy of the relevant *Colchicum* species.

The circumscription of *Wurmbea* has also been expanded to include the two small genera *Neodregea* (1 sp.) and *Onixotis* (2 spp.) (Vinnersten & Manning 2007). As yet, however, no revised classification for the expanded genus exists, and we accordingly provide one here. In the molecular phylogeny presented by Vinnersten & Manning (2007), *W. glassii* (= *Neodregea glassii*), *W. punctata* (= *Onixotis punctata*), and *W. stricta* (= *O. stricta*) form a grade with *Wurmbea s.str.*, which in turn divides into two well supported groups (100 BP) comprising respectively the Australian and the African species (Vinnersten & Manning 2007). Although only five Australian and seven African species were sampled, these cover a wide range of the variation present on both continents. The African species have been segregated between sect. *Heterophyllae* (extra-CCR species) and sect. *Wurmbea* (mainly CCR species) (Nordenstam 1978) and we therefore provisionally treat the Australian species in a third section, for which the infrageneric name *Glossocodon* is available. There is substantial variation among the Australian species (Macfarlane 1987) and further subdivision may be useful. We treat the remaining three African lineages as subgenera.

Classification of *Wurmbea*

Wurmbea *Thunb.*, Nova genera plantarum: 18 (1781). Type: *Wurmbea capensis* Thunb.

1. subg. **Neodregea** *(C.H.Wright) J.C.Manning & Goldblatt*, stat nov. *Neodregea* C.H.Wright in Kew Bulletin 1909: 308 (1909). Type species: *Neodregea glassii* C.H.Wright = *Wurmbea glassii* (C.H.Wright) J.C.Manning & Vinnersten.

2. subg. **Onixotis** *(Raf.) J.C.Manning & Goldblatt*, comb. et stat nov. *Onixotis* Raf., Flora telluriana 2: 32 (1837). Lectotype, designated here: *Onixotis ciliata* (L.f.) Raf. = *Wurmbea punctata* (L.f.) J.C.Manning & Vinnersten [This is one of only two names actually listed by Rafinesque (1837), the other being *O. secunda* (Desv.) Raf., currently treated as a synonym of *O. punctata*].

3. subg. **Dipidax** *(Lawson ex Salisb.) J.C.Manning & Goldblatt*, comb. et stat. nov. *Dipidax* Lawson ex Salisb., Genera plantarum: 54 (1866). Lectotype, designated here: *Melanthium junceum* Jacq. = *Wurmbea stricta* (Burm.f.) J.C.Manning & Goldblatt [This is the only species that Salisbury (1866) listed by name, with others species implied but not actually named].

4. subg. **Wurmbea**

   sect. **Wurmbea**

   sect. **Heterophyllae** *B.Nord.*, in Notes from the Royal Botanic Garden Edinburgh 36: 218 (1978). Type species: *W. kraussii* Baker.

   sect. **Glossocodon** *(Endl.)J.C.Manning & Goldblatt*, comb. nov. *Anguillaria* [unranked] *Glossocodon* Endl.: 45 (1846). *Anguillaria* sect. *Glossocodon* (Endl.) Pfeiffer: 192 (1872). Lectotype, designated here: *Anguillaria pygmaea* Endl. = *Wurmbea pygmaea* (Endl.) Benth. [This is one of two species included in *Glossocodon* by Endlicher

(1846), the other being *W. tenella* (Endl.) Benth. (as *A. tenella* Endl.) We select the former as being the only one to have the perianth tube explicitly described, which Endlicher regarded as diagnostic for *Glossocodon*].

FABACEAE

Sutherlandia. The last published revision of *Sutherlandia* R.Br. ex W.T.Aiton (Phillips & Dyer 1934) admitted six species to the genus, distinguished essentially on differences in habit and fruit shape, with the proviso that genetic study was necessary for elucidating the relationships of their species. The distinctions between most of these species have been difficult to apply and more recent field study, complemented by electropheretic analysis (Moshe *et al.* 1998), has resulted in the conclusion that just two species should be recognized: *S. tomentosa* Eckl. & Zeyh., with the adaxial leaf surface densely sericeous and restricted to coastal dunes between Koeberg and Still Bay in Western Cape, and *S. frutescens* (L.) R.Br., with the adaxial leaf surface glabrous to sparsely sericeous and widely distributed across western and central southern Africa. The remaining species recognized by Phillips & Dyer (1934) have been informally treated within *S. frutescens* as subspecies or local forms (Van Wyk & Albrecht 2008). In the interim, Manning & Goldblatt (2000) concluded that the genus *Sutherlandia* was an artificial one based on adaptations to bird dispersal, and accordingly included it within the closely allied entomophilous genus *Lessertia* DC. Molecular analysis of *Astragalus* and related genera of Galegeae (Wojciechowski *et al.* 1999) provides preliminary support for this decision, indicating that *Lessertia* is paraphyletic without the inclusion of *Sutherlandia*. The nomenclatural adjustments within *Lessertia* that are necessary to reflect the recent taxonomic understanding of species boundaries in *Sutherlandia* are provided here.

Lessertia frutescens *(L.) Goldblatt & Manning* in *Strelitzia* 9: 708 (2000). *Colutea frutescens* L.: 723 (1753). *Sutherlandia frutescens* (L.) R.Br. in W.T.Aiton: 327 (1810). Type: South Africa, without precise locality or collector, *Herb. Linn. No. 14.4* (LINN, holo.–digital image!).

subsp. **frutescens**

Sutherlandia humilis E.Phillips & R.A.Dyer: 79 (1934), syn. nov. *L. humilis* (E.Phillips & R.A.Dyer) Goldblatt & J.C.Manning: 708 (2000). Type: Orange Free State [Free State], Fauresmith, 8 September 1927, *Smith 4475 PRE608033* (PRE, holo.!).

S. montana E.Phillips & R.A.Dyer: 78 (1934), syn. nov. *L. montana* (E.Phillips & R.A.Dyer) Goldblatt & J.C.Manning: 708 (2000). Type: Natal [KwaZulu-Natal], Mont-aux-Sources, 20 May 1920, *Doidge s.n. PRE606734* (PRE, holo.!).

subsp. **microphylla** *(Burch. ex DC.) J.C.Manning & Boatwr.*, comb. et stat. nov. *Sutherlandia microphylla* Burch. ex DC., Prodromus systematis naturalis regni vegetabilis 2: 273 (1825). *L. microphylla* (Burch. ex DC.) Goldblatt & J.C.Manning: 708 (2000). Type: Northern Cape, Fraserburg, August 1811, *Burchell 1510* (K, holo.–digital image!).

subsp. **speciosa** *(E.Phillips & R.A.Dyer) J.C.Manning & Boatwr.*, comb. et stat. nov. *Sutherlandia speciosa* E.Phillips & R.A.Dyer in Revista Sudamericana de Botánica 1: 75 (1934). *L. speciosa* (E.Phillips & R.A.Dyer) Goldblatt & J.C.Manning: 708 (2000). Type: Northern Cape, Namaqualand minor [Namaqualand], Waterklip, 10 September 1897, *Schlechter 11162* (PRE, holo., iso.).

HYACINTHACEAE

Albuca. The combination *Albuca canadensis* (L.) F.M.Leight. (1948), based on *Ornithogalum canadense* L. (1753), is the correct name for the species previously treated under

the illegitimate superfluous name *A. major* L. (1762). This substitute name was proposed by Linnaeus in *Species plantarum* edn 2 (1762), evidently because he considered the epithet *canadensis* inappropriate for what he belatedly realised was a Cape plant. Baker (1896) interpreted the identity of *O. canadense* from the plate entitled *Ornithogalum luteovirens* in Cornut's (1635) volume, *Canadensium plantarum* etc., which was cited by Linnaeus (1753) in the protologue of the species, and accordingly applied the name to the yellow and green-flowered species currently known as *A. flaccida* Jacq. This plate is based on a plant cultivated by a certain D.V. Robin and thought at the time to have come originally from the Indies. The epithet *canadensis* is hard to explain in this light. A related white-and-green-flowered species from the region was treated by Baker (1896) under the name *A. altissima* Dryand.

This application was radically altered by Müller-Doblies (1994), who considered both names to refer to the white-flowered taxon, an action stemming from her selection of the specimen LINN-S 140.5 as the lectotype of *O. canadense* (Jarvis *et al*. 1993). This specimen was annotated by Linnaeus as [*Ornithogalum*] *canadense*, and the name then deleted and *Albuca major* substituted. Indications are, therefore, that the specimen is contemporary with the protologue and thus constitutes a syntype, along with the Cornut plate. The selection of the LINN-S specimen as lectotype is thus legitimate, despite Stearn's (1983) earlier suggestion that the Cornut plate would be the appropriate lectotype. We have examined this specimen, and the duplicate at LINN, and are confident that both do indeed represent the white-flowered plants, presumably the reason Linnaeus called the genus *Albuca*, the name alluding to the white flowers of his specimens. The evident lack of fibres on the bulb, and the flower colour suggest that the Cornut plate is not this species, however, and we consider that it represents the species currently called *A. flaccida* Jacq. This has no bearing on the nomenclature, as we are bound to base the identity of *A. canadensis* on the lectotype. Although apparently appropriately lectotypified, Müller-Doblies (1994) inexplicably treated the name *O. canadense* as a '*nomen confusum*' on account of the discordance in flower colour between the lectotype and the Cornut syntype (U. Müller-Doblies pers. comm., January 2007), and thus treated the species under the later name *A. maxima* Burm.f.

The lectotype lacks leaves and bulb, which are often critical for determination of species in the genus, and we therefore propose as an epitype a relatively recent, well-preserved specimen of undisputed identity collected in a nature reserve.

Albuca canadensis *(L.) F.M.Leight*. in Journal of South African Botany 14: 86 (1948). *Ornithogalum canadense* L.: 308 (1753). Type: South Africa, without precise locality or collector, *Herb. Linn.-S 140.5* (LINN-S, lecto.!, designated by Müller-Doblies in Jarvis et al. 1993). Epitype: South Africa, Northern Cape, Nieuwoudtville Nature Reserve, 12 August 1983, *Perry & Snijman 2273* (NBG, 2 sheets).

Ornithogalum. *Ornithogalum juncifolium* Jacq., as circumscribed by Obermeyer (1978), is a highly variable species complex that is widespread throughout the southern and eastern parts of southern and possibly eastern tropical Africa. Some elements included in the species were reinstated at species rank by Müller-Doblies & Müller-Doblies (1996) but the complex requires intensive study throughout its range for a final assessment of the taxonomic status of all the variants. The most recent addition to the group, *O. lithopsoides* Van Jaarsv. (2009), is based on a single collection from the Enon conglomerates at Vanwykskraal Farm near Oudtshoorn. Examination of the type material confirms that it is conspecific with the earlier *O. comptum* Baker (1873). This taxon was one of those resuscitated by Müller-Doblies & Müller-Doblies (1996) but we follow Obermeyer (1978) in including it in *O. juncifolium* as a xeromorphic form of that species pending a more complete study of the complex. Should it become appropriate to recognize *O. comptum* at species level then *O. lithopsoides* should in any event be treated as a later synonym of that name.

Ornithogalum juncifolium *Jacq*., Plantarum rariorum horti caesarei schoenbrunnensis 1: 46 (1797). Type: South Africa, without precise locality or collector, cultivated in Vienna, illustration in Jacq., Pl. hort. schoenbr. 1, t. 90 (1797).
O. comptum Baker: 274 (1873). Type: South Africa, [Eastern Cape], Swartkops River, without year, *Zeyher 942* (K, lecto. designated by Müller-Doblies & Müller-Doblies: 438 (1996); BM, SAM!, iso.).
O. lithopsoides Van Jaarsv.: 20 (2009), syn. nov. Type: South Africa, Western Cape, Oudtshoorn, Vanwykskraal, 24 November 1996, *Van Jaarsveld 15240* (NBG, holo.!).

IRIDACEAE

Gladiolus. The Cape Peninsula endemic long known as *Homoglossum merianellum* (Baker 1896; De Vos 1976) has an unfortunately clouded taxonomic history and has sometimes been regarded as superfluous and illegitimate. Based on *Antholyza merianella* L. (Linnaeus 1774), the protologue included a reference to *Watsonia humilis*, *fol. linearisensiformibus, tubo floris longissimo* of P. Miller's *Figures of … plants* t. 276, f. 2 (1759). That illustration represents a species of *Watsonia*, described later under the binomial *W. humilis* Mill. (1768). Later authors dealing with *A. merianella* have often failed to note that the Miller name cited by Linnaeus is in polynomial form and therefore does not render *A. merianella* superfluous. The later combinations of the epithet, *Gladiolus merianellus* (L). Thunb. (1784) and *Homoglossum merianellum* (L.) Baker (1877), are thus legitimate. The current name borne by the plant, *Gladiolus bonaespei* Goldblatt & M.P.de Vos (1989), was proposed for the illegitimate synonym *Watsonia pilosa* Klatt in order to replace the supposedly illegitimate *G. merianellum* but it is now clear that *G. bonaespei* falls into synonymy. Two elements were included in Linnaeus's *A. merianella*, the Miller plate and a specimen in the Linnaean Herbarium, which is indeed the Cape Peninsula species. We designate that specimen the lectotype, an action that seems not to have been implemented before now. Thunberg, working in Uppsala and aware of the specimens in Linnaeus's herbarium, knew exactly what *A. merianella* was, and the extended description in the *Dissertatio de Gladiolo* (Thunberg 1784) accords exactly with Linnaeus's and his own collections and ignores any feature of Miller's *W. humilis*, which had by then been given a binomial. The nomenclature of *G. merianellus* is outlined below.

Gladiolus merianellus (L.) Thunb., Dissertatio de gladiolo 14 (1784). *Antholyza merianella* L.:77 (1774) [name misapplied by Curtis: t. 441 (1799) to *W. aletroides*; and to *Watsonia humilis* Mill. by others]. *Homoglossum merianellum* (L.) Baker: 161 (1877), nom. superf. pro *W. humilis* Mill. (1768). Type: South Africa, without precise locality or collector, *Herb. Linn. No. 60.7* (LINN, lecto., here designated).
G. bonaespei Goldblatt & M.P.de Vos: 421 (1990 '1989'), nom. nov. pro *Watsonia pilosa* Klatt: 200 (1885) [non *G. pilosus* Eckl.], syn. nov. Type: South Africa, [Western Cape], near Simonstown, May 1882, *MacOwan 2510* (B, holo.; G, iso.).

Melasphaerula. The only species of this widespread genus has been known since the later 19th century variously as *Melasphaerula graminea* (L.f.) Ker Gawl. (1803), *M. ramosa* (L.) Klatt (1894), *M. ramosa* (Burm.f.) N.E.Br. (1929), and *M. ramosa* (L.) N.E.Br. Klatt's (1894) combination is based on *Gladiolus ramosus* L. (1753), the type of which is a specimen in the Leiden Herbarium that we have now determined to be *Ixia scillaris* L. This name is valid and thus renders Brown's combination, based on *Phalangium ramosum* Burm.f. (1768), an illegitimate homonym. There seems no justification for the last combination, *M. ramosa* (L.) N.E.Br., as we find no link between Linnaeus's and Burman fil.'s epithets.

The earliest legitimate name for the species is then *Melasphaerula graminea* (L.f.) Ker Gawl. We note here that the protologue of the basionym, *Gladiolus gramineus* (Linnaeus fil. 1782), contains references to Burm.f. (1768: 3) without epithet explicitly cited but perhaps to *Phalangium ramosum*, and explicitly to Plukenet (1692: t. 187, f. 3), the type of *Phalangium obsoletum* Burm.f. (identity uncertain). Apparently superfluous, the legitimacy of Linnaeus fil.'s species is saved by a later statement in the same publication, p. 468 (Emendanda), that all the synonyms cited under *G. gramineus* are excluded (p. 95: *Omnia Synonyma sub GLADIOLO gramineo excludantur*).

Melasphaerula graminea (L.f.) Ker Gawl. in Curtis's Botanical Magazine 17: t. 615 (1803). *Gladiolus gramineus* L.f.: 95 (1782). Type: South Africa, without precise locality, *Sparrman s.n. Herb. Linn. No. 59.23* [LINN, holo.!, other type elements cited explicitly excluded p. 468 (Emendanda)].
M. ramosa (Burm.f.) N.E.Br.: 138 (1929), hom. illeg. non (L.) Klatt (1894). *Phalangium ramosum* Burm.f.: 3 (1768). Type: South Africa, without precise locality or collector, *Herb. Burman G0096635* [G, lecto., effectively designated by N.E.Br.: 138 (1929)].

Syringodea. The common southwestern Cape species *Syringodea longituba* is currently separated into two varieties (De Vos 1974), based on the colour of the filaments, style, and the throat of the perianth tube: white in var. *violacea* and yellow or orange-yellow in var. *longituba*. These two forms are almost perfectly allopatric, with var. *violacea* occurring primarily in the Little Karoo and southern Cape, and var. *longituba* further north and west of this, from the Western Karoo, Bokkeveld, and Cedarberg as far south as Porterville and Caledon, with an outlying collection from near Riversdale. We feel that this strong geographic component to the variation in the species is more accurately reflected by the recognition of these two forms as subspecies, and we provide the combinations here.

Syringodea longituba subsp. **longituba**. *Syringodea longituba* (Klatt) Kuntze: 309 (1898). *Trichonema longitubum* Klatt: 665 (1865–66). Type: South Africa, without precise locality, *Mund & Maire 1101* (B, holo.).

Syringodea longituba subsp. **violacea** *(M.P.de Vos) Goldblatt & J.C.Manning*, stat. nov. *Syringodea longituba* var. *violacea* M.P.de Vos: 243 (1974). Type: South Africa, [Western Cape], Ladismith, 19 km NE of Muiskraal, *De Vos 2270* (NBG, holo.)

Tritoniopsis. *Tritoniopsis longituba* (as *Anapalina longituba*) was distinguished by Lewis (1960) from *T. antholyza* (as *A. nervosa*) by the upper cauline leaves bract-like rather than vestigial, the lower part of the perianth tube slightly longer and the anther apiculi better developed. In practice we find the distinction has no merit. The ranges and flowering times of specimens assigned by Lewis to each species also overlap and they appear to us to be identical morphologically.

Tritoniopsis antholyza *(Poir.) Goldblatt* in South African Journal of Botany 57: 226 (1991). *Gladiolus antholyza* Poir. in Lam.: 795 (1811), as nom nov. pro *Antholyza nervosa* Thunb.: 7 (1794). Type: South Africa, without precise locality or date, *Thunberg s.n.* (UPS-THUNB, holo.).
Anapalina longituba Fourc.: 76 (1932), syn. nov. *Tritoniopsis longituba* (Fourc.) Goldblatt: 580 (1990). Type: South Africa, [Western Cape], Prince Alfred's Pass, *Fourcade 2003* (BOL, holo.!).

For *Tritoniopsis caffra*, the name as proposed by Goldblatt (1990) as a combination based on the illegitimate basionym *Antholyza caffra* Ker Gawl. ex Baker (1877) is invalid. Goldblatt's combination could be treated as a new name (McNeil *et al.* 2006: Art. 48), but would then require a Latin diagnosis for validation. The synonym, *Chasmanthe caffra*

N.E.Br. (1932), to be treated as a new name for Baker's (1877) illegitimate basionym, is valid as the requirement for a Latin diagnosis dates only from 1935. The simplest solution to validation of the name is to combine Brown's *C. caffra* in *Tritoniopsis*. Milne-Redhead (1937) confused the locality for the lectotype for the name that he proposed, *Burchell 6010,* but this was later clarified by Lewis (1960).

Tritoniopsis caffra *(N.E.Br.) Goldblatt & J.C.Manning*, comb. nov. *Chasmanthe caffra* N.E.Br. in Transactions of the Royal Society of South Africa 20: 273 (1932), nom. nov. pro *Antholyza caffra* Ker Gawl. ex Baker: 179 (1877), nom. superfl. pro *Anisanthus splendens* Sweet [= *Gladiolus splendens* (Sweet) Herbert]. *Anapalina caffra* (N.E.Br.) G.J.Lewis: 68 (1960). *Tritoniopsis caffra* Goldblatt: 580 (1990), nom. inval. sine descr. lat. [proposed replacement name for *Antholyza caffra* Ker Gawl. ex Baker]. Type: South Africa, [Western Cape], George, lower slopes of Posberg, *Burchell 6010* [(K, lecto., designated by Milne-Redhead: 9470 (1937), locality corrected by Lewis (1960)].

Moraea. Until now (e.g. Goldblatt 1976), *Moraea tripetala* (L.f.) Ker Gawl. has been broadly circumscribed to include several recognizable variants. Information has accumulated that some of these are better treated as separate species. Here, we recognize early flowering populations from lowland, renosterveld habitats in the southwestern Cape with relatively long, linear inner tepals wider in the middle, leaves not exceeding the stems and flat and twisted distally as one of these, first recognized by Baker (1904) as *M. punctata*. A second variant, *M. hainebachiana* Goldbatt & J.C.Manning, from limestone habitats in the Saldanha Bay area, has corms with black tunics, multiple cormlets in underground axils and short, trifid inner tepals. One more segregate is *M. amabilis* Diels, which has free filaments (usually united 1.0–1.5 mm in other members of the *M. tripetala* complex), corms with light brown, relatively soft tunics, leaves plane distally, sometimes villous abaxially, and inner tepals consistently reduced to short, attenuate cusps. This leaves *M. tripetala* circumscribed to include plants with coarsely fibrous, dark corm tunics, leaves channelled throughout, and flowers with inner tepals cusp-like or linear and filaments usually united basally, but occasionally free in some southern Cape populations, otherwise typical of the species.

LAMIACEAE

Leonotis. Ongoing morphological and molecular studies on *Leucas* and allied genera in the Lamiaceae (Ryding 1998; Scheen & Albert 2009) confirm suspicions (Singh 2001) that the Asian and the Arabian-African taxa comprise two distinct phylogenetic lineages. The molecular data show that the Asian species form a monophyletic group sister to *Isoleucas* plus the African species of *Otostegia, Acrotome, Leucas,* and *Leonotis*. The genus *Leucas* has accordingly been more narrowly circumscribed to include only the Asian species, with the recommendation that the African species be treated as part of an enlarged *Leonotis* (Scheen & Albert 2007). At the moment, however, the African species of *Leucas* are without generic placement, and their continued treatment in the genus *Leucas* is contrary to the current definition of that genus. We therefore formally transfer the southern Africa species to the genus *Leonotis* as recommended by Scheen & Albert (2007). The genus *Leonotis* currently comprises ten species of annual or robust perennial herbs and is distinguished from *Leucas* solely on floral characteristics that represent adaptations to bird pollination, notably a longer, orange corolla tube with the lower lip reduced in size. Similar floral adaptations are characteristic of many bird-pollinated taxa in otherwise entomophilous genera, and preliminary indications are that even *Leonotis* itself in this narrow sense is not monophyletic, suggesting that the characteristic floral form that currently defines *Leonotis* has evolved more than once within the African *Leucas–Leonotis* clade. Other floral characters diagnostic of *Leucas*, notably the 5–10-toothed calyx and the

bearded upper corolla lip, are shared with *Leonotis*. Although the status of the small southern and tropical African genus *Acrotome* within the African *Leucas* clade has yet to be resolved, it is well-defined morphologically by its included stamens, held together by intermingling hairs (Codd 1985), and we therefore refrain from making any nomenclatural changes here. The genus *Leucas* is thus native to Asia, whereas *Leonotis* is greatly enlarged by the addition of ± 50 African species previously placed in *Leucas*, with the potential to comprise a total of 60–70 species.

Leonotis capensis (Benth.) *J.C.Manning & Goldblatt*, comb. nov. *Lasiocoryis capensis* Benth., Labiatarum genera et species 6: 600 (1834). *Leucas capensis* (Benth.) Engl.: 268 (1888).

Leonotis ebracteata *(Peyr.) J.C.Manning & Goldblatt*, comb. nov. *Leucas ebracteata* Peyr., Sertum Benguelense: 577 (1860).

Leonotis ebracteata var. **kaokoveldensis** *(Sebald) J.C.Manning & Goldblatt*, comb. nov. *Leucas ebracteata* var. *kaokoveldensis* Sebald in Stuttgarter Beiträge zur Naturkunde. Serie A, Biologie 341: 141 (1980).

Leonotis glabrata *(Vahl.) J.C.Manning & Goldblatt*, comb. nov. *Phlomis glabrata* Vahl, Symbolae botanicae 1: 42 (1790).

Leonotis glabrata var. **linearis** *(Codd) J.C.Manning & Goldblatt*, comb. nov. *Leucas glabrata* var. *linearis* Codd in Flora of southern Africa 28(4): 44 (1985).

Leonotis martinicensis *(Jacq.) J.C.Manning & Goldblatt*, comb. nov. *Clinopodium martinicense* Jacq., Enumeratio systematica plantarum: 25 (1760). *Leucas martinicensis* (Jacq.) R.Br. in W.T.Aiton: 409 (1811).

Leonotis neuflizeana *(Courbon) J.C.Manning & Goldblatt*, comb. nov. *Leucas neuflizeana* Courbon in Annales des Sciences Naturelles, ser. 4, 18: 145 (1862).

Leonotis pechuelii *(Kuntze) J.C.Manning & Goldblatt*, comb. nov. *Lasiocorys pechuelii* Kuntze in Jahrbuch des Königlichen botanischen Gartens und des botanischen Museums zu Berlin 4: 271 (1886). *Leucas pechuelii* (Kuntze) Gürke: 135 (1895).

Leonotis sexdentata *(Skan) J.C.Manning & Goldblatt*, comb. nov. *Leucas sexdentata* Skan in Flora capensis 5,1: 371 (1910).

LENTIBULARIACEAE

Utricularia. Taylor (1989), in his monumental monograph of *Utricularia*, included *U. brachyceras* Schltr. (1899), a narrow endemic of the northern Cedarberg, in the circumscription of the widespread and polymorphic *U. bisquamata*, following the precedent set by Stapf (1904) in *Flora capensis* in regarding it as a short-spurred form of that species. The true status of Schlechter's species as distinct from *U. bisquamata* was fully addressed by Stephens (1938), who amplified Schlechter's original description and provided detailed illustrations of the flower, fruit, and pollen. Apart from the very short, sac-like spur scarcely 0.5 mm long, white-flowered *U. brachyceras* is invariably one-flowered, with a flat, crenulate lower lip with the palate reduced to paired, small bosses, thus exposing the anthers. The flowers in *U. bisquamata* are personate, with a strongly raised, cushion-like palate totally obscuring the mouth of the tube. Additional differences between the two species are in the stigma, which in *U. brachyceras* has the upper lip aborted and the lower lip 0.5–0.8 mm long and thus very much larger than in *U. bisquamata*. The sculpturing of the seed testa also appears to differ between the species, with the seeds of *U. brachyceras* described and illustrated as irregularly reticulate and those of *U. bisquamata* as laevigate. Both species co-occur in the northern Cedarberg, where the several and marked differences between them are maintained with no evidence of hybridization. We have examined several collections of *U. brachyceras* and conclude that although evidently related to *U. bisquamata* on the basis of its similar trap structure it is clearly a quite distinct species.

As Stephens (1938) poetically observed, the appearance of the species suggests a cloud of tiny snowflakes settling on the moss.

Utricularia brachyceras *Schltr.* in Botanische Jahrbücher 27: 191 (1899); Stephens: 48 (1938). Type: South Africa, [Western Cape], Pakhuis Berg, 22 Aug. 1896, *Schlechter 8601* (B, holo.; BM, BOL, COI, HBG, G, GRA, K!, P, PRE!, Z, iso.).

Additional specimens seen

WESTERN CAPE.—3219 (Wuppertal): Pakhuis Pass, Sept. 1937, *Stephens 2002* (BOL); Pakhuis Pass, (–AA), 2 Oct. 1940, *Compton 9799* (NBG); Pakhuis, (–BB), 29 Sept. 1941, *Esterhuysen 3499* (NBG); path to Amon se Poort, E Kliphuis campsite, (–AA), 28 Sept. 1996, *Low 2885* (NBG).

MENYANTHACEAE

Villarsia. Molecular studies of Menyanthaceae have resulted in a revised treatment of *Villarsia* (Tippery & Les 2009), regarded until 2008 as a Cape-Australian genus with one species in Indo-China. Tippery *et al.* (2008) have shown that *Nymphoides* is paraphyletic when *Villarsia* is treated as a separate genus. The Australian species have been segregated in two genera, separate from *Villarsia*, rendering *Nymphoides* monophyletic. These taxonomic adjustments leave *Villarsia* endemic to the Cape flora region.

ORCHIDACEAE

Disperis and **Corycium.** A phylogenetic analysis of plastid and nuclear markers (Waterman *et al.* 2009) has confirmed that subtribe Coryciinae is paraphyletic with the inclusion of *Disperis*, a possibility that was first suggested by a morphological cladistic analysis of the group (Kurzweil & Linder 1994). The subtribe in this narrower circumscription is morphologically defined by several synapomorphic anther characters, notably the widened connective separating the anther thecae, and the fasciculate massulae of elongated pollen tedrads with striate-tectate sculpturing (Kurzweil & Linder 1994). Generic circumscriptions within Coryciinae *s.str.* have been much disputed and were recently significantly revised by Kurzweil *et al.* (1991) following a detailed morphological cladistic analysis of the group, focusing especially on the detailed structure of the gynostemium. This resulted in the recognition of four genera. *Ceratandra* (6 spp.) and *Evotella* (1 sp.) were closely allied on the basis of their distinctive, anchor-shaped lip and ± equally long cauline leaves: *Evotella* was retained as a separate genus on the basis of its ± entire lip appendage and stigmas placed terminally on the rostellar arms, and *Ceratandra* was diagnosed by its thickened roots and pendent anther. The remaining two genera, *Corycium* (14 spp.) and *Pterygodium* (18 spp.), were less convincingly diagnosable, their distinction relying essentially on the depth of the hood formed by the petals and median sepal: deep in *Corycium* and shallow in *Pterygodium*.

Waterman *et al.* (2009) conclude that both *Corycium* and *Pterygodium* are polyphyletic as currently circumscribed, evidently because of significant convergence in the floral characters used to define the genera. The analysis confirmed the close relationship between *Ceratandra* and *Evotella* suggested by their similar vegetative and floral morphology, and also largely corroborated the species relationships within *Disperis* that emerged from an earlier morphological cladistic analysis of that genus (Manning & Linder 1992).

Although *Corycium* may be readily rendered monophyletic by the exclusion of *Co. carnosum* and *Co. flanaganii*, the genus in this narrower circumscription is still deeply embedded within *Pterygodium*, in which relationships are complex and not fully resolved. Significantly, the genus *Ceratandra* is retrieved as monophyletic and sister to *Evotella* + *Co. carnosum*. The latter alliance receives independent morphological support from the unusual, unequal pollinium sections found in these two species (Waterman *et al.* 2009). Both *E. rubiginosa* and *Co. carnosum* are also unusual in their pink petals. We have re-examined the lip in *Co. carnosum* and discover that it is shortly clawed with a distinctly semi-lunate or anchor-shaped blade, characters that define this clade. There are thus no morphological barriers to transferring *Co. carnosum* to the genus *Evotella*. In the current taxonomy of the genus, *Co. carnosum* is treated in the monotypic sect. *Carnosum* Kurzweil & H.P.Linder on the basis of its entire, hooded lip appendage and the position of the stigmas, which are terminal on the rostellum arms. Both of these characters are anomalous in *Corycium* but are diagnostic of *Evotella*.

A less explicable relationship is shown by *Pterygodium alatum*, which is placed sister to the *Ceratandra* + *Evotella* + *Co. carnosum* clade. This alliance has no evident morphological support, making it impossible to provide a morphological basis for recognizing the two primary clades retrieved in the molecular analysis. Unfortunately, just a single sample of *P. alatum* was included in the analysis, and although this placement receives the maximum posterior probability value in the Bayesian analysis, it is only moderately supported (BS 81%) in the parsimony analysis (Waterman *et al.* 2009 [Supplementary figure]). This leaves the possibility of some doubt as to its reliability. The minimum number of morphologically definable, monophyletic clades that Waterman *et al.* (2009) were able to recognize was ten, the largest of which was the *Corycium* clade (12 spp.), followed by their '*Eupterygodium*' clade (7 spp.), and the *Ceratandra* clade (6 spp.).

It is clear that some generic re-circumscription is necessary in Coryciinae in order to render the genera monophyletic. Although a formal re-classification of Coryciinae is postponed to a separate paper, Waterman *et al.* (2009) favour treating all or most of their ten informal clades at generic level on the basis that the 'morphological and molecular variation within the two primary clades that are retrieved [in the] analysis is extremely high in comparison with other genera in the Diseae'. No formal evidence for this claim is offered and it can be readily argued that both *Disa* and *Disperis* display comparable levels of variation in morphological and molecular characters (as judged from their Supplementary Figure). Significantly, Bytebier *et al.* (2008) identified the enormous morphological diversity present in the Disineae as the primary obstacle to a morphological classification system in the group. As a result, the circumscription of *Disa* was expanded to include the segregate genera *Monadenia*, *Herschelia*, and *Schizodium* (Bytebier *et al.* 2008), and now includes ± 180 spp. In contrast, *Disperis* (176 spp.) has been consistently treated as a single genus despite significant variation in vegetative and floral features, especially the form of the gynostemium, lip, and lip appendage. It is just these characters that have been traditionally emphasized in the generic classification of members of Coryciinae *s.str.*

The molecular and morphological data presented by Waterman *et al.* (2009) suggest two main options for recognizing monophyletic, morphologically definable genera. Option 1 requires the recognition of ten genera, as discussed above, the largest of which contains just a dozen species and three of which are monotypic. Option 2 requires that all 39 species be treated in a single, readily diagnosable genus, within which various subgenera and sections may be recognized. Option 1 highlights morphological diversity in the group but reduces information on phylogenetic relationships, and its advantages are difficult to justify. Although it retains all current genera, the circumscriptions of most need to be substantially altered, thereby largely negating this benefit. Option 2 maximizes nomenclatural stability

and taxonomic utility at the cost of phylogenetic information, although the latter is readily supplied through provision of an appropriate infrageneric classification. A more inclusive generic circumscription is consistent with generic treatments elsewhere in the tribe and also highlights the evident close phylogenetic relationship among the species, as well as their specialized pollination ecology (Pauw 2006). Either of these two solutions is a radical departure from current taxonomic treatment of the subtribe and we therefore propose a compromise solution based on the possibility that *Pterygodium alatum* may be misplaced in the molecular analysis. This option recognizes three genera: 1. *Ceratandra* is retained as currently circumscribed; 2. *Co. carnosum* is transferred to the genus *Evotella*, with which it accords in flower colour, lip shape, stigma position, and unusual pollinium structure; 3. *Corycium* is subsumed within *Pterygodium*, reflecting the weak morphological distinction between the two and the uncertain relationships among the species. This treatment is consistent with the topology of the molecular analysis in all respects except the position of *P. alatum* but support for the placement of this species outside the *Pterygodium–Corycium* clade is only moderate and requires additional investigation pending a final conclusion.

Most species of *Corycium* were treated in the genus *Pterygodium* by Schlechter (1898) in his monograph of the tribe and very few new combinations are necessary. These are provided below. An appropriate infrageneric classification is still required but we transfer most of the existing sections recognized in *Corycium* by Kurzweil *et al.* (1991) to *Pterygodium* and provide a preliminary system for further study and for herbarium curation.

Evotella *Kurzweil & H.P.Linder* in Kurzweil *et. al.*, Plant Systematics and Evolution 175: 215 (1991). Type species: *Evotella rubiginosa* (Sond. ex Bolus) *Kurzweil & H.P.Linder*.
Corycium sect. *Carnosum* Kurzweil & Linder: 218 (1991), syn. nov. Type species: *Corycium carnosum* (Lindl.) Rolfe = *Evotella carnosa* (Lindl.) J.C.Manning & Goldblatt.

Evotella carnosa *(Lindl.) J.C.Manning & Goldblatt*, comb. nov. *Pterygodium carnosum* Lindl., The genera and species of orchidaceous plants: 367 (1839). *Corycium carnosum* (Lindl.) Rolfe: 284 (1913).

Pterygodium *Sw.* in *Kongliga Swenska Wetenskaps Academiens handlingar*, ser. 2, 21: 217 (1800). Type species: *P. alatum* (L.f.) Sw.

Pterygodium sect. **Corycium** *(Sw.) J.C.Manning & Goldblatt*, comb. *et stat.* nov. *Corycium* Sw. in *Kongliga Swenska Wetenskaps Academiens handlingar*, ser. 2, 21: 220 (1800). Type species: *Corycium orobanchoides* (L.f.) Sw. = *P. orobanchoides* (L.f.) Schltr.
Corycium sect. *Microglossum* Kurzweil & H.P.Linder: 218 (1991), syn. nov. Type species: *Corycium microglossum* = *P. microglossum* (Lindl.) Schltr.

Pterygodium alticola *(Parkman & Schelpe) J.C.Manning & Goldblatt*, comb. nov. *Corycium alticola* Parkman & Schelpe in N.C. Anthony & E.A.C.L. Schelpe, Contributions of the Bolus Herbarium 10: 157 (1982).

Pterygodium dracomontanum *(Parkman & Schelpe) J.C.Manning & Goldblatt*, comb. nov. *Corycium dracomontanum* Parkman & Schelpe in N.C. Anthony & E.A.C.L. Schelpe, Contributions of the Bolus Herbarium 10: 158 (1982).

Pterygodium ingeanum *(E.G.H.Oliv.) J.C.Manning & Goldblatt*, comb. nov. *Corycium ingeanum* E.G.H.Oliv. in South African Journal of Botany 52: 256 (1986).

Classification of *Pterygodium*

Provisional classification of *Pterygodium* (Species arranged following Kurzweil *et al.* (1991) and Waterman *et al.* (2009).

1. sect. **Pterygodium**: *P. cruciferum* Sond., *P. connivens* Schelpe, *P. acutifolium* Lindl., *P. catholicum* (L.) Sw., *P. newdigateae* Bolus, *P. cleistogamum* (Bolus) Schltr., *P. platy-*

petalum Lindl., *P. hastatum* Bolus, *P. leucanthum* Bolus, *P. caffrum* (L.) Sw., *P. pentherianum* Schltr., *P. alatum* (Thunb.) Sw.

2. sect. **Magnum** *Kurzweil & Linder*: *P. magnum* Reichb.f.
3. sect. **Ommatodium** *(Lindl.) Kurzweil & Linder*: *P. cooperi* Rolfe, *P. volucris* (L.f.) Sw., *P. vermiferum* E.G.H.Oliv. & Liltved, *P. schelpei* H.P.Linder.
4. sect. **Anochilus** *Schltr.*: *P. flanaganii* Bolus, *P. inversum* (Thunb.) Sw., *P. hallii* (Schelpe) Kurzweil & H.P.Linder.
5. sect. **Corycium** *(Sw.) J.C.Manning & Goldblatt*: *P. microglossum* (Lindl.) Schltr., *P. bifidum* Sond., *P. tricuspidatum* (Bolus) Schltr., *P. nigrescens* (Sond.) Schltr., *P. dracomontanum* (Parkman & Schelpe) J.C.Manning & Goldblatt, *P. alticola* (Parkman & Schelpe) J.C.Manning & Goldblatt, *P. bicolorum* (Thunb.) Schltr., *P. excisum* (Lindl.) Schltr., *P. orobancoides* (L.f.) Schltr., *P. ingeanum* (E.G.H.Oliv.) J.C.Manning & Goldblatt, *P. deflexum* Bolus, *P. crispum* (Thunb.) Schltr.

PHYLLANTHACEAE

Lachnostylis. This small genus of dioecious trees with simple, alternate leaves, and axillary fascicles of unisexual flowers, the male flowers with five sepals and a villous disc, currently comprises just two species from the Western and Eastern Cape. A third species, recently discovered in the Olifants River Valley and treated informally as *L.* sp. 1 in *Cape plants* 2000, is named here.

Lachnostylis hanekomii *R.H.Archer & J.C.Manning*, sp. nov.

Ex affinitate *Lachnostylidis hirtae* (L.f.) Müll.Arg.; habitu suffruticoso vel fruticoso ad 1.5 m. alto, ramulis ferrugineis laevigatis, inflorescentiis bracteis grandibus rotundis munitis, foliis coriaceis glabris venosis, fructo magno conspicuo distinguenda.

TYPE.—WESTERN CAPE: 3219 (Wuppertal): Citrusdal, Swartvlei, Rooidraai, (–CA), 6 October 1997 [female flowers and young fruit], *Hanekom 2907* (NBG, holo.; K, MO, PRE, iso.).

Dioecious shrub or subshrub, 300–2 000 mm high, with multiple erect stems from underground runners, forming loose clumps up to 2 000 mm diam., resprouting. *Stems* glabrous, 5–10 mm diam., bright green or reddish brown when young, with scattered, pale lenticels, leafless below at maturity with greyish bark. *Leaves* obovate, shortly petiolate, petiole 2–3 mm long, fleshy, blade mostly 35–60 × 20–40 mm, obtuse-mucronulate, narrowed gradually below and ± truncate basally, stiff and leathery, glabrous but minutely penicillate apically when young, slightly discolorous, bright green above but paler and weakly concave beneath, venation finely reticulate, especially beneath, lateral veins 6 or 7 on each side, spreading, margins cartilaginous; stipules ovate-lanceolate, 3–5 × 1–2 mm, thinly ciliate, soon dry and caducous. *Flowers* unisexual; bracts ovate-oblong, obtuse-truncate, 2–3 × 2.0 mm, appressed-silky adaxially, soon dry and caducous. *Male flowers* in axillary fascicles of ± 3 or 4 towards branch tips, urceolate, shortly pedicellate, spreading or slightly nodding, pale creamy green; pedicels 2.0–3.0 mm long, fleshy, densely silky-villous; sepals 5, erect and concealing petals, broadly oblong-obovate, 4.5–5.0 × 3.0–3.5 mm, cucullate, densely appressed villous abaxially and more sparsely so adaxially; petals 5, erect, spathulate-obovate, ± 4 × 2 mm, membranous, sparsely appressed-villous abaxially but more densely so towards midline; disc 5-lobed, ± 3 mm diam., densely villous; stamens 5, adnate to rudimentary ovary in basal half, ± 6 mm long, glabrous but gynoecial vestiture evident between filaments in basal half; anthers ± 1 mm long; rudimentary gynoecium tripartite, villous. *Female flowers* 1 or 2 in upper axils,

shortly pedicellate, nodding; pedicels 2–3 mm long at anthesis and ± 1 mm diam., elongating slightly in fruit and ultimately 5–8 mm long, fleshy, densely silky-villous; perianth as in male flowers, persistent and dry in fruit; ovary ovoid-subglobose, densely appressed-villous; style branches 3, spreading-recurved, ± 1 mm long. *Capsule* nodding, depressed-ovoid or subglobose, 3-lobed, 17–18 mm diam., appressed-villous. *Seeds* obliquely subglobose, flattened along raphe and depressed at chalaza, ± 5 mm diam., smooth, golden-brown. *Flowering time*: mainly October and November, sometimes extending into December.

Distribution and ecology: known only from the upper reaches of the Olifants River Valley, south of Citrusdal, where it has been collected from several localities on both sides of the river. Plants occur along the margin of the river valley at the foot of the fringing Cold Bokkeveld and Olifants River Mountains, in stony or sandy soils derived from sandstone, sometimes in rocky outcrops. Our knowledge of the species is thanks to the activity and interest of Mr Willem J. Hanekom, resident of Citrusdal and enthusiastic collector of the local flora, who first collected the species in 1997, and for whom it is named.

Diagnosis and relationships: *Lachnostylis hanekomii* is similar to *L. hirta* in its relatively shortly pedicellate flowers with the stamens in the male flowers adnate to the gynoecium in the basal half but it is distinguished by its distinctive, clumped habit, with subterranean runners producing erect stems that are glabrous and reddish brown when young, and entirely glabrous leaves. The female flowers are borne on short, thick pedicels, 2–3 mm long and ± 1 mm in diameter, that elongate slightly in fruit, ultimately 5–8 mm long. The large, depressed-globose capsules are ± 17 mm in diameter. *L. hirta* is a twiggy shrub with the young branches and petioles ± sparsely pubescent or puberulous, and female flowers borne on thinner pedicels, ± 0.5 mm in diameter, that may elongate up to 15(–25) mm long in fruit, with significantly smaller capsules, 8–10 mm in diameter. It is a component of scrub or forest along the southern Cape coast between Stanford and Port Elizabeth.

Additional specimens seen

WESTERN CAPE.—3219 (Wuppertal): Citrusdal, Swartvlei, Rooidraai, (–CA), 6 October 1997 [male], *Hanekom 2906* (K, MO, NBG, PRE), [male], *Hanekom 2908, 2909, 2910, 2911* (NBG, PRE); 30 October 1997 [female], *Hanekom 2923* (NBG, PRE); 13 November 2009 [male], *Hanekom 3751* (NBG), [female], *Hanekom 3752* (NBG); Groenvlei, (–CA), 14 November 2009 [male], *Hanekom 3753* (NBG), [female], *Hanekom 3754* (NBG); Karnemelkvlei, (–CA), 12 December 1997 [fruit], *Hanekom 2980* (K, MO, NBG, PRE), 13 November 2009 [male], *Hanekom 3747* (NBG), [female], *Hanekom 3748* (NBG); Nekkies se Theerivier, (–CC), 13 November 2009 [male], *Hanekom 3749*, [female], *Hanekom 3750* (NBG).

RHAMNACEAE

Trichocephalus. The monospecific genus *Trichocephalus* Brongn., until now an endemic genus of the Cape flora, has been discovered in the high country west of Bitterfontein in southern Namaqualand (*Koopman s.n.*, NBG). The genus is thus shared with Namaqualand and is not endemic to the Core Cape Flora subregion.

RUBIACEAE

Nenax. A genus of 11 species centred in the southwestern Cape, *Nenax* Gaertn. (Anthospermeae), is closely allied to *Anthospermum* L., from which it is distinguished by a combination of supposedly derived character states, notably the distinctly woody, shrub-

by habit; ± needle-like leaves; reduced, few-flowered inflorescence, and dioecious habit (Puff 1986). The genus was last revised by Puff (1986), who included with the nine named species, an additional two unnamed species that although probably distinct, were as yet known only from a single collection each. One of these, *N.* sp. A, has recently been recollected by ecologist Nick Helme. This confirms its status as a distinct species, which we name *N. velutina* for the dense vestiture of short, straight, white hairs on the fruits.

Nenax is divided into two distinct groups depending on whether the fruits are dehiscent or not: *N. velutina* falls into the latter, where it is immediately distinguished by its velutinous fruits with relatively thin, leathery exocarp ± 0.1 mm thick that is readily squashed between the fingers. Other members of the group have harder, nut-like fruits that are quite resistant to finger pressure, with a bony exocarp (up to 0.3 mm thick in *N. arenicola* Puff). *Nenax velutina* closely resembles *N. arenicola* Puff in habit and vegetative features and in the widely spaced flowers that are paired or single at the nodes. Both species also have fruits with minute, rounded calyx lobes but the pericarp in *N. arenicola* is quite glabrous, and the fruit wall is thick and bony. This contrasts markedly with the velvety pericarp and thin, leathery fruit wall in *N. karroica*. The species differs from *N. acerosa* subsp. *macrocarpa* (Eckl. & Zeyh.) Puff, with which it may be confused on account of the similar size and vestiture of its fruits, by the smoothly rounded fruits with ± obsolete, rounded calyx lobes ± 0.3 mm long *vs.* longitudinally ribbed fruits with conspicuous, quadrate or triangular lobes 0.5–1.0 mm long. The flowers in *N. velutina* are arranged in a lax or more dense series of up to five floral nodes, each with one or two flowers associated with one or two pairs of leaves per short shoot that are mostly shorter than the fruits. This contrasts markedly with *N. acerosa*, in which up to nine floral nodes, each with 2–6 flowers, are congested in long, leafy, spike-like synflorescences with each short shoot associated with several pairs of leaves longer than the fruits. The species is known only from the foothills of two small, arid mountains ranges, the Bonteberg and the Voetpadsberg/Witberg north and northeast of Touws River where it has been recorded on loamy soils on lower slopes at the interface of quartzite and shale.

Nenax velutina *J.C.Manning & Goldblatt,* sp. nov.

Fruticulus nanus ad 400 mm altus, ramis usitate binatis ascendentibus flavescentibus vel pallide griseis ubi junioribus velutinis postea glabrescentibus atrogriseisque, foliis decussatis laminis brachyblasteorum linearibus ad linearo-lanceolatis 3–7 × 1 mm marginibus scabridulis, floribus usitate binatis laxis plerumque 2–10 mm distantibus, ♂ ignotis, corolla ♀ 4-mera manifeste albescenti- vel pallide flava tubo ± 0.1 mm longo, lobis 0.8–1.0 × 0.3 mm, stigmatibus 3–4 mm longis, manifeste purpureo-rubris, ovario ± 1 × 1 mm, fructu indehiscenti subgloboso ad ellipsoideo 3–5 × 3 mm, ± coriaceo sine carpophoro dense velutino lobis calycis rotundis minutis vel obsoletis ± 0.3 mm longis coronato.

TYPE.—WESTERN CAPE, 3320 (Montagu): Laingsburg Dist., [Farm] Cabidu, (–AB), 28 October 1950, *Compton 22209* (NBG, holo., iso.).

Dwarf shrub up to 40 cm high. *Stems* erect or ascending, well branched; branches mostly paired at nodes, ascending at 30–45°, yellowish or pale grey and densely deflexed-velutinous when young, glabrescent and charcoal-grey later. *Leaves* decussate, widely spaced; blades of long shoot leaves ovate-lanceolate to linear-lanceolate but short shoot leaves linear or linear-lanceolate, 3–7 × 1 mm, flat adaxially and convex abaxially with midrib evident; margins scabridulous. *Flowers* mostly paired at nodes, rarely single, widely spaced, mostly 2–10 mm apart; male flowers unknown; female flowers: corolla 4-merous, evidently whitish or pale yellowish, tube ± 0.1 mm long, lobes 0.8–1.0 × 0.3 mm; stigmas 3–4 mm long, evidently purplish red; ovary ± 1 × 1 mm, wide 4 small calyx lobes. *Fruit* indehiscent, subglobose to ellipsoid, 3–5 × 3.0 mm, ± leathery and readily squashed

between two fingers, not supported by carpophore, densely velutinous with short, whitish, spreading hairs, greyish to brown, crowned by minute or obsolete, rounded calyx lobes ± 0.3 mm long. *Flowering time*: September.

Additional specimen seen

NORTHERN CAPE—3320 (Montagu): ± 15 km NE Touws River, farm west of Smousbos, (–AA), 890 m, 10 November 2009 (fruiting), *Helme 6299* (NBG).

Psydrax. The genus *Psydrax* Gaertn. was revived by Bridson (1984) for a group of palaeotropical species previously included in *Canthium*. In her review of the African species just one, *P. obovata* (Eckl. & Zeyh.) Bridson, was recorded from the Cape Floristic Region. The typical subspecies of *P. obovata*, which was based on material collected in the Great Winterhoek Mtns near Addo, Eastern Cape, is a fairly common tree of coastal and inland forests, bush and scrub, reaching as far north as southern Mozambique. Inland of this, extending from the Mpumalanga lowveld northwards along the escarpment into central Zimbabwe and Mozambique, its place is taken by subsp. *elliptica* Bridson, distinguished by its elliptical, more heavily veined leaves with hairy domatia (Bridson 1984). The south-western extent of the range of *P. obovata* was clearly established by Bridson (1984) as the Great Winterhoek locality but specimens from much further west, at Knysna, were discussed by Palmer & Pitman (1972) under the old name *Canthium obovatum* Klotzsch.

During the preparation of the treatment of *Psydrax* for *Cape plants* (Goldblatt & Manning 2000), Bridson (pers. comm.) pointed out to us that material identified as *Psydrax obovata* from the forests around Swellendam in the Langeberg Mtns in Western Cape differed significantly from the typical form of that species in its proportionally shorter floral tube and was appropriately regarded as a distinct species. These plants were treated by us as *Psydrax* sp. 1. We have examined herbarium specimens from Swellendam and identified the differences indicated by Bridson and also confirmed that the material collected between Knysna and Nature's Valley is identical in these respects to the Langeberg population. We follow Bridson's recommendation and describe the plants from Western Cape as the new species *P. capensis*. In *P. obovata* the flowers are in rather dense, conspicuously pedunculate cymes, the peduncles typically 10–20 mm long; the floral tube is 3.0–3.5 mm long and ± as long as the petal lobes, with the beard reaching only about halfway down the tube to within 1.0–1.5 mm of the base, and the style is 6.5–7.5 mm long. In contrast, *P. capensis* has flowers in laxer, shortly pedunculate cymes, the peduncles 4–7 mm long; the floral tube is extremely short, 1.5–2.0 mm long and just one fourth to one third as long as the petal lobes, with the beard reaching to within 0.5 mm of the base, and the style is proportionally shorter, 3.5–4.0 mm long.

Psydrax capensis *J.C.Manning & Goldblatt*, sp. nov.

Arbor ad 12 m alta, ramis juvenilibus ± teretibus glabris, stipulis triangularibus cristatis ± 3 mm longis, foliis breviter petiolaribus, petiolo 2–4 mm longo, lamina elliptica ad obovata (15–)20–40 x (7–)15–25 mm obtusa domatiis pubescentibus, floribus 4-meris 8–12, pedunculis 4–7 mm longis, pedicellis 3–6(–8) mm longis minute pubescentibus, bracteis bracteolisque inconspicuis, calycis tubo 1.5–2.0 mm longo, glabro limbo reducto, corolla alba, tubo 0.8–1.0 mm longo interne densiter barbato lobis oblongo-ellipticis 3–4 x 1.5 mm acutis, antheris reflexis, stylo 3.5–4.0 mm longo, stigmate cylindrico 1.0–1.8 mm longo, fructis late ovoideis 5–7 mm diam.

TYPE.—WESTERN CAPE: 3320 (Montagu): Swellendam, Grootvadersbosch, (–DD), February 1951, *H.C. Taylor 179* (NBG, holo.).

Tree up to 12 m tall; young branches ± terete, glabrous; stipules triangular, narrowly crested, ± 3 mm long. *Leaves* shortly petiolate, petiole 2–4 mm long, blade elliptical to obovate, (15–)20–40 × (7–)15–25 mm, obtuse, base attenuate, glabrous, thinly leathery, glossy above, paler and matte beneath, with 2–4 pairs of secondary veins, tertiary veins obscure; domatia pubescent. *Flowers* 4-merous, 8–12 in moderately dense to lax, shortly pedunculate cymes; peduncles 4–7 mm long; pedicels 3–6(–8) mm long, minutely pubescent; bracts and bracteoles inconspicuous. *Calyx* tube 1.5–2.0 mm long, glabrous, limb reduced to obscurely toothed, ciliolate rim. *Corolla* white; tube 0.8–1.0 mm long, densely bearded within with deflexed hairs reaching to 0.5 mm above base; lobes oblong-elliptical, 3–4 × 1.5 mm, acute. *Anthers* reflexed. *Style* 3.5–4.0 mm long, stigma cylindrical, 1.0–1.8 mm long; disc glabrous. *Fruit* broadly ovoid, 5–7 mm diam.

Additional specimens seen

WESTERN CAPE.—3320 (Montagu): Grootvadersbosch State Forest, at forest station, (–DD), 21 May 1971 (fr.), *F.J. Kruger 1317* (NBG). 3323 (Willowmore): Knysna, Deepwalls, (–CC), August 1921 (fr.), *J.D. Keet s.n.* (NBG 15260); between Groot River and Blaauwkrantz River, (–DC), 13 October 1928, *J.B. Gillett 1543* (NBG). 3423 (Knysna): Concordia, January 1922, *J.D. Keet s.n.* (NBG 15261). Without precise locality: Knysna, Sourflats, Autumn 1917, *J.D. Keet s.n. Herb. 15259* (NBG).

RUTACEAE

Adenandra. There are just three species of *Adenandra* among with mature capsules ± twice as long as the calyx rather than merely as long, among which *A. marginata* (L.f.) Roem. & Schult. is readily recognized by its acute leaves and calyx lobes, and loose umbels of long-pedicellate flowers. As circumscribed by Strid (1972), *A. marginata* comprises four subspecies, three of which are incompletely separated by a combination of overlapping character states, notably the length of the calyx and the development of the vestiture on the young stems, and all of which occur west of the Cedarberg-Hottentots Holland Mtn axis in various fynbos habitats. The fourth, subsp. *humilis* (Eckl. & Zeyh.) Strid, from east of the Hottentots Holland Mtns, is more distinctive and recent collections confirm early observations that it is restricted to renosterveld shrublands. Subsp. *humilis* differs consistently from the other subspecies of *A. marginata* by the unique sub-basal position of the bracteoles on the glabrous pedicels, the cordate-acute petal limbs, and the conspicuously muricate capsules. Other subspecies have ± pubescent pedicels with the bracteoles inserted at the middle or above, oblong-obtuse petal limbs, and rugose or at most slightly muricate capsules. Although struck by the distinctive character of these plants, Strid (1972) chose to treat them as a subspecies rather than as a separate species because the 'differential characters [were] of a quantitative nature' and because of the existence of occasional 'transitional forms' with subsp. *serpyllacea* in the Franschhoek and Stellenbosch areas. We have re-examined the material as well as several additional recent collections and find no evidence of such intermediate plants. In addition, mature capsules of subsp. *humilis* were not available to Strid (1972), but have since been collected, and their distinctive ornamentation, combined with the consistent and absolute difference in the position of the bracteoles, shape of the petal limbs, and in the ecology, convince us that this taxon merits recognition at specific level and we therefore re-instate it as a species.

Adenandra humilis *Eckl. & Zeyh.*, Enumeratio plantarum africae australis extratropicae 1: 99 (1834–1835). *A. marginata* subsp. *humilis* (Eckl. & Zeyh.) Strid: 92 (1972). Type: South Africa, [Western Cape], Klynriviersberge [Kleinriviersberge], *Ecklon & Zeyher 784* (SAM, lecto.!, designated by Strid (1972); GOET, OXF, M, MEL, PR, S, TCD, W, iso.).

Additional specimens seen

WESTERN CAPE.—3419 (Caledon): 11 km NNE Botrivier, Farm Paarde Valley, (–AA), 26 October 2000, *Helme 1854* (NBG); 14 km N Botrivier on Diepklowe Nature Reserve, (–AA), 3 September 2001, *Helme 2146* (NBG); Porcupine Hills, (–AA), 23 September 2006, *CREW1530* (NBG); 13 km NW Caledon E of Florishoogte Pass, (–AB), 4 September 2001, *Helme 2142* (NBG).

SANTALACEAE

Colpoon. In *Cape plants* 2000 we followed Hilliard (1994) and included *Colpoon* P.J.Bergius with its two species in *Osyris* L. Recent molecular DNA studies show this decision to have been mistaken. DNA sequence studies by Dur & Nickrent (2007) have demonstrated that *Colpoon* and *Rhoiacarpus* A.DC. are sister to the New World *Nestronia*. The clade comprising these three genera has *Osyris* as its sister group. This topology forces us to restore *Colpoon* in order to retain the genera *Nestronia* and *Rhoiacarpus* as monophyletic. The recognition of Thesiaceae and Viscaceae as families separate from Santalaceae, proposed by Nickrent *et al.* (2010), is not followed here.

Colpoon compressum P.J.Bergius, Descriptiones plantarum ex Capite Bonae Spei: 38, t. 1 (1767). *Osyris compressa* (P.J.Bergius) DC.: 634 (1857).

Colpoon speciosum (A.W.Hill) P.A.Bean in South African Journal of Botany 56: 667 (1990). *Osyris compressa* (A.W.Hill) J.C.Manning & Goldblatt: 716 (2000), syn. nov.

SCROPHULARIACEAE

Nemesia. The involvement of Adele Gerard Grant (1881–1969) in the newly described species *Nemesia fourcadei* K.E.Steiner (2010) was most unfortunately ignored. This epithet was actually proposed for the species by Grant herself, as clearly written in her hand on the abundant duplicate collections gathered by Fourcade (*Fourcade 1415* [BOL, K, NBG, PRE, SAM]) that she intended to serve as the type material. Indeed the K duplicate appears on the Aluka website (www.aluka.org) as a type. In the event, a later collection (*Steiner 3981*) was designated as the type of *N. fourcadei* but it is appropriate to modify the author citation of the species (McNeil *et al.* 2006: Art. 46.4) as follows:

Nemesia fourcadei *A.L.Grant ex K.E.Steiner* in Bothalia 40: 161 (2010).

Pseudoselago. Among the 28 species recognized by Hilliard (1995) in her revision of *Pseudoselago, P*. sp. 20, allied to *P. burmanii* differed from that species in its longer, more deeply toothed leaves and larger anticous corolla lobe. The species was fully treated and keyed but was not formally named due to the absence of a specimen 'adequate to typify a name'. Among the seven specimens cited for this species by Hilliard, however, is a fine collection that appears to us to be perfectly adequate as a type, comprising four flowering stems, and lacking only the roots. We accordingly formalize the taxon here.

Pseudoselago hilliardiae *J.C.Manning & Goldblatt*, sp. nov.

Herba perennis, caulibus virgatis confertis glabris ad 750 mm altis; foliis erectis vel ± adpressis oblongis decurrentibus profunde dentatis glabris ad 10–20 x ± 2 mm (dentibus excludentibus); inflorescentia corymbus compactus, bractea ad tubum calicis adnata, lan-

ceolata, glabra, floribus bilabiatis albis lobo postico basi aurantiaco, calyce glandibus sessilibus obtecta, tubo corollae anguste cylindrico fauci abrupte expanso 5.5–7.0 mm longo, lobis posticis 1.2–2.0 mm longis, lobo antico 2.4–3.5 mm longo; antheris omnibus exsertis.

TYPE—WESTERN CAPE, 3319 (Worcester): Bokkerivier Farm, area around camping site, (–AD), 8 November 1963, *Middlemost 2228* (NBG, holo.).

Perennial herb with closely leafy, glabrous, rod-like stems up to 750 mm high. *Leaves* erect or ± appressed, oblong and decurrent, deeply toothed, glabrous, largest 10–20 × ± 2 mm (excluding teeth). *Inflorescence* a compact corymb; bract adnate to calyx tube, lanceolate, glabrous. *Flowers* white with orange patch at base of posticous lobe; calyx covered with sessile glands; corolla tube narrowly cylindrical then abruptly expanded in throat, 5.5–7.0 mm long, limb bilabiate, 4.5–6.0 mm diam., posticous lobes 1.2–2.0 mm long, anticous lobe 2.4–3.5 mm long. *Stamens* inserted in throat, all anthers exserted.

STILBACEAE

Campylostachys. One of several monotypic genera of Stilbaceae endemic to the Fynbos Biome, *Campylostachys* Kunth is distinguished from related, ericoid genera by its free sepals and 4-merous flower with glabrous petals (Rourke 2000). The single species currently recognized, *C. cernua* (L.f.) Kunth, from the Cape Peninsula and Du Toitskloof to Bredasdorp Mts, is recognized by its characteristic nodding, capitate, or subglobose spikes of white flowers with acute petals, from which the specific epithet is derived. A small population of plants from the eastern end of the Riviersonderend Mountains with unusual, navicular leaves and few-flowered inflorescences of white flowers with obtuse petals, representing an undescribed species of Stilbaceae, was treated as *Campylostachys* sp. 1 in *Cape plants* 2000 on account of its free, glabrous sepals and apparently 4-merous flowers with glabrous petals. Further examination of mature flowers, however, reveals that they are 5-merous and bilabiate with the posterior pair of petals much smaller, ± half the size of the anterior three. Generic circumscriptions in Stilbaceae are still unresolved (Rourke 1977, 2000) and given current practice this species might form the basis of a new genus. However, we are hesitant to do this and until the situation is clarified we provisionally treat this species in *Campylostachys* despite the 5-merous flowers as it agrees with this genus in its free, glabrous, sticky sepals and glabrous petals. Furthermore, examination of specimens of *C. cernua* reveals that some flowers are clearly 5-merous, and weakly bilabiate. The only genus with consistently bilabiate flowers with glabrous petals, *Stilbe* P.J.Bergius, has flowers with a tubular calyx, lanceolate petals with the posterior pair larger, and ascending leaves quite unlike the patent or reflexed leaves in *Campylostachys*. The genus *Euthystachys* DC. is remarkably similar to *Campylostachys* apart from its consistently 5-merous flowers and should probably be merged with it. The Riviersonderend species is named after its discoverer, Nick Helme, who has been responsible for several significant additions to the Cape flora.

Campylostachys helmei *J.C.Manning & Goldblatt*, sp. nov.

Campylostachydis cernui similis sed foliis navicularibus, inflorescentia pauciflora, floribus albis bilabiatis, petalis obtusis anterioribus duobus quam posterioribus ± dimidio brevioribus differt.

TYPE.—WESTERN CAPE, 3420 (Swellendam): Riviersonderend Range, eastern end near Stormsvlei on south east spur of Dasberg above Groenkloof, 1200w [750 m], (–AA), 5 November 1998, *Rourke & Helme 2153* (NBG, holo., iso.).

Compact, upright, multiple-stemmed shrublet up to 500 mm high with woody caudex; flowering branches 1.0–1.5 mm diam., densely sericeous in longitudinal lines decurrent from leaf bases, less so on angles between. *Leaves* in pseudowhorls of 4, ericoid, shortly petiolate, petiole adpressed, 0.25–0.5 mm long, subglabrous, blade patent to reflexed, oblong-elliptic, (3–)5–7 × 1.0–1.75 mm, yellowish or pale greyish green, minutely scabridulous, thinly sericeous at first but this persisting only at base of midrib adaxially, thick-textured, apex swollen, navicular and ± 1 mm thick, subacute, margins revolute. *Inflorescence* terminal, sessile, congested, few-flowered; uppermost leaves grading into bracts; inflorescence bracts erect, lanceolate-cymbiform, mucronate, ± 5 × 2 mm, varnished and sticky, glabrous abaxially, adaxially densely glandular with sessile glands but glabrous along marginal 0.5 mm and bearded distally. *Flowers* sessile, paired per bract; floral bracts 2, falcate-subulate, ± 5 × 0.75 mm, acute, glabrous with sessile glands concentrated along abaxial midline, sticky. *Calyx* of 5 free sepals, often variously reduced or fused in uppermost flower of pair; sepals free, subulate, acute, anterior slightly larger, ± 5 × 0.5 mm, glabrous with scattered sessile glands along abaxial midline near base, sticky. *Corolla* white, 5-merous, bilabiate with anterior pair of petals smaller, ± half as large as anterior petals, ± 8 mm long; tube arcuate, obliquely funnel-shaped, 4–5 mm long, glabrous but fringed with dense ring of pubescence in throat extending onto base of lower petals; petals broadly ovate-subrotund, posterior pair smaller, ± 2 × 2 mm, anterior three ± 3 × 2.5 mm. *Stamens* 4, exserted and extending shortly beyond corolla; posterior stamen absent or present as vestigial staminode; filaments inserted in middle of tube, filiform, posterior pair ± 7 mm long, anterior pair ± 6 mm long, pubescent in basal half; anthers versatile, sagittate, ± 2 mm long. *Ovary* 2-locular with single basal ovule per locule, ± 1 mm long, style filiform, ± 4 mm long, glabrous. *Capsule* ovoid, ± 5 × 2 mm. *Seed* ellipsoid, ± 2 mm long, scalariform, pale yellow.

Additional specimen seen

WESTERN CAPE.—3419 (Caledon): Riviersonderend Mtns, mid SE slopes of Dasberg, (–BB), 10 December 1996, *Helme 1226* (NBG).

THELYPTERIDACEAE

The thelypteroid ferns comprise a group of approximately 1 000 species worldwide. Various classifications of the group have been proposed, ranging from consolidation of the group in the single genus *Thelypteris* (Morton 1963) to its segregation into various numbers of smaller genera (Ching 1963): 18 genera; Holttum (1971, 1982): 25 genera; and Pichi Sermolli (1977): 32 genera). The most recent classification by Smith (1990) recognizes five genera. Molecular studies (Smith & Cranfill 2002) support the monophyly of the group and the classification proposed by Smith. This classification has since been adopted by Smith *et al.* (2006) and Christenhusz *et al.* (2011). Following this classification the following combination is required.

Cyclosorus gueinziana *(Mett.) J.P.Roux*, comb. nov. *Aspidium gueinzianum* Mett. [as '*gueintzianum*'] in Abhandlungen herausgegeben von der Senckenbergischen Naturforschenden Gesellschaft 2,2: 367, 368 (Aug. 1858).

ZYGOPHYLLACEAE

Seetzenia. *Seetzenia* was described by Robert Brown in 1826 to accommodate the species *S. africana* R.Br., based on material collected in the Olifants River Valley by Francis

Masson in the late 18th century. The species name is, however, illegitimate and superfluous since Brown explicitly associated his new species with *Zygophyllum lanatum* Willd. (1799). The provenance of the type material of *Z. lanatum*, although undoubtedly South African, was incorrectly recorded by Willdenow as Sierra Leone, as pointed out by Brown (1826). This mistake, however, led some authors (Oliver 1868; Thulin 1985) to the erroneous conclusion that there was just a single species of *Seetzenia* with a curiously disjunct distribution, encompassing a small region of southwestern South Africa widely separated from a second, larger area that extends from North Africa across central Asia to India. There is no doubt, however, that two species are involved. The northern hemisphere plants lack the woolly nodes of the South African plants that give the species its epithet, and have very much smaller flowers, with oblong sepals 2.5–3.0 mm long, and inconspicuous stamens and styles much shorter than the ovary. The South African plants, apart from the conspicuously woolly nodes, have much larger flowers, with oblanceolate, apically incurved sepals 5–8 mm long, filaments ± twice as long as the ovary or longer and 8–10 mm long, and much longer styles 6–8 mm long. The nomenclatural issues surrounding the application of the name *S. africana* were clarified by Bullock (1965), who recognized that there were two species in the genus and provided the combination *S. lanata* (Willd.) Bullock for the South African plant. The northern hemisphere species is correctly *S. orientalis* Decne.

The complete nomenclature and types are given here for clarity.

Seetzenia lanata (Willd.) Bullock in Kew Bulletin 19: 204 (1965). *Zygophyllum lanatum* Willd., Species plantarum 2 (1): 564 (1799). Type: 'Sierra Leone' [South Africa], without precise locality or collector (B-WILLD, holo.).

Zygophyllum prostratum Thunb.: 189 (1800). *S. prostrata* (Thunb.) Ecklon & Zeyh.: 98 (1834–1835) [as *Seezenia*]. Type: South Africa, without precise locality or date, *Masson s.n. UPS-THUNB 10129* (UPS-THUNB, holo.-microfiche!; LD, iso.-Aluka image!).

S. africana R.Br.: 231 (1826), nom. illegit. superfl. pro *Z. lanatum* Willd. Type: South Africa, [Western Cape], Olifants River Valley, without date, *Masson s.n.* (BM, holo.-Aluka image!).

Seetzenia orientalis Decne. in Annales des sciences naturelles, Botanique, Paris, sér. 2, 3: 281 (1835). Type: Sinai Desert, *Bove s.n.* (?P).

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Appendix: Statistics for families and genera of the Cape flora

Family	Genera	Endemic	Species	Endemic	NW spp.	Endemic	SW spp.	Endemic	AP spp.	Endemic	KM spp.	Endemic	LB spp.	Endemic	SE spp.
LYCOPODIOPHYTES															
Isoetaceae	1	0	3	3	1	1	2	2	0	0	0	0	0	0	0
Lycopodiaceae	3	0	6	0	4	0	6	0	0	0	4	0	6	0	6
Selaginellaceae	1	0	3	1	1	0	1	0	1	0	1	0	0	0	2
TOTAL LYCOPODIOPHYTES:	5	0	12	4	6	1	9	2	1	0	5	0	6	0	8
PTERIDOPHYTES															
Anemiaceae	1	0	2	1	2	1	1	0	0	0	1	0	1	0	1
Aspleniaceae	1	0	15	0	5	0	6	0	1	0	3	0	9	0	14
Blechnaceae	1	0	6	0	5	0	6	0	0	0	4	0	5	0	6
Cyatheaceae	1	0	1	0	0	0	1	0	0	0	1	0	1	0	1
Cystopteridaceae	1	0	1	0	1	0	1	0	0	0	1	0	1	0	0
Dennstaedtiaceae	4	0	6	0	2	0	3	0	1	0	1	0	3	0	5
Dryopteridaceae	5	0	13	0	4	0	10	0	0	0	3	0	9	0	10
Equisetaceae	1	0	1	0	0	0	0	0	1	0	1	0	0	0	1
Gleicheniaceae	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
Hymenophyllaceae	2	0	5	0	3	0	4	0	0	0	1	0	5	0	5
Marattiaceae	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Marsileaceae	2	0	5	0	3	0	3	0	3	0	1	0	0	0	2
Ophioglossaceae	1	0	4	3	3	0	3	0	1	0	2	0	1	0	2
Osmundaceae	2	0	2	0	2	0	2	0	0	0	1	0	1	0	2
Polypodiaceae	5	0	6	0	1	0	4	0	0	0	1	0	5	0	5
Pteridaceae	7	0	33	2	0	0	20	0	2	0	15	0	13	0	19
Schizaeaceae	1	0	2	0	2	0	2	0	1	0	2	0	2	0	2
Thelypteridaceae	5	0	6	1	0	0	4	0	0	0	0	0	2	0	6
TOTAL PTERIDOPHYTES:	42	0	110	7	34	1	71	0	11	0	39	0	59	0	83

Appendix: Statistics for families and genera of the Cape flora (continued)

Family	Genera	Endemic	Species	Endemic	NW spp.	Endemic	SW spp.	Endemic	AP spp.	Endemic	KM spp.	Endemic	LB spp.	Endemic	SE spp.
GYMNOSPERMS															
Zamiaceae	1	0	4	1	0	0	0	0	0	0	0	0	0	0	4
Podocarpaceae	2	0	3	1	1	0	2	0	0	0	1	0	3	0	2
Cupressaceae	1	0	3	2	2	1	1	0	0	0	0	0	1	0	2
TOTAL GYMNOSPERMS:	4	0	10	4	3	1	3	0	0	0	1	0	4	0	8
ANGIOSPERMS															
Acanthaceae	12	0	30	6	1	0	1	0	2	0	10	2	8	1	23
Achariaceae	3	0	3	0	1	0	1	0	1	0	1	0	1	0	3
Agapanthaceae	1	0	3	2	0	0	2	1	1	0	0	0	1	0	1
Agavaceae	2	0	12	25	8	3	4	0	0	0	0	0	2	0	3
Aizoaceae	76	20	624	454	305	123	195	69	45	13	181	56	128	31	119
Alliaceae	2	0	5	1	3	0	3	0	1	0	1	0	3	0	4
Amaranthaceae	14	0	26	5	16	1	17	1	11	0	11	1	2	0	18
Amaryllidaceae	14	0	91	51	47	13	37	8	25	0	18	1	17	2	32
Anacampserotaceae	1	0	7	1	6	1	2	0	1	0	4	0	2	0	2
Anacardiaceae	4	2	28	9	18	1	18	1	9	0	12	0	13	0	18
Apiaceae	27	5	139	105	66	17	85	23	33	8	27	1	37	1	55
Apocynaceae	36	1	120	22	40	3	32	2	8	0	48	5	39	1	73
Aponogetonaceae	1	0	5	3	2	0	3	1	3	0	1	0	2	0	2
Aquifoliaceae	1	0	1	0	0	0	1	0	0	0	0	0	1	0	1
Araceae	4	0	5	0	1	0	4	0	1	0	1	0	2	0	4
Araliaceae	3	0	5	1	0	0	2	0	2	0	2	0	2	0	6
Asparagaceae	1	0	36	6	18	1	20	0	15	0	16	1	20	0	21
Asphodelaceae	8	0	170	91	73	10	67	11	25	1	55	8	42	7	55
Asteraceae	125	32	1077	669	554	112	528	135	171	28	346	38	280	22	355
Balanophoraceae	1	1	1	1	1	0	1	0	0	0	0	0	1	0	0
Balsaminaceae	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1

Appendix: Statistics for families and genera of the Cape flora (continued)

Family	Genera	Endemic	Species	Endemic	NW spp.	Endemic	SW spp.	Endemic	AP spp.	Endemic	KM spp.	Endemic	LB spp.	Endemic	SE spp.
ANGIOSPERMS (continued)															
Bignoniaceae	2	0	2	0	1	0	0	0	0	0	1	0	0	0	1
Boraginaceae	10	1	44	23	23	1	21	4	10	4	14	1	9	1	12
Brassicaceae	6	1	72	41	49	11	40	9	6	0	18	2	13	0	13
Bruniaceae	6	4	78	76	36	13	55	28	4	1	6	0	17	7	5
Campanulaceae	8	5	123	104	55	17	81	31	22	3	19	0	29	5	31
Capparaceae	3	0	3	0	0	0	0	0	0	0	1	0	2	0	3
Caryophyllaceae	7	0	23	8	11	0	15	3	9	0	8	0	12	0	14
Celastraceae	12	2	27	6	7	0	15	2	9	0	7	0	9	0	22
Ceratophyllaceae	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Colchicaceae	4	1	33	17	24	3	18	1	5	0	13	1	10	0	7
Commelinaceae	2	0	3	0	0	0	1	0	1	0	1	0	2	0	3
Convolvulaceae	6	0	17	4	5	0	9	0	6	0	4	0	9	0	13
Curtisiaceae	1	0	1	0	0	0	1	0	0	0	0	0	1	0	1
Crassulaceae	5	0	130	39	79	6	53	1	24	1	71	8	33	1	60
Cucurbitaceae	5	0	8	0	4	0	3	0	1	0	2	0	2	0	5
Cunoniaceae	2	1	2	1	2	0	2	0	1	0	0	0	2	0	2
Cyperaceae	28	5	207	109	94	5	165	23	69	2	29	1	80	1	124
Cytinaceae	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
Didieriaceae	1	0	1	0	0	0	0	0	0	0	1	0	0	0	1
Dioscoreaceae	1	0	6	2	1	0	0	0	0	0	1	0	0	0	5
Dipsacaceae	2	0	9	4	3	1	6	2	1	0	1	0	2	0	5
Droseraceae	1	0	15	11	6	1	13	5	4	0	4	0	5	0	3
Elatinaceae	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
Ericaceae	1	0	680	659	160	56	386	226	74	30	104	36	125	54	108
Euphorbiaceae	9	0	75	19	23	1	21	1	11	1	29	5	27	0	40
Fabaceae	43	8	764	634	304	86	392	138	93	25	164	40	183	29	210

Appendix: Statistics for families and genera of the Cape flora (continued)

Family	Genera	Endemic	Species	Endemic	NW spp.	Endemic	SW spp.	Endemic	AP spp.	Endemic	KM spp.	Endemic	LB spp.	Endemic	SE spp.
Ebenaceae	2	0	17	2	11	0	8	0	2	0	5	0	8	0	11
Frankeniaceae	1	0	2	0	2	0	2	0	2	0	1	0	2	0	2
Fumariaceae	3	1	4	2	3	0	3	0	2	0	3	0	2	0	3
Geissolomaceae	1	1	1	1	0	0	0	0	0	0	0	0	1	1	0
Gentianaceae	3	1	32	20	10	0	22	1	13	0	3	0	23	0	14
Geraniaceae	3	0	158	89	96	16	88	14	23	0	64	3	42	2	58
Gesneriaceae	1	0	2	0	0	0	0	0	0	0	0	0	1	0	2
Goodeniaceae	1	0	1	0	0	0	0	0	1	0	0	0	1	0	1
Grubbiaceae	1	1	3	3	2	0	3	1	2	0	0	0	2	0	1
Gunneraceae	1	0	1	0	1	0	1	0	0	0	1	0	1	0	1
Haemodoraceae	2	1	8	7	7	0	8	1	3	0	1	0	5	0	3
Haloragidaceae	2	0	2	0	2	0	2	0	1	0	1	0	1	0	1
Hamamelidaceae	1	0	1	0	0	0	0	0	0	0	0	0	1	0	1
Hemerocallidaceae	1	0	3	1	3	0	3	0	1	0	2	0	1	0	1
Hyacinthaceae	12	1	200	93	125	20	100	18	44	3	63	5	37	2	57
Hypericaceae	1	0	2	0	0	0	1	0	0	0	1	0	2	0	2
Hydnoraceae	1	0	1	0	1	0	1	0	0	0	1	0	1	0	1
Hydrocharitaceae	3	0	3	0	0	0	0	0	0	0	0	0	0	0	3
Hypoxidaceae	4	1	37	19	19	4	18	4	12	0	5	0	9	0	17
Icacinaceae	3	0	4	1	0	0	3	1	1	0	0	0	3	0	3
Iridaceae	29	6	758	594	412	156	410	158	110	3	137	32	159	13	128
Juncaceae	1	0	14	3	11	1	10	0	6	0	3	0	9	0	9
Juncaginaceae	1	0	2	0	2	0	2	0	1	0	1	0	2	0	2
Lamiaceae	7	0	45	8	19	0	19	1	10	0	10	0	15	1	31
Lanariaceae	1	0	1	0	0	0	1	0	1	0	0	0	1	0	1
Lauraceae	3	0	3	1	2	0	3	0	1	0	1	0	3	0	3
Lentibulariaceae	1	0	3	0	1	0	1	0	1	0	1	0	1	0	3
Limeaceae	1	0	4	0	3	0	1	0	1	0	2	0	1	0	1
Linaceae	1	0	14	12	4	2	9	2	4	0	3	0	6	0	7

Appendix: Statistics for families and genera of the Cape flora (continued)

Family	Genera	Endemic	Species	Endemic	NW spp.	Endemic	SW spp.	Endemic	AP spp.	Endemic	KM spp.	Endemic	LB spp.	Endemic	SE spp.
ANGIOSPERMS (continued)															
Linderniaceae	1	0	1	0	0	0	1	0	0	0	0	0	1	0	1
Lobeliaceae	5	0	79	59	38	8	45	8	18	2	15	2	29	3	27
Loganiaceae	1	0	2	0	0	0	0	0	0	0	0	0	0	0	2
Loranthaceae	2	0	2	0	2	0	1	0	0	0	2	0	1	0	1
Malvaceae	10	0	92	46	40	5	44	5	23	2	35	4	31	1	40
Meliaceae	2	0	2	0	1	0	0	0	0	0	1	0	0	0	2
Melianthaceae	1	0	3	0	2	0	2	0	1	0	1	0	1	0	2
Menispermaceae	2	0	3	0	2	0	1	0	1	0	1	0	1	0	2
Menyanthaceae	2	1	4	3	2	0	4	1	0	0	0	0	1	0	3
Molluginaceae	8	0	45	15	37	7	28	4	7	0	9	0	8	0	11
Montiniaceae	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
Moraceae	1	0	5	0	2	0	0	0	0	0	1	0	0	0	3
Myricaceae	1	0	7	2	3	0	6	1	3	0	2	0	5	0	4
Myrsinaceae	2	0	4	0	1	0	3	0	2	0	1	0	2	0	4
Myrtaceae	1	0	1	1	1	0	1	0	0	0	0	0	1	0	0
Neuradaceae	1	0	2	0	2	0	2	0	0	0	1	0	0	0	0
Nymphaeaceae	1	0	1	0	1	0	1	0	1	0	0	0	1	0	1
Ochnaceae	1	0	2	0	0	0	0	0	0	0	0	0	0	0	2
Oleaceae	4	0	9	2	3	0	6	0	4	0	4	0	5	0	6
Oliniaceae	1	0	2	0	0	0	2	0	1	0	0	0	2	0	2
Onagraceae	1	0	2	0	2	0	2	0	1	0	1	0	1	0	2
Orchidaceae	24	2	234	146	105	7	149	22	53	1	52	1	95	4	126
Orobanchaceae	9	0	25	8	12	1	15	3	4	0	9	1	8	0	19
Oxalidaceae	1	0	122	88	82	36	57	38	5	1	28	8	29	13	20
Papaveraceae	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Penaeaceae	7	7	23	23	1	0	17	14	3	1	1	1	5	3	2

Appendix: Statistics for families and genera of the Cape flora (continued)

Family	Genera	Endemic	Species	Endemic	NW spp.	Endemic	SW spp.	Endemic	AP spp.	Endemic	KM spp.	Endemic	LB spp.	Endemic	SE spp.
Phyllanthaceae	4	1	7	3	1	0	1		1	0	1	1	3	0	4
Phytolaccaceae	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Picrodendraceae	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0
Piperaceae	2	0	3	0	0	0	1	0	0	0		0	3	0	3
Pittosporaceae	1	0	1	0	0	0	0	0	0	0	0	0	1	0	1
Plantaginaceae	2	0	4	0	1	0	4	0	1	0	1	0	2	0	3
Plumbaginaceae	2	0	15	7	6	0	9	1	6	1	2	0	4	0	3
Poaceae	61	2	217	85	120	10	154	15	63	3	66	3	98	1	123
Polygalaceae	2	0	142	124	47	11	97	45	27	9	28	5	32	2	29
Polygonaceae	4	0	7	2	4	0	6	0	4	0	2	0	2	0	5
Potamogetonaceae	3	0	8	1	4	0	5	0	2	0	1	0	1	0	7
Primulaceae	2	0	2	0	0	0	0	0	0	0	0	0	2	0	2
Proteaceae	14	9	333	321	111	44	204	101	40	8	59	10	63	6	50
Ranunculaceae	3	0	9	4	6	0	6	0	4	0	3	0	5	0	6
Resedaceae	1	0	1	0	0	0	0	0	1	0	1	0	1	0	1
Restionaceae	16	8	342	313	154	32	238	82	71	9	81	13	100	18	60
Rhamnaceae	5	0	138	125	54	32	62	33	12	3	19	8	22	8	25
Roridulaceae	1	1	2	2	1	0	1	1	0	0	0	0	0	0	0
Rosaceae	5	0	131	114	40	8	84	40	12	5	33	11	33	7	24
Rubiaceae	14	0	52	27	22	5	27	7	12	1	10	1	21	3	25
Ruppiaceae	1	0	2	0	1	0	2	0	1	0	0	0	0	0	2
Ruscaceae	3	0	51	27	31	8	19	1	7	0	20	4	11	1	18
Rutaceae	15	6	295	280	99	64	100	60	56	30	44	15	50	16	56
Salicaceae	5	0	9	0	2	0	2	0	1	0	1	0	2	0	8
Salvadoraceae	1	0	1	0	0	0	0	0	0	0	0	0	1	0	1
Santalaceae	5	0	102	69	42	7	63	20	7	0	20	2	31	1	41
Sapindaceae	6	1	6	2	1	0	1	0	0	0	2	0	2	0	5

Appendix: Statistics for families and genera of the Cape flora (continued)

Family	Genera	Endemic	Species	Endemic	NW spp.	Endemic	SW spp.	Endemic	AP spp.	Endemic	KM spp.	Endemic	LB spp.	Endemic	SE spp.
ANGIOSPERMS (continued)															
Sapotaceae	1	0	1	0	0	0	1	0	1	0	0	0	1	0	1
Scrophulariaceae	32	4	419	294	240	93	144	26	60	9	128	19	75	3	98
Solanaceae	2	0	26	2	12	0	16	0	11	0	11	0	13	0	18
Stilbaceae	10	8	20	17	6	1	15	8	4	0	1	0	5	0	4
Strelitziaceae	1	0	3	2	0	0	0	0	0	0	0	0	0	0	3
Tamaricaceae	1	0	1	0	0	0	0	0	0	0	1	0	0	0	0
Tecophilaeaceae	2	0	5	0	5	0	2	0	1	0	2	0	2	0	1
Theophrastaceae	1	0	1	0	1	0	1	0	1	0	0	0	1	0	1
Thurniaceae	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
Thymelaeaceae	5	1	128	93	45	15	65	16	25	1	24	1	42	5	43
Typhaceae	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
Ulmaceae	2	0	2	0	0	0	2	0	0	0	0	0	1	0	2
Urticaceae	5	0	7	0	1	0	3	0	1	0	2	0	3	0	6
Vahliaceae	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0
Valerianaceae	1	0	1	0	0	0	1	0	0	0	1	0	1	0	1
Verbenaceae	1	0	3	0	0	0	1	0	1	0	3	0	1	0	1
Violaceae	2	0	2	1	0	0	1	0	1	0	0	0	1	0	1
Vitaceae	2	0	5	1	0	0	1	0	1	0	0	0	1	0	4
Xyridaceae	1	0	1	0	1	0	1	0	0	0	0	0	1	0	1
Zosteraceae	1	0	1	0	0	0	1	0	0	0	0	0	0	0	1
Zygophyllaceae	5	0	25	11	14	1	9	1	6	1	13	1	4	0	9
TOTAL ANGIOSPERMS:	946	154	9251	6386	4201	1081	4782	1480	1519	210	2290	358	2389	277	2838
SEED PLANTS TOTAL:	950	154	9261	6390	4204	1082	4785	1480	1519	210	2291	358	2393	277	2846
VASCULAR PLANTS TOTAL:	997	154	9383	6401	4244	1084	4865	1482	1531	210	2335	358	2458	277	2937
% ENDEMIC VASCULAR PLANTS/ CENTRE:		15.4%		68.2%		25.5%		30.5%		13.7%		15.3%		11.3%	

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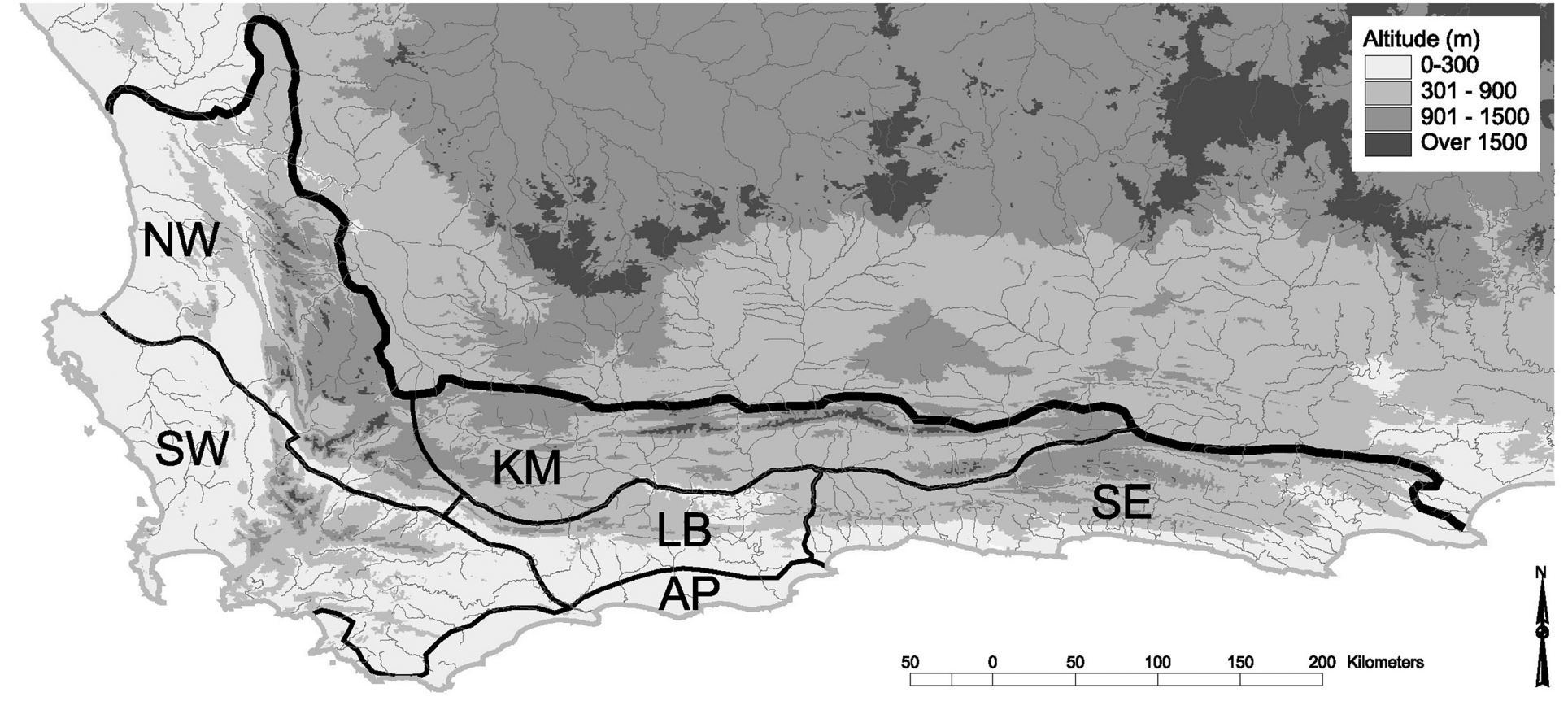
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901 - 1500
Over 1500
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SW
KM
LB
AP
SE
N
50 0 50 100 150 200 Kilometers

The flora of the southwestern tip of Africa is one of the richest in the world. Recognized historically as the Cape Floristic Kingdom or Region, it encompasses a land area of some 90 760 km^2 with an estimated 9 383 species of vascular plants (ferns and other spore-bearing vascular plants, gymnosperms, and flowering plants), of which just over 68% are endemic. Nearly half of all vascular plant species recorded in southern Africa and around one fifth of the species recorded in sub-Saharan Africa occur here. This treatment is a concise account of all known species, arranged according to the most recent systems of classification.







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