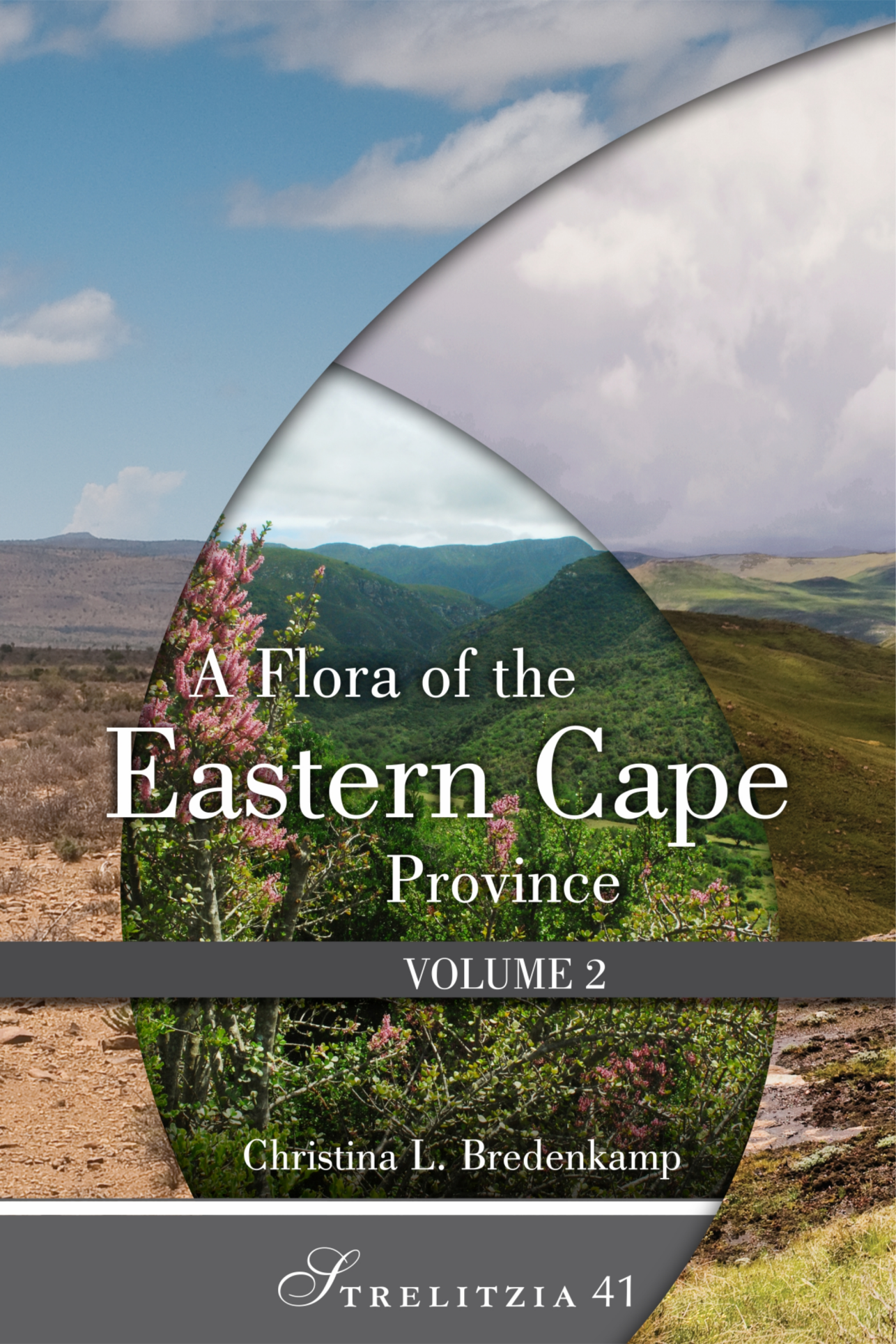
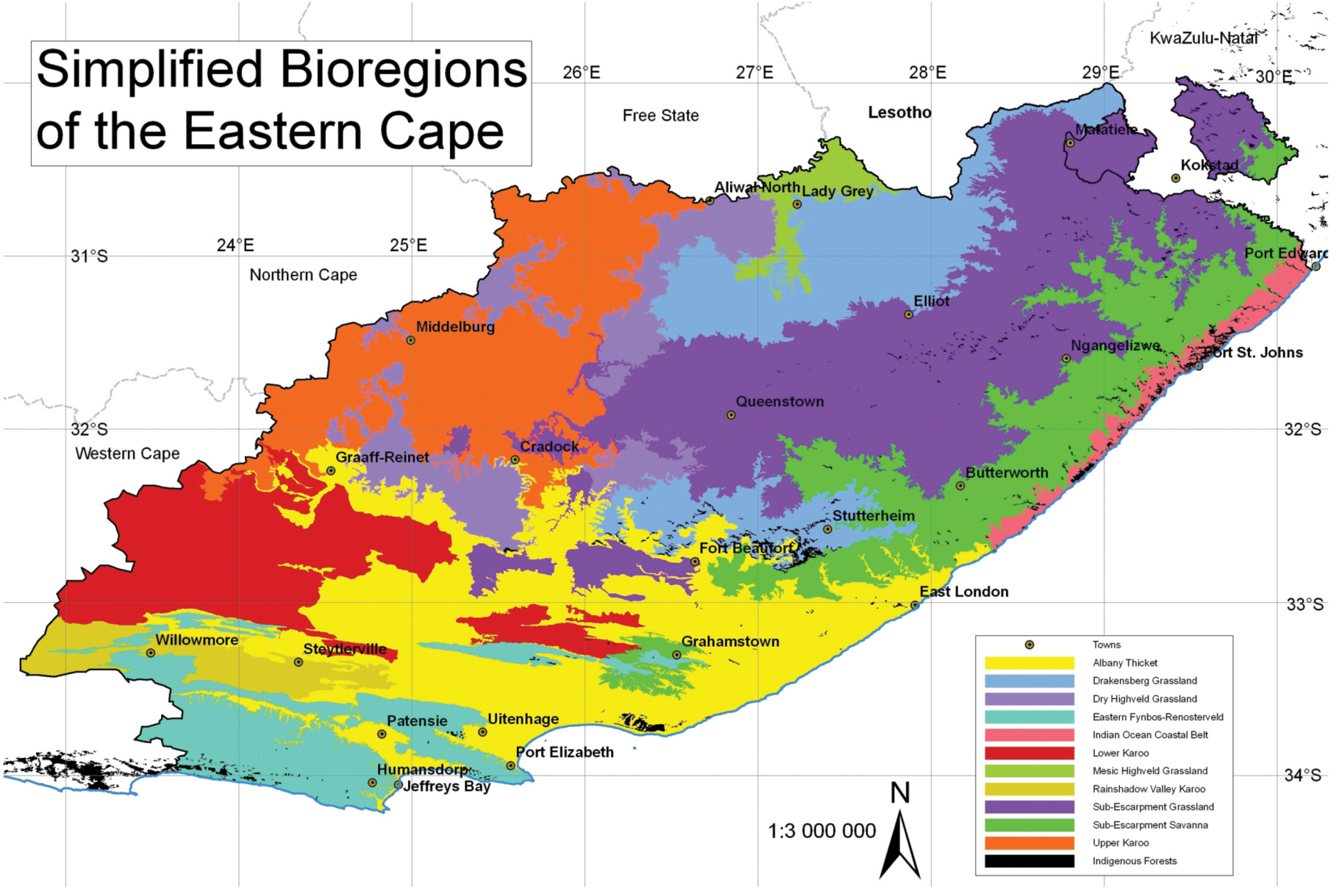

A Flora of the
Eastern Cape
Province
VOLUME 2
Christina L. Bredenkamp
STRELITZIA 41


Simplified Bioregions of the Eastern Cape
KwaZulu-Natal
Free State
Lesotho
Northern Cape
Western Cape
26°E
27°E
28°E
29°E
30°E
24°E
25°E
31°S
32°S
33°S
34°S
Matatiele
Kokstad
Aliwal North
Lady Grey
Port Edward
Elliot
Middelburg
Ngangelizwe
Port St. Johns
Queenstown
Graaff-Reinet
Cradock
Butterworth
Stutterheim
Fort Beaufort
East London
Willowmore
Steytlerville
Grahamstown
Patensie
Uitenhage
Port Elizabeth
Humansdorp
Jeffreys Bay
1:3 000 000
N
Towns
Albany Thicket
Drakensberg Grassland
Dry Highveld Grassland
Eastern Fynbos-Renosterveld
Indian Ocean Coastal Belt
Lower Karoo
Mesic Highveld Grassland
Rainshadow Valley Karoo
Sub-Escarpment Grassland
Sub-Escarpment Savanna
Upper Karoo
Indigenous Forests

STRELITZIA 41

A Flora of the Eastern Cape Province

Christina L. Bredenkamp

Volume 2

SANBI
Biodiversity for Life
South African National Biodiversity Institute

Pretoria
2019

STRELITZIA

This series has replaced *Memoirs of the Botanical Survey of South Africa* and *Annals of the Kirstenbosch Botanic Gardens* which the South African National Biodiversity Institute (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 SANBI 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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Christina L. Bredenkamp

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Foreword

Floristic riches of South Africa's Eastern Cape, a true plant paradise

In a sense, the publication of A Flora of the Eastern Cape Province — the work you are holding in your hands–has brought the *Strelitzia* publication series full circle. Now, more than 90 years after the *Memoirs of the Botanical Survey* of South Africa, one of the forerunners of *Strelitzia*, first appeared shortly after World War I, the topic of this volume is again the flora of the Eastern Cape. The very first volume of the *Memoirs* series dealt with the flora of the Uitenhage and Port Elizabeth districts (Schönland 1919), one of the main metropolitan areas in the Eastern Cape. In a letter dated 5 May 1919, Dr I.B. Pole Evans, the then director of the Botanical Survey of South Africa, recommended to the Secretary of Agriculture, Mr F.B. Smith, the publication of this first *Memoir*. His words, with respect to the manuscript produced by Schönland, beg repeating here: '[it] supplies valuable information regarding an area that comprises an important phytogeographical boundary and with respect to which more exact details have long been wanting.' Over 90 years ago these words were true for the Uitenhage and Port Elizabeth divisions, and they remain true today for the Eastern Cape as a whole. Indeed, ever since the Eastern Cape was first explored botanically, there has been no doubt that the region's flora and conglomerate of vegetation types such as impenetrable thickets, waving grasslands, dense dune scrub, tall forests, and fynbos, constitute an exceptionally rich and unique paradise. With 6 611 species spread across 1 440 genera and 226 families of vascular plants, of which 11.9% are range-restricted to the province, the Eastern Cape is in every sense a botanist's delight.

In the years since the first *Memoir* was published in 1919, 63 volumes of the *Memoirs* and about 40 of the *Strelitzia* series, collectively comprising thousands of scientific, peer-reviewed pages, have been published by the South African National Biodiversity Institute (SANBI) and the various organisations that preceded it. A few other scholarly works on the Eastern Cape were also published as *Memoirs* in the interim (see for example Dyer 1937), and the early work of Schönland (1919) has now been quite magnificently expanded to cover the entire province.

Over the years several illustrious plant scientists and natural historians, both professional and amateur, were fascinated by the terrestrial and aquatic floras of the Eastern Cape and contributed to our knowledge of it; the list is long and includes: Mr John Acocks, Prof. Nigel Barker, Prof. George Bredenkamp, Ms Estelle Brink, Prof. Eileen Campbell, Prof. Richard Cowling, Prof. Neil Crouch, Mr Tony Dold, Dr R. Allen Dyer, Prof. Roy Lubke, Prof. John Manning, Dr Ria Olivier,

Dr Tony Palmer, Mr Pete Phillipson, Dr Robbie Robertson, Prof. Selmar Schönland, Prof. Stanley C. Seagrief, Prof. Braam [A.E.] van Wyk, Prof. Ben-Erik van Wyk, and many others. Even earlier, the collecting activities of pioneer explorers such as Ecklon and Zeyher, and James Bowie added to the cornucopia of artefacts and exsiccatae that subsequent field workers had at their disposal to clarify and confirm the richness of the Eastern Cape flora. To these names must now be added that of Dr Christien Bredenkamp who tirelessly worked for many years to complete the enormous work presented here. Field guides to parts of the Eastern Cape are available, but these can never be comprehensive because the flora is simply too voluminous. The present Flora now fills this gap.

This project was initially conceived as merely a treatise of the flora of the Baviaanskloof, but was soon expanded to cover the entire province, a task not for the faint of heart. Christien did not have an existing volume to update and expand; she had to start this project from scratch, which makes it even more of an achievement. She did not work alone, of course, and had the benefit of drawing on the expertise of several of her colleagues, both from within and beyond SANBI, and she provided the momentum and encouragement to colleagues to get the work completed.

A book like this, which brings together experience gained over a period of time by many experts, undoubtedly requires a range of acknowledgments. From my perspective as the author of the foreword, I have one only: to Dr Christien Bredenkamp and all her co-workers, for accomplishing this – a work providing a comprehensive floristic treatment of one of the richest botanical areas on Earth. Or as Cowling & Pierce (2009) so aptly called this part of South Africa: an Eden, east of the Cape. I am deeply grateful for being able to hold the completed manuscript, if not yet the published book, in my hands. Christien and her colleagues deserve more than – and more than deserve – the accolades due to them.

COWLING, R. & PIERCE, S. 2009. *East of the Cape. Conserving Eden*. Fernwood Press, Simon's Town.

DYER, R.A. 1937. The vegetation of the Divisions of Albany and Bathurst. *Memoirs of the Botanical Survey of South Africa* 17: 1–138; with four maps, four diagrams and 42 photographs. Department of Agriculture and Forestry, Pretoria.

SCHÖNLAND, S. 1919. Phanerogamic flora of the divisions of Uitenhage and Port Elizabeth. *Memoirs of the Botanical Survey of South Africa* 1: 1–118. The Government Printing and Stationery Office, Pretoria.

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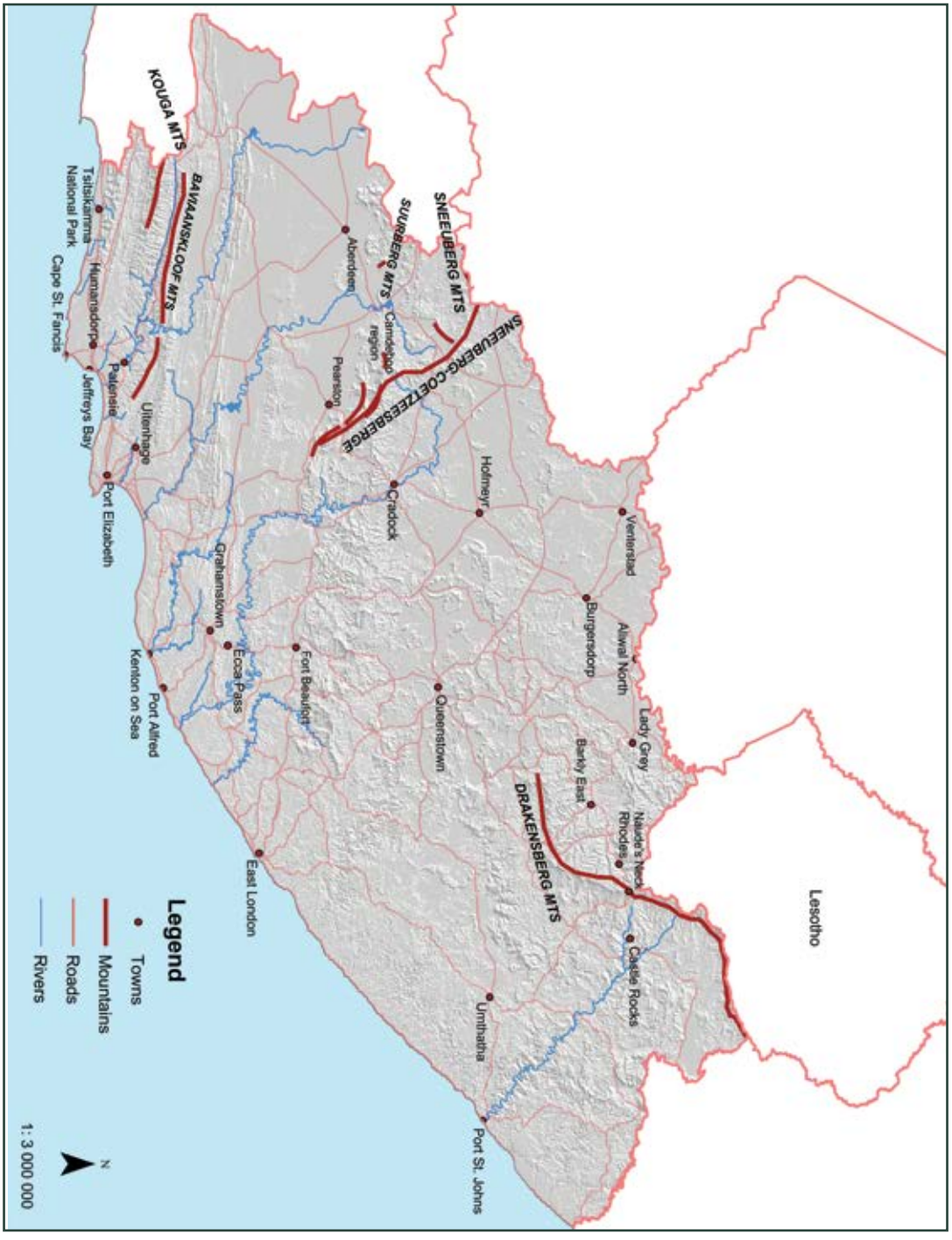


FIGURE 1—Map of the Eastern Cape Province showing selected towns, roads, rivers and mountains. Produced by L.W. Powrie.

CANNON, J.F.M. 1978. Cornaceae. *Flora zambesiaca* 4: 635–637.
KUBITZKI, K. 2004. Curtisiaceae. In Kubitzki, K., *The Families and Genera of Vascular Plants*. VI. Flowering Plants. Dicotyledons. Celastrales, Oxalidales, Rosales, Cornales, Ericales. Springer-Verlag, Berlin.
MARAIS, W. 1985. *Curtisia*. *Kew Magazine* 2: 368.
YEMBATUROVA, E.YU. 2009. A review of the genus *Curtisia* (Curtisiaceae). *Bothalia* 39: 87–96.

CYTINACEAE

(Order Malvales)

Compiled by S. Smithies

CYTINUS L.

Species ± 11, Mediterranean region, Africa, Madagascar; 3 in sthn Afr., LIM, M, S, NC, WC, EC.

sanguineus (Thunb.) Fourc.

Perennial herb, root holoparasite, dioecious; aerial parts orange or bright red (darker red). **Stems** up to 0.26 m high, fleshy. **Leaves** scale-like. **Flowers** 1–5; perianth funnel-shaped with ± 6 lacinulate lobes, glabrous or sparsely hairy outside, with glandular papillae inside; ± 6 nectar pockets at base. **Male flowers** with central staminal column; anthers with small horn-like processes above. **Female flowers** with inferior ovary, columnar style and globose stigma. **Flowering time** (July–)Aug.(–Nov.). On various hosts like *Passerina* L., sandy loam on Witteberg quartzite, under grass and *Passerina*; river valley with *Erica-Passerina* community; Upper Karoo, Eastern Fynbos-Renosterveld, Albany Thicket (Middelburg, Kentani, Port Elizabeth and Alexandria).

BURGOYNE, P.M. 2006. A new species of *Cytinus* (Cytinaceae) from South Africa and Swaziland, with a key to the southern African species. *Novon* 16: 315–319.
OLIVER, E.G.H. 1967. *Cytinus sanguineus*. *Flowering plants of Africa* 38: t. 1486.

End of Volume 1

DICHAPETALACEAE

(Order Malpighiales)

Compiled by C.L. Bredenkamp

TAPURA Aubl.

Species 21, tropical America and Africa; 1 in sthn Afr., KZN and northern parts of EC.

fischeri Engl.

Leafberry-tree; *blaarbessieboom* (A); *umpengende* (Z)

Tree or shrub, 1.5–20.0 m high. **Leaves** elliptic to ovate, 40–100 × 20–50 mm, with minute, caducous stipules. **Inflorescence** a subumbel. **Flowers** up to 3.5 mm long, irregular, in small, axillary, shortly pedunculate glomerules; peduncle adnate to petiole. **Calyx** with 5 unequal lobes. **Petals** 5, adnate at base to stamens to form an unequal, 5-lobed tube; 3 lobes entire, 2 bifid. **Stamens** 2 or 3 fertile, 2 sterile. **Ovary** sessile, 2- or 3-locular; style filiform, shortly 2- or 3-fid at apex. **Fruit** drupaceous, 1–3-seeded. **Seeds** with or without distinct endosperm. In forest; Indigenous Forests (Ntsubane Forest).

BRETELER, F.J. 1986. The African Dichapetalaceae IX. A taxonomic revision. *Agricultural University Wageningen papers* 86-3: 1–74.
TORRE, A.R. 1963. Dichapetalaceae. *Flora zambesiaca* 2: 319–328.

DIDIEREACEAE

(= PORTULACARIACEAE Doweld)

(Order Caryophyllales)

Compiled by C.L. Bredenkamp

PORTULACARIA Jacq.

Species 3, confined to sthn Afr., in xerophytic scrub, N, LIM, NW, M, S, KZN, NC, WC, EC.

afra Jacq.

Spekboom (A); *igwanishe* (X); *isambilane* (Z)

Succulent, glabrous shrub with stout, sometimes waxy branches, 1–4 m high. **Leaves** opposite, succulent, obovate, white-waxy. **Flowers** ± 10, fascicled in membranous, depressed ovate bracts, on terminal branchlets. **Sepals** 2, membranous, becoming somewhat rigid, persistent. **Petals** connate into a short tube with 4 or 5 obovate lobes, pink to mauve. **Stamens** 4–7, adnate to petals; anthers often aborted. **Ovary** superior, 3-angled or narrowly 3-winged, 1-locular; ovule solitary, basal; style short; stigmas 3, slightly spreading. **Flowering time** Sept.–Feb. **Fruit** a thin-walled, 3-winged nut, indehiscent. Abundant, full sun, sandstone, grazed; Albany Thicket, Sub-Escarpment Savanna, Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld, Lower Karoo (Graaff-Reinet E to Alice, southwards to Steytlerville District, Baviaanskloof, Port Elizabeth and Grahamstown).

CAROLIN, R.C. 1987. A review of the family Portulacaceae. *Australian Journal of Botany* 35: 383–412.
CAROLIN, R.C. 1993. Portulacaceae. In K. Kubitzki, J.G. Rohwer & V. Bittrich, *The families and genera of vascular plants — dicotyledons* 2. Springer-Verlag, Berlin.
MCNEILL, J. 1974. Synopsis of a revised classification of the Portulacaceae. *Taxon* 23: 725–728.
SONDER, O.W. 1862. Portulacaceae. *Flora capensis* 2: 381–386.
WAlt.ERS, S.M. 1964. Portulacaceae. *Flora europaea* 1: 114, 115.
WILD, H. 1961. Portulacaceae. *Flora zambesiaca* 1: 361–372.

DIPSACACEAE

(Order Dipsacales)

Compiled by W.G. Welman

Calyx small, pappus-like; involucral bracts in several rows ..... **Cephalaria**
Calyx of 5 long awns; involucral bracts in 1 or 2 rows..... **Scabiosa**

CEPHALARIA Schrad.

Species ± 60, Mediterranean and Africa; ± 15 in sthn Afr., widespread, except N, B, NC.

1a Leaves bipinnatipartite, lobes small, narrow, entire

galpiniana Szabó subsp. galpiniana

Perennial herb, ± glabrous. **Flowering stems** leafless, up to 0.4 m high, unbranched. **Leaves** ± rosulate, up to 130 mm long, petiolate, elongate-lanceolate, bipinnatisect, lobes up to 20 pairs, ± linear, entire or dissected. **Flower heads** globose, up to 25 mm in diam.; involucral bracts elliptic-lanceolate, brownish. **Corolla** white, funnel-shaped,

10 mm long, hairy outside; lobes lanceolate. **Calyx** saucer-shaped, hairy. **Flowering time** Feb., Mar. **Fruit** quadrangular, 5 mm long, ribbed, apex obtusely 4-lobed, thinly white-hairy, ± brown. Montane, colonies on moist, grassy slopes; Drakensberg Grassland (Naude's Neck, very rare).

galpiniana Szabó subsp. **simplicior** B.L.Burtt

ˇtsoene (SS)

Bigger and more robust than subsp. *galpiniana*, up to 0.65 m high. **Leaves** up to 210 mm long, lobes wider, margins entire or? dentate. **Flower heads** up to 30 mm in diam.; involucral bracts with long, white hairs. **Flowering time** Jan.–Apr. Montane, colonies on moist, grassy slopes; Drakensberg Grassland (Naude's Neck, very rare).

1b Leaves simply lobed or pinnate, basal leaves often entire
2a Upper cauline leaves with divisions similar to those of the lower, but slightly smaller

natalensis Kuntze

Erect, perennial herb, up to 2.5 m high, ± glabrous to hairy. **Stems** hollow, ± ribbed to angular, ending in a compound cyme. **Leaves** compound, up to 250 mm long, petiolate, outline ± triangular, 3–9-lobed, lobes ovate, margins dentate to serrate; basal leaves ± rosulate; petioles up to 300 mm long. **Flower heads** globose, 25 mm in diam.; involucral bracts brown, oblong to lanceolate, apex rounded to pointed. **Corolla** ± 10 mm long, white, hairy outside. **Calyx** shortly hairy. **Flowering time** mainly Mar. **Fruit** ribbed, shortly hairy, 5 mm long. Montane, forest margins, grasslands, streambanks, rocky hillsides; Sub-Escarpment Grassland (Kokstad to Maclear).

2b Upper cauline leaves not as above
3a Involucral bracts obtuse or rounded; radical leaves elongate-lanceolate, entire to pinnatifid

humilis (Thunb.) Roem. & Schult.

Erect, perennial herb, ± glabrous, up to 1.5 m high. **Stems** striate or angular. **Leaves** mostly basal, elongate-lanceolate, entire or pinnatifid, coriaceous, up to 300 mm long, apex attenuate, acute, base long-attenuate; cauline leaves few, entire or ± pinnatifid. **Flower heads** globose, 25 mm in diam., involucral bracts obtuse or rounded, ± hairy. **Corolla** white, 10 mm long, hairy outside. **Calyx** shortly hairy, pappus-like. **Flowering time** Dec.–Mar. **Fruit** ribbed, shortly hairy, 6 mm long. In false fynbos, grassland, savanna, forest; Indigenous Forests, Sub-Escarpment Savanna, Albany Thicket, Eastern Fynbos-Renosterveld (uMzimkhulu and Bizana S, from Somerset East to Humansdorp).

3b Involucral bracts subacuminate to pungent; radical leaves broadly ovate or oblong, entire

oblongifolia (Kuntze) Szabó

Iyeza lesisu (X?)

Erect, perennial herb, up to 1.5 m high. **Stems** striate, ± hairy. **Leaves** hairy, mostly basal, ± sessile or petioles up to 120 mm long, oblong to broadly ovate, up to 120 mm long, mostly entire; cauline leaves few, sessile, linear to lanceolate, up to 130 mm long, lobed or toothed, at least some unpaired. **Flower heads** globose, 35 mm in diam.; involucral bracts subacuminate to pungent, brown-purple, with long, white hairs. **Corolla** white, 12 mm long, hairy outside. **Calyx** shortly hairy, pappus-like. **Flowering time** Nov.–Apr. **Fruit** ribbed, shortly hairy, 6 mm long. Mainly well-drained or wet grassland, often on mountain slopes; Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Drakensberg Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket

(Matatiele and Bizana S, from Maclear to Mkambati Nature Reserve, Katberg Pass to Komga and from Uitenhage to East London).

SCABIOSA L.

Species ± 100, Europe, Africa and Asia; 9 in sthn Afr., widespread.

1a Flowering stems branched; most leaves basal or in a rosette

columbaria L.

Wild scabious; *bitterbos* (A); *iyeza lamehlo* (X)

Very variable, perennial herb, hispid or pubescent. **Stems** erect, branched, up to 1.5 m long. **Leaves** ± sessile; basal leaves rosulate, lanceolate to obovate, simple, lyrate or pinnatifid, up to 150 mm long; upper leaves shorter, 1- or 2-pinnatifid or -pinnatisect, lobes linear-lanceolate. **Flower heads** on long peduncles, globose or semi-globose, 20–40 mm in diam.; involucral bracts linear-lanceolate, up to 10 mm long; receptacle bracts linear, 3–5 mm long. **Calyx** with 5 setae, up to 8 mm long. **Corolla** white to mauve, up to 10 mm long, irregularly 5-lobed, hairy outside. **Flowering time** mainly Oct.–Mar. **Fruit** 8-ribbed, hairy, 2–4 mm long; corona glabrous, membranous, ribbed, 0.5–1.5 mm high. Fynbos, grassland, often recently burnt areas; All bioregions except Lower Karoo and Rainshadow Valley Karoo (all districts except mentioned karoo parts).

1b Flowering stems unbranched; most leaves not basal, or if so, then covered with grey-green silky hairs
2a Plant much branched and woody below; leaves with dense, appressed, grey-green silky hairs
3a Leaves pinnatifid

[E]angustiloba (Sond.) Hutch.

Perennial herb, up to 0.45 m high, much branched and woody below, younger parts grey-green with dense, appressed, silky hairs. **Leaves** dense, sessile, up to 25 mm long, outline obovate-cuneate, pinnatifid, up to 7-lobed, lobes lanceolate. **Flower heads** single, on leafless peduncles up to 200 mm high, subglobose, up to 30 mm in diam.; involucral bracts linear-lanceolate, shorter than marginal flowers; receptacle bracts 4 mm long. **Calyx** with 5 setae, up to 7 mm long. **Corolla** mauve, blue, purple, irregularly 5-lobed, up to 12 mm long, hairy outside. **Flowering time** Oct.–Apr., mostly Jan. **Fruit** 8-ribbed, hairy, 3 mm long; corona glabrous, membranous, many-ribbed, 2 mm high. Grassland and karroid scrub; Albany Thicket (Albany, Bathurst, Peddie).

3b Leaves not pinnatifid

[E]buekiana Eckl. & Zeyh.

Perennial herb, semi-prostrate, up to 0.6 m high, with dense appressed grey-green silky hairs, much branched and woody below. **Leaves** dense, sessile, up to 50 mm long, obovate-cuneate, upper half dentate-serrate. **Flower heads** single, on leafless peduncles up to 300 mm high, subglobose, up to 35 mm in diam.; involucral bracts linear-lanceolate, shorter than marginal flowers; receptacle bracts 4 mm long. **Calyx** with 5 setae, up to 6 mm long. **Corolla** white to dark pink, irregularly 5-lobed, up to 15 mm long, hairy outside. **Flowering time** Sept.–May. **Fruit** 8-ribbed, hairy, 4 mm long; corona glabrous, membranous, many-ribbed, 2 mm high. Grassland, low scrub; Albany Thicket, Sub-Escarpment Savanna (Albany, Alexandria, Bathurst).
Hybridises with *S. columbaria*.

2b Plant not much branched and woody below; leaves not as above
4a Leaves pinnately or bipinnately lobed, lobes linear

albanensis R.A.Dyer

Isilawu (X?)

Biennial or perennial herb, erect or suberect, woody below, up to 0.6 m high, ± glabrous to hispid; branches densely leafy, mainly below. **Leaves** pinnately or bipinnately lobed, up to 50 mm long, lobes linear, margins ± revolute. **Flower heads** single, on leafless peduncles up to 120 mm long, subglobose, 20 mm in diam.; involucral bracts linear to linear-lanceolate; receptacle bracts oblong-lanceolate. **Calyx** with 5 blackish setae, ± 10 mm long. **Corolla** white, mauve, purple, 10–15 mm long, irregularly 5-lobed, hairy outside. **Flowering time** mainly Dec. **Fruit** 8-ribbed, hairy, 2–3 mm long; corona glabrous, membranous, ribbed, 1.5 mm high. Grassland, forest margins, shrubs and fynbos; Drakensberg Grassland, Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Albany Thicket, Eastern Fynbos-Renosterveld (Barkly East to Ongeluksnek Nature Reserve S to Bulura River Mouth, from Nico Malan Pass to Dwesa Nature Reserve, Van Stadens Nature Reserve to East London and to Humansdorp).

4b Leaves not as above

tysonii L.Bolus

Wild scabious

Weak, branched shrublet, erect, up to 1 m high; glabrescent to pubescent. **Stems** leafy, lower stem nude. **Leaves** ± sessile to attenuate into a petiole, outline obovate to ovate-lanceolate, margins irregularly dentate to pinnatipartite, up to 55 mm long. **Flower heads** single, on leafless peduncles up to 170 mm long, subglobose, up to 30 mm in diam.; involucral bracts linear-lanceolate, up to 10 mm long; receptacle bracts 3 mm long. **Calyx** with 5 setae, 1.5 mm long. **Corolla** pale mauve, lilac, purple, up to 14 mm long, irregularly 5-lobed. **Flowering time** Nov.–May. **Fruit** ribbed, 3 mm long, hairy; corona glabrous, membranous, many-ribbed, up to 1 mm long. Thickets, forest clearings and edges, damp places; Sub-Escarpment Grassland, Drakensberg Grassland, Indigenous Forests, Sub-Escarpment Savanna (Fort Donald to Hogsback Forest Reserve S, from Seymour to King William's Town and to Grahamstown).

BOLUS, L. 1918. Novitates africanae. *Annals of the Bolus Herbarium* 2: 96, 97.
BURTT, B.L. 1986. Notes on some plants of southern Africa: XIII. *Notes from the Royal Botanic Garden Edinburgh* 43: 366, 367.
CANNON, M.J. & CANNON, J.F.M. 1983. 96. Dipsacaceae. *Flora zambesiaca* 7,1: 77–85.
COMPTON, R.H. 1966. An annotated check list of the flora of Swaziland. *Journal of South African Botany*, Supplement No. 6.
DOLD, A.P. & COCKS, M.L. 1999. Preliminary list of Xhosa plant names from Eastern Cape, South Africa. *Bothalia* 29: 267–292.
DYER, R. A. 1941. *Scabiosa albanensis. The Flowering Plants of South Africa* 21: t. 835.
HUTCHINSON, J. 1946. *A botanist in southern Africa*: 250. Gawthorn, London.
NAPPER, D.M. 1968. Notes on some tropical and South African Dipsacaceae. *Kew Bulletin* 21: 463–470.
SONDER, W. 1865. Dipsaceae. *Flora capensis* 3: 41–44.
VON SZABÓ, Z. 1940. A *Cephalaria*-génusz monográfiája. *Matematikai és Természettudömányi Kozlemények, Budapest* 38, 4: 1–352.

DROSERACEAE

(Order Caryophyllales)

Compiled by C.L. Bredenkamp

DROSERA L.

Species 110, cosmopolitan with a concentration in the southern hemisphere, exceptionally diverse in SW Australia; 20 in sthn Afr., B, LIM, NW, G, M, S, FS, KZN, L, WC, EC.

Leaves uniform in shape, in a basal, usually compact rosette, with the scape leafless; leaf apex rounded, laciniate, ending in ± 7–10 long, tapered, marginal tentacles, tipped with flattened glands and with many, shorter, terete tentacles, tipped with knob-shaped glands, scattered over the lamina

aliciae Raym.-Hamet

Tufted, perennial, insectivorous herb, up to 400 mm high. **Leaves** ± 30, arranged in a rosette, apetiolate, spathulate, reddish, 25 × 7 mm, hairy beneath; stipules lacerate. **Flowers** 2–12 on wiry scape, 150–400 mm high, curved below then erect, pink; stigmas 2- or 3-fid. **Flowering time** Sept.–Jan. **Fruit** an ovoid capsule. **Seeds** fusiform. Marsh plant, on damp peaty sandstone; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Ugie and Elliot Region to Kei River Mouth S, from Storms River District to Port Elizabeth and Grahamstown, and to Humansdorp).

burkeana Planch.

Sundew; *sondou*, *slakblom* (A); *tholo-ea-metsi* (SS)

Small, perennial, insectivorous herb, up to 230 mm high. **Leaves** arranged in a rosette, petiole and lamina both ± 10 mm long, obovate to spathulate, rust-coloured, lower surface glabrescent; stipules laciniate above. **Flowers** 3–10 on wiry scape, 50–200 mm high, somewhat curved below then erect; style divided from base, curved upward, stigmatic part spoon-shaped, membranous. **Flowering time** summer months. **Fruit** an oblong capsule. **Seeds** ovoid. Swamp species; Indian Ocean Coastal Belt, Indigenous Forests (Underberg S, from Ndindini to Mkambati Nature Reserve).

Leaves dimorphous with the basal rosulate ones bearing both marginal, flattened tentacles and terete, knob-shaped ones; the upper leaves narrower bearing only knob-shaped tentacles, or leaves uniform; plants usually with a leafy stem, young leaves aggregated towards apex; scape axillary and leafless or terminal and then leafy below

capensis L.

Doublom, *vliegvangertjie*, *glyblom* (A)

Perennial, insectivorous herb, up to 450 mm high, rhizomatous with short stem, woody below. **Leaves** with petiole ± as long as lamina; lamina linear to elliptic, 150 × 4 mm; stipules ovate-lacerate, brown. **Flowers** 15–30, secund in an axillary, helicoid cyme; scape curved outwards below, 250 mm high, firm, pink to magenta; stigmas swollen. **Flowering time** Dec., Jan. **Fruit** an oblong capsule. **Seed** fusiform. Marshy sandstone, swamp in open veld; Eastern Fynbos-Renosterveld, Indigenous Forests (Lottering to W of Storms River bridge).

cistiflora L.

Snotrosie, *sonnedou*, *grootdou* (A)

Slender, perennial, insectivorous herb, up to 100–400 mm high. **Leaves** dimorphic, sometimes uniform, lower radical or lacking, apetiolate, oblanceolate, upper linear,

exstipulate. **Flowers** large, few in subcorymbose cymes, white, yellow, mauve to purple or red, with dark centre; stigmas multifid. **Flowering time** Aug., Sept. **Fruit** a turbinate capsule. **Seeds** ovoid-ellipsoid. Hill slopes and damp sandy flats; Eastern Fynbos-Renosterveld, Indigenous Forests (Port Elizabeth, SW to Knysna and Humansdorp).

madagascariensis DC.

Sundew; *doublom*, *sondou* (A); *tholo-ea-metsi* (SS)

Perennial, insectivorous herb, 200–250 mm high, caulescent, half decumbent. **Leaves** with lamina obovate to spathulate, 10–15 × 7 mm; stipules membranous, ferruginous; petioles ± 30 mm long, reflexed with age. **Flowers** 4–12 on an axillary, wiry scape, 200–400 mm high, strongly curved below, pink; stigmatic apices clavate to somewhat bilobed. **Flowering time** summer months. **Fruit** an oblong capsule. **Seeds** fusiform. Riverbanks and mouths and hillsides; Indigenous Forests, Indian Ocean Coastal Belt (Port Edward S along Transkei Coast).

BENNETT, S.T. & CHEEK, M.R. 1990. The cytology and morphology of *Drosera slackii* and its relatives in South Africa. *Kew Bulletin* 45: 375–381.
LAUNDON, J.R. 1978. Droseraceae. *Flora zambesiaca* 4: 64–68.
OBERMEYER, A.A. 1970. Droseraceae. *Flora of southern Africa* 13: 187–201.
STEVENS, P.F. 2006. Angiosperm Phylogeny Website. Version 7. Internet. http://www.mobot.org/MOBOT/research/APweb/ (accessed Aug. 2006).

EBENACEAE

(Order Ericales)

Compiled by C.L. Bredenkamp & M. Struwig

The monophyly of Ebenaceae *s.l.* is strongly supported by analyses of data from six plastid DNA regions (Duangjai et al. 2006). Four genera, *Lissocarpa*, *Euclea*, *Royena* and *Diospyros* should be recognised within the family. The study further shows that the previous infrageneric classifications of *Diospyros* are artificial and need to be revised.

Plants dioecious; calyx not accrescent; ovary on a fringed disc; fruit usually 1-seeded; leaves alternate, subopposite, opposite or whorled ..... **Euclea**

Plants dioecious; flowers unisexual (staminate plants more abundant than pistillate) or apparently hermaphrodite (functionally male); calyx usually accrescent; ovary on a glabrous disc; fruit usually with 2 or more seeds; leaves alternate ..... **Diospyros**

DIOSPYROS L.

Species ± 475, cosmopolitan in tropical, subtropical and temperate areas (America ± 80, Africa ± 94, Madagascar ± 100, Asia ± 200); ± 20 and several subspecies in sthn Afr., widespread.

1a Flowers trimerous, with a truncate, cup-shaped calyx and mostly entire on the rim

natalensis (Harv.) Brenan

Acorn jackal-berry; *akker-jakkalsbessie* (A); *intshikivane*, *umtyshone* (X); *umasinda* (Z)

Much-branched, evergreen tree or shrub, 1–25 m high; branches usually horizontal. **Leaves** usually borne in one plane, glossy, dark green, elliptic to ovate. **Male flowers** axillary, solitary or in cymes, white; stamens ± 17, 2 mm long. **Female flowers** solitary, similar to males; staminodes 6–9, 1 mm long; ovary 3-locular. **Fruit** acorn-shaped,

obovoid. **Seed** usually 1. Coastal, sand dunes, river mouths, forests; Indian Ocean Coastal Belt, Indigenous Forests (Port Edward S to East London).

1b Flowers 4- or 5-merous, calyx deeply lobed or urceolate (urn-shaped) to cup-shaped and toothed on the rim
2a Calyx urceolate, 5–7-toothed or lobed on the rim

whyteana (Hiern) F.White

Bladder-nut; *swartbas* (A); *mohlatšane* (NS); *intsanzimane* (X); *umanzimane* (Z)

Erect, evergreen tree or shrub, 0.5–6.0 m high; bark almost black. **Leaves** alternate, borne in 2 ranks, glossy, deep green, narrowly elliptic to ovate-oblong. **Inflorescences** small pseudo-racemes. **Male flowers** solitary, axillary, pentamerous, urceolate with spreading reflexed corolla, white to cream-coloured; stamens 10, all fertile (sometimes replaced by staminodes); pistillode conoidal, hairy, 4–6-locular. **Female flowers** with 6–10 staminodes; ovary conoidal, 4–6 locular, with 1 ovule per locule; styles 2 or 3. **Flowering time** Aug.–Nov. **Fruit** red, enclosed in bladder-shaped calyx. **Seed** 2–4 per fruit. Mountain slopes, riverbanks, coastal and inland forests; Sub-Escarpment Grassland, Indigenous Forests, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Albany Thicket, Drakensberg Grassland, Eastern Fynbos-Renosterveld (Bizana Forest S to Kologha Forest and Msikaba River, from Boschberg and Amatole Mts to Hogsback and Komga and from Joubertina to Baviaanskloof and Grahamstown).

2b Calyx deeply divided
3a Leaves cordate or rounded at base

scabrida (Harv. ex Hiern) De Winter

Coastal bladder-nut; *kus-swartbas* (A)

Erect, evergreen shrub, 0.3–3.0 m high; branchlets densely leafy; bark ash-grey to yellowish. **Leaves** alternate, strongly coriaceous, upper surface glossy, elliptic to suborbicular. **Flowers** female or functionally male; in 2–4-flowered pseudo-racemes, creamy white, corolla imbricate; stamens 10, reduced to staminodes in female flower; ovary conical, 4–6-celled. **Flowering time** Aug.–Mar. **Fruit** globose, enclosed in accrescent calyx, with lobes broadly ovate-cordate. **Seed** 3 or 4 per fruit. Mountain slopes, rocky outcrops and forest margins.

Two varieties are recognised:

[E]*D. scabrida* (Harv. ex Hiern) De Winter var. *cordata* (E.Mey. ex A.DC.) De Winter

Upper Karoo, Sub-Escarpment Grassland, Indigenous Forests, Albany Thicket, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld (Middelburg District to Indwe S, from Cradock to Kentani and Willowmore to East London).

[E]*D. scabrida* (Harv. ex Hiern) De Winter var. *scabrida*

Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indigenous Forests, Indian Ocean Coastal Belt (Ntlenzi Kloof Forest S, from Mkambati River Mouth to Lupatana).

villosa (L.) De Winter

Hairy star-apple; *harige-sterappel* (A); *inyamempunzi* (X); *umbongisa* (Z)

Scandent or erect, very hairy, forest shrub, 1–14 m high; branchlets patent, at ± right angles to stem, leafy, bearing flowers at apex. **Leaves** alternate, petioled, shortly tomentose, broadly obovate-oblong. **Flowers** female or functionally male; axillary or in 2- or 3-flowered pseudo-racemes, pentamerous, yellow, fragrant; stamens 10, reduced to staminodes in female flower; ovary densely tomentose, 8–10-celled. **Flowering time**

July–May. **Fruit** globose-pentagonal, densely hispid. **Seed** 3–8. Mainly coastal, forest margins, kloofs, and river valleys; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests, Albany Thicket (Umtamvuma Nature Reserve SW through Alice to Port Elizabeth District and E to Albany District).

3b Leaves cuneate to obtuse at base
4a Flowers pink or scarlet

austro-africana De Winter

Jackal-bush; *jakkalsbos* (A); *umbongisa* (X)

Rigidly to laxly branched shrub, 0.02–3.00 m high; branchlets naked below with old leaf scars. **Leaves** 4–35 × 2–5 mm, lower surface stellately felted, with nerves often reticulately raised, narrowly obovate to oblanceolate. **Bracts** subopposite, boat-shaped, clasping peduncles. **Flowers** female or functionally male; axillary, pendulous, solitary, pentamerous, cream-coloured, pink or red; stamens 10, reduced to staminodes in female flower; ovary densely tomentose, 4–8-celled. **Flowering time** Sept.–May. **Fruit** globose, ± tomentose. **Seed** 2–6(8). Grassland, Nama Karoo, Succulent Karoo; amongst large rocks, basalt cliffs, moderate to steep slopes, dry streambeds; Upper Karoo, Dry Highveld Grassland, Mesic Highveld Grassland, Drakensberg Grassland, Lower Karoo, Albany Thicket, Sub-Escarpment Grassland, Rainshadow Valley Karoo (Oviston E to Rhodes S, from Middelburg to Queenstown, Graaff-Reinet to Amatole Mts and to Baviaanskloof).

Three varieties in EC:

D. austro-africana De Winter var. *austro-africana*—in winter rainfall areas.

D. austro-africana De Winter var. *microphylla* (Burch.) De Winter—in drier areas of karoo.

D. austro-africana De Winter var. *rubriflora* (De Winter) De Winter—in southern Drakensberg area.

4b Flowers cream-coloured, yellow or white
5a Nerves raised on lower surface of leaves

austro-africana De Winter (see 4a above)

lycioides Desf.

Karoo bluebush; *Karoo-bloubos* (A); *motloumana* (NS); *motlhaja* (T); *umbongisa* (X); *umnqandane* (Z)

Tree or shrub, 0.6–7.0 m high; branches leafy at tips. **Leaves** 18–80 × 5–30 mm, alternate, petiolate, oblanceolate to oblanceolate-obovate, coriaceous, glabrescent to sericeous. **Bracts** 2, on upper half of peduncle, linear, deciduous. **Flowers** female or functionally male; campanulate, pendulous, solitary, pubescent, cream-coloured, pink or red; stamens 10, reduced to staminodes in female flower; ovary on thin, glabrous disc. **Flowering time** Sept.–May. **Fruit** fleshy, green, yellow or red; drying smooth and hard, light brown. **Seed** dark brown, oblong, circumvented by oblique groove. Stony soil, sand, gravel, shale, clay or loam, moist, full sun; Upper Karoo, Dry Highveld Grassland, Mesic Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests, Lower Karoo, Albany Thicket (Oviston E to Kokstad and Mount Frere S, from Middelburg to Port St Johns, Graaff-Reinet to Kei River Mouth and from Jansenville to Uitenhage, Grahamstown and Bathurst).

Two subspecies in EC:

D. lycioides Desf. subsp. *lycioides*—in drier areas of EC.

D. lycioides Desf. subsp. *sericea* (Bernh.) De Winter—in area E of Drakensberg reaching into the EC from KZN.

ramulosa (E.Mey. ex A.DC.) De Winter

Namaqua fire-sticks; *Namakwa-kritikom* (A)

Shrub, 1–5 m high; bark smooth to blistery, slightly peeling in fibre-like strips. **Leaves** 5–12 × 2–5 mm, subsessile or shortly petiolate, elliptic, thick, rigid, pubescent above, margins entire, flat or involute. **Bracts** 2, distant to subopposite, narrow and linear or leaf-like. **Flowers** solitary; functionally male or female with staminodes, greenish white to white, pedunculate; stamens 10, staminodes shorter and more hairy than stamens; ovary densely pubescent. **Fruit** subglobose, fleshy. **Seed** brown, oblong, circumvented by a thin line. Sandstone; Albany Thicket, Lower Karoo, Dry Highveld Grassland (Graaff-Reinet District).

5b Nerves, except for the midrib, not raised below, at most visible and finely traced

dichrophylla (Gand.) De Winter

Monkey apple, poison peach; *tolbos*, *tolletjieboom* (A); *umbongisa* (X); *umnqandane* (Z)

Tree or shrub, 1–13 m high; young twigs and leaves yellowish- to pallid-pubescent, glabrescent. **Leaves** alternate, petiolate, oblanceolate to obovate, coriaceous; mature leaves finely wrinkled above, margins revolute. **Bracts** linear, revolute. **Flowers** female or functionally male, solitary, axillary, pedunculate, pendulous; stamens 10, staminodes in female flower densely bristly; ovary 8–10-celled, single ovule in each cell. **Flowering time** all year. **Fruit** 200 × 250 mm, depressed-globose, pubescent. **Seed** dark brown, shiny, oblong. Bare rock or stony soil, sand or clay, sandstone or dolerite, moist, full sun; Sub-Escarpment Grassland, Indigenous Forests, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Eastern Fynbos-Renosterveld, Albany Thicket, Lower Karoo (Queenstown E to Port St Johns S, from Alice to Qora River Mouth and Wolwefontein to Port Elizabeth, Grahamstown and East London and SW to Humansdorp).

glabra (L.) De Winter

Fynbos star-apple; *fynbossterappel* (A)

Evergreen shrub, 0.6–1.8 m high. **Leaves** alternate, sessile, elliptic, coriaceous, smooth and greenish above, finely wrinkled and brownish below, pubescent when young, margins entire. **Bracts** early deciduous, minute to well developed, lanceolate to subulate. **Flowers** in 2–5-flowered racemes or solitary and axillary; stamens 10, staminodes in female flower; ovary 4–9-celled, one ovule in each cell. **Fruit** oblong to subglobose, purple or reddish. **Seed** oblong, solitary, divided obliquely by a thin line. Loamy soil, moist, partial shade; Eastern Fynbos-Renosterveld, Indigenous Forests (Knysna District).

pallens (Thunb.) F.White

Shrub, 1.0–2.5 m high, whole plant subglabrous. **Leaves** alternate, petiolate, elliptic, coriaceous, glabrous or with few hairs on midrib and margins, glossy, finely wrinkled when dry, slightly discolorous, margins revolute. **Bracts** 2, linear, involute. **Flowers** female or functionally male, solitary, axillary, white, pendulous, pedunculate; stamens 10; ovary densely covered with stiff, erect bristles that obscure the shape. **Fruit** globose, with scattered, long, stiff, yellowish bristles intermixed with very short hairs. Sandy soil; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests, Albany Thicket, Eastern Fynbos-Renosterveld (Tabankulu District SW to Uitenhage and Bathurst District).

simii (Kuntze) De Winter

Climbing star-apple; *ranksterappel* (A); *umbongisa* (X); *umnqandane* (Z)

Shrub or climber, 1–7 m high. **Leaves** alternate, petiolate, oblanceolate to obovate, coriaceous; glossy, dark green above, paler below; strigose when young, glabrous or sparingly strigose when mature. **Bracts** 2, linear to linear-lanceolate, on upper part of peduncle, strigose. **Flowers** solitary or in few-flowered inflorescence; stamens 10, staminodes in female flower; ovary subglobose, style hairy. **Flowering time** all year. **Fruit** subglobose, velvety. **Seed** 3–8, dull brown, oblong, circumvented by a thin line. Bare rock, stony or loamy soil; Sub-Escarpment Savanna, Indigenous Forests, Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Albany Thicket, Eastern Fynbos-Renosterveld (Willowvale SW to Seymour and E to East London).

EUCLEA Murray

Species ± 20, Africa; 16 in sthn Afr., widespread.

1a Leaves, inflorescence and young twigs always glabrous, at most with a granulate rust-brown exudate on the surface
2a Margins undulate, not revolute

undulata Thunb.

Common guarri; *gewone ghwarrie* (A); *mohlakola* (NS); *umgwali* (X); *umshekisani* (Z)

Evergreen tree or shrub, 0.5–7.0 m high; bark grey, scaly; branchlets densely leafy; young parts covered with rust-coloured glands. **Leaves** opposite to subopposite or pseudo-whorls of 3 or 4, petiolate, obovate to elliptic, dark green above, sparingly to densely covered with rust-coloured glands below, margins entire, undulate to flat. **Inflorescence** axillary, 5–20 mm long, glands stalked and rust-coloured; 5–7-flowered. **Flowers** small, whitish, fragrant. **Flowering time** Nov.–May. **Fruit** a berry, globose, fleshy, red turning purple or black. **Seeds** 3–4 mm in diam. Stony soil, sand, gravel, loam or clay, shale, well-drained, partial shade to full sun; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indigenous Forests, Albany Thicket, Lower Karoo, Eastern Fynbos-Renosterveld (Queenstown District to Tsitsa River S, from Graaff-Reinet to Komga and Grahamstown to Port Elizabeth).

2b Margins not undulate, usually revolute
3a Leaves obovate to broadly obovate

racemosa Murray

Coastal guarri; *duin-ghwarrie* (A)

Evergreen tree or shrub, 0.5–3.0 m high; branchlets glabrous, angular, often reddish. **Leaves** alternate, opposite to subopposite, oblanceolate to obovate, drying reddish to pinkish brown, margins thickened, revolute, entire; petioles wrinkled. **Inflorescence** an axillary raceme, 8–20-flowered, 10–40 mm long; female smaller and more compact than male. **Flowers** small, creamy white, pendulous, cup-shaped. **Flowering time** Dec.–May. **Fruit** globose, thinly fleshy, black. **Seeds** globose to hemispherical, finely wrinkled, greyish to brown. Stony soil, loam or sand, dry; Indian Ocean Coastal Belt, Indigenous Forests, Albany Thicket, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld (Port Edward S, from Queenstown to Kei River Mouth, Uitenhage to Grahamstown and Kowie, and to Humansdorp).

3b Leaves oblanceolate to narrowly oblanceolate

daphnoides Hiern

White-stem guarri; *witstamghwarrie* (A)

Tree or shrub, 2.5–8.0 m high; trunk crooked. **Leaves** opposite, in pseudo-whorls, or 3 or 4 at end of branchlets, petiolate, oblanceolate-elliptic, coriaceous; shiny light to dark green above, paler below, margins entire, revolute. **Inflorescence** an axillary raceme, 15–40 mm long; female raceme up to 25 mm long, more compact; flowers smaller than male. **Flowers** small, white to cream-coloured, campanulate, pendulous, sweetly scented. **Fruit** globose, thinly fleshy, red to purplish. **Seeds** globose, finely wrinkled. Stony soil, dry; Indigenous Forests, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket, Lower Karoo (Alice SW to Willowmore and E to Peddie).

1b Leaves and/or young shoots and/or inflorescence branches hairy

4a Mature fruit subglobose and somewhat beaked to ovoid-conical, or if globose, then > 10 mm in diam., densely tomentose when immature, red and subglabrous when ripe

5a Leaves mostly narrowly to broadly elliptic

polyandra (L.f.) E.Mey. ex Hiern

Evergreen shrub or dwarf shrub, 0.3–2.5 m high; branchlets densely ferruginous-pubescent. **Leaves** alternate or subopposite, petiolate, pale olive-green, young leaves rusty-pubescent becoming grey-pubescent, elliptic or ovate, margins flat, thickened, entire. **Inflorescence** axillary, 30–50 mm long, 3–5-flowered, ferruginous-villous, female inflorescence shorter and more compact than male. **Flowers** sweetly scented, white. **Fruit** a fleshy berry, globose, somewhat beaked, ferruginous-hirsute, red when ripe. **Seeds** globose, 5 mm in diam. Stony soil or sand, dry; Eastern Fynbos-Renosterveld, Rainshadow Valley Karoo, Albany Thicket, Indigenous Forests (Willowmore District E to Uitenhage District and SE to Humansdorp).

5b Leaves ovate to oblong

coriacea A.DC.

Mountain guarri; *bergghwarrie* (A)

Evergreen tree or shrub, 1–3 m high; bark greenish brown, wrinkled; ultimate branchlets pubescent. **Leaves** alternate, petiolate, coriaceous, ovate-lanceolate, stiff, ferruginous-pubescent below, margins with narrow cartilaginous thickening, entire. **Inflorescence** axillary, villous, 2–7-flowered; male inflorescence laxer, larger and flowers with longer pedicels than female. **Bracts** large, hairy. **Flowers** white to cream-coloured. **Fruit** globose, fleshy, yellow to red, 15 mm in diam. **Seeds** 8–10 mm in diam. Stony soil, soil loam or sand; Drakensberg Grassland, Dry Highveld Grassland, Upper Karoo, Sub-Escarpment Grassland, Lower Karoo, Albany Thicket (Rhodes and Barkly East Districts S, from Molteno to Dordrecht and from Koueveld Mts to Somerset East District).

4b Mature fruit globose, < 9 mm in diam., usually soon becoming glabrous, red or black when ripe

6a Fruit 4–5 mm in diam.

crispa (Thunb.) Gürke

Blue guarri; *bloughwarrie* (A); *mohlakola* (NS); *umgwali* (X); *umshekisane* (Z)

Tree or shrub, 1–9 m high; young parts with rust-brown granules. **Leaves** 15–50 × 5–12 mm, opposite to subopposite, petiolate, shape varies, glabrous to densely hairy, paler beneath, margins entire or scalloped, revolute. **Inflorescence** a pseudo-raceme, axillary, hairy, 3–10-flowered; male inflorescence longer than female. **Flowers** incon-

spicuous, greenish to yellow or white, pendulous, sweetly scented. **Flowering time** Nov.–Feb. **Fruit** globose, hairy, reddish brown turning black. **Seeds** globose, 3–4 mm in diam. Stony soil, sand, dolerite, well drained, full sun; Drakensberg Grassland, Sub-Escarpment Grassland, Indigenous Forests, Sub-Escarpment Savanna, Albany Thicket, Eastern Fynbos-Renosterveld, Rainshadow Valley Karoo, Upper Karoo, Dry Highveld Grassland, Lower Karoo (Venterstad to Ramatseliso's Gate and Insizwa S, from Steynsburg to Mkambati Nature Reserve, Graaff-Reinet to Willowvale and Baviaanskloof to Port Elizabeth, Grahamstown and East London).

6b Fruit 7–9 mm in diam.

natalensis A.DC.

Natal guarri; *Natal-ghwarrie* (A); *mohlakola* (NS); *motlhakole* (T); *umkhasa* (X); *idungamuzi* (Z)

Tree or shrub, 2–7 m high; bark thin and cracked. **Leaves** spirally arranged, petiolate, size and shape various, dark glossy green above, paler below with rusty hairs, margins entire, wavy. **Inflorescence** 15–35 mm long, axillary, sessile, all parts except corolla covered with hairs; flowers 10–30; female inflorescence more compact than male. **Flowers** small, greenish cream-coloured to pale yellow, scented. **Flowering time** Feb.–Sept. **Fruit** a globose berry, red turning black, strigose to glabrescent. **Seeds** globose, dark brown. Stony soil, sand or clay, dolerite, moist, partial shade; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests, Drakensberg Grassland, Eastern Fynbos-Renosterveld, Albany Thicket, Lower Karoo (Cintsa River to Port St Johns and Nyameni S, from Stutterheim to Kei River Mouth, Addo to Port Elizabeth, Grahamstown and East London, and to Cape Recife).

DE WINTER, B. 1963. Ebenaceae. *Flora of southern Africa* 26: 54–99.
DUANGJAI, S., WALLNÖFER, B., SAMEUL, R., MUNZINGER, J. & CHASE, M.W. 2006. Generic delimitation and relationships in Ebenaceae *sensu lato*: evidence from six plastid DNA regions. *American Journal of Botany* 93: 1808–1827.
POOLEY, E. 1999. SASOL *Trees of southern Africa: a first field guide.* Struik, Cape Town.

ELATINACEAE

(Order Malpighiales)

Compiled by C.L. Bredenkamp

BERGIA L.

Species ± 25, widespread in tropical and subtropical countries; 10 in sthn Afr., N, B, LIM, NW, G, M, S, FS, NC, WC, EC.

anagalloides E.Mey. ex Fenzl

Small, prostrate annual, with many radiating branches from a woody crown, 0.01–0.20 m long, stems slender. **Roots** with a spongy outer covering. **Leaves** narrowly obovate, subpetiolate, up to 30 × 6 mm. **Flowers** solitary, axillary, evenly distributed along the stems; pedicels up to 15 mm long. **Sepals** with midrib prominent, margins membranous. **Petals** longer than sepals, delicate, white, pink or mauve. **Ovary** ovoid with short, arcuate styles. **Flowering time** Apr.? **Capsule** ovoid. **Seeds** oblong, yellow to golden-brown. In damp places, usually calciphilous; Sub-Escarpment Savanna, Albany Thicket (Alice, Gaga Stream).

glomerata L.f.

Perennial, woody, prostrate, glabrous plant, forming mat up to 1 m in diam., turning brown when dry; internodes short, stems relatively thick, with many long and short branches, closely compacted. **Leaves** obovate, up to 5 × 3 mm. **Flowers** sessile, few to several arranged in axillary glomerules. **Sepals** firm. **Petals** folded below with upper half turned inwards, white. **Ovary** globose, red, papillate, styles erect, terete. **Flowering time** Dec.–Mar. **Capsule** ovoid. **Seeds** allantoid (sausage-shaped), black or brown. In temporary pools or damp places; Eastern Fynbos-Renosterveld, Albany Thicket, Sub-Escarpment Savanna (Mouths of Coega- and Swartkops Rivers E to Grahamstown).

COOK, C.D.K. 2004. *Aquatic and wetland plants of southern Africa*. Backhuys Publishers, Leiden.
HARVEY, W.H. 1860. Elatinaceae. *Flora capensis* 1: 115–117.
OBERMEYER, A.A. 1976. Elatinaceae. *Flora of southern Africa* 22: 23–32.
WILD, H. 1961. Elatinaceae. *Flora zambesiaca* 1: 373–378.

ERICACEAE

(Order Ericales)

Compiled by S.P. Bester

ERICA L.

Species 860, Africa, Madagascar and Europe; 770 confined to sthn Afr., greatest diversity in WC and EC, but also LIM, NW, G, M, S, FS, L, KZN.

1a Stamens 4
2a Bracts absent (Group A)

[E]amatolensis E.G.H.Oliv.

Erect, single-stemmed shrub, up to 1.5 m high, densely branched; branchlets puberulous becoming glabrous. **Leaves** 3-nate, adaxially pubescent, appressed, imbricate, 1.5–2.7 × 0.42 mm, linear, obtuse, glabrous. **Pedicels** 0.7–1.1 mm long, minutely puberulous. **Flowers** in terminal clusters of 3–9, pink sometimes greenish yellow. **Corolla** campanulate, glabrous, tube 1.05 mm long; lobes erect, ± 0.5 mm long, rounded. **Stamens** manifest to exserted. **Anthers** exserted, dorsally attached near base, placed well above ovary, 0.7 mm long, appendages awn-like, minutely scabrid. **Ovary** appressed-pubescent, subglobose; nectaries rudimentary; style exserted, 2 mm long; stigma obconical. **Flowering time** Sept.–Feb. Edges of forest patches, amongst woody vegetation, rocky grassy slopes, alt. 1 000–1 600 m; Drakensberg Grassland (Amatole Mts, Katberg Pass SE to Seymour).

[E]zeyheriana (Klotzsch) E.G.H.Oliv.

Erect shrub, up to 1 m high, single-stemmed reseeder. **Leaves** 3-nate, erect, imbricate 1.5–3.0 × 0.4 mm, narrowly elliptic to oblong, apex acute or obtuse, adaxially flat, abaxially rounded and narrowly sulcate. **Pedicels** 0.3–0.6 mm long. **Flowers** 3-nate in 1–5 whorls. **Calyx** 4-lobed, unequal. **Corolla** 1.5–2.0 × 0.7 mm, tubular to urceolate, dirty pale yellow to brown; lobes erect 0.2 × 0.4 mm, broadly rounded, erose. **Bract** totally recaulescent at abaxial lobe of sepals. **Stamens** free, ± manifest. **Anthers** dorsifixed $^1/_4$ above base; pore very small, $^1/_7$ length of theca. **Ovary** 2(3)-locular, transversely obovate, glabrous; style exserted up to 2× length of corolla; stigma broadly cyathiform to peltate with 2 well-developed, apical, stigmatic processes. **Flowering time** all year.

Dominant ericoid element in sandy coastal flats; Eastern Fynbos-Renosterveld (Hankey SW to Port Elizabeth, Humansdorp).

2b Bract 1 (Group B)

benthamiana E.G.H.Oliv.

Erect shrub, up to 0.3–0.6 m high, single-stemmed reseeder. **Leaves** 3(4)-nate, erect, incurved, imbricate, 2–4 × 0.7 mm, ovate to oblong, narrowly sulcate, adaxially flat, abaxially rounded, glabrous to sparsely hirsute on both sides. **Pedicels** all aggregated into a dense head-like terminal synflorescence. **Flowers** 3-nate in 2 or 3 whorls in a compact raceme, terminal on main branches. **Calyx** 4-lobed, narrow cyathiform to obconical, sulcus absent, slightly cartilaginous. **Corolla** 2-lobed, tubular ellipsoid, sometimes curved, dull white to pinkish. **Stamens** 4, free, exserted; filaments 2–4 mm long; anthers oblong to V-shaped, basifixed, thecae erect; pore $^1/_4$–$^1/_3$ length of theca. **Ovary** 2-locular, obovoid; style 1.5× as long as corolla, filiform; stigma simple, truncate. **Flowering time** Aug.–Nov. Moist, cool S-slopes of Mts, never on open flats; Eastern Fynbos-Renosterveld (Stellenbosch to Joubertina).

[E]hillburttii (E.G.H.Oliv.) E.G.H.Oliv.

Compact shrub, up to 1.5 m high, many-stemmed from a rootstock. **Leaves** 3-nate, appressed, imbricate, narrowly ovate, 1.0–1.8 × 0.4–0.8 mm, adaxially pubescent, abaxially glabrous, apical tuft strigillose. **Flowers** 1–3(6)-nate, crowded at ends of short, lateral branchlets. **Calyx** 4-lobed, green, ± triangular. **Corolla** 4-lobed, broadly obovoid, greenish yellow turning pale brown and papery. **Stamens** 4, free, included; filaments linear; anthers 1.5–1.1 mm long, ellipsoid to obovoid, muticous to distinctly aristate, appendages up to 0.2 mm long; pore $^1/_4$–$^1/_3$ length of thecae. **Ovary** 3-celled, broadly ellipsoid, ridged longitudinally in upper half; style 0.6–0.9 mm long, glabrous; stigma infundibuliform, manifest to slightly exserted. **Flowering time** Oct.–Dec. Rocky and grassy slopes at high altitude Mts, shallow loam soils close to streams; Drakensberg Grassland (Naude's Neck Pass SW to Bastervoetpad).

2c Bracts 3 (Group C)

angulosa E.G.H.Oliv.

Erect, fastigiate shrub, up to 0.5 m high, single-stemmed reseeder. **Leaves** 3-nate, erect to appressed as long as internodes, 2–3 × 0.5 mm, ± lanceolate, adaxially flat, abaxially narrowly sulcate, scabrid, puberulous towards margins, apex acute, tufted. **Flowers** 3-nate in 1 or 2 whorls, umbel-like when 2-whorled. **Calyx** 4-lobed, as long as corolla tube with deep longitudinal grooves, narrowly cyathiform. **Corolla** 4-lobed, tubular-cyathiform, slightly longer than calyx, whitish to cream-coloured to deep pink. **Stamens** 4, free, exserted; filaments just longer than corolla, linear; anthers subbasifixed, narrowly obovate, dark reddish brown; thecae oblong, appendages ± 0.1 mm long, linear, acuminate, pendulous; pore $^1/_5$–$^1/_4$ as long as theca. **Ovary** 2-locular, ellipsoid, nectaries at base of ovary absent; style exserted; stigma broadly cyathiform to peltate. **Flowering time** Jan.–Aug; Eastern Fynbos-Renosterveld (Witteberg S to Antoniesberg and E to Kouga and Baviaanskloof Mts).

bolusanthus E.G.H.Oliv.

Compact, semi-prostrate shrublets, 0.25–0.30 m high, single-stemmed reseeder or multi-stemmed resprouter. **Leaves** 3-nate, erect, imbricate, 1.5–3.0 × 0.3 mm, ± lanceolate, adaxial surface flat, abaxially rounded, narrow-sulcate, apex tufted. **Flowers** 3-nate in 1 or 2 whorls, umbel-like when 2-whorled. **Calyx** 4-lobed, broadly cyathiform. **Corolla**

4-lobed, cyathiform, glabrous, lower half distinctly tuberculate, upper half colliculate, pale to deep pink. **Stamens** 4, far exserted; filaments up to 2× length of corolla, linear; anthers dorsifixed, cuneate to ovate, dark brown, muticous sometimes spurred; thecae erect, appressed, oblong, minutely aculeate; pore $^1/_3$ length of theca. **Ovary** (1)2(–4)-locular, broadly ellipsoid, no basal nectaries; style exserted, 2–3× length of corolla; stigma variable, enlarged, truncate to peltate with or without 2 terminal, stigmatic processes. **Flowering time** Nov.–Apr. On dry rocky slopes, Eastern Fynbos-Renosterveld (along Kouga Mts to Coega and to Humansdorp).

fuscescens (Klotzsch) E.G.H.Oliv.

Erect, bushy shrub, 0.3–1.5 m high. **Leaves** 3-nate, 1.5–4.2 × 0.5–1.0 mm, linear, ± acute, erect or spreading. **Flowers** in 2–4-flowered heads, umbellate, terminating short branchlets, that are racemosely arranged along branches. **Calyx**: sepals free, 1.5–2.8 mm long, coriaceous, lanceolate, acute, keeled down back, minutely ciliate. **Corolla** tubular or tubular-campanulate; tube 2.1–2.8 mm long, glabrous, not angular, white to pale pink; lobes 0.7 mm long, broadly ovate-oblong, very obtuse, spreading. **Stamens** 4, exserted; anthers 1.4 mm long, oblong with nearly parallel sides, black; appendages 0.3–0.4 mm long. **Ovary** oblong, quadrate, puberulous; style exserted beyond anthers, 3.2–4.2 mm long; stigma simple. **Flowering time** Apr.–Sept. Lower mountain slopes; Eastern Fynbos-Renosterveld (Vanwyksdorp to Port Elizabeth).

[E]**passerinoides** (Bolus) E.G.H.Oliv.

Erect shrub, 0.5–0.6 m high, densely branched. **Leaves** 3-nate, appressed, imbricate, including petioles 1.5–2.1 × 0.7 mm, oblong or oblong-ovate, obtuse, adaxially flat, minutely ciliate. **Flowers** in small, terminal clusters of 3–9, drooping. **Calyx**: sepals 4, unequal, narrowly oblong, obtuse, minutely ciliolate, larger 1.4–2.1 mm long, leaf-like in upper half. **Corolla** obconic-clavate, 4-lobed, glabrous, pink; tube 1.5–1.6 mm long; lobes incurved, 0.5 mm long, rounded. **Stamens** 4, included; filaments 1.4 mm long, free, filiform; anthers ± 0.7 mm long, broadly cuneate, bifid to halfway down, basal appendages awn-like, minutely scabrid. **Ovary** subglobose, slightly 4-grooved, puberulous; style just reaching apex of corolla lobes, ± 0.7 mm long, glabrous; stigma peltate, 0.5 mm in diam. **Flowering time** Oct.–Dec. Upper Karoo, Drakensberg Grassland (Koueveld Mts W of Graaff-Reinet to Katberg Pass and Hogsback).

quadrifida (Benth.) E.G.H.Oliv.

Erect, soft shrublet, 0.3–1.0 m high, single-stemmed reseeder. **Leaves** 3-nate, erect, as long as internodes, 3–6 × 0.8 mm, oblong-lanceolate, adaxially flat, abaxially rounded, narrowly sulcate. **Flowers** 3-nate in 1(–4) whorls, upper whorls umbel-like, lower racemose. **Calyx** 4-lobed, obconical, pinkish red. **Corolla** 4-lobed, 3.0 × 1.2 mm, ovoid to tubular, glabrous, cream-coloured to pale pink; lobes erect, rounded, entire. **Stamens** 4, free, manifest to exserted; filaments linear; anthers dorsally attached near base, bipartite, oblong, dark brown, spurred, exserted; thecae narrowly lanceolate, aculeate; appendages up to 0.3 mm long, irregularly oblong-acute, pendulous, variously denticulate; pore $^1/_4$ length of theca. **Ovary** 4-locular, ellipsoid, obtusely qaudrate, apex acute, basal nectaries well developed; style exserted, terete; stigma small cyathiform. **Flowering time** June–Sept. Lower mountain slopes and flats; Eastern Fynbos-Renosterveld (Cloete's Pass at Herbertsdale to Moordenaarspoort at Kareedouw).

rosacea (L.Guthrie) E.G.H.Oliv.

Erect shrublet, up to 0.3–0.5(–1.0) m high, single-stemmed reseeder. **Leaves** 3-nate, erect, imbricate 3–4 × 0.8 mm, oblong to lanceolate, adaxially flat, abaxially rounded, apex subacute, narrowly sulcate. **Flowers** 3-nate in 1–3 whorls, upper two whorls umbel-like, lower racemose. **Calyx** 4-partite or fused slightly at base, lobes laterally imbricate, lanceolate to elliptic, acute. **Corolla** 4-lobed, tubular, ellipsoid to ovoid, deep to light pink; lobes erect, broadly rounded. **Stamens** 4, free, exserted to manifest; filaments as long as corolla, linear; anthers subbasifixed, narrowly elliptic to oblong, dark reddish brown; thecae oblong, aculeate; appendages ± triangular with or without a few large teeth; pore $^1/_4$ length of theca. **Ovary** (2–)4-locular, ± ellipsoid, slightly 4-lobed, basal nectaries well developed; style exserted, terete; stigma simple, truncate. **Flowering time** May–Sept. On rocky slopes; Eastern Fynbos-Renosterveld (Antoniesberg S to Humansdorp).

[E]**sagittata** Klotzsch ex Benth.

Erect shrub, 0.4–1.0 m high. **Leaves** ternate, erect-patent, 8–9 × 1–3 mm, lanceolate, open-backed, glabrous. **Flowers** minutely puberulous. **Sepals** membranous, suberect, lanceolate. **Corolla** narrowly urceolate, tubular; lobes triangular, subacute, white. **Stamens** with filaments flattened, 5 mm long; anthers exserted, with tail-like appendages ± 0.5 mm long. **Ovary** pubescent; style 7.5 mm long; stigma somewhat thickened. **Flowering time** Sept., Oct. On lower mountain slopes; Eastern Fynbos-Renosterveld (Elands River Mts SE to Van Stadens Mts).

thamnoides E.G.H.Oliv.

Erect, woody shrub, up to 1.5 m high, single-stemmed reseeder. **Leaves** 3-nate, imbricate, erect, 4–6 × 0.5 mm, oblong, apex subacute, adaxially flattened, abaxially subacute, narrowly sulcate. **Flowers** 3-nate in 1 or 2 whorls, when 2-whorled, then umbel-like. **Calyx** 4-lobed, broadly funnel-shaped; many sessile glands mainly towards edges adaxially. **Corolla** 4-lobed, obovoid-urceolate, glabrous, pinkish cream-coloured to deep pink; lobes ± erect, rounded. **Stamens** 4, exserted, free; filaments linear; anthers, basally to subbasally fixed, exserted, oblong; thecae oblong, erect, aculeate, dark brown; pore $^1/_3$–$^1/_2$ length of theca; terminal appendages oblong-triangular, aculeate, pendulous, basal appendages on filaments just below thecae. **Ovary** 1-locular, obovoid, nectaries distinct, basal; style exserted, terete; stigma cyathiform. **Flowering time** Oct.–Apr. On flats and lower mountain slopes, alt. 150–1 500 m; Eastern Fynbos-Renosterveld (Great Winterhoek Mts S to Uitenhage and Port Elizabeth).

uberiflora E.G.H.Oliv.

Erect, fastigiate shrub, 1.0–1.5 m high. **Leaves** 3-nate, erect, imbricate, 1.8–4.0 × 0.5–0.6 mm, lanceolate to oblong, adaxially flat, abaxially subacute, narrowly sulcate. **Flowers** 3-nate in 1–4 whorls, umbel-like or with lowest whorl separated by short internode. **Calyx** 4-lobed, tubular to obconical, subacute-angular opposite lobes, deep grooves scarious. **Corolla** 4-lobed, tubular, minutely colliculate, pink or white; lobes rounded to broadly triangular. **Stamens** 4, free, manifest to exserted, linear; anthers basifixed to dorsally attached near base, bipartite, linear to V-shaped, dark brown; thecae narrowly oblong, finely aculeate, appendages long (0.15 mm), arising from junction of theca and filament, pendulous; pore $^1/_4$ as long as theca. **Ovary** 2-locular, obovoid, basal nectaries well developed; style exserted; stigma ± simple-truncate. **Flowering time** Nov.–June. Forest margins, roads along coastal mountains and flats; Eastern Fynbos-Renosterveld (Winterhoek Mts S to Hankey).

1b Stamens > 4
3a Corolla > 14 mm long
4a Ovary hairy (Group D)

cerinthoides L.

Fire heath, red hairy heath; *rooihaartjie* (A)

Resprouting, compact shrub with woody base, 0.3–0.9(–2.0) m high. **Leaves** 3–6-nate, closely overlapping, spreading or recurved; blade needle-like, 5–17 × 1 mm, glandular, deeply sulcate or subopen-backed. **Flowers** in compact terminal clusters, umbellate. **Calyx**: sepals 4–7 mm long, bract-like but larger, densely glandular-hairy. **Corolla** tubular, ± inflated, slightly constricted at mouth, ± pubescent, crimson, dark pinkish red, orange-red or white with red apex; lobes spreading, obtuse. **Anthers** included, oblong; appendages short or minute; pore $^1/_2$ length of theca. **Ovary** broadish turbinate, villous; style included or exserted; stigma capitate. **Flowering time** all year. Sandy flats, mountain slopes, rock outcrops, crevices of Cave Sandstone sheets, cliffs; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Eastern Fynbos-Renosterveld (Ramatseliso's Gate to Kei River Mouth S, from Suurberg Pass to East London and to Humansdorp).

pectinifolia Salisb.

Erect shrub, up to 1.5 m high. **Leaves** 4-nate, 3–6 mm long, linear to ovate, acute, ± open-backed, thick and rigid, ± hispid and pectinate-ciliate with long, pallid, cartilaginous hairs on edges. **Flowers** 4-nate, cernuous or spreading. **Calyx**: sepals 7 mm long, similar to bracts but with claw longer and blade smaller. **Corolla** tubular, slightly inflated in middle, constricted at throat, long barbellate or shaggy hairs in upper part; lobes shorter, slightly spreading, obtuse, white, sometimes tinged pink. **Anthers** included, oblong, shortly awned; pore $^1/_2$ length of theca. **Ovary** turbinate, villous; style exserted; stigma capitate. **Flowering time** all year. Flats and lowlands, in dry more arid areas, midslopes E of Uniondale; Eastern Fynbos-Renosterveld (Witteberg, Willowmore and Port Elizabeth).

[E]**sparrmannii** L.f.

Erect, sparse shrub, 0.4–1.0 m high. **Leaves** 4-nate, 4–6 mm long, suberect, ± imbricate, linear-lanceolate, subobtuse, deeply sulcate or open-backed, rigidly hispid and pectinate-ciliate. **Flowers** 4-nate, terminal on short branchlets, cernuous. **Calyx**: sepals 6 mm long, like bracts but linear-lanceolate. **Corolla** up to 20 mm long, tubular, inflated to ± middle, densely hispid with long, coarse, setose, yellow hairs, yellow or greenish yellow; lobes ± 2 mm long, erect or incurved, deltoid, subacute. **Anthers** included, 2 mm long, lateral, oblong, muticous; pore ± 1.8 mm long. **Ovary** obconic, villous with white, silky hairs; styles included or manifest; stigma capitate, large. **Flowering time** all year. Flats and lower slopes, especially drier places on coastal plains and hills and lower mountain slopes; Eastern Fynbos-Renosterveld (Tsitsikamma Mts E to Willowmore, Kouga Mts and Humansdorp).

strigilifolia Salisb.

Erect shrub, 0.9–1.5 m high. **Leaves** 4-nate, 3–4 mm long, erect-spreading, oblong or cuneate-oblong, acute, roughly hispid and pectinate-ciliate with rigid, pallid hairs especially on edges, thick and rigid. **Flowers** 4-nate, terminal; peduncles < 2 mm long, stout, pubescent; bracts approximate, foliaceous. **Calyx**: sepals 4–5 mm long, foliaceous, no distinct claw. **Corolla** 14–18 mm long, tubular, slightly inflated in middle, contracted at throat, puberulous all over with, also, longer, shaggy or barbellate hairs on upper part,

white or pink or carmine-red to rose; lobes short, slightly spreading, obtuse. **Anthers** included, ± 1.8 mm long, lateral, oblong, muticous; pore $^{3}/_{5}$ length of theca. **Ovary** turbinate, villous with long, silky hairs; style exserted; stigma capitate. **Flowering time** Oct.–Jan, mainly Dec., Jan. Upper slopes and mountain summits; Eastern Fynbos-Renosterveld (Baviaanskloof Mts W along Kouga and Kammanassie Mts N to Swartberg Mts at Prince Albert and W to Anysberg).

viridiflora Andrews

Erect shrub, 0.5–1.3 m high. **Leaves** 3-nate, 3.0–8.2 mm long, imbricate, linear to elliptic, acute, sulcate, viscidulous. **Flowers** terminal, 3-nate, cernuous. **Calyx**: sepals bract-like, but acuminate, ciliate, closely clasping corolla, imbricate, ovate, ± keeled. **Corolla** tubular, widening upwards, restricted below sepals, viscid, green to lime-green, brown after maturity; lobes, ± spreading, oblong. **Stamens** with filaments broadening above; anthers manifest to exserted, oblong, bipartite and divaricate, dark-coloured; pore ± $^{3}/_{4}$ length of theca; appendages ± 1 mm long, decurrent along filament, pendulous, ear-like with a short, spreading appendage at base. **Ovary** ovoid, glabrous; style exserted; stigma simple. **Flowering time** Oct.–July, mainly Jan. Middle to upper rocky slopes of coastal Mts; Eastern Fynbos-Renosterveld (Klein Swartberg Mts E to Baviaanskloof Mts).

4b Ovary glabrous (Group E)

chloroloma Lindl.

Erect shrub or dwarf shrub, up to 2.5 m high. **Leaves** 4–(6)-nate, 6–9 mm long, spreading, imbricate, linear, sulcate, minutely scabrid-pubescent. **Flowers** terminal, (1–)3(4)-nate; pedicels 3–4 mm long, pubescent; bracts median to approximate, foliaceous. **Calyx**: sepals 3 mm long, linear, base ovate scarious-edged, ciliate, acute, keeled. **Corolla** 14–16 mm long, clavate-tubular, ± constricted at throat, slightly curved, glabrous, dry, bright red; lobes short, ± spreading, obtuse, green-tipped. **Filaments** tapering upwards, kinked below apex; anthers included, linear, bipartite; appendages long; pore $^{1}/_{2}$–$^{3}/_{5}$ length of theca. **Ovary** 4-locular, oblong, becoming spherical at maturity and persistent, glabrous; style exserted; stigma capitate. **Flowering time** Mar.–Sept. Coastal plains and dunes, limestone hills, mountain slopes; Eastern Fynbos-Renosterveld (Wilderness E to Kareedouw, Port Elizabeth and Kenton on Sea).

curviflora L.

[= *E. burchellii Benth.*, *E. curviflora* var. *burchellii* (Benth.) Bolus, *E. curviflora* var. *diffusa* Bolus, *E. curviflora* var. *sulcata* (Benth.) Dulfer, *E. curviflora* var. *versatilis* Bolus, *E. sulcata* Benth.]

Water heath; *waterbus(sie)* (A)

Erect, ± soft shrub, 0.4–2.0 m high. **Leaves** 4-nate, 3–7 mm long, imbricate, linear-lanceolate, subtrigonous, sulcate, ciliate. **Flowers** solitary or, less often 2–4-nate, subsessile, ascending; on leafy lateral branches in a loose arrangement up main branches. **Calyx**: sepals variable, linear and foliaceous with base broad and scarious to ovate-lanceolate with broad scarious keel. **Corolla** 20–38 mm long, clavate-tubular, curved, pubescent, dry, pink to orange, red, yellow or bicoloured; lobes spreading, obtuse. **Stamens** with slender, glabrous or pilose filaments; anthers ± manifest, oblong, dorsally attached near base; appendages decurrent along filament; pore $^{1}/_{2}$ length of theca. **Ovary** 4–6 locular, turbinate, apical part with distinct, enlarged, callous-like bosses; style exserted; stigma capitellate. **Flowering time** all year. Damp places near streams and mountains; Eastern Fynbos-Renosterveld (Joubertina E to Bathurst and to Humansdorp).

densifolia Willd.

Sticky red-and-green heath

Erect shrub, 0.3–1.5 m high. **Leaves** 3-nate, 3–5 mm long, densely imbricate on short branchlets, incurved or spreading, ovate and subopen-backed to linear-lanceolate and sulcate, glabrous and shiny when mature. **Flowers** terminal, solitary at ends of crowded, short branchlets forming a pseudo-raceme. **Calyx**: sepals lanceolate-oblong, acute, thick and rigid, keeled or thickened at margins and sulcate. **Corolla** 24–30 mm long, clavate-tubular, curved, ± pubescent, viscidulous in lower half; tube pink to red, throat and lobes greenish yellow; lobes small, continuous, obtuse. **Anthers** subexserted, linear-lanceolate, appendiculate; pore $^1/_2$ length of theca; appendages ± $^1/_2$–$^3/_4$ length of theca, slender, pendulous. **Ovary** 4-locular, oblong, not emarginate; style exserted, decurved at apex, slightly swollen at base; stigma simple. **Flowering time** Sept.–May. Flats and middle lopes of mountains along southern Cape coast; Eastern Fynbos-Renosterveld (Langeberg Mts to Clarkson).

diaphana Spreng.

(= *E. transparens* Lodd. non P.J.Bergius)

Erect shrub, 0.1–1.8 m high; main stem with occasional secondary branches. **Leaves** 3-nate, erect and imbricate, or somewhat spreading, 4.2–6.3 mm long, linear to elliptic-oblong, sulcate, thick, smooth. **Flowers** scattered or occasionally in spike-like clusters. **Calyx**: sepals like bracts, 4.2 mm long with a deep-set long sulcus. **Corolla** subclavate-tubular, glabrous, thick, very viscid, 21.0–25.2 mm long; tube shades of purple to pink to dark red; lobes suberect, green to pale green. **Stamens** included; filaments slightly wider at base; anthers narrow-oblong, with a projecting point at base, 4.2 mm long, muticous with short aristulate appendages. **Ovary** glabrous; style exserted. **Flowering time** all year. Flats and rocky slopes to higher altitudes and in rock crevices near summit of peaks; Eastern Fynbos-Renosterveld (Swellendam E to Uitenhage: Great Winterhoek Mts S to Groendal).

discolor Andrews

(= *E. hebecalyx* Benth., *E. speciosa* Andrews)

Erect, dense shrub, 0.1–1.0 m high, resprouting. **Leaves** 3-nate, suberect and imbricate, 2–10 mm long, linear or narrowly lanceolate, glabrous or viscid-puberulous, glossy. **Calyx**: sepals ovate-lanceolate, acute or acuminate, keel-tipped, scarious, apex attenuate. **Flowers** (1–)3-nate at ends of leafy side branches. **Corolla** 18.9–25.2 mm long, clavate-tubular or trumpet-shaped, glabrous, often viscid, sometimes dry, pink to dark red; lobes erect or slightly spreading, pale red, yellowish or greenish to totally green. **Anthers** included or manifest with long, thin, pendulous appendages, ± $^2/_3$ length of thecae, sometimes prognathous (curved forward) at base. **Ovary** 4-locular, slightly emarginate, glabrous; style curved at apex, included. **Flowering time** all year. Along coastal flats and mountains, extending into drier inland mountains of Little Karoo and on higher rocky mountain slopes; Eastern Fynbos-Renosterveld (WC to Humansdorp).

glandulosa Thunb.

[= *E. fourcadei* L.Bolus, *E. glandulosa* Thunb. var. *bondiae* (Compton) Dulfer, *E. glandulosa* Thunb. var. *breviflora* Bolus]

Erect shrub, 0.4–1.5 m high, laxly branched, single- or multi-stemmed, all parts, except corolla and internal floral parts, ± covered with gland-tipped hairs. **Leaves** (3)4-

nate, 3–10 mm long, spreading, on short branches, imbricate, obtuse, sulcate or widely to narrowly open-backed. **Flowers** (2–)4(5)-nate. **Calyx**: sepals foliaceous but acute. **Corolla** 10–30 mm long, clavate-tubular, obconic to campanulate, suboblique (curved), glabrous, dry or glandular-viscid, pink to orange; lobes pink, red, yellowish or white, sometimes translucent; lobes short, erect, obtuse. **Filaments** slender, slightly dilated at base; anthers included or manifest, ± 1.5–2.0 mm long, oblong, prognathous at base, decurrent-denticulate, muticous. **Ovary** oblong turbinate or depressed-globose; style exserted; stigma capitellate. **Flowering time** all year. Coastal rocks, plains and lower mountain slopes and inland; Eastern Fynbos-Renosterveld (WC E to Port Elizabeth).

sessiliflora L.f.

Green heath, white bottle-brush heath; *groenheide* (A)

Erect, woody shrub, up to 2 m high. **Leaves** 6-nate or scattered, 4–14 mm long, linear, acute. **Flowers** in dense, congested spikes, persistent; pedicels short. **Calyx**: sepals enlarging with age, narrowly lanceolate, rhomboid, broadly ovate, margins entire to serrate, glabrous, scarious, pale-coloured or deep red. **Corolla** 10–30 mm long, clavate-tubular, narrow at base widening above, glabrous, dry, green, greenish white or yellowish green. **Filaments** slender, bent below anther; anthers included or manifest, subcuneate-oblong, prognathous at base; pore ± $^1/_2$ length of theca; appendages narrow, shorter than theca. **Ovary** turbinate; style exserted; stigma capitate. **Flowering time** all year. **Fruit** serotinous, fruiting synflorescences remaining on plant as cone-like structures, fruit protected by thickened calyces. Damp places on flats, sea level to lower mountain slopes; Eastern Fynbos-Renosterveld (WC, E to Kareedouw and Clarkson).

versicolor Andrews

Variable, erect shrub, 0.6–2.0 m high; branches flexuous. **Leaves** 3(4)-nate, 5.25–6.30 mm long, linear to narrowly elliptic, acute, glabrous, margins ciliolate or naked. **Flowers** 3-nate, erect or spreading. **Calyx**: sepals 6.3–8.4 mm long, lanceolate, acuminate, keel-tipped, scarious, glabrous. **Corolla** 23.1–50.4 mm long, tubular and equal, glabrous, dry, viscidulous, costate or smooth, red below, greenish yellow near tip; lobes short. **Filaments** ± dilated and ovate at base, gradually contracted and tapering upwards; anthers included or subexserted, linear with a sharp projecting point in front of base, muticous, 2.10–3.15 mm long. **Ovary** glabrous, rarely hirsutulous. **Flowering time** all year. Habitat moist, riverbanks; Eastern Fynbos-Renosterveld (Tsitsikamma Mts E to Baviaanskloof Mts).

wendlandiana Klotzsch

Erect shrub, 0.6–1.5 m high. **Leaves** 3-nate, erect-spreading, linear, shortly pilose, 4.2–6.3 mm long. **Flowers** 1 or 2(3)-nate, at ends of leafy, lateral branchlets or aggregated into loose, spike-like synflorescences, erect; pedicel 4.2 mm long; bracts, linear, finely hairy. **Calyx**: sepals leaf-like, lanceolate-linear, shortly pilose, 3.2 mm long. **Corolla** clavate, puberulous, subcostate, subdilated at apex, brick-red sometimes pale orange, 16.8–18.9 mm long; lobes short, recurved, concolorous. **Filaments** pilose; anthers far exserted, aristate; appendages straight. **Ovary** 4-locular, long and narrow, not emarginate, with very distinctive large bulge at base of style, glabrous, capitate, capitulum pilose; style pilose, base sometimes wider than ovary, exserted. **Flowering time** Aug.–Jan. Dry areas, rocky habitats on mountain slopes; Eastern Fynbos-Renosterveld (Swartberg Mts at Prince Albert E to Baviaanskloof Mts, Uitenhage and to Humansdorp).

3b Corolla < 11 mm long
5a Styles exserted or manifest
6a Corolla 3-lobed (Group F)

outeniquae (Compton) E.G.H.Oliv.

Erect shrub, 0.1–0.3 m high, much-branched. **Leaves** 4-nate, 1.5–2.0 mm long, patent, linear-oblong, obtuse, sulcate, almost glabrous above, glabrescent below, margins hirsute with simple and gland-tipped, white hairs. **Flowers** sessile in many, small, terminal clusters, 4-nate, erect or nodding, ± 4 mm in diam. **Calyx**: sepals 4, linear-oblong, bract-like, free to base, closely appressed to corolla and bracts. **Corolla** 3-lobed to ± middle, 2 mm long and in diam., dull pink, hirsute; lobes obtuse and rounded. **Stamens** 6; filaments filiform, 1 mm long; thecae separate, 0.6 mm long, basifixed, glabrous, obovate, obtuse, muticous; pore ovate, ± $^1/_2$ length of theca. **Ovary** globose, 3-carpellate, each carpel with one apically attached ovule; on a dark inconspicuous disc, dark-coloured, ± glabrous; style slender; stigma capitellate, exserted. **Flowering time** Oct.–Jan; Eastern Fynbos-Renosterveld (Formosa Peak in Tsitsikamma Mts).

6b Corolla 4-lobed
7a Leaves 4-nate or > 4-nate
8a Corolla hairy (Group G)

[E]abelii E.G.H.Oliv.

Erect, dwarf shrub, 0.2–0.3(–0.6) m high. **Leaves** 4-nate, 20–25 mm long, elongate-linear, acute, adaxially puberulous, abaxially glabrous or minutely scabridulous, edged with minute sessile glands. **Flowers** (1–3)4-nate at ends of short to medium brachyblasts, sparsely scattered over plant. **Calyx** 4-partite, green; sepals linear, upper $^2/_3$ foliaceous. **Corolla** 4-lobed, tubular-urceolate with subquadrate swollen base, minutely puberulous, lime-green turning yellowish; lobes erect, very broadly rounded, minutely ciliate. **Stamens** 8, included; filaments filiform, glabrous; anthers oblong, acute, smooth, aristate; appendages 1.3 mm long, partially decurrent along filament; pore 1.6 mm long. **Ovary** narrowly ellipsoid subquadrate, glabrous, 4-celled, dark green; style ± exserted, narrow with slightly swollen base, stigma capitulate. **Flowering time** Aug.–Nov. Crevices in N-facing quartzitic rocky outcrops and ridges, alt. 390–490 m; Eastern Fynbos-Renosterveld (Perdekloof in Groendal Wilderness area NW of Uitenhage).

algida Bolus

Erect or dwarf shrub, 0.3–0.6 m high. **Leaves** imbricate, blade needle-like or oblong, 3–5 mm long, slightly open-backed, ciliate with branched or plumose hairs. **Flowers** 4-nate; clustered at tips of branches. **Calyx**: sepals ovate, nearly ± 2 mm long, obtuse, subfoliaceous, viscid, villous, glandular-ciliate; lobes obtuse. **Corolla** ± 4.2 mm long, red, pink, purple or whitish, broadly ovate or ovate-cyathiform, coarsely pubescent; lobes suberect, rounded, ± 1 mm long. **Filaments** slender, straight; anthers just visible above corolla tube, ± 1 mm long, dorsifixed close to base, obovate-oblong, obtuse, scaberulous, dark-coloured, aristate; appendages subulate, rough, less than $^1/_2$ length of theca. **Ovary** with short, curly, white, flat hairs; style subexserted; stigma capitate. **Flowering time** Oct.–Dec. Large conspicuous stands in grassy slopes and valleys; Drakensberg Grassland, Sub-Escarpment Grassland (Ngele Mtn S, from Witteberg Mts to Barkly East and Maclear).

lanata Andrews

Erect shrublet to shrub, 0.6–1.0 m high. **Leaves** (3)4-nate, erect-spreading, 4.2–6.3 × ± 2 mm, lanceolate to oblong, acute, open-backed, margins revolute, pilose above, canes-

cent beneath. **Flowers** subcapitate, calycine; heads laxly 4–6-flowered, subsessile; bracts approximate, oblanceolate, densely villous, equalling or exceeding sepals and corolla. **Calyx**: sepals spathulate, acute, margins revolute, densely villous in upper part, whitish, nearly equal to corolla, 4.2 mm long. **Corolla** cyathiform-campanulate or globose-urceolate, hispidulous or puberulous, white, ± 4.2 mm long; lobes rounded, spreading, $^1/_3$–$^3/_8$ length of tube. **Filaments** nearly straight or strongly bent below anther; anthers exserted; theca bipartite to base, narrowly elliptic, acute, scaberulous, dark brown, ± 1.8 mm long. **Ovary** pubescent or pilose; style exserted; stigma subsimple, small. **Flowering time** all year. Mountain slopes; Eastern Fynbos-Renosterveld (Tsitsikamma Mts E to Misgund and S to Clarkson and Humansdorp).

stylaris Spreng.

Dwarf shrub, 0.1–0.3 m high. **Leaves** 4(5)-nate, much spreading, scarcely 4.2 mm long, incurved, oblong or subterete, obtuse, thick, sulcate, hispid with tubercle-based hairs, viscid. **Flowers** in hemispherical, dense, many-flowered heads, ± 12.6 mm in diam., subcalycine; pedicels 1.1 mm long; bracts approximate, lanceolate, glandular-ciliate, larger and longer than sepals, reaching to top of corolla tube. **Calyx**: sepals linear-lanceolate or broadly linear, acute, glandular-ciliate, viscid, ± 4.2 mm long. **Corolla** 4.2–5.3 mm long, campanulate-urceolate, wide-mouthed or ovoid-urceolate, well-contracted at throat, glabrous or sparsely hispidulous, white. **Anthers** exserted, theca deeply partite and spreading, oblong, obtuse, brown, ± 1.6 mm long, muticous; pore $^1/_2$ length of theca. **Ovary** silky-villous; style exserted; stigma capitate. **Flowering time** Nov., Dec. High altitude mountains; Eastern Fynbos-Renosterveld (Tsitsikamma Mts).

valida H.A.Baker

Erect dwarf to robust shrub, up to 0.4–0.5 m high. **Leaves** 4-nate, 5 mm long, squarrose, broadly linear to oblong, obtuse, deeply and sometimes widely sulcate, rarely open-backed, thick and rigid, setose on margins, longer gland-tipped hairs elsewhere. **Bracts** 2 mm long, median lowest more distant. **Flowers** terminal, 4-nate, sometimes umbellate; narrow, pubescent, ciliate with gland-tipped hairs. **Calyx**: sepals 3.5–4.0 mm long, narrow-ovate, foliaceous. **Corolla** ± 8 mm long, ovate-urceolate, dry to sticky, villous, rose-pink to red; lobes 1 mm long, slightly spreading, obtuse. **Filaments** tapering upwards; anthers included, 1.5 mm long, oblong-cuneate, bipartite, scabridulous, appendiculate; pore ± $^1/_3$ length of theca; appendages 0.3 mm long, subulate, rough. **Ovary** broadly turbinate, villous; style slightly exserted; stigma capitellate. **Flowering time** Nov.–Feb. Rocky upper mountain slopes; Eastern Fynbos-Renosterveld (Kammanassie Mts E to Great Winterhoek Mts at Cockscomb).

8b Corolla glabrous (Group H)

[E]brownleeae Bolus

Erect, robust shrub, 0.9–2.0(–3.2) m high. **Leaves** 4-nate, imbricate, 5–14 mm long, incurved, subulate, acute, sulcate, ± glabrous. **Flowers** 4-nate or umbellate, 5–7-flowered. **Calyx**: sepals 5 mm long, in opposite pairs, imbricate, obovate or suborbicular, keel-tipped, concave, scarious, subviscidulous, ± glabrous. **Corolla** 3.5–4.5 mm long, cyathiform, widened to mouth or subobconical, dry, glabrous, white soon turning brown; lobes slightly spreading, ovate, 2.0–2.5 mm long. **Filaments** flat, slender, bent; anthers subincluded to manifest, 1.0–1.6 mm long, lateral, oblong, obtuse, minutely scabrid, brown, appendiculate; pore ± $^2/_3$ length of theca; crest suborbicular, incised, less than $^1/_2$ length of theca. **Ovary** subturbinate, deeply grooved, glabrous; style exserted; stig-

ma clavate-capitellate, 4-dentate. **Flowering time** Dec.–Mar. Grassy slopes; Sub-Escarpment Grassland, Drakensberg Grassland, Sub-Escarpment Savanna (Alice E to Hogsback, Stutterheim and King William's Town).

conferta Andrews

Erect, dwarf shrub or shrublet, 0.3–0.7(–1.0) m high, entirely glabrous. **Leaves** 4-nate, spreading or reflexed, crowded and distant, 12.6–23.1 mm long, linear, acuminate, sulcate, aristate. **Flowers** capitate, coralline; heads 6–20-flowered; pedicels ± 2 mm long; bracts approximate, lanceolate, a little longer than sepals. **Calyx**: sepals lanceolate, acute, ± 1 mm long. **Corolla** subglobose-urceolate, constricted at throat, white, 3.15–3.70 mm long, slightly sticky; lobes short, broad, rounded, revolute, $^1/_6$–$^1/_5$ as long as tube. **Anthers** exserted or subexserted, narrowly elliptic, subobtuse, acute at base, smooth, pale brown, ± 0.6 mm long, muticous; pore $^3/_5$ as long as theca. **Ovary** glabrous; style exserted. **Flowering time** Jan.–Apr. High altitudinal S-facing slopes; Eastern Fynbos-Renosterveld (WC to Formosa Peak SW of Joubertina).

cubica L.

Erect, variable shrublets, up to 0.5 m high. **Leaves** 4-nate or scattered, 4–10 mm long, imbricate, strongly incurved; linear, acute, sulcate, glabrous. **Flowers** terminal and axillary in rather dense, terminal clusters, coralline. **Calyx**: sepals 2–4 mm long, narrowly lanceolate, obovate or suborbicular, keeled with keel apex excurrent; scarious, glabrous, glossy, pallid or deep-coloured. **Corolla** in terminal clusters, 3.0–6.5 mm long, campanulate or obconic, dry, glabrous, pale rosy or deep red; lobes prominent. **Filaments** broad, tapering upwards; anthers included, 1–2 mm long, oblong to semi-ovate, acute or acuminate, papillose, muticous; appendages minute, squarrose, at apex of filament; pore $^2/_5$ length of theca. **Ovary** broadly turbinate, glabrous; style exserted; stigma subsimple. **Flowering time** July–Dec. Marshy places, flats and S-facing mountain slopes; Indian Coastal Belt, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld (Ntsubane and Amabele SW to Port Elizabeth and to Humansdorp).

harveyana Guthrie & Bolus

Dwarf shrub, up to 0.5 m high. **Leaves** 3-nate, crowded, suberect, imbricate, 2.1 mm long, linear, subobtuse, flat above, convex and sulcate below, glabrous, ciliate, shortly aristate-apiculate. **Flowers** 3-nate. **Calyx**: sepals foliaceous, lanceolate, united a little above base, glabrous, ± 1 mm long. **Corolla** globose to cyathiform when young, becoming broadly ovoid with mouth slightly contracted, glabrous, sometimes viscid, ± 1.5 mm long; lobes broadly deltoid, slightly spreading $^1/_3$–$^1/_2$ length of tube, white. **Anthers** exserted, semi-lanceolate, subacute, glabrous, smooth, ± 0.8 mm long, aristate; pore ± $^1/_3$ as long as theca; appendages $< ^1/_3$ as long as theca, sometimes incurved. **Style** exserted, slender, decurved; stigma capitate, lobed or punctate above, somewhat large. **Ovary** white-pubescent, 4-loculed, several ovules per locule. **Flowering time** Sept.–Nov. Upper mountain slopes; Eastern Fynbos-Renosterveld (Patensie SW to Kareedouw).

scabriuscula Lodd.

Erect, robust shrub, 0.6–1.5(–3.0) m high. **Branches** often with gland-tipped hairs and swollen tubercles. **Leaves** crowded, 2.0–4.2 mm long, linear, margins revolute, ± open-backed, glandular-hispid, dark green. **Flowers** terminal, 4-nate, clustered. **Calyx**: sepals 1–2 mm long, ± ovate, obtuse, tipped with greenish keel, lacerate, subscarious, pubescent. **Corolla** up to 4.2 mm long, ovoid-urceolate, white to pale rosy pink, dry;

lobes short, obtuse. **Filaments** bent below anther; anthers included to manifest, ± 0.6 mm long, oblong, obtusely cuneate; theca ± 1.3 mm long, minutely papillose, ciliate on front margin, aristate; pore $^{2}/_{5}$–$^{1}/_{2}$ length of theca; appendages ± straight, spreading, setaceous, ± equal to theca. **Ovary** turbinate, hispid towards apex; style exserted; stigma capitate. **Flowering time** Aug.–Apr. Lower slopes and flats in coastal region; Eastern Fynbos-Renosterveld (Joubertina and Knysna Districts to Storms River Mouth).

seriphiifolia Salisb.

Erect shrub or shrublet, 0.3–0.5 m high. **Leaves** 4-nate or scattered, imbricate, 2.1–3.2(4.2) mm long, strongly incurved, linear, acute, glabrous. **Flowers** axillary or terminal, in dense clusters, coralline to calycine. **Calyx**: sepals ovate or lanceolate and acute, deeply concave, rigid, subscarious, reaching $^{2}/_{5}$–$^{1}/_{2}$ height of corolla. **Corolla** 2.6–3.7 mm long, obconic or open cyathiform, bright red, crimson or pink; lobes continuous, ovate, rounded or subacute, $^{1}/_{2}$ length or longer. **Anthers** included, 1 mm long, semi-ovate, acute, papillose, hispidulous, dark-coloured; theca produced beyond pore; pore $^{1}/_{2}$–$^{2}/_{3}$ length of theca. **Ovary** globular, glabrous, small; style well exserted, slender; stigma subsimple. **Flowering time** Sept.–Jan. Moist areas of lower to middle slopes; Eastern Fynbos-Renosterveld (WC to Uitenhage).

tenella Andrews

Erect shrub to dwarf shrub, 0.3–0.5(–1.0) m high. **Leaves** erect or spreading, ± 4.2 mm long, linear, acute, keeled, sparsely hairy. **Flowers** crowded at ends of short branchlets forming a pseudo-raceme. **Calyx**: sepals 1.5–2.6 mm long, ovate lanceolate, acute or acuminate, keeled, glabrous, glossy, dark red. **Corolla** 4.2–6.3 mm long, urceolate or ovoid-urceolate, wide-mouthed, white, pale rose to bright pink; lobes large and well spreading, $^{1}/_{5}$–$^{1}/_{4}$ length of tube. **Anthers** included, variable in length and shape, 0.5–0.8 mm long, transversely semi-ovate to oblong-cuneate, minutely ciliolate on margins, crested; pore $^{1}/_{3}$–$^{2}/_{3}$ length of theca; crests deflexed close to theca, subulate to lanceolate, finely fimbriate, entire to lacerate, $^{1}/_{2}$–$^{2}/_{3}$ length of theca. **Ovary** glabrous; style included; stigma capitate. **Flowering time** June–Apr. Middle to upper mountain slopes; Eastern Fynbos-Renosterveld (Kareedouw S to Clarkson).

triceps Link
(= *E. adunca* Benth.)

Erect shrub, up to 0.6 m high. **Leaves** erect to squarrose, 2.1–5.3 mm long, linear, subulate or lanceolate-oblong, subtrigonous, younger ciliolate; pedicels ± 3.2 mm long; bracts subremote, sepal-like but smaller. **Calyx**: sepals lax and spreading, 3.2 mm long, narrow-ovate, acute or acuminate, keel-tipped, subviscid, glabrous, white. **Flowers** calycine. **Corolla** 3.1–3.7 mm long, urceolate or globose-urceolate, longer or sometimes shorter than its width, glabrous viscid or viscid-puberulous, somewhat exceeding sepals, occasionally shorter, white; lobes spreading. **Filaments** dilated just below anther, slightly curved; anther subterminal, 1.4–1.6 mm long, longitudinally semi-ovate, dorsal margin curved, acute, ciliolate, ± hispidulous; pore $^{3}/_{5}$ length of theca. **Ovary** on a conspicuous black disk, glabrous or hispidulous; style generally deflexed or hooked. **Flowering time** all year. Rocky middle slopes; Eastern Fynbos-Renosterveld (Langeberg Mts to Kareedouw).

7b Leaves 3-nate
9a Anthers with appendages (5 exceptions)
10a Anthers exserted or manifest (Group I)

[E]etheliae L.Bolus

Erect, dwarf shrub, up to 0.2 m high. **Leaves** 3-nate, erect, 2–5 × 0.5–1.0 mm, linear, acute, sulcate, glabrous to ciliolate. **Flowers** 3-nate, nearly erect to slightly drooping; pedicels with intermixed pilose and glandular hairs, 3 mm long. **Calyx**: sepals erect, ± 3 mm long, linear, acute, apex keeled, gland-ciliate. **Corolla** 10–11 mm long, tubular to funnel-shaped, throat barely contracted, glabrous; lobes erect, 1 mm long, rounded, pink. **Anthers** exserted or manifest, ± 2 mm long, linear-oblong, base oblique, obtuse, aristate; theca half as wide as anthers; pore ± half as long or as long as theca. **Ovary** 4-locular, subglobose, glabrous; style exserted; stigma capitellate. **Flowering time** June. Sandy flats; Eastern Fynbos-Renosterveld (W of Port Elizabeth). Known from type only, where urbanisation may have destroyed any remaining plants.

glumiflora Klotzsch ex Benth.

Low shrublet, up to 0.6 m high. **Leaves** 3-nate, 3–4 mm long, linear-lanceolate, keeled or subtrigonous, sulcate, glabrous. **Flowers** 3-nate, terminal on short branchlets, cernuous, calycine; bracts green. **Calyx**: sepals equal to or $^1/_2$ length of corolla, ± lanceolate, acuminate, keeled or keel-tipped, concave, scarious, glabrous, green. **Corolla** 3–5 mm long, cyathiform to urceolate, dry, glabrous, green to white; lobes $^1/_4$–$^1/_2$ length of tube, semi-ovate, acute. **Anthers** exserted, 1.0–1.5 mm long, linear to oblong, divaricate, smooth, pale brown; pore $^1/_2$ length of theca; appendages $^1/_5$–$^1/_3$ length of theca, shortly hirsute, spreading. **Ovary** turbinate, glabrous; style long-exserted; stigma ± cyathiform or simple. **Flowering time** mainly June–Sept. Sand dunes, sandy flats and lower coastal slopes; Drakensberg Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Cathcart S, from Klein Winterhoek Mts to Port Elizabeth, Grahamstown and Port Alfred).

harveyana Guthrie & Bolus (see Group H above)

kougabergensis H.A.Baker

Erect shrub, 0.4–0.5 m high. **Leaves** 3-nate, spreading, imbricate, 1.0–1.5 mm long, narrow-ovate, sulcate, open-backed, obtuse and like bracts and sepals, sparsely ciliate with gland-tipped hairs. **Flowers** terminal in umbels of 3–6, coralline; peduncles ± 2 mm long, curved, pubescent, with longer, gland-tipped hairs; bracts 1.5 mm long, narrowly obovate, sulcate. **Calyx**: sepals ± 1.6 mm long, narrow-ovate, sulcate-keel-tipped. **Corolla** ± 2.5 mm long, globose-urceolate, dry, glabrous, rose; lobes 0.5 mm long, slightly spreading, obtuse. **Filaments** broad and somewhat curved; anthers exerted, ± 0.8 mm long, lateral, oblong, obtuse, somewhat curved dorsally, bipartite, roughly scabrid on margins; appendages broad-based and short, deciduous, rough. **Ovary** turbinate, glabrous; style long-exserted; stigma capitate. **Flowering time** Sept.–Nov. S-facing upper mountain slopes; Eastern Fynbos-Renosterveld (Uniondale to Baviaanskloof, Kouga Mts and Hankey).

nutans J.C.Wendl.
(= *E. deliciosa* H.L.Wendl. ex Benth.)

Erect shrub, 0.9–1.5 m high. **Leaves** 3(4)-nate, erect-spreading, 3.0–6.3 mm long, linear-filiform, glandular-ciliolate, scabrid, imbricate, apex blunt, sulcate, becoming glabrous. **Flowers** terminal, 3-nate, cernuous, many. **Calyx**: sepals 1.3–2.7 mm long,

ovate, acuminate, keel-tipped, foliaceous, pubescent, dry, sometimes subscarious, slightly viscid. **Corolla** 3.7–5.3 mm long, urceolate, viscid, white or rosy pink; lobes erect, $^1/_7$–$^1/_5$ of length of tube, obtuse. **Anthers** well exserted, terminal or subterminal, obovate, or oblong, obtuse, dorsally curved, margins minutely scaberulous, 0.8–1.0 mm long, muticous; pore ± $^1/_3$–$^2/_5$ length of theca. **Ovary** pubescent, seated on a largish dark-coloured disk; style slender, exserted; stigma clavate-capitellate to capitellate, small. **Flowering time** June–Dec. Dry or damp flats, lower mountain slopes; Drakensberg Grassland, Lower Karoo, Eastern Fynbos-Renosterveld (Amabele S, from Albany to Suurberg and Port Elizabeth).

opulenta (J.C.Wendl. ex Klotzsch) Benth.

Erect shrub, 1.0–1.5(–2.0) m high. **Leaves** 3-nate, erect, imbricate, 2 mm long, linear, subobtuse, sulcate, glabrous. **Flowers** many, densely clustered; pedicels slender, > 2 mm long; bracts 2, small. **Calyx**: sepals ± 1 mm long, lanceolate, acute, keeled, scarious, glabrous. **Corolla** ± 2 mm long, tubular-cyathiform to urceolate, slightly widened at mouth, glabrous; lobes ± $^1/_4$ length of tube, pink. **Anthers** exserted, lateral, 1.3 mm long, oblong, obtuse, slightly incurved, aristate; pore varying from nearly orbicular $^1/_5$–$^1/_4$ length of theca, to elliptic $^1/_4$–$^1/_3$ length of theca; appendages ± $^1/_3$ length of theca, recurved. **Ovary** glabrous; style exserted; stigma capitellate. **Flowering time** Aug.–Nov. Lower slopes and coastal flats; Eastern Fynbos-Renosterveld (Tsitsikamma Mts E to Kareedouw Pass).

[E]**orientalis** R.A.Dyer

Erect, resprouting, dwarf shrub, 0.2–0.6 m high. **Leaves** verticillate, 6–7 mm long, linear, erect, flat on upper side, sulcate below, glabrous but when young minutely ciliate. **Flowers** 3-nate, clustered on apex of branches; pedicels 2–3 mm long, pubescent; bracts obovate, like sepals but wider and imbricate. **Calyx** prominent, 3 mm long; lobes obovate, keeled, ciliate, scarious, white flushed pink. **Corolla** 4–5 mm long, urceolate to suburceolate; lobes short and not curved, pink. **Anthers** exserted; appendages prominent tail-like appendages. **Ovary** glabrous; style exserted; stigma subpeltate. **Flowering time** Mar.–Dec. Grassland and wetlands; Sub-Escarpment Savanna, Albany Thicket (Stutterheim S, from Alexandria to East London).

petraea Benth.

Erect to semi-spreading shrublet, 0.3–0.4 m high. **Leaves** 3-nate, erect, imbricate, 4.2–5.3 mm long, obovate-oblong, subacute, upper face concave with a thick nerve, lower sulcate, thick, glabrous, smooth, shining, margins cartilaginous. **Flowers** terminally and axillary towards ends of branches; pedicels slender, pubescent, 3.2 mm long; bracts 2, small, foliaceous. **Calyx**: sepals 1.6 mm long, lanceolate, acute, keel-tipped, ciliolate, rigid, thick. **Corolla** 2.6–3.2 mm long, ovoid to cyathiform, glabrous; lobes erect, short, rounded, white or pink. **Anthers** exserted, lateral, nearly 1.3 mm long, oblong, slightly incurved, bifid, minutely scaberulous, pale brown, aristulate; pore over $^1/_3$ as long as theca. **Ovary** glabrous; style straight, exserted beyond anthers; stigma capitellate. **Flowering time** Oct.–Dec. Dry rocky middle to upper slopes; Eastern Fynbos-Renosterveld (Witteberg N of Willowmore S, from Baviaanskloof and Kouga Mts to Hankey).

tysonii Bolus

Dwarf shrub, up to 0.15 m high, diffuse, decumbent. **Leaves** 3-nate, erect-spreading, ± 2 mm long, linear or narrowly lanceolate, with wide sulcus below, viscidulous, scabrid-hispidulous, sometimes glabrescent. **Flowers** axillary, 3-nate; pedicels 1 mm

long; bracts approximate, oblong or obovate, foliaceous. **Calyx:** sepals oblong or lanceolate, obtuse, foliaceous, gland-ciliate, ± 2 mm long. **Corolla** 2.6–4.2 mm long, tubular-campanulate, slightly widened to mouth, generally ± tetragonous (sometimes strongly), viscidulous, purple; lobes broad, erect-spreading, from $^{2}/_{3}$–$^{3}/_{4}$ length of tube. **Anthers** subexserted, lateral, dorsifixed shortly above base, oblong, scaberulous, ciliolate, curved, ± $^{1}/_{3}$– $^{2}/_{3}$ length of theca. **Ovary** glabrous; style exserted; stigma capitellate. **Flowering time** Jan.–Mar. Grassland and hillsides; Sub-Escarpment Grassland (Underberg S to Mount Ayliff).

[E]**unilateralis** Klotzsch ex Benth.

Erect, multi-stemmed, resprouting shrublet, 0.1–0.30(–0.6) high. **Leaves** 3-nate, erect-spreading, 4.2–5.3 mm long, linear, keeled, sulcate, glabrous. **Flowers** 3(4)-nate. **Calyx**: sepals 1.1–1.6 mm long, ovate or obovate, acute, keeled, glabrous, scarious. **Corolla** variable, 3.2–4.2 mm long, tubular-campanulate, not contracted or widened at mouth, suburceolate, or subovoid, glabrous, dry; lobes erect, $^{1}/_{5}$–$^{1}/_{3}$ length of tube, white. **Anthers** subexserted, subterminal or sometimes sublateral, ± 1 mm long, linear clavate, obtuse, decurrent-aristate; pore ± $^{1}/_{2}$ length of theca; appendages very narrow, dark-coloured, connate with filament longer than length of theca and terminating in short, spreading, free points. **Ovary** puberulous; style exserted, slender; stigma subsimple. **Flowering time** Feb.–Aug. Lower mountain slopes; Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld (Patensie to Port Elizabeth, Riebeek East and East London).

zwartbergensis Bolus

Perennial shrublets, 0.3–0.4 m high. **Leaves** below erect-patent, dense toward apex of branchlets where erect, imbricate, 3-nate, 3–4 mm long, subulate, subobtuse, dorsally sulcate, glabrous, thick. **Flowers** terminal, 3-nate; pedicels viscid, puberulous, 2 mm long; bracts 3, closely approximate, linear-lanceolate, scarious, viscid, 1.8 mm long. **Calyx**: sepals like bracts but slightly longer and wider. **Corolla** 0.8–2.5 mm long, campanulate-cyathiform, viscid, thick-textured; lobes rounded. **Anthers** manifest, dorsally attached, ovate, obtuse, with appendages at its base; appendages oblique, pendulous, long ciliated; theca 1 mm long; pore $^{3}/_{4}$ length of theca. **Ovary** depressed-globose, glabrous, pale-coloured; style exserted; stigma capitellate. **Flowering time** Sept.–Dec. Rocky places above Swartberg Pass, alt. ± 1 675 m; Eastern Fynbos-Renosterveld (Swartberg and Witteberg Mts N of Willowmore).

10b Anthers included (Group J)

caffra L.

Water heath, sweet scented heath; *waterheide* (A)

Erect shrub or small tree, 1.3–4.0 m high, greyish in all parts. **Leaves** 3-nate, suberect to squarrose, spreading, 8.4–12.6(–14.7) mm long, linear-lanceolate, acute, open-backed. **Flowers** 3-nate or umbellate. **Calyx**: sepals 2.1–5.3 mm long, lanceolate, acuminate, margins reflexed at apex, pubescent. **Corolla** long-persistent, 5.2–7.4 mm long, ovoid-tubular-urceolate or conical, throat contracted, laxly villous, white or yellowish white; lobes small, spreading. **Filaments** broad at base; anthers included, up to 1 mm long, oblong, pallid, aristate; appendages ± $^{1}/_{2}$ as long as theca, subulate. **Ovary** shortly villous; style just exserted. **Flowering time** July–Dec. Streamsides, flats and mountain slopes; widespread in all bioregions, except Indian Ocean Coastal Belt, Lower Karoo and Rainshadow Valley Karoo (Venterstad E to Luzi River Gorge at Pitseng southwards, from Molteno to Lusikisiki District, Stockenström to Stutterheim, from Baviaanskloof to Grahamstown and S to Humansdorp).

caffrorum Bolus

Mountain heath; *bergboomheide* (A)

Sprawling, much-branched shrub or small tree, 0.5–1.2(–2.5) m high. **Leaves** 3(4)-nate, crowded at ends of branches, imbricate; 4.0–8.5 mm long, linear, shiny, bright green. **Flowers** 4-nate, clustered at ends of branches. **Calyx**: sepals 2–3 × 1.5 mm, glabrous or hairy, obscure midrib in dorsal upper half, ventrally concave. **Corolla** tubular, 3–5 mm long, urceolate or cyathiform; tube up to 2.5 mm long; lobes up to 1.5 mm long, obtuse, showy, dirty white, pink or cerise. **Filaments** 2 mm long; appendages short, ciliate; anthers included, < 1.5 mm long. **Ovary** glabrous; style exserted, up to 2.5 mm long; stigma clavate, capitellate or simple. **Flowering time** July–Apr. Rocky streamsides, rock outcrops, grassy slopes, forest edges, cliffs and mountain tops; Drakensberg Grassland, Sub-Escarpment Grassland (Naude's Neck Pass to Insizwa southwards, from Queenstown District to Baziya and Stockenström to Amatole Mts).

calycina L.

Stout shrub, up to 0.6–2.0 m high. **Leaves** 3-nate, imbricate, 5–6 mm long, narrowly lanceolate, sulcate, glabrous. **Flowers** 3-nate, terminal, calycine. **Calyx**: sepals 2–3 mm long, ovate to orbicular, ± imbricate, keel-tipped, scarious or cartilaginous, glabrous. **Corolla** 3–4 mm long, campanulate, dry, glabrous, white, pink or purple; lobes ± equal to tube, spreading to recurved, oblong or ovate. **Filaments** broad, tapering upward; anthers manifest, 1.3–2.0 mm long, oblong or semi-lanceolate, acute, bipartite, scabridulous, muticous or appendiculate; pore $^{2}/_{3}$ length of theca; crest free, coarsely toothed or subaristate with short, free, subulate, ciliolate appendages. **Ovary** widely turbinate, glabrous or hispidulous at apex, pallid; style shortly exserted, stout; stigma simple or clavate. **Flowering time** Aug.–Feb. Flats to upper mountain slopes; Lower Karoo, Drakensberg Grassland, Eastern Fynbos-Renosterveld (Graaff-Reinet E to Hogsback and Pirie, S to Uitenhage).

copiosa J.C.Wendl.

Erect shrub, 0.3–1.5 m high, slender. **Branches** with simple hairs. **Leaves** 3-nate, ± spreading, 2–3 mm long, linear to lanceolate, thick, sulcate, hispidulous. **Flowers** terminal on short branchlets, often pseudo-racemose. **Calyx**: sepals 1.5 mm long, lanceolate, keeled, hispid, foliaceous or coloured. **Corolla** ± 2 mm long, narrow-campanulate or cyathiform, ± glabrous, pink or mauve; lobes distinctly spreading, obtuse, $^{1}/_{2}$ or equal length of tube. **Filaments** slender, bent below anther; anthers included or manifest, 0.5–0.7 mm long, oblong, subcuneate or narrowly elliptic, muticous or appendiculate; pore < $^{1}/_{2}$ length of theca; awn minute to long and thin. **Ovary** turbinate, hispidulous at top; style exserted; stigma capitate. **Flowering time** Apr.–Sept. On flats and lower to upper mountain slopes; Drakensberg Grassland, Eastern Fynbos-Renosterveld (Katberg Pass S, from Baviaanskloof to Loerie and from Kareedouw to Humansdorp).

dominans Killick

Much-branched shrub, 0.1–0.5(1.2) m high. **Leaves** 3-nate, olive-green, glossy, imbricate, held erect, close to stem; blade linear, 2–3 mm long, margins with coarse, often forked hairs or glabrous. **Flowers** in nodding heads at tips of branches; pedicels hairy; bracts 3. **Calyx**: sepals 1–3 mm long, conspicuous, hairy. **Corolla** funnel-shaped, ovoid or cyathiform, flares out at mouth, glabrous, pink, red or almost purple. **Anthers** muticous, included, appendages minute and bristle-like or absent. **Style** ± 2 mm; stigma well-exserted. **Flowering time** July–Jan. Steep grassy slopes, rocky slopes near streams,

exposed ridges, Cave Sandstone platforms of Drakensberg summit; Drakensberg Grassland (Drakensberg Escarpment to Ben Macdhui and Maclear).

esterhuyseniae Compton

Much-branched shrub, up to 0.3 m high. **Leaves** whorled, 3- or 4-nate, 2.5–3.0 mm long including petioles. **Flowers** in small, terminal clusters; pedicel 1.5 mm long; bracts 1–3, variable in size, median to subapproximate. **Calyx**: sepals 1.5 mm long, linear to lanceolate, appressed to corolla, obtuse, pubescent. **Corolla** 3 mm long, urceolate sometimes campanulate; lobes spreading, $^1/_3$–$^1/_2$ length of corolla, pubescent to hirsute, white. **Filaments** slender, slightly flexuous; anthers included, 0.7 mm long; appendages narrow-crested. **Ovary** turbinate, hispidulous; stigma capitate, included. **Flowering time** Dec.–Mar. Rocky upper mountain slopes, sandy loamy soil; Eastern Fynbos-Renosterveld (Kouga Mts, Saptoukop).

hispidula L.

(incl. *E. blancheana* L.Bolus, *E. inops* Bolus)

Erect, robust shrub, 1.0–1.8 m high. **Leaves** 3-nate, spreading, 2–5 mm long, shape variable, linear and sulcate to broadly ovate or oblong and open-backed, rough and hirsute. **Flowers** 3-nate, terminal on very short branchlets; bracts 3, small, remote. **Calyx**: sepals reaching top of corolla-tube, linear to lanceolate, foliaceous or cartilaginous, often viscid, glabrous. **Corolla** 1.5–2.0 mm long, broadly urceolate, glabrous, viscid, white, pale rose, rarely red or purplish; lobes ± spreading, obtuse, $^1/_3$–$^1/_2$ length of tube. **Filaments** capillary; anthers included, $^1/_2$–$^2/_3$ mm long, oblong-obtuse or semi-ovate, smooth, pallid, muticous, appendages minute; pore $^1/_2$ length of theca. **Ovary** depressed-globose, ± hispid; style shortly exserted; stigma large, peltate or cyathiform. **Flowering time** all year. Widespread in sandy places, from drier flats to moister high mountain slopes, alt. up to 1 200 m; Eastern Fynbos-Renosterveld (Baviaanskloof Mts S to Kareedouw).

[E]humansdorpensis Compton

Erect shrublet, up to 0.3 m high. **Leaves** 3-nate, erect, 2.0–2.5 × 0.3–0.4 mm, linear, obtuse, sulcate, setose to puberulous. **Flowers** terminal, 3-nate, at apex of axillary branches; pedicels, glabrous, 2.5–3.0 mm long; bracts 3, remote, median, 1 mm long, linear, subequal, puberulous and short-ciliate. **Calyx**: sepals lanceolate, puberulous, short-ciliate, 1 mm long, apex grooved, obtuse, pink. **Corolla** ± 1.5 mm in diam., urceolate, rose-tinted to pink, glabrous; tube 2 mm long, slightly contracted; lobes 0.5 mm long, slightly rounded, obtuse, slightly expanded. **Filaments** flexuose, 1 mm long; anthers 0.6 mm long, ovate, obtuse; awn 0.25 mm long, slender, curved. **Ovary** globose, sparsely puberulous; style thick, 2 mm long, stigma slightly exserted, capitellate. **Flowering time** May–July. Coastal flats; Eastern Fynbos-Renosterveld (Tsitsikamma Mts, Witte Els Bosch, Clarkson, Humansdorp).

inconstans Zahlbr.

Erect, many-branched, profusely flowering shrub, up to 0.4 m high. **Leaves** suberect to recurved, 3–4 × 0.75 mm, linear, apex obtuse, glabrous, grooved below, glistening green. **Flowers** in 3–6-flowered, terminal umbels; pedicels 2 mm long, terete, glabrous; bracts fused with sepals, rarely one present on pedicel. **Calyx**: sepals 4, 1 free and scarious, other 3 equal and ovate to oblong-ovate, ± 1.5 × 1 mm, linear-subulate. **Corolla** subglobose, ± 2 mm long, not constricted, glabrous; lobes triangular. **Filaments** incurved at base, dilated towards apex, oblong; anthers included or manifest, oblong, appendages minute, patent and aristate. **Ovary** globose, puberulous; style terete, far-exserted; stig-

ma peltate with 2–4 wart-like tubercles. **Flowering time** July–Dec. Mountain slopes; Eastern Fynbos-Renosterveld (Montagu Pass E to Groot Winterhoek Mts at Cockscomb).

nemorosa Klotzsch ex Benth.

Erect shrub, 1–2 m high. **Leaves** suberect, slender, 2 mm long, linear, obtuse, sulcate, glabrous. **Flowers** coralline. **Calyx**: sepals 1.0–1.4 mm long, subovate to acute, keel-tipped, glabrous or puberulous, strongly incurved towards apex, more rarely straight, ± $^1/_2$ height of corolla. **Corolla** 1.5–4.0 mm long, varying from broad- to narrow-cyathiform, pink to red; lobes erect, variable, from $^1/_2$ tube length to somewhat longer. **Anthers** included or sometimes subexserted, 0.4–0.7 mm long, suboblong, obtuse, muticous; appendages minute, aristulate; pore $^2/_5$ length of theca. **Ovary** minutely hairy; style slender, exserted; stigma capitellate. **Flowering time** Mar.–Nov. Lower mountain slopes; Drakensberg Grassland, Eastern Fynbos-Renosterveld (Kei Road S, from Port Elizabeth E to Grahamstown and further S to Humansdorp District, Clarkson).

thodei Guthrie & Bolus

Erect, dwarf shrub, 0.2–0.6 m high. **Leaves** 3-nate, spreading, imbricate, 3–4 mm long, blade oblong or narrowly elliptic. **Flowers** 3-nate; terminal and axillary. **Calyx**: sepals erect, appressed, 2.6–3.2 mm long, narrowly ovate, acute, concave, scarious, keeled, glabrous. **Corolla** ± 4 mm long, tubular, urceolate, campanulate or cyathiform, dry, glabrous, white or pink; lobes $^1/_5$–$^1/_4$ length of tube, wider than long, obtuse. **Filaments** > 2 mm long, capillary or flat; anthers included, lateral, 1.00–1.25 mm long, semi-ovate to oblong-cuneate, smooth, membranous, pale brown, crested-aristate; pore ± $^1/_2$ length of theca; appendages broadly subulate, acute, long-ciliate. **Ovary** subovoid, glabrous; style included; stigma subsimple. **Flowering time** Mar.–July. High altitude mountain slopes, dense mats or cushions against moist rocks, damp rock sheets, cliffs and steep rocky slopes; Drakensberg Grassland, Sub-Escarpment Grassland (Naude's Neck Pass E to Ngele Mtn near Kokstad).

trachysantha Bolus

Erect, rather slender shrublet to shrub, 0.3–0.6 m high, not much branched. **Leaves** 4.2–5.3 mm long, crowded, fasciculate in tufts, shorter or little longer than internodes, erect-incurved, ovate-lanceolate, acute, open-backed, with reflexed, wide, flattish margins, subglabrous adaxially, abaxially hirsute with shaggy dirty-white hairs. **Flowers** solitary on short branchlets, spreading, erect or cernuous, calycine; bracts remote, basal, very small. **Calyx**: sepals slightly united at base, ovate, acute, 3.1–4.2 mm long, woolly and white. **Corolla** calycine, cyathiform, nearly equal at mouth, 4.2–5.3 mm long, dark pink; lobes equal to or a little longer than tube. **Anthers** included, 2 mm long, subulate or sublanceolate, acuminate, recurved; pore $^1/_4$–$^1/_3$ length of theca. **Ovary** subconic, hispidulous; style just exserted; stigma small, capitellate or subsimple. **Flowering time** Aug.–Nov. Upper mountain slopes; Eastern Fynbos-Renosterveld (Tsitsikamma Mts).

woodii Bolus

Pienkheide (A); *hlaha-hlaha*, *tlali-tlali* (SS)

Erect, dwarf shrub, 0.2–0.6 m high. **Leaves** 3(4)-nate, 2–4 mm long, ± ovate, apex obtuse, margins revolute, closed or open-backed, with long, white, pointed hairs. **Flowers** solitary or axillary in masses, a few terminal. **Calyx**: sepals ± 1 mm long, ± narrowly ovate, hispid or glandular-ciliate, dark red. **Corolla** cyathiform, urceolate or campanulate, ± 2 mm long, glabrous, dry, white, pale pink, purple or red; lobes rounded, apex

acute. **Anthers** 6–8, included or manifest, 0.5–1.5 mm long, oblong, obtuse, aristate; pore $^{3}/_{5}$–$^{2}/_{3}$ length of theca; appendages long and thin. **Ovary** substipitate, glabrous or pubescent; style swollen, just exserted, dark red; stigma capitate-peltate. **Flowering time** Jan.–July. Ravines, higher mountain slopes; Drakensberg Grassland, Sub-Escarpment Grassland (Ben Macdhui to Insizwa S, from Andriesberg to Baziya Mtn and from Katberg Pass to Dohne Hill).

9b Anthers without appendages (5 exceptions)
11a Ovary glabrous (Group K)

caespitosa Hilliard & B.L.Burtt

Tufted, multi-stemmed, dwarf shrub, 0.1–0.5 m high. **Leaves** 3-nate, 1.5–3.0 × 0.5 mm, linear, sulcate below, apex subacute, margins ciliate or glabrous. **Flowers** 3-nate, clumped together; bracts absent or 1 proximate. **Calyx**: sepals rhomboid, ± 1 × 1 mm, glabrous with ciliate margins. **Corolla** urceolate, globose or cyathiform, 1–5 mm long, glabrous, yellow, orange or white becoming brown with age; lobes deltoid, ± 0.7 × 1 mm. **Filaments** filiform, 0.5 mm long; anthers 8, included. **Ovary** glabrous, 0.75 mm long; style exserted, 0.2–0.5 mm long; stigma large, peltate to cyathiform, almost filling mouth of corolla. **Flowering time** Aug.–Mar. Mountain slopes around outcropping cave sandstone rocks; Sub-Escarpment Grassland, Drakensberg Grassland, Dry Highveld Grassland, Sub-Escarpment Savanna (Baziya Mts S, from Somerset East to Amatole Mts and S to Alexandra).

calycina L. (see Group J above)

demissa Klotzsch ex Benth.

Erect, small shrub, 0.3–0.5 m high, much-branched. **Leaves** 3-nate, erect to spreading, sometimes recurved, somewhat crowded, 3.1–5.3 mm long, linear to oblong, subobtuse, sulcate, glabrous, glossy, ciliate. **Flowers** terminal, or by abortion of floriferous branchlets apparently lateral; pedicels 2–4 mm long; bracts 2. **Calyx**: sepals ± 1.6 mm long, lanceolate, acute, keeled, rigid, somewhat scarious, glabrous. **Corolla** 2.0–3.2 mm long, narrow-cyathiform to urceolate, minutely hispidulous, white. **Anthers** exserted, lateral, oblong, subobtuse or acute, ± 1 mm long, muticous; pore < $^{1}/_{2}$ length of theca. **Ovary** puberulous, rarely subglabrous; style exserted, stoutish; stigma peltate-capitate. **Flowering time** Dec., Jan. Lower to middle mountain slopes; Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Somerset East S, from Baviaanskloof E to Port Elizabeth, Uitenhage, Grahamstown and further S to Humansdorp).

dissimulans Hilliard & B.L.Burtt

Shrub, 0.6–1.5 m high. **Leaves** 3-nate, 3–7 × 0.50–0.75 mm, patent, imbricate, linear, apex acute, flat above, convex and sulcate below, margins with small glands. **Flowers** terminal on branches; pedicels 1.5–2.5 mm long, pubescent. **Calyx** divided to base, margins ciliate; lobes 1 × 0.7–1.0 mm, rhomboid. **Corolla** cyathiform, urceolate or campanulate, 1.5–2.0 × 1.5 mm, pink to dark red to brown, glabrous; lobes deltoid, erect to recurved. **Stamens** with filiform filaments, ± 0.5 mm long; anthers 8, included. **Ovary** ± 0.5 mm long, glabrous; style ± 1.0 mm long, exserted at maturity; stigma peltate; fruit with capsules persistent long after flowering. **Flowering time** July–Feb. Wet cliff faces, rocky stream gullies and boulder beds, alt. 1 825–2 440 m; Mesic Highveld Grassland (Witteberg Mts at Barkly East to Bushman's Neck).

dominans Killick (see Group J above)

karooica E.G.H.Oliv.

Erect, dense shrub, up to 1.3 m high, single stemmed. **Leaves** 3-nate, erect, imbricate, 2–3 mm long, linear-oblong, subacute, sulcate, shortly ciliolate. **Flowers** 3–6 on terminal branches and short lateral branchlets, erect. **Calyx** ± 0.8 mm long, sepals fused into a tube, 4-lobed; lobes green, erect, $^{1}/_{3}$–$^{2}/_{3}$ length of sepals, ovate, subacute, apically sulcate. **Corolla** 1.3 × 1.0 mm, obconical, glabrous, cream-coloured soon turning brown; lobes 4, erect, $^{1}/_{3}$ length of corolla, subacute. **Stamens** 8, free; filaments linear, 0.7 mm long; anthers subexserted, muticous, thecae ovate, golden-brown; pore $^{1}/_{2}$ length of theca. **Ovary** 4-locular, 0.5 × 0.5 mm, ovoid, 8-lobed, glabrous, emarginate, basal nectary glands absent; style exserted, ± 1.1 mm long, red; stigma broadly cyathiform, red. **Flowering time** Mar.–Oct. Dry rocky lower slopes, hills, S-facing slopes, quartzitic soils; Eastern Fynbos-Renosterveld (Willowmore to eastern Kouga Mts).

maesta Bolus

Erect shrub, 0.9–1.6(–2.3) m high. **Leaves** 3-nate; erect-spreading, subimbricate; blade, 2–4 mm long, linear, subacute, sulcate, pubescent, ash-grey, ciliate, later glabrescent. **Flowers** solitary or in plumes along upper branches. **Calyx**: sepals ovate-lanceolate, pubescent, ± $^{1}/_{2}$ length of corolla. **Corolla** cyathiform, 1.0–1.6(–2.1) mm long, hairy or glabrous, greenish yellow. **Filaments** capillary; anthers included or manifest, subterminal, tapering to base, narrowly subobovate, smooth, ± 0.7 mm long, muticous; pore less than $^{1}/_{2}$ length of theca; appendages absent. **Ovary** globose, pallid, mainly glabrous; style elongating, exserted or not; stigma large, cyathiform. **Flowering time** Aug.–Nov. Mountain slopes and summits; Mesic Highveld Grassland, Sub-Escarpment Grassland, Upper Karoo, Albany Thicket, Drakensberg Grassland, Eastern Fynbos-Renosterveld (Lady Grey and Queenstown S, from Graaff-Reinet to Hogsback and Willowmore to Humansdorp).

natalitia Bolus

Erect shrub, 1.8–2.4 m high. **Leaves** 3-nate, ± spreading, 3–4 × 1.0 mm, linear to oblong, adaxially subflattened, abaxially deeply sulcate to open backed, sparsely pubescent. **Flowers** clustered at apex of branchlets or axils of upper leaves. **Calyx** ± 0.8 mm long, halfway united, 4- or 5-lobed; lobes deltoid or ovate, keeled or keel-tipped, ciliate. **Corolla** slightly longer than wide, cyathiform, united for more than half its length; lobes ± 1.5 mm long, broadly rounded, white or pink. **Anthers** ± 0.5 mm long, oblong, obtuse, smooth, muticous; pore < $^{1}/_{2}$ length of theca. **Ovary** sparsely pubescent; style shortly exserted; stigma peltate or cyathiform, ± exserted. **Flowering time** June–Mar. Grassland, Afro-Alpine, S-facing steep slopes, edges of Escarpment; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Drakensberg Escarpment, Ramatseliso's Gate, Ugie, Elliot, Lusikisiki, Stutterheim).

triceps Link (see Group H above)

umbelliflora Klotzsch ex Benth.

Erect, compact to sprawling shrub or dwarf shrub, 0.3–0.4 m high. **Leaves** 3-nate, 2.1–3.2(4.2–6.3) mm long, oblong, obtuse, glabrous, glossy, coriaceous. **Flowers** in few-flowered umbels, ± viscid. **Calyx**: sepals bract-like, but larger and more distinctly, ciliolate, ± 2 mm long and nearly as wide, not reaching half height of corolla. **Corolla** ± 3.7 mm long, subglobose to urceolate, subtetragonous, shortly tapering to apex, scarcely constricted at throat, pink; lobes (in dried state) connivent, incurved, broad,

$^{1}/_{4}$–$^{1}/_{3}$ length of tube. **Anthers** included, dorsifixed considerably above base, oblong, obtuse, nearly 1 mm long, muticous; pore ± $^{1}/_{3}$ length of theca. **Ovary** depressed, much wider than long, glabrous; style well exserted, slender; stigma capitellate. **Flowering time** May–Nov. Lower to middle mountain slopes; Eastern Fynbos-Renosterveld (Swartberg Mts E to Baviaanskloof Mts).

11b Ovary hairy
12a Anthers exserted or manifest (Group L)

cordata Andrews

Erect or sprawling shrub (0.1–)0.4–1.0 m high. **Leaves** 3-nate, 3.1–5.2(–8.4) mm long, lanceolate to ovate, acute, margins revolute, open-backed, base subcordate, hispid above, white-tomentose to closely felted below. **Flowers** terminal, solitary to 3-nate. **Calyx**: sepals 1.4–2.7 mm long, ovate or oblong, tapering to inflated apex, scarious, subpubescent, subviscid. **Corolla** 2.6–3.2 mm long, broadly urceolate to campanulate, glabrous or hirtellous, pink to pale red; lobes rounded to deltoid, $^{1}/_{4}$–$^{1}/_{3}$ as long as tube. **Filaments** broad, 1.4–1.8 mm long; anthers subexserted, 0.8–1.0 mm long, oblong, muticous; pore over $^{1}/_{2}$–$^{2}/_{3}$ as long as theca. **Ovary** villous; style exserted; stigma variable, obconic, cyathiform, subpeltate or capitellate. **Flowering time** May–Nov. Moist middle to upper mountain slopes; Eastern Fynbos-Renosterveld (Tsitsikamma Mts E to Groendal Wilderness Reserve and S to Humansdorp).

nutans J.C.Wendl. (see Group I above)

ostiaria Compton

Erect, somewhat fastigiate shrub, up to 1.3 m high, much branched. **Leaves** 3-nate, erect, patent, imbricate, 2–3 mm long, linear, obtuse, sulcate, minutely puberulous when young, becoming glabrescent. **Flowers** in small, terminal and axillary clusters of 4–7; pedicels plumose-pubescent, 3–4 mm long; bracts approximate, up to 1 mm long, narrowly elliptic, obtuse, sulcate, puberulous. **Calyx**: sepals 1.5 mm long, ovate-lanceolate, obtuse, puberulous, sulcate at apex. **Corolla** 2 × 2 mm, urceolate, slightly narrowed at throat, minutely puberulous, pinkish to white; lobes short, obtuse, erect. **Filaments** slender, somewhat flexuous; anthers exserted, 1 mm long, dorsifixed, muticous, scabridulous, obtuse; pore small. **Ovary** globose, pubescent; style 5 mm long, slender with a few short hairs, slightly curved; stigma capitellate with 4 terminal protuberances, far exserted. **Flowering time** Feb.–Apr. Fynbos, stony soil; Eastern Fynbos-Renosterveld (Eastern Swartberg Mts).

saptouensis E.G.H.Oliv.

Erect shrublet, up to 0.3 m high. **Leaves** 3-nate, erect-incurved, imbricate, 3.5 × 1 mm, oblong, edges rounded, obtuse to subacute, sulcate, pilose. **Flowers** 3–6 in terminal pseudo-umbels on main shoots, calycine. **Calyx** 4-lobed, 2 × 2 mm, obconical, sepals fused halfway, pilose, reddish, subapical sulca small. **Corolla** 4-lobed, 2.5 × 2.5 mm, cyathiform, subquadrangular, smooth, pink to red; lobes $^{1}/_{2}$ length of corolla, rounded, entire, erect. **Stamens** 8, manifest, free; filaments ± 1.8 mm long, linear; anthers exserted, ± 1 mm long, oblong-elliptic in outline, dorsally attached, papillate at apex, muticous, dark red; pore $^{2}/_{3}$ length of theca. **Ovary** 4-locular, 1.0 × 1 mm, obovoid, obtuse, pilose in upper half, nectaries absent; style ± 5 mm long, well exserted; stigma capitate, dark red. **Flowering time** Oct.–Jan. Rocky mountain peaks and steep S-facing slopes; Eastern Fynbos-Renosterveld (Kouga Mts).

simulans Dulfer

Erect shrublet to shrub, 0.3–0.6(–2.0) m high. **Leaves** 3-nate, erect to spreading, 4.2–6.3 mm long, blunt, sulcate, glabrous, glossy. **Flowers** 3-nate; pedicels 1.1–2.1 mm long. **Calyx**: sepals 1.4–2.1 mm long, narrowly lanceolate to ovate-lanceolate, glabrous, subscarious. **Corolla** 3.0–3.8 mm long, at first narrowly cyathiform, ultimately ovoid-suburceolate, mouth slightly contracted, glabrous, white (or rarely pale rosy); lobes erect, $^1/_7$–$^1/_5$ length of tube. **Anthers** exserted or subexserted, lateral, ± 1.6 mm long, narrowly oblong, acute, muticous, scaberulous, muticous; pore ± $^1/_2$ length of theca. **Ovary** cano-pubescent; style exserted, slender; stigma clavate-capitate, lobed, large. **Flowering time** Dec., Jan. Drier lower to middle mountain slopes; Eastern Fynbos-Renosterveld (Swartberg Mts E to Grahamstown).

12b Anthers included
13a Corolla up to 2.4 mm long (Group M)

dracomontana E.G.H.Oliv.

Shrub or single-stemmed tree, 1.2–3.6 m high. **Leaves** 3-nate, 1.5–4.6 mm long, linear to narrowly elliptic, appressed, pubescent when young, margins with large sessile glands, short-stalked glands abaxially. **Flowers** (2)3–6(8)-nate, crowded towards ends of short lateral branchlets. **Calyx**: sepals 4-lobed, up to 1.7 mm long, broadly ovate to elliptic, upper $^2/_3$ foliaceous. **Corolla** 4-lobed, 1.2–1.6 mm long, cyathiform, glabrous; lobes $^1/_3$–$^1/_2$ length of corolla. **Stamens** 8; filaments free or slightly joined at base, 0.5 mm long, linear; anthers included, 0.7–0.8 mm long, muticous; pore small. **Ovary** 4-locular, broadly ovoid, 0.7 × 0.8 mm; style short, 0.2–0.3 mm long; stigma large, 0.3–0.4 mm wide, deeply funnel-shaped. **Flowering time** July–Jan. Along streams or in open, rocky grassy slopes, alt. 2 100–2 500 m; Mesic Highveld Grassland (through Lesotho to Witteberg Mts at Barkly East).

hispidula L. (see Group J above)

leucopelta Tausch var. **leucopelta**

Erect shrub, 0.6–1.0(–2.0) m high. **Leaves** 3-nate, narrowly oblong or linear, 2.1–5.3 mm long, pubescent, sulcate. **Flowers** 3-nate, not in dense masses. **Calyx**: sepals ± 0.7 mm long, linear or oblong, foliaceous, pubescent. **Corolla** 0.5–1.5 mm long, urceolate to broadly cyathiform, mouth widened, glabrous, white, green, yellow or cream-coloured; lobes erect, broadly rounded, ± length of tube. **Filaments** capillary, shorter than anther; anthers subexserted, 0.5–0.8 mm long, elliptic, obtuse, smooth, pale brown, muticous. **Ovary** thinly hispidulous; style included or exserted; stigma cyathiform, large, exserted. **Flowering time** July–Dec. Lower to upper mountain slopes and peaks, moist N-facing slopes, streamsides, sandstone sheets, rocky places below Cave Sandstone cliffs; Drakensberg Grassland, Sub-Escarpment Grassland, Eastern Fynbos-Renosterveld (Naude's Neck Pass S, from Barkly Pass to Baziya Mtn, Katberg Pass to Hogsback and SW to Antoniesberg).

nemorosa Klotzsch ex Benth. (see Group J above)

peltata Andrews

Ker ker; *raasheide* (A)

Erect shrub, 0.6–1.2 m high. **Leaves** 3-nate, erect, 2–3 mm long, linear-trigonous, imbricate, sulcate, glabrous. **Flowers** 3-nate in many clusters at ends of branchlets, subcalycine; bracts variable in number and degree of fusion with sepals. **Calyx**: sepals as

long as corolla tube, ovate-lanceolate to ovate or suborbicular, acute, obtuse or apiculate, concave, transparent, pallid, ciliate or naked. **Corolla** 2 mm long, broadly cyathiform, dry, glabrous, rosy; lobes erect, obtuse, slightly shorter than tube, pink. **Filaments** filiform; anthers manifest or half-exserted, 1 mm long, lateral, oblong to subovate, subacute, scabrid, brown to dull red, muticous; pore $^{2}/_{3}$ length of theca. **Ovary** small, ovoid, minutely pubescent; style exserted, red; stigma cyathiform, large, with 4 intramarginal short points, bright crimson to red, ± 1 mm in diam. **Flowering time** Sept.–Apr. Lower S-facing mountain slopes; Eastern Fynbos-Renosterveld (Kareedouw to Clarkson and Humansdorp).

sparsa Lodd.

Ker ker, karka(a)r-heath; *raasheide* (A)

Erect shrub, 0.6–2.0 m high. **Leaves** suberect to subspreading, 2.1–3.2 mm long, linear, obtuse, obscurely sulcate, glabrous. **Flowers** subcalycine, many, crowded in dense masses on short branchlets. **Calyx**: sepals 0.7–1.0 mm long, broadly ovate to orbicular, keel-tipped, subacute, concave, subcartilaginous, paler than corolla. **Corolla** 1.6–2.1 mm long, cyathiform to broadly cyathiform, mouth widened, pale rosy to pink; lobes broadly rounded, erect, ± equal to tube. **Filaments** short, straight; anthers subincluded, generally manifest, 0.7–0.9 mm long, oblong or ovate, obtuse, rough, nearly black, muticous; pore less than $^{1}/_{2}$ length of theca. **Ovary** minutely hairy; style slender, well-exserted; stigma obconic-cyathiform or sometimes obconic (solid), small. **Flowering time** May–Nov. Lower mountain slopes; Drakensberg Grassland, Eastern Fynbos-Renosterveld, Sub-Escarpment Savanna, Albany Thicket (Pirie S, from Elandsbos River to Grahamstown, Alexandria and Humansdorp).

13b Corolla 3.0–5.4 mm long (Group N)

calycina L. (see Group J above)

canaliculata Andrews

Erect shrub, up to ± 2.0 m high. **Leaves** 3-nate, 4–10 mm long, erect-spreading, linear, deeply sulcate to open-backed, scabrid-puberulous above, paler tomentose below. **Flowers** 3-nate, appearing umbellate, subcoralline or calycine. **Calyx** glabrous, roughly papillose, pale outside, red within, closely appressed to corolla, deeply 4-fid; lobes 2–4 times length of tube (1.5–2.0 mm), ovate, acute, ciliate at base, sides ± strongly reflexed. **Corolla** 3.0–3.5 mm long, broadish cyathiform or subcampanulate, tetragonous, glabrous, rosy; lobes ± $^{1}/_{2}$ as long as tube, slightly spreading, broad, obtuse. **Anthers** subexserted or manifest, ± 1 mm long, lateral, oblong, obtuse, muticous; pore $^{1}/_{3}$ length of theca. **Ovary** subglobose, velvety or glabrous; style long exserted, slender; stigma simple. **Flowering time** all year. Moist flats, lower mountain slopes, low altitudes, forest margins; Eastern Fynbos-Renosterveld (Tsitsikamma to Elandsbos River and Humansdorp).

[E]chamissonis Klotzsch ex Benth

Tree heath(er); *kabinethout* (A)

Erect shrub, 0.3–1.0 m high. **Leaves** 3-nate, 3–5 mm long, erect to spreading, crowded, linear-lanceolate, incurved, sulcate or ± open-backed, hispid tubercle-based hairs. **Flowers** 3-nate, terminal, coralline, many on short branchlets forming a pseudoraceme. **Sepals** 1.5–2.5 mm long, 4-cleft, cyathiform, white-villous; lobes deltoid, acute, length variable, equal to half tube length. **Corolla** 3.5–5.0 mm long, broadly cyathiform,

dry, glabrous, rosy; lobes ± as long as tube, erect, suborbicular, apex strongly nerved. **Anthers** included, 1.0–1.5 mm long, lateral, oblong, obtuse, brown, muticous; pore ± $^1/_2$ length of theca. **Ovary** turbinate, silky-villous; style exserted, slender, dilated and obconic at apex; stigma subsimple. **Flowering time** Oct.–May, mainly spring. Flats to mountain midslopes; Eastern Fynbos-Renosterveld (Suurberg to Grahamstown and S to Humansdorp).

melanthera L.

Erect shrub, 0.6–0.7 m high. **Leaves** 3-nate, spreading to squarrose, 2–4 mm long, linear to ovate, blunt, thick, sulcate, minutely tubercular-hispid, glossy. **Flowers** 3-nate, terminal, coralline, many. **Calyx** ± 2 mm long, obconic, 4-cleft; sepals keeled or keel-tipped; lobes reniform, apiculate, ± as long as tube. **Corolla** 3.5–4.0 mm long, obconic, broadly cyathiform or funnel-shaped, dry, glabrous, pale or bright red to pink; lobes broadly rounded, ± equal to tube in length. **Filaments** broadish; anthers included, ± 1 mm long, lateral, obliquely oblong or semi-ovate, produced above into a contracted point, scabrid, black, muticous; pore $^1/_2$–$^5/_8$ of theca. **Ovary** turbinate, silky-villous on top; style exserted; stigma minute, obconic, simple. **Flowering time** June–Dec. Moist lower to upper, S-facing, mountain slopes; Eastern Fynbos-Renosterveld (Du Toitskloof Pass E to Uitenhage and Port Elizabeth).

newdigateae Dulfer

Erect shrub, 0.2–0.6 m high. **Leaves** erect-incurved, imbricate, 1.6–2.7 mm long, linear, deeply sulcate. **Flowers** on short, lateral branchlets, somewhat copious, coralline. **Calyx** 2.1 mm long, obconic, thick, rigid, scarious, glabrous, concave, sepals strongly keeled, somewhat truncate at base; lobes ovate, erect, acute, ciliolate or naked, 3–4 times length of tube. **Corolla** ± 4.2 mm long, between funnel-shaped and cyathiform, rosy to pink; lobes slightly spreading, rounded, ± as long as tube. **Anthers** dorsifixed above base, oblong, obtuse, minutely scaberulous, reddish brown, 1.0–1.3 mm long; pore $^1/_3$–$^2/_5$ length of theca. **Ovary** turbinate, silky-villous on conical summit; style exserted, slender; stigma subsimple or capitellate. **Flowering time** June–Oct. Lower to middle mountain slopes; Eastern Fynbos-Renosterveld (Willowmore to Groot Winterhoek Mts, Steytlerville, Baviaanskloof Mts and Humansdorp).

5b Styles included
14a Corolla hairy (Group O)

abbottii E.G.H.Oliv.

Resprouting, dwarf shrub, up to 0.25 m high. **Leaves** 4-nate, spreading, 2.5–3.0 mm long, oblong, acute apical hairs long, pubescent with subopened back. **Flowers** 4–9 in heads at end of branches. **Calyx** 4-partite, 2.5–3.8 mm long, half as long or ± as long as corolla, narrowly oblong. **Corolla** 4-lobed, 3–5 mm long, obovoid-urceolate or obconical, white, glabrous; lobes erect, broadly rounded. **Stamens** 8, free, included, half length of corolla, pale yellow; anthers subbasally attached, 0.8–1.3 mm long; pore half length of theca, aristate, appendages simple. **Ovary** subcylindrical and obtuse with stellate hairs; style 2.0–2.2 mm long, glabrous; stigma simple, included. **Flowering time** Oct.–Jan. **Fruit** a dehiscent capsule. Grassland and marshy riverbank-edges in black turf soils; Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Port Shepstone SW to Port Edward and inland along Mtamvuna River).

alopecurus Harv.

Foxtail erica; *chalebeke-e-nyenyane*, *chesa-litelu*, *mo-omo-oa-lekolukotaoane* (SS)

Erect shrub to dwarf shrub, 0.3–0.5 m high; compact and tufted. **Leaves** 3- or 4-nate, erect, incurving; 4–6 mm long, linear; abaxially grooved, midrib visible, covered with coarse hairs. **Flowers** 3-nate, densely packed at tips of branches in unbranched dense false-spikes, up to 150 × 10 mm; pedicels > 2 mm long; bracts 3, remote, foliaceous. **Calyx**: sepals ± 2 mm long, linear, pubescent or with bristles, ciliate. **Corolla** 2–6 mm long, urceolate or ovoid, mouth contracted, hairy, pink or white. **Filaments** capillary; anthers included, ± 0.4 mm long, ovate, aristate, pale brown; appendages short. **Ovary** ovoid, villous, with fine, relatively short hairs; style included, curved; stigma capitate. **Flowering time** all year. Rocky mountain slopes, near streams, in deep gorges; Drakensberg Grassland, Sub-Escarpment Savanna (Naude's Neck Pass to Maclear S, from Great Winterberg Mts to Stutterheim).

cooperi Bolus

Dwarf shrub to shrub, 0.5–1.0 m high, much-branched, covered with stiff, dendroid hairs. **Leaves** 4-nate, spreading, 4.2–5.3 mm long, linear-lanceolate, sulcate to open-backed, paler or livid and subglabrous below. **Flowers** in 4-flowered, semi-globose heads, ± 9.5 mm in diam. **Calyx**: sepals bract-like, 5.2–6.3 mm long, narrowly linear or subulate; lobes spreading, short. **Filaments** slender, 1.5–2.0 times longer than anthers; anthers included, ± 1 mm long, cuneate, subacute, glabrous; theca deeply parted, crested; pore ± $^{3}/_{5}$ length of theca; crests $^{2}/_{3}$–$^{3}/_{4}$ length of theca, variable, from narrowly lanceolate, acuminate and serrulate to suborbicular and incised. **Ovary** turbinate, truncate, with stellate hairs; style included, short, straight; stigma capitellate, small. **Flowering time** Feb.–May. Montane grassland, mountainsides, sandstone cliffs; Drakensberg Grassland, Sub-Escarpment Grassland (along Drakensberg Escarpment to Baziya and Cala Mts).

ingeana E.G.H.Oliv.

Straggling, dwarf shrub, up to 0.3 m high. **Leaves** 4-nate, ciliate with long, gland-tipped hairs. **Flowers** in heads of 10–12(–16) at ends of branches. **Calyx**: sepals 4-partite; lobes ± half length of corolla tube, leaf-like, narrowly oblong, margins with gland-tipped and simple or fork-tipped hairs. **Corolla** 4-lobed; tube 3 mm long, narrowly ovoid to urceolate; lobes 1.0–1.3 mm long, elliptic, obtuse, purplish to pink, margins papillate-crenulate. **Stamens** 8, free, included; filaments linear, half length of corolla tube; anthers 0.6 mm long; thecae rectangular, glabrous; pore $^{2}/_{3}$ length of theca, aristate; appendages light brown, as long as pore. **Ovary** 4-locular, ± 9 mm long, subcylindrical, apex with 8 external lobes; style 2.0–2.5 mm long; stigma simple, manifest. **Flowering time** Oct.–Feb. Upper mountain slopes, moist seepages, sandy soils; Eastern Fynbos-Renosterveld (Swartberg Mts, Blesberg and Tierkloof to Willowmore).

saxigena Dulfer

Erect to sprawling, woody shrub or shrublet, 0.5–1.0 m high. **Leaves** 4-nate, imbricate, patent (conspicuous in lower ones), ± 3–5 mm long, linear, thickened, acute, glabrous. **Flowers** 4-nate; pedicels slightly shorter than corolla, floccose-pilose; bracts 3, remote one oblong, other median. **Calyx**: sepals wider than bracts, strongly keeled, slightly pilose to ciliate on margins, $^{3}/_{4}$ length of corolla. **Corolla** 7–8 mm long, urceolate, red, finely hairy to shortly pilose, slightly attenuate just above base, finely striped longitudinally; lobes shorter than corolla, slightly patent. **Filaments** dorsally attached; anthers included; theca large, appendages long and fimbriate, $^{1}/_{3}$ length of theca. **Ovary**

glabrous; style included; stigma thickened. **Flowering time** Aug.–Nov. Rocky places at high altitudes; Eastern Fynbos-Renosterveld (Swartberg Mts, Snyberg, Antoniesberg).

[E]**varderi** L.Bolus

Erect shrub, up to 0.3 m high. **Leaves** 3-nate, erect, incurved imbricate, 5–6 mm long, linear, obtuse, below often sulcate, scabrid-hirsute; pedicels patent and decurved, hirsute, 5–6 mm long; bracts 3, subbasal, 1 mm long, lowest one slightly smaller. **Calyx**: sepals ± 15 mm long, ovate, acute. **Corolla** 4–5 mm long, cyathiform, throat slightly contracted, partly hispidulous; lobes erect and patent, 1 mm long, subobtuse. **Anthers** included, ± 1 mm long, oblong, aristate; appendages attached at base of theca; pore half length of theca or smaller. **Ovary** villous; stigma capitate, included or manifest. **Flowering time** July–Oct. Habitat?; Eastern Fynbos-Renosterveld (Howieson's Poort, Grahamstown).

14b Corolla glabrous
15a Pedicel hairy
16a Ovary hairy (Group P)

andreaei Compton

Erect shrub, 0.3–0.6 m high. **Leaves** 3-nate, suberect when young becoming erect and patent when mature, 2–3 mm long, oblong, obtuse, sulcate, glabrous and shiny. **Flowers** terminal, 3-nate; pedicels viscid, puberulous, 2–3 mm long. **Calyx**: sepals erect, 2 mm long, ovate, glabrous, similar to bracts. **Corolla** ± 3 mm long, globose to urceolate, not contracted, glabrous, viscid, white, ± halfway divided; lobes triangular, erect and expanding. **Filaments** 1.5 mm long; anthers included, basally dorsifixed, 1 mm long, oblong, obtuse, margins ciliate, crested; appendages 0.5 mm long, partly decurrent, ciliate. **Ovary** sessile, densely villous; style 2 mm long; stigma simple, manifest. **Flowering time** Sept., Oct. On upper mountain slopes, alt. up to 1 300 m; Eastern Fynbos-Renosterveld (Swartberg Pass E to Willowmore and Baviaanskloof Nature Reserve).

aspalathifolia Bolus

Shrub, 0.3–0.5 m high. **Leaves** 3- or 4-nate or scattered, spreading or squarrose, crowded, 2.1–3.2 mm long, narrowly linear, acute, faintly sulcate below. **Flowers** 3- or 4-nate, crowded on short close branchlets and forming a dense pseudo-spike 0.1–0.2 m long. **Calyx**: sepals 1.5–2.1 mm long, linear, acute, foliaceous, long-ciliate. **Corolla** 4.7–5.3 mm long, subampullaceous (inflated below) to tubular; thin-textured, white; lobes erect, rounded, $^1/_5$–$^1/_4$ length of tube. **Filaments** slightly curved below anther; anthers included, ± 0.5 mm long, broadly cuneate-oblong, widely rounded at apex, scaberulous, aristate; pore ± $^1/_2$ length of theca; appendages capillary, $^1/_2$–$^3/_4$ length of theca. **Ovary** hispidulous towards apex; style included, slender; stigma capitellate. **Flowering time** Mar.–Nov. Forest, wet rocks; Indian Ocean Coastal Belt, Indigenous Forests, Sub-Escarpment Savanna (Mateku Waterfall S to Ntsubane Forest and Port St Johns).

formosa Thunb.

White heath; *witheide* (A)

Erect shrub, up to 0.6 m high. **Leaves** 2–3 mm long, elliptic or oblong, obtuse, thick, sulcate, glabrous, glossy, younger minutely ciliate. **Flowers** 3-nate. **Calyx**: sepals ± 2 mm ong, spreading or reflexed, ovate or broadly lanceolate, acute, leathery, subviscid, glabrous. **Corolla** 4–5 mm long, globose-urceolate, suddenly contracted at throat (fluted) with 8 longitudinal channels, viscid, glabrous, white; lobes ± $^1/_8$ length of tube, spreading or recurved. **Filaments** bent round ovary, contracted round stigma; anthers included, 0.7 mm long, lateral, oblong, smooth, ciliate at base; pore nearly as long as theca; append-

ages broadly linear, densely ciliate, partly decurrent along connective. **Ovary** densely hirsute; style included, thickened towards truncate apex; stigma subsimple. **Flowering time** July–Nov. Flats and lower mountain slopes, often in large colonies on damp hillsides in clay soils; Eastern Fynbos-Renosterveld (Tsitsikamma Mts at Joubertina).

glomiflora Salisb.

Erect shrub, 0.3–0.5(–1.0) m high. **Leaves** 3-nate, erect or spreading, crowded, 2.1–6.3 mm long, subulate-linear, obtuse, glabrous and glossy, or puberulous. **Flowers** terminal, 3-nate. **Calyx**: sepals 1.5–3.2 mm long, ovate or ovate-lanceolate, acuminate, keel-tipped, thick, coriaceous, glabrous, viscid, coloured. **Corolla** 5.2–6.3 mm long, ovoid-urceolate, viscid, white or red; lobes spreading or nearly erect. **Anthers** included, dorsifixed near base, 1.3–1.8 mm long, narrowly oblong, subacute, smooth, base aristate and ciliate; pore ± $^{3}/_{4}$ length of theca; appendages broadly linear, densely ciliate, partially decurrent along filament or connective. **Ovary** densely hirsute; style included; stigma small, subclavate-capitellate. **Flowering time** all year. Coastal flats to middle mountain slopes; Eastern Fynbos-Renosterveld (Kouga Mts).

passerinae Montin

Erect, woody, dwarf shrub, ± 0.6 m high. **Leaves** 2.1–3.2 mm long, ovate to elliptic, obtuse, thick, deeply sulcate, sometimes subopen-backed, glabrescent. **Flowers** solitary or in pairs on very short, lateral branchlets, erect or pendulous, subcoralline to subcalycine. **Calyx**: sepals ± united at base, 3.2 mm long, ovate, ± $^{1}/_{2}$ length of corolla, white-woolly. **Corolla** 6.3 mm long, cyathiform, mouth scarcely widened or contracted, pink; lobes erect, rounded, $^{1}/_{4}$–$^{1}/_{3}$ length of tube. **Filaments** < $^{1}/_{2}$ length of anther, rather broad; anthers ± 1.8 mm long, subulate, acute, recurved; pore $^{1}/_{4}$–$^{1}/_{3}$ length of theca. **Ovary** conical, densely tomentose; style included; stigma capitellate, very small. **Flowering time** July–Oct. Dry rocky middle to upper mountain slopes; Eastern Fynbos-Renosterveld (Witteberg Mts at Willowmore, Baviaanskloof Mts SW to Joubertina).

schlechteri Bolus

Heuningbossie (A)

Erect shrub, 0.6–1.5 m high. **Leaves** 4-nate, erect to spreading, imbricate, 3.1–6.0 mm long, linear, obtuse, sulcate; glabrous or hairy, younger subviscid. **Flowers** in terminal clusters, 3- or 4-nate, pink or pale rosy. **Calyx**: sepals 5–7 mm long, narrowly ovate to lanceolate, glabrous, viscid or hairy, coloured, sticky. **Corolla** 4.7–7.9 mm long, campanulate to urceolate, sticky, glabrous, pink or whitish; lobes well spreading, large, from $^{1}/_{3}$–$^{2}/_{5}$ length of tube, rounded. **Anthers** dorsifixed at base, > 0.7 mm long, semiovate, obtuse, glabrous; appendages crested; pore ± $^{7}/_{8}$ length of theca. **Ovary** densely hirsute; style included; stigma capitate. **Flowering time** (Nov.–)Mar.–June. Grassy slopes, valleys, streams, occasionally on Cave Sandstone platforms; often in conspicuous stands. Mesic Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland (Barkly East to Naude's Neck S, from Queenstown to Elliot and to Cathcart).

tragulifera Salisb.

Dwarf shrub, up to 0.5 m high. **Leaves** 3-nate, erect or spreading, 2.1–3.2 mm long, oblong, obtuse, glabrous, glossy, thick, coriaceous. **Flowers** 3-nate. **Calyx**: sepals spreading or erect, ± 2.1 mm long, lanceolate, acute or acuminate, subscarious, viscid, glabrous. **Corolla** 4.2–5.3 mm long, ovoid to urceolate, viscid, glabrous, white; lobes short, erect or slightly spreading. **Anthers** included, dorsifixed at base upon thickened projecting connective, oblong, aristate, smooth, ciliate below; theca deeply partite and

at length separating down to connective at base, nearly 1.1 mm long; pore $^{2}/_{3}$–$^{3}/_{4}$ length of theca; appendages broadly linear, densely ciliate, partially decurrent along projecting connective, spreading. **Ovary** densely hirsute; style included, straight, equal to apex; stigma small, subsimple or capitellate. **Flowering time** July–Nov. Lower mountain slopes; Eastern Fynbos-Renosterveld (Mannetjiesberg E to Kouga Mts).

zitzikammensis Dulfer

Erect, dwarf shrub, up to 0.3 m high. **Branchlets** slender, subflexuose, erect, puberulous, greyish. **Leaves** 3-nate, appressed or imbricate, 1.6–3.2 mm long, linear, subtrigonous, subacute, glabrous. **Flowers** axillary and terminal, in small clusters, calycine; pedicel 0.3 mm long. **Calyx**: sepals 3, one 1.1–1.6 mm long, linear or spathulate and leaf-like, from a thin dilated base, others 0.5 mm long, linear, obtuse, glabrous, minutely ciliate. **Corolla** ± 2 mm long, obconical-ovoid, with 4 short, rounded, somewhat incurved teeth, glabrous, rose to pink. **Anthers** exserted, oblong, with parallel sides and a short, broad, apical notch; appendages absent. **Ovary** compressed, wider than long, somewhat transversely rhomboid, glabrous; style exserted, glabrous; stigma peltate, quadrate. **Flowering time** Nov., Dec. Ridges at high altitudes; Eastern Fynbos-Renosterveld (Kouga and Tsitsikamma Mts at Joubertina).

16b Ovary glabrous (Group Q)

affinis Benth.

Erect shrub, 1–2 m high. **Leaves** 4-nate, spreading, slender, 5.2–7.4 mm long, linear, subobtuse, sulcate, nearly flat, glabrous. **Flowers** (3)4-nate. **Calyx**: sepals erect, not imbricate at base, 4.2–5.3 mm long, obovate to oblanceolate, shortly acute, keeled, scarious, pink. **Corolla** ± 5.3 mm long, subglobose-urceolate, several-nerved, glabrous, dry, red to pink; lobes slightly spreading, broad, rounded, ± $^{2}/_{5}$ length of tube. **Filaments** broad below, ± 2.1 mm long; anthers included, lateral, semi-ovate, subacuminate; theca deeply parted, ± 1.1 mm long; pore $^{2}/_{3}$ length of theca; crest broadly ovate, minutely serrulate, ± $^{2}/_{3}$ length of theca, other appendages brown. **Ovary** glabrous; style exserted, angular, swollen at apex; stigma a short, filiform point, much narrower than truncated end of style. **Flowering time** Sept.–Jan. Middle mountain slopes; Eastern Fynbos-Renosterveld (Steytlerville E to Uitenhage).

ardens Andrews

Wax heath; *washeide* (A)

Erect shrub, 0.3–0.8 m high. **Leaves** generally 3(4)-nate, erect to spreading, 6.3–10.5 mm long, linear-lanceolate, sulcate, thick, glossy, rigid. **Flowers** terminal, 3-nate. **Calyx**: sepals 3.1–4.2 mm long, ovate or ovate-lanceolate, acute or obtuse, keel-tipped, thick, coriaceous, viscid. **Corolla** globose-urceolate, thick, very viscid, much inflated, coral-red or white, 6.3–8.4 mm long; lobes suberect, broad. **Filaments** ± dilated, lanceolate, much bent below anther; anthers included, dorsifixed above base, 1.6 mm long, oblong, scaberulous, obtuse, crested; pore $^{2}/_{5}$–$^{3}/_{5}$ length of theca; crests lanceolate, deeply lacerate, ± densely hairy $^{1}/_{3}$–$^{3}/_{5}$ length of theca. **Ovary** glabrous; style included, slender; stigma small, capitellate. **Flowering time** Apr.–Oct. Middle mountain slopes; Eastern Fynbos-Renosterveld (Swartberg Mts SE to Humansdorp District).

articularis L.

Erect shrub, 0.3–0.5(–2.0) m high. **Leaves** 3-nate, erect, incurved and appressed, 3.1–6.3 mm long, linear or narrowly lanceolate, keeled or sulcate. **Flowers** 3-nate, ± clustered, often forming a dense long pseudo-spike, calycine. **Calyx**: sepals 1.5–3.2 mm

long, obovate, keel-tipped, acute or obtuse, concave, spreading at maturity, margins somewhat glandular. **Corolla** 3.1–4.2 mm long, urceolate, slightly contracted at throat, sometimes subtetragonous, pink; lobes erect or spreading, subovate, deep flesh-coloured, concolorous or dark-coloured, $^1/_3$–$^1/_2$ tube in length. **Anthers** sublateral, almost basifixed; theca deeply parted, 0.4–0.8 mm long, semi-ovate or elliptic; pore ± $^1/_2$ length of theca; crests subovate in outline, ± deeply incised. **Ovary** lobed, glabrous; style included; stigma capitate. **Flowering time** all year. Coastal flats and middle to upper mountain slopes; Eastern Fynbos-Renosterveld (Baviaanskloof S to Kareedouw).

condensata Benth.

Erect, dwarf shrub, up to 0.5(2.0) m high. **Leaves** 3-nate, erect or subincurved-spreading, crowded, ± 4.2 mm long, linear, subobtuse, sulcate, glabrous. **Flowers** sub-3-nate, coralline; pedicels ± 2 mm long; bracts approximate, all sepal-like, or lower sometimes longer and equalling sepals. **Calyx**: sepals 1.6–2.1 mm long, broadly ovate or ovate-rhomboid (heart-shaped), acute, cuspidate-keeled, thick, subcoriaceous, somewhat viscid. **Corolla** ± 4.2 mm long, subcampanulate-cyathiform contracted towards apex, 4-foveolate at base, pink; lobes variable in length, ± $^1/_4$ length of tube. **Filaments** nearly straight; anthers ± 1 mm long, oblong, obtuse, scaberulous, muticous; theca deeply parted; pore ± $^1/_3$ length of theca. **Ovary** glabrous; style included; stigma capitate. **Flowering time** Sept.–Feb. Middle to upper mountain slopes; Eastern Fynbos-Renosterveld (Kareedouw).

nabea Guthrie & Bolus

Erect shrub, up to 1.5 m high, sparingly-branched. **Leaves** 3-nate, 10–14 mm long, linear-acuminate, erect, spreading, sulcate, close-ranked, shortly ciliate. **Flowers** 1- or 2-nate, terminal, calycine, in long, dense pseudo-racemes, subsessile. **Calyx**: sepals prominent, 14–16 mm long in opposite pairs, outer lanceolate, inner more oblong, concave, scarious, green. **Corolla** concealed by sepals, 2.6–3.0 mm long, subovoid to narrowly urceolate, 4-fid, glabrous, dry, green to white; lobes erect, ovate, obtuse, ± equal to tube. **Stamens** 10–12 mm long, exserted from corolla but shorter than sepals; anthers 1.5 mm long, terminal, semi-lanceolate, acute, submembranous; theca deeply partite, muticous; pore nearly equal to theca. **Ovary** oblong, glabrous, with broadly margined seeds; style manifest; stigma capitate. **Flowering time** May–Aug. Moist flats and mountain slopes; Eastern Fynbos-Renosterveld (Elands River Mts S to Van Stadens Mts at Hankey).

15b Pedicel glabrous
17a Corolla 6–10 mm long (Group R)

albens L.

Erect shrub, up to 1.2 m high. **Leaves** 3-nate, imbricate, 10.5–14.7 mm long, linear-trigonous, acute, sulcate, finely ciliolate. **Flowers** axillary, in sub-3-nate tufts forming a lax, subsecund, false raceme. **Flowers** subcalycine, erect to nodding. **Calyx**: sepals imbricate, ± 4.2 mm long, obovate or ovate, acute, concave, keeled, scarious, pallid. **Corolla** ± 6.3 mm long, ovoid to urceolate, white, pink-tinged or yellowish green; lobes spreading, oblong and obtuse, or lanceolate and acute. **Filaments** capillary; anthers broadly semi-ovate, obtuse, smooth, brown, 0.8 mm long, minutely aristate; pore ± $^1/_3$ length of theca; appendages subulate, spreading, not reaching below base of theca, minute. **Ovary** with flat, winged ovules; style slender, clavate at apex; stigma minute, capitellate or subconical. **Flowering time** Apr.–Jan. Damp upper mountain slopes; Mesic Highveld Grassland and Eastern Fynbos-Renosterveld (Cradock SW, from WC to Joubertina).

astroites Guthrie & Bolus

Erect shrub, up to 0.5–0.7 m high, glabrous. **Leaves** 4-nate, spreading or reflexed, linear, acute, sulcate, glaucous. **Flowers** axillary, spreading at ends of branches, coralline. **Calyx**: sepals 6.3 mm long, broadly lanceolate, acuminate, scarious, pallid, keel on upper half darker, pink. **Corolla** 9.5 mm long, ± salver-shaped; tube narrowly ovoid to urceolate, dry, rosy; lobes large, 7.3–8.4 × 3.2 mm stellate-spreading, elliptic-oblong, paler than tube. **Filaments** capillary, 9.5 mm long; anthers 1.1 mm long, broadly oblong, obtuse, smooth, minutely aristulate; pore $^{3}/_{8}$ length of theca; appendages minute, above middle of theca, linear or tooth-like. **Ovary** glabrous; ovules obovate, white-papery winged; style included, slender, thickened at apex; stigma capitellate. **Flowering time** Aug.–Dec. Rocky seeps at middle mountain slopes; Eastern Fynbos-Renosterveld (Tsitsikamma Mts E to Loerie and SW to Humansdorp).

tetragona L.f.

Erect to sprawling, slender shrublet, up to 0.6 m high, pendulant from wet, rocky ledges. **Leaves** 3-nate, erect to spreading and incurved, 8–12 mm long, linear, keeled, faintly sulcate, ciliate or naked, acute. **Flowers** axillary, pseudo-raceme 0.1–0.2 m long, somewhat lax. **Calyx**: sepals 5 mm long, lanceolate or linear-lanceolate, acuminate, keeled. **Corolla** 6–8 mm long, narrowly ovoid or urceolate, 4-sided, pale yellow; lobes 1.5–2.0 mm long, spreading, recurved, ovate, obtuse or subacute. **Filaments** filiform; anthers included, 0.7 mm long, lateral, oblong, obtuse at both ends, pallid, muticous; pore $^{1}/_{3}$ length of theca; appendages minute. **Ovary** oblong, substipitate; style included; stigma capitellate, sometimes minute. **Flowering time** July–Mar. Damp flats at sea level to middle mountain slopes, wet or marshy places; Eastern Fynbos-Renosterveld (Winterhoek Mts SE to Uitenhage).

17b Corolla < 6 mm long (Group S)

[E]baurii Bolus

Bridal heath, Albertinia heath

Erect, stout, woody shrub, 0.3–0.6 m high, hairs stiff dendroid. **Leaves** 4-nate, imbricate, 2.1–3.2 mm long, linear-lanceolate, acute, ± open-backed, grey-green. **Flowers** 1-nate, in globose 4-flowered heads 4.0–10.5 mm in diam. **Calyx** like bracts but narrower, 3.2 mm long. **Corolla** globose-urceolate, 3.2 mm long, pubescent, white, pale to deep pink; lobes rounded, short, conspicuously spreading. **Filaments** slender, flexuose, $1^{3}/_{4}$ length of anther; anthers included, > 0.5 mm long, narrowly elliptic, either ends obtuse, dark-coloured, amply crested; pore ± $^{1}/_{2}$ length of theca; crests suborbicular and incised. **Ovary** depressed-globose, very small, stellate-hairy; style included, short; stigma capitellate or subsimple. **Flowering time** June–Oct. Sandy limestone mountain slopes; Sub-Escarpment Savanna, Sub-Escarpment Grassland (Mthatha to Baziya Mts).

cyathiformis Salisb.

Erect shrub or dwarf shrub, 0.3–0.9 m high, much branched. **Leaves** erect or spreading, 1–2 mm long, linear, obtuse, glabrous, slender, often curved. **Flowers** 4-nate, sometimes pseudo-axillary by abortion of branchlets; pedicels slender, 1.6–2.0 mm long; bracts remote, very small. **Calyx**: sepals < 1 mm long, ovate, obtuse, ciliate, shining. **Corolla** 1.6–2.4 mm long, subglobose to campanulate or broadly urceolate-campanulate; lobes ± $^{2}/_{3}$ length of tube. **Anthers** included, 0.4 mm long, subtriangular, with broadly rounded angles, subscabrid, ciliate at base, aristate; pore ± $^{2}/_{3}$ length of theca; appendages spreading, distant, naked at margins, shorter than theca. **Ovary** glabrous or puberu-

lous; style included, short; stigma subpeltate-capitate. **Flowering time** Mar.–May. Forests and adjacent flats; Eastern Fynbos-Renosterveld, Indigenous Forests (Assegaaibosch to Montagu Pass).

frigida Bolus

Khoarai (SS)

Suberect, dense, dwarf shrublet, 0.5–1.0 m high, sometimes mat-forming. **Leaves** 4-nate, ± recurved, 1.5–3.0 mm long, elliptic or oblong, thick, sulcate, margins long-hairy, indumentum rough, hairs tubercle-based, glandular. **Flowers** terminal, sub-4-nate or umbellate, 4- or 5-flowered. **Calyx**: sepals ± 1.5 mm long, broad to narrowly ovate, scarious, coloured, viscid, keel-tipped. **Corolla** 2.1–3.7 mm long, urceolate or ovoid-urceolate, viscid, glabrous, white often pink; lobes spreading, short, ± $^{1}/_{5}$ length of tube. **Anthers** included, dorsifixed above base, subcuneate, obtuse, or subnarrowly ovate, glabrous, smooth, more than 0.5 mm long, aristate; pore nearly $^{1}/_{2}$ length of theca; appendages rough, spreading, ± $^{2}/_{3}$ length of theca. **Ovary** densely villous; style included; stigma subsimple. **Flowering time** Sept.–Feb. Cliffs and steep mountain slopes; Drakensberg Grassland, Sub-Escarpment Grassland (Drakensberg Escarpment to Amatole Mts).

gracilis J.C.Wendl.

Erect shrub, up to 0.3–0.5 m high. **Leaves** erect, imbricate, 2.1–4.2 mm long, linear, keeled or round-backed, slender, glabrous. **Flowers** 4-nate, on short branchlets. **Calyx**: sepals ± 1 mm long, ovate lanceolate, ciliolate or naked. **Corolla** 2.6–4.3 mm long, urceolate, mouth slightly contracted, rosy to pink; lobes small, erect or spreading (especially at maturity). **Anthers** included, > 0.4 mm long ovate, obtuse, glabrous, margins naked, broadly aristate or subcristate; pore ± $^{1}/_{2}$ as long as theca; appendages deflexed close to theca, subulate, entire or minutely lacerate, from $^{1}/_{2}$ as long to nearly as long as theca. **Ovary** sessile on broad disk, glabrous; style included; stigma capitellate. **Flowering time** all year. Flats and lower mountain slopes; Eastern Fynbos-Renosterveld (WC to Humansdorp).

quadrangularis Salisb.
(= *E. cyathiformis* Salisb.)

Baby heath

Erect, compact, dwarf shrub, 0.3–0.5(–1.0) m high. **Leaves** spreading, erect when young, 1.6–3.2 mm long, linear, glabrous, ciliate when young. **Flowers** 4-nate. **Calyx**: sepals 1.0–1.6 mm long, ovate or lanceolate-ovate, acute, subscarious, ciliate or naked, keeled, glabrous. **Corolla** 2.0–2.6 mm long, generally broad cyathiform; tube sometimes obconic, widened at mouth, white to rosy to pink; lobes erect, variable in shape and length $^{1}/_{2}$–$^{3}/_{4}$ length of tube, interstices of limb segments acute at base. **Anthers** included, ± 0.4 mm long, obliquely cuneate-oblong, smooth and glabrous, aristate; pore $^{3}/_{4}$–$^{7}/_{8}$ length of theca; appendages narrow, rough-edged, not fringed, ± $^{1}/_{2}$ length of theca. **Ovary** glabrous; style straight, included; stigma capitellate, small. **Flowering time** July–Dec. Flats and lower mountain slopes; Eastern Fynbos-Renosterveld (WC to Kareedouw).

subdivaricata P.J.Bergius

Erect shrub to dwarf shrub, 0.3–0.8(–1.0) m high, much-branched. **Leaves** spreading or erect, ± 4.2 mm long, linear, subobtuse, round-backed, ± glabrous. **Flowers** 4-nate on short branches, becoming clustered. **Calyx**: sepals 1.1–1.9 mm long, lanceolate, acute, foliaceous or subscarious on margins, keeled, ciliate or naked. **Corolla** campanulate-cyathiform or subturbinate, mouth widened, white or rosy, ± 2.7 mm long; lobes spread-

ing or erect, ± $^{2}/_{3}$ as long as tube, interstices between segments acute, closed. **Anthers** included, > 0.5 mm long, semi-ovate, cuneate or oblong-cuneate, smooth, glabrous, aristate; pore ± $^{2}/_{3}$ length of theca; appendages curved, slightly rough on inner edge, somewhat shorter than theca. **Ovary** glabrous or thinly puberulous; style exserted; stigma capitate. **Flowering time** Nov.–June. Lower mountain slopes and flats; Eastern Fynbos-Renosterveld (WC to Kareedouw).

tenuis Salisb.

Erect or diffuse shrub to sprawling shrublet, 0.3–1.6(–2.0) m high, glabrous. **Leaves** 3-nate, erect or spreading, 2.1–5.2 mm long, slender, linear and acute, sulcate. **Flowers** 3-nate, terminal and lateral. **Calyx**: sepals 1–3 mm long, lanceolate, acute, keeled. **Corolla** 2 mm long, campanulate or cyathiform, dry, white; lobes ± equal to tube, slightly spreading, obtuse to rounded, ± equal to tube. **Filaments** subequal, flexuous, tapering upwards, ± 1 mm long; anthers included, lateral, 0.3–0.4 mm long, broadly ovate or subtriangular, base nearly as wide as long, subacute to aristate, pallid; pore $^{2}/_{5}$–$^{3}/_{5}$ length of theca; appendages ± equal to theca in length, setiform, rough. **Ovary** turbinate, glabrous; style included; stigma capitate to clavate-capitate. **Flowering time** July–Dec. Rocky wet ledges, open mountain slopes; Eastern Fynbos-Renosterveld (WC to Uitenhage).

transparens P.J.Bergius

Sweet-scented heath; *ruikheide* (A)

Erect, dwarf shrub, 0.3–0.4 m high, multi-stemmed and resprouting. **Leaves** suberect to spreading, crowded, ± 3.2 mm long, linear, keeled, ciliate or naked. **Flowers** many and densely clustered, subsessile; bracts 2 approximate, lowest remote, linear, ciliate, < 1.1 mm long. **Calyx**: sepals 2.1–3.2 mm long, lanceolate to ovate, acute, scarious, softly ciliate, red, more rarely pale rosy. **Corolla** 4.2–5.3 mm long, tubular, slightly inflated, glabrous, white, pale rosy to deep red; lobes ovate, acute, 2.1–3.2 mm long, star-like. **Anthers** oblong or subovate, ± 0.4 mm long, shortly aristate near base. **Ovary** glabrous; style included. **Flowering time** Nov.–Mar. Moist S mountain slopes and ledges to middle or upper mountain slopes; Eastern Fynbos-Renosterveld (Prince Albert SE to Kouga Mts).

ADAMSON, R.S., COMPTON, R.H., BARKER, W.F. & BOND, P. 1941. Plantae Novae Africanae. Series XVII. *Journal of South African Botany* 7: 187–208.
ALM, C.G. & FRIES, TH. C. E. 1925. Monographie der Gattung *Blaeria* L. *Acta Horti Bergiani* (Stockholm): 8: 221–268.
BAKER, H.A. 1968. Some new species of *Erica*. *Journal of South African Botany* 35: 77–90.
BAKER, H.A. 1969. Three new species and a new variety of *Erica*. *Journal of South African Botany* 35: 25–33.
BAKER, H.A. 1973. New taxa in genus *Erica*. *Journal of South African Botany* 39: 205–211.
BAKER, H.A. & OLIVER, E.G.H. 1967. *Ericas in southern Africa*. Purnell, Cape Town.
BAKER, W.F. & COMPTON, R.H. 1935. Plantae Novae Africanae. Series I. *Journal of South African Botany* 1: 32–39.
BAKER, W.F., GERSTNER, F.J., ADAMSON, R.S. & COMPTON, R.H. 1943. Plantae Novae Africanae. Series XX. *Journal of South African Botany* 9: 151–160.
BOLUS, H., GUTHRIE, F., & BROWN, N.E. 1905–6. Ericaceae. *Flora capensis* 4: 2–418.
BOLUS, H. & KENSIT, L. 1909. Contributions to African flora. *Transactions of Royal Society of South Africa* 1: 160–163.
BOLUS, L. 1918. Novitates Africanae. *Annals of the Bolus Herbarium* 2: 153–160.
COMPTON, R.H. 1953. Plantae Novae Africanae. Series XXXI. *Journal of South African Botany* 19: 109–134.
DYER, R.A. 1932. Notes on flora of southern Africa: II – New or noteworthy plants. *Bulletin of Miscellaneous information, Kew*: 443–450.

DULFER, H. 1963. Neue Arten und Varietäten der Gattung *Erica* L. aus Süd-Afrika. *Annalen des Naturhistorischen Museums Wien* 66: 19–33.
DULFER, H. 1965. Revision der südafrikanischen Arten der Gattung *Erica* L. 2. *Annalen des Naturhistorischen Museums Wien* 68: 25–177.
HILLIARD, O.M. & BURTT, B.L. 1985. Notes on some plants of southern Africa chiefly from Natal: XI. *Notes from the Royal Botanic Garden Edinburgh* 42: 227–260.
KILLICK, D.J.B. 1966. Ericaceae: two new *Erica* species from Drakensberg. *Bothalia* 9: 126–128.
OLIVER, E.G.H. 1975. Ericaceae. In R.A. Dyer, *Genera of southern African flowering plants*, Vol. 1. Botanical Research Institute, Pretoria.
OLIVER, E.G.H. 1984. Studies in Ericoideae. IV. New species and some taxonomic and nomenclatural changes in Cape Flora Region. *South African Journal of Botany* 3: 267–284.
OLIVER, E.G.H. 1985. A new species of *Philippia*, from Drakensberg. *Bothalia* 15: 550, 551.
OLIVER, E.G.H. 1993. Studies in Ericoideae (Ericaceae). XII. Placing of genus *Blaeria* into synonymy under *Erica*; nomenclatural and taxonomic changes for southern African region. *Bothalia* 23: 1–7.
OLIVER, E.G.H. 1994. Studies in Ericoideae (Ericaceae). XV. Generic relationship between *Erica* and *Ericinella*. *Bothalia* 24: 121–126.
OLIVER, E.G.H. 2000. Ericaceae. In O.A. Leistner, Seed plants of southern Africa: families and genera. *Strelitzia* 10: 246–248.
OLIVER, E.G.H. & OLIVER, I.M. 1991. Studies in Ericoideae (Ericaceae). VIII. New species in *Erica*, section *Pseuderemia*, from southern Africa. *Bothalia* 21: 137–142.
OLIVER, E.G.H. & OLIVER, I.M. 1994. Studies in Ericoideae (Ericaceae). XIV. Notes on genus *Erica*. *Bothalia* 24: 25–30.
OLIVER, E.G.H. & OLIVER, I.M. 1996. Studies in Ericaceae (Ericoideae) XIX. Two new species of *Erica* from southern Africa. *Feddes Repertorium* 107: 5, 6, 305–310.
OLIVER, E.G.H. & OLIVER, I.M. 2000. Ericaceae. In P. Goldblatt & J. Manning, Cape Plants. A conspectus of the Cape Flora of South Africa. *Strelitzia* 9: 423–452. National Botanical Institute, Pretoria.
OLIVER, E.G.H. & OLIVER, I.M. 2001. Five new species of *Erica* (Ericaceae) from Swartberg Range, Western Cape, South Africa and a note on *E. esterhuyseniae*. *Bothalia* 31: 155–165.
OLIVER, E.G.H. & OLIVER, I.M. 2002a. A new rock-loving *Erica* from eastern Swartberg, South Africa. *Yearbook of Heather Society* 2002: 31–36.
OLIVER, E.G.H. & OLIVER, I.M. 2002b. Genus *Erica* (Ericaceae) in southern Africa: taxonomic notes 1. *Bothalia* 32: 37–61.
OLIVER, E.G.H. & OLIVER, I.M. 2003. Ericaceae. In G. Germishuizen & N.L. Meyer, Plants of southern Africa: an annotated checklist. *Strelitzia* 14: 424–451.
OLIVER, E.G.H. & OLIVER, I.M. 2005. Cape heaths in European gardens: early history of South African *Erica* species in cultivation, their deliberate hybridization and orthographic bedlam. *Bothalia* 35: 121–148.
SAlt.ER, T.M. 1950. Ericaceae. In R.S. Adamson & T.M. Salter, *Flora of Cape Peninsula*. Juta, Cape Town.
SCHUMANN, D., KIRSTEN, G. & OLIVER, E.G.H. 1992. *Ericas of southern Africa*. Fernwood Press, Vlaeberg.
STEVENS, P.F. 1971. A classification of Ericaceae: subfamilies and tribes. *Journal of Linnean Society (Botany)* 64: 1–53.

ERYTHROXYLACEAE

(Order Malpighiales)

Compiled by C.L. Bredenkamp

Styles 2, completely united; stigmas flattened, spreading or reflexed; petal-nectaries small, hidden by sepals; flowers opening on leafless shoots ..... **Nectaropetalum**

Styles 3, rarely 2, free or partially united; stigmas capitate or obliquely capitate; petal-nectaries large, convolute, exceeding the sepals; flowers on leafy shoots ..... **Erythroxylum**

ERYTHROXYLUM P.Browne

Species ± 230, pantropical, especially American; 4 in sthn Afr., N, B, LIM, M, S, KZN, EC.

emarginatum Thonn.

African cocaine tree, African cocatree; *Afrika-kokaboom* (A); *utimani* (X); *umbambamatsheni* (Z)

Tree or shrub, 1.5–9.0(18.0) m high, branchlets flattened towards tip. **Leaves** alternate, elliptic to oblanceolate, up to 125 × 45 mm, entire, coriaceous, glabrous, glossy, dark green above, paler green below, venation prominent, base cuneate, apex emarginate; petioles ± 6 mm long; stipules intrapetiolar. **Flowers** axillary, solitary or in fascicles of 2–8, small, pedicellate, white, scented. **Flowering time** Sept.–Dec. **Fruit** a small, 1-seeded drupe, ampullaceous (flask-shaped), up to 14 mm long, with calyx and filaments persisting at base, bright red, edible. Coastal and inland forest, rocky hillsides in bushveld; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests (Oribi Gorge Nature Reserve to Kei River Mouth).

pictum E.Mey. ex Sond.

Forest cocaine tree; *bos-kokaboom* (A); *umgcamache* (X); *ummbamatsheni* (Z)

Tree or shrub, 2–13 m high, crown well branched, spreading, branchlets flattened towards tip. **Leaves** alternate, elliptic to ovate, up to 60 × 35 mm, entire, bluish green above, paler below, venation obscure, base cuneate, apex obtuse to rounded; petioles ± 5 mm long; stipules intrapetiolar, leaving conspicuous scars. **Flowers** solitary or in fascicles of 2 or 3, small, pedicellate, creamy green. **Flowering time** Dec.–May. **Fruit** a small, 1-seeded drupe, ampullaceous, up to 10 mm long, with calyx and filaments persisting at base, shiny red, edible. Indigenous forest and river mouths; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests, Albany Thicket (Uvongo S to Kentani).

NECTAROPETALUM Engl.

Species 6, Africa; 2 in sthn Afr., KZN, EC.

capense (Bolus) Stapf & Boodle

Kei mock cocaine tree; *Kei-valskokaboom* (A); *iqande* (X); *isigqalaba* (Z)

Shrub or small tree, 3–4(15) m high, with twigs sometimes compressed. **Leaves** simple, elliptic, up to 100 × 55 mm, entire, penninerved, with well-defined net-veining below, translucent when held up to light; petioles ± 6 mm long; stipules intrapetiolar, usually basally united, spike-shaped, deciduous. **Flowers** axillary, in few-flowered, compacted fascicles, on stalks up to 1.5 mm long, greenish white, heterostylous. **Petals** free, white, nectary appendage absent. **Stamens** united at base into shallow cup. **Ovary** 2-locular, each locule with 1 ovule. **Flowering time** July–Nov. **Fruit** fleshy, oval, up to 10 mm long, green, turning yellow after falling. Common in coastal forest and forest margins; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests, Albany Thicket (Umtamvuma Nature Reserve S to Kentani District).

zuluense (Schönland) Corbishley

Zulu mock cocaine tree; *Zulu-valskokaboom* (A); *iqande* (X); *ixweleba* (Z)

Shrub or small tree, 2–10(12) m high, growing tip long and narrow. **Leaves** simple, oblong, up to 80 × 40 mm, entire, penninerved, lateral veins translucent below, when

held up to light; petioles ± 3.5 mm long; stipules intrapetiolar, usually basally united, spike- or horn-shaped, deciduous. **Flowers** axillary, in few-flowered fascicles, on stalks up to 10 mm long, green or white, heterostylous. **Petals** free, nectary appendage present. **Flowering time** Oct.–Jan. **Fruit** fleshy, oval, up to 10 mm long, green, turning yellow after falling. In deep shade in evergreen forest; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests (Umtamvuma Nature Reserve in KZN S to Mtamvuna River in EC).

ENGLER, A. 1902. Erythroxylaceae. *Botanische Jahrbücher* 32: 109.
PHILLIPS, E.P. 1951. The genera of South African flowering plants. *Memoirs of the Botanical Survey of South Africa* No. 25.
ROBSON, N.K.B. 1963. Erythroxylaceae. *Flora zambesiaca* 2: 102–109.
SONDER, O.W. 1860. Erythroxylaceae. *Flora capensis* 1: 233, 234.

EUPHORBIACEAE

(Order Malpighiales)

Compiled by C.L. Bredenkamp, P.V. Bruyns (genus *Euphorbia*), A. Moller, R.W. Becker & N. Ngoepe

The eudicot order Malpighiales contains approximately 16 000 species and is the most poorly resolved, large rosid clade. To clarify phylogenetic relationships in the order, Wurdack and Davis (2009) used maximum likelihood, Bayesian, and parsimony analyses of DNA sequence data, representing three genomic compartments (i.e. plastid, mitochondrial and nuclear). Results obtained from this study and those from other researchers (Davis et al. 2005; Soltis et al. 2007) strongly support the segregation of five separate families, namely the Euphorbiaceae, Peraceae, Picrodendraceae, Phyllanthaceae and Putranjivaceae from the Euphorbiaceae *s.l.* The Malpighiales are strongly supported as being monophyletic.

Key to the current families segregated from the Euphorbiaceae *s.l.*

Following Radcliffe-Smith (2001), Stevens (2008 onwards), Wurdack and Davis (2009).

1a Locules of ovary each with 2 ovules; pollen grains binucleate:

2a Leaves usually alternate, simple; petals present or absent; pollen grains not spiny:

3a Male disc extrastaminal or absent; leaves entire; ovary superior, (1)2–5(–15) carpels and locules; fruit less often drupaceous ..... **Phyllanthaceae** (*Andrachne*, *Antidesma*, *Bridelia*, [Not EC]*Cleisthanthus*, *Flueggea*, *Heywoodia*, [Not EC]*Hymenocardia*, *Lachnostylis*, [Not EC]*Maprounea*, *Margaritaria*, *Phyllanthus*, [Not EC]*Pseudolachnostylis*)

3b Male disc intrastaminal or absent; leaves often dentate; ovary 1–4 locular; fruit drupaceous .... **Putranjivaceae** (*Drypetes*)

2b Leaves often opposite, compound; petals absent; pollen grains spiny..... .....**Picrodendraceae** (= *Oldfieldioideae*) ([Not EC]**Androstachys*, [Not EC]**Hyaenanche*)

1b Locules of ovary each with 1 ovule; pollen grains binucleate or trinucleate:

4a Seeds exotegmic with a lignified palisade, exotegmen tracheoidal (cells with the general characteristics of tracheid-like cells or tracheids but not associated with xylem)..... **Peraceae** (*Clutia*)

4b Seeds exotegmic with a lignified palisade, exotegmen of lignified Malpighian cells .... **Euphorbiaceae** (*Acalypha*, *Adenocline*, [Not EC]*Alchornea*, [Not EC]*Aleurites*, [Not EC]*Caperonia*, [Not EC]*Cavacoa*, [Not EC]*Cephalocroton*, *Croton*, *Ctenomeria*, *Dalechampia*, [Not EC]*Eremocarpus*, *Erythrococca*, *Euphorbia*, *Excoecaria*, [Not EC]*Homalanthus*, *Jatropha*, *Leidesia*, *Macaranga*, [Not EC]*Manihot*, [Not EC]**Mercuriales*, *Micrococca*, [Not EC]*Monadenium*, [Not EC]**Pedilanthus*, [Not EC]*Plukenetia*, **Ricinus*, [Not EC]*Schinziophyton*, [Not EC] *Sclerocroton*, *Seidelia*, *Shirakiopsis*, [Not EC] *Spirostachys*, *Suregada*, [Not EC]*Synadenium*, *Tragia*, *Tragiella*, [Not EC]**Vernicia*)

[Not EC]Genera occurring in sthn Afr. but not in the EC; *cultivated.

1a Herbs, sometimes woody at base, or succulent herbs or shrubs:
2a Leaves opposite or whorled:
3a Apparent flower (cyathium) a ± cup-shaped structure with glands around its rim enclosing several stamens (reduced male flowers) and a central reduced female flower..... **Euphorbia**
3b Flowers male, female or bisexual, not borne in a cyathium..... **Adenocline**
2b Leaves mostly alternate, often much reduced in succulent species:
4a Apparent flower (cyathium) a ± cup-shaped structure with glands around its rim enclosing several stamens (reduced male flowers) and a central reduced female flower..... **Euphorbia**
4b Flowers male, female or bisexual, not borne in a cyathium:
5a Plants twining or trailing, often with stinging hairs:
6a Inflorescences surrounded by 2 large foliaceous involucral bracts..... **Dalechampia**
6b Inflorescences not involucrate:
7a Styles united into a tube..... **Tragiella**
7b Styles free above:
8a Stamens 3..... **Tragia**
8b Stamens 30–60 ..... **Ctenomeria**
5b Plants erect to diffuse, not climbing or trailing:
9a Leaves deeply palmately lobed, large, peltate; plant often tree-like..... ***Ricinus**
9b Leaves not deeply palmately lobed:
10a Petals present, at least in male flowers:
11a Indumentum stellate or lepidote..... **Croton**
11b Indumentum simple or absent ..... **Jatropha**
10b Petals absent:
12a Female flowers usually subtended by accrescent bracts; styles laciniate with filiform segments, often red; anthers vermiform..... **Acalypha**
12b Female flowers not subtended by accrescent bracts; styles not laciniate; anthers not vermiform:
13a Styles 2; ovary 2-locular:
14a Flowers in terminal racemes..... **Leidesia**
14b Flowers in terminal or axillary fascicles or cymules..... **Seidelia**
13b Styles 3(4); ovary usually 3-locular..... **Micrococca**
1b Shrubs or trees:
15a Leaves opposite..... **Excoecaria**
15b Leaves mostly alternate, often much reduced to absent in succulents:
16a Apparent flower (cyathium) a ± cup-shaped structure with glands around its rim enclosing several stamens (reduced male flowers) and a central reduced female flower..... **Euphorbia**
16b Flowers male or female, not borne in cyathia:
17a Leaves palmately lobed to compound ..... ***Ricinus**
17b Leaves not compound nor deeply palmately lobed:
18a Petals present, at least in male flowers:
19a Indumentum stellate or lepidote..... **Croton**
19b Indumentum simple or absent ..... **Jatropha**
18b Petals absent:
20a Bracts accrescent; style laciniate with filiform segments, often red; anthers vermiform..... **Acalypha**
20b Bracts 3-lobed; styles 2–4, subpersistent; anthers not vermiform..... **Shirakiopsis**
21a Sepals of male flowers open in bud (exposing anthers); typically with milky latex..... **Excoecaria**
21b Sepals of male flower closed in bud; latex mostly absent, if present, watery to reddish to milky:
22a Sepals of male flowers imbricate in bud..... **Suregada**
22b Sepals of male flowers valvate in bud:
23a Bud scales coriaceous, persistent..... **Erythrococca**
23b Buds naked..... **Macaranga**

ACALYPHA L.

Species 450, cosmopolitan in warm regions, 50 African; 18 in sthn Afr., N, B, LIM, NW, G, M, S, FS, KZN, L, WC, EC.

1a Spikes normally bisexual

glabrata Thunb.

Forest mock nettle, forest false nettle; *valsnetelbos* (A); *isithomboti*, *umthombothi* (X); *uthovothi*, *isithombothi* (Z)

Perennial shrub or small tree, up to 5 m high; many stemmed, much branched; stems minutely puberulous, soon glabrescent. **Leaves** slender, membranous, glabrous or sparingly to evenly pubescent or villous on both surfaces, elliptic-ovate to rhombic-ovate, 10–80 × 5–50 mm, base widely cuneate to subtruncate, apex obtuse or acuminate. **Stipules** long, linear-lanceolate. **Inflorescences** spicate, axillary, male flowers clustered; female flower solitary; male bracts minute; female bracts accrescent, spathaceous, transversely ovate. **Male flowers**: glabrous, hair-like. **Female flowers** sessile; sepals 3, minute, ovate, acute, pilose; ovary 0.5 mm in diam., 3-lobed to subglobose, densely setose; styles shortly united at base, laciniate. **Flowering time** Oct.–Mar. **Fruit** 3-lobed, echinulate, pubescent. **Seeds** globose, smooth. Forest, grassland, alt. 5–1 525 m; Indian Ocean Coastal Belt, Indigenous Forests, Sub-Escarpment Savanna, Albany Thicket (Port St. Johns S, from Stutterheim to Komga District, Grahamstown to Alexandria and to East London).

indica L.

Annual or perennial, dwarf shrub, herbaceous, 0.2–1.2 m high; stem simple or sparingly branched, sulcate, shortly pubescent. **Leaves** membranous, long-petioled, rhomboid-ovate, ovate-oblong, 20–70 × 10–50 mm, base widely cuneate or subtruncate, apex acute, margins serrate, both surfaces sparingly pubescent; petioles up to 76.2 mm long, puberulous. **Spikes** solitary or paired, up to 63.5 mm long; male bracts minute, faintly puberulous; female bracts accrescent, leafy, up to 5-flowered, suborbicular, obtuse. **Female flowers**: sepals 3, ovate-triangular, sparingly ciliate; styles 3, free from base, short, laciniate; ovary deeply 3-lobed, pilose with tubercle-based hairs. **Seeds** ovoid, minutely and closely pitted. Warm, sandy margins of rivers, seasonal watercourses and pans, shade of thickets, rocky hillsides and outcrops, disturbed ground, weed of cultivation, alt. 60–1 160 m; Sub-Escarpment Savanna (Willowvale District).

1b Spikes normally unisexual
2a Leaves distinctly long-petioled; plants always monoecious

capensis (L.f.) Prain & Hutch.

Perennial shrub, 0.5–3.0 m high; stems slender, copiously branched, decumbent; branches faintly striate, glabrous. **Leaves** membranous, long-petioled, ovate or ovate-lanceolate, acute, base often truncate on smaller twigs and deeply cordate in main branches, margins coarsely crenately toothed; petioles sparingly puberulous, 12.7–19.1 mm long; stipules linear, spreading, glabrous. **Inflorescences**: male and female distinct, both axillary; male spikes solitary to their axils, slender, with naked peduncle; bracts minute, puberulous; female spikes short; peduncles 25.4–50.8 mm long, bracts leafy, reniform-ovate, strongly and coarsely 5–9-toothed. **Female flowers**: calyx deeply lobed; lobes ovate-lanceolate; ovary 3-lobed, densely papillose; styles 3, free, densely papillose. **Flowering time** Sept.–Jan. **Seeds** subglobose. Sandy, disturbed or cultivated soil, alt. 5–305 m; Eastern Fynbos-Renosterveld, Indigenous Forests (Storms River, Humansdorp).

ecklonii Baill.

Annual herb, 0.2–0.5 m high; stems sparingly branched from base, sulcate, pubescent or glabrous. **Leaves** membranous, long-petioled, ovate, subacute or acute, base slightly cordate or rounded, margins crenate, 19.1–31.8 × 12.7–25.4 mm; stipules subulate, pilose, caducous. **Inflorescences**: male lateral; female terminal on same branch. **Male spikes** axillary, solitary, capitate on slender, puberulous peduncles; bracts minute, subulate. **Female spikes** solitary, widely cylindric or oblong; bracts leafy, widely ovate, acuminate. **Female flowers**: sepals 3, lanceolate, acute, sparingly hairy; styles 3, slender, free to base, undivided or sparingly laciniate; ovary 3-lobed, sparingly pubescent in upper half. **Flowering time** Dec.–Apr. **Seeds** ovoid, smooth. Sandy, recently burned or cultivated soil, alt. 5–1 524 m; Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Indigenous Forests, Drakensberg Grassland, Eastern Fynbos-Renosterveld, Albany Thicket (Queenstown E to Port St Johns S, from Seymour to Nahoon River and from Suurberg in Greater Addo Elephant National Park to Grahamstown).

villicaulis Hochst.

Umpendulo, *umsongo*, *uvelabahleke* (Z)

Perennial, dwarf shrub, 0.1–2.0 m high; woody rootstock; stems several, erect, ascending or decumbent, many branched, hirsute or pubescent. **Leaves** firmly membranous, ovate, lanceolate, base rounded or truncate, acuminate at apex, margins serrate. **Male racemes** axillary, solitary, up to 120 mm long; peduncle up to 50 mm long; bracts linear, 1.5 mm long. **Male flowers**: pedicels 1 mm long; buds tetragonal-subglobose, sparingly pubescent. **Female spikes** terminal, up to 50 mm long; peduncle up to 15 mm long; bracts accrescent, transversely ovate, coarsely dentate, ciliate. **Female flowers**: sepals 3 or 4; styles free, pectinate or with few or no lateral segments, crimson; ovary 3-lobed. **Flowering time** Dec., Jan. **Fruit** 3-lobed, glabrous. **Seeds** ovoid-subglobose, smooth, with depressed-hemispherical caruncle across. Grassland, alt. 5–1 636 m; Sub-Escarpment Grassland, Sub-Escarpment Savanna (Clydesdale S to Kei River Mouth).

2b Leaves sessile or subsessile; plants normally dioecious

angustata Sond.

Perennial, dwarf shrub, 0.1–0.9 m high; rootstock woody, stout; indumentum setulose with white bulbous-based hairs or glabrous. **Leaves** many, linear or lanceolate, shortly petioled, base cuneate, apex acute, margins distantly acutely denticulate, 25.4–63.5 × 5.1–19.1 mm. **Male spikes** axillary, narrowly cylindric, 12.7–19.0 mm long; bracts spreading, persistent, sparingly setulose, 3.2 mm long. **Male flowers**: buds glabrous. **Female spikes** terminal, solitary, 25.4 – 38.1 mm long; bracts 6.35 mm wide, base rounded with sharply and strongly serrate margins. **Female flowers**: sepals 3, ovate; styles 3, united in their lower fourth; upper part of ovary closely glandular. **Flowering time** Dec., Jan. **Seeds** subglobose. Sandy, recently burned soil, grassland, alt. 70–2 080 m; Sub-Escarpment Grassland (Maclear District).

depressinerva (Kuntze) K.Schum.

Perennial, dwarf shrub or herb, 0.10–0.35 m high; stems slender, erect; woody rootstock; simple to branched, striate; copiously patently setulose with white bulbous hairs. **Leaves** firmly membranous, many, small, shortly petioled, narrowly lanceolate, base rounded, apex acute, margins quite entire. **Male spikes** axillary, solitary, peduncled; spikes narrowly cylindric; bracts linear-lanceolate, spreading, persistent; buds setulose at apex. **Female spikes** terminal, solitary; bracts subsessile, large, foliaceous, ovate-lanceolate,

acute, base rounded. **Female flowers**: sepals 3, ovate, subacute, pilose; ovary distinctly 3-lobed; styles 3, shortly united below. **Seeds** subglobose. Shady, recently burned soil, rocky grassland, alt. 460– 1 920 m; Sub-Escarpment Grassland (uMzimkhulu District, Kokstad, Maclear District).

peduncularis E.Mey. ex Meisn.

Ikhothe, *uSununundu* (Z)

Perennial, dwarf shrub or herb, 0.08–0.45 m high; stem slender, sparingly branched, prostrate, rootstock woody; branches striate. **Leaves** membranous, many, shortly petioled, ovate or ovate-lanceolate to lanceolate, acute or lowest down obtuse, base cuneate or rounded, margins distinctly serrate; petioles setulose, stipules setulose, subulate, persistent. **Male spikes** axillary, solitary, peduncled; spikes cylindric; bracts lanceolate. **Female spikes** terminal, solitary; bracts subsessile, leafy, widely ovate, base widely cuneate, apex subacute or obtuse, coarsely serrate. **Female flowers**: sepals 3, ovate, acute, setulose; ovary distinctly 3-lobed, pilose and glandular in upper half; styles 3, united in lower third. **Flowering time** Sept.–Jan. **Seeds** subglobose. Full sun, grassland, recently burned or grazed, sandy or clay, alt. 30– 2 000 m; widespread in all bioregions on eastern side (Kokstad southwards, from Cala Pass to Mtamvuna River, Katberg to Kentani District, and from Uitenhage to East London).

punctata Meisn.

Usununundu (Z)

Perennial, dwarf shrub or herb, 0.1–0.9 m high; stems stout, copiously branched; rootstock woody; branches virgate, striate, pubescent to copiously patently setulose. **Leaves** membranous, many, shortly petioled, ovate or ovate-lanceolate, lowest usually obtuse, uppermost acute, base rounded, margins sharply coarsely serrulate; petioles pubescent or setulose; stipules setulose, lanceolate, persistent. **Male spikes** axillary, solitary, peduncled; spikes cylindric; bracts lanceolate, puberulous or pubescent. **Female spikes** terminal, solitary, sessile; bracts subsessile, leafy, ovate-lanceolate, acuminate. **Female flowers**: sepals 3, ovate, acute, glandular; ovary distinctly 3-lobed, pubescent and glandular in upper half; styles 3, united in lower third. **Flowering time** Oct.–Dec. **Seeds** subglobose. Sandy, loamy soil, grassland, alt. 10– 2 000 m; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Albany Thicket, Indigenous Forests (Ntsikeni Forest, Lusikisiki District, Suurberg in Greater Addo Elephant National Park).

wilmsii Pax ex Prain & Hutch.

Perennial shrub, dwarf shrub or herb, 0.06–1.00 m high; stems firm, woody, sparingly branched; rootstock woody; bark striate, pubescent. **Leaves** membranous, many, shortly petioled, ovate or ovate-lanceolate, lowest obtuse, others acute, base rounded or shallow-cordate, margins shortly toothed; petioles setulose; stipules setulose, lanceolate, persistent. **Male spikes** axillary, solitary, peduncled; peduncles pubescent to densely setulose and glandular; spikes cylindric; bracts lanceolate, pubescent. **Female spikes** terminal, solitary, sessile; bracts subsessile, leafy, wide ovate-cordate, acute, margins toothed. **Female flowers**: sepals 3, acute, pubescent and glandular; ovary distinctly 3-lobed, softly pubescent and glandular; styles 3, united in their lower fourth. **Flowering time** Dec. **Seeds** subglobose. Forest, alt. 765–2 150 m; Sub-Escarpment Grassland, Indigenous Forests (Transkei, Mjika above Nqadu Forest floor).

ADENOCLINE Turcz.

Species 3, sthn Afr., also Malawi, fairly widespread, LIM, M, S, FS, KZN, L, WC, EC.

Plants dioecious

acuta (Thunb.) Baill.

Annual or perennial, scrambling shrub or herb, 0.2–1.0 m high; much-branched; stems weak, cylindric. **Leaves** opposite, membranous, triangular-ovate to ovate-lanceolate, base cuneate to rounded, truncate or cordate, apex acuminate, serrate; long-petioled. **Stipules** dissected, subulate-filiform, persistent. **Male inflorescences** laxly paniculate; bracts narrowly-lanceolate, cuneate-attenuate. **Female inflorescences** resembling male, but smaller. **Male flowers**: pedicels up to 3 mm long; sepals linear; stamens 6–12; anthers yellowish. **Female flowers**: pedicels up to 5 mm long; sepals linear-lanceolate; ovary 3-lobed; styles up to 1.2 mm long. **Flowering time** July–Sept. **Fruit** 3-lobed, apically tricuspidate, smooth. **Seeds** foveolate. Grassland, rainforest margins and shady river-banks in forest, also in thickets, alt. 3–2 500 m; widespread in all bioregions on eastern side (Fort Donald S, from Baziya Mountain to Port St Johns, Seymour to King William's Town and Port Elizabeth to Grahamstown).

pauciflora Turcz.

Annual or perennial herb, 0.15–0.50 m high; rootstock woody; laxly branching and filiform ascending stems. **Leaves** alternate, membranous, ovate to linear-lanceolate, acute, base rounded or cuneate, margins sharply serrate or shallowly crenate. **Male flowers** subsessile in leaf-opposed or axillary racemes. **Female flowers** in leaf-opposed racemes, solitary; pedicels abruptly reflexed; ovary glabrous. **Flowering time** Sept.–Jan. **Fruit** a 3-lobed capsule, 2 mm wide, smooth; calyx-segments in both sexes 5. **Seeds** ovoid-globose. Grassland, recently burned, rocky, stony, sandy soil, alt. 5– 2 100 m; widespread in all bioregions, except in Upper Karoo, Dry Highveld Grassland, Mesic Highveld Grassland and Rainshadow Valley Karoo (Kokstad S, from Aberdeen to Kei River Mouth, Port Elizabeth to East London and from Humansdorp to Kromme Bay).

Plants monoecious

violifolia (Kuntze) Prain

Annual herb, up to 0.35 m high; many branched. **Leaves** ovate, acute, weakly toothed, base minutely cordate, apex shortly acute, margins distantly serrate. **Stipules** lanceolate, minute. **Male flowers** in axillary clusters. **Female flowers** in leaf-opposed racemes. Forests, alt. 140–650 m; Albany Thicket, Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld (Graaff-Reinet District, Willowmore, Uitenhage, Suurberg, Alexandria).

CROTON L.

Species at least 800–1 200, pantropical, the majority American; ± 11 in sthn Afr., fairly widespread, LIM, M, S, KZN, EC.

[E]**rivularis** Müll.Arg.

Perennial shrub, 0.5–1.5 m high; branches cylindric, stellate-pubescent. **Leaves** alternate, distinctly petioled, membranous, ovate or ovate-lanceolate, base rounded, apex obtuse or acute, margins shortly serrate. **Stipules** minute, caducous. **Racemes** monoecious; bracts small, ovate, stellate-pubescent. **Male flowers** paired; sepals 5, ovate, obtuse, densely stellate-tomentose; petals orbicular, margins densely white-villous, thinly pubescent externally; disc gland small; stamens 10–15, filaments slender, glabrous;

receptacle villous. **Female flowers** solitary; sepals ovate-lanceolate; petals rudimentary or obsolete; disc 5-lobed, glabrous; ovary densely tomentose with stellate hairs; styles 2-partite to base, segments linear, glabrous. **Flowering time** all year. **Fruit** a subglobose capsule, distinctly 3-sulcate, densely stellate-tomentose. **Seeds** oblong, subtriquetrous, smooth. Forest, closed shrubland or woodland, alt. 5–1 128 m; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Drakensberg Grassland, Indian Ocean Coastal Belt, Eastern Fynbos-Renosterveld, Albany Thicket (Fort Beaufort District to Kei River Mouth S, from Suurberg to Uitenhage, Port Alfred, Peddie and East London).

sylvaticus Hochst.

Fever tree; *koorsboom* (A); *umFeze* (X); *umHloshozane* (Z)

Perennial tree or shrub, 2–21 m high; deciduous, monoecious; twigs sparingly to densely stellate-pubescent or glabrescent. **Leaves** chartaceous, ovate, elliptic-ovate, apex acuminate, margins glandular crenate-serrate; stellate-pubescent on both surfaces or glabrescent; petioles bipulvinate. **Racemes** terminal; axes stellate-pubescent; bracts small. **Male flowers**: sepals 5, elliptic-ovate to ovate-lanceolate, sparingly stellate-pubescent, puberulous at apex; petals 5, elliptic-lanceolate to oblong-lanceolate; disk glands free, triangular, acutely acuminate; stamens 14–17, glabrous; anthers 1 mm long; receptacle densely villous. **Female flowers**: pedicels stout, densely stellate-tomentose; sepals linear-lanceolate; petals as in male; disk 5-lobed, glabrous; ovary ovoid-subglobose, densely stellate-tomentose; styles 3–5 mm long. **Flowering time** Oct.–Jan. **Fruit** trilobate-subglobose to ellipsoid, subindehiscent, sparingly to evenly stellate-pubescent. **Seeds** compressed-ovoid. Mixed evergreen forest, rocky slopes, river gully outcrops, alt. 10–1 980 m; Sub-Escarpment Savanna, Indigenous Forests, Albany Thicket (Port St Johns to Ngqeleni District S, from Kei River Mouth to Haga-Haga).

CTENOMERIA Harv.

Monotypic, widespread in sthn Afr., LIM, M, S, KZN, WC, EC.

capensis (Thunb.) Harv. ex Sond.

Perennial shrub or climber, 1–2 m high; monoecious; pubescent or nearly glabrous. **Leaves** alternate, base cordate. **Racemes** terminal or leaf-opposed. **Male flowers**: calyx 5-lobed, valvate in bud; stamens 30–60; filaments free, capillary; anthers dehiscing longitudinally; rudimentary ovary absent. **Female flowers**: calyx 6-partite; segments pectinately lobulate on each side; ovary 3-celled; ovules solitary in each cell; styles 3, long, filiform, free, densely papillose throughout. **Flowering time** Sept.–Feb. **Fruit** 3-coccous; cocci 2-valved; valves crustaceous. **Seeds** globose, ecarunculate. Forest, closed shrubland or woodland, gravel, stony/rocky, alt. 10–1 370 m; Indigenous Forests, Indian Ocean Coastal Belt, Eastern Fynbos-Renosterveld, Albany Thicket (Port St Johns SW, from Seymour to Kei River Mouth and Suurberg to Uitenhage and Grahamstown Districts).

DALECHAMPIA L.

Species 110, fairly cosmopolitan in warm regions, 10 in Africa; 4 in sthn Afr., widespread, B, LIM, NW, M, S, KZN, EC.

capensis A.Spreng.

Wild hop; *inzula* (Z)

Perennial, dwarf shrub or creeper, 0.4–3.5 m high; woody rootstock, hirsute and pubescent. **Leaves** 5-partite, lanceolate to elliptic-lanceolate, base constricted, deeply cordate,

apex acute, serrate to subentire. **Inflorescences** axillary; bracts ovate, 3-lobed, lobes lanceolate, glandular-serrate, rounded-cuneate, base truncate or shallowly cordate. **Male flowers**: pedicels 3 mm long; calyx lobes 5, ovate or lanceolate, subglabrous; stamens 25. **Female flowers** subsessile; sepals 10–12, linear, lateral lobules 10- or 11-paired, gland-tipped, pubescent and with urticate hairs; ovary pubescent; style dilated and apex excavated. **Flowering time** Oct.–Mar. **Fruit** smooth, hispidulous. **Seeds** smooth. Dense high rainfall plateau woodland, stony/rocky, alt. 15–1 435 m; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests, Eastern Fynbos-Renosterveld, Albany Thicket (Umzimvubu Cutting, Mqanduli, Tembuland, Port St Johns, Groot River Poort, Suurberg in Greater Addo Elephant National Park).

ERYTHROCOCCA Benth.

Species 50, mainly Africa; 4 in sthn Afr., N, B, LIM, M, S, KZN, EC.

sp. nov.

Pondoland red-berry; *Pondoland-rooibessie* (A)

Occurring in dense shade in the understorey of forests; as yet undescribed.

EUPHORBIA L.

Species ± 1 700, cosmopolitan; ± 180 in sthn Afr., most of which are succulent, 54 in EC,15 endemic, widespread.

1a Annual or perennial herbs without strongly swollen subterranean stem
2a Prostrate herbs; leaves opposite; cyathia not in umbels; cyathial glands entire with petaloid appendages on outer margins; seeds without caruncle

inaequilatera Sond.

Bisexual, glabrous, annual herb, up to 0.15 m in diam., from slender fibrous rootstock. **Leaves** 2–10 × 1–5 mm, entire or toothed, glabrous, often marked with red blotch, shortly petiolate, stipules subulate or finely segmented. **Cyathia** solitary, axillary, ± 1 mm in diam.; glands 4, appendages narrow, entire or 2- to 3-toothed, pale. **Flowering time** Oct.–Mar. **Capsule** 1.5–2.0 mm in diam., obtusely 3-angled, glabrous, exserted. Widespread weed in grassland or among bushes, usually in exposed, bare spots between stones; Upper Karoo, Dry Highveld Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Drakensberg Grassland, Albany Thicket (Middelburg E to Mthatha S, from Alice to Kei River Mouth and to Addo).

livida E.Mey. ex Boiss.

Bisexual, glabrous, perennial herb, up to 0.2 m in diam., from woody rootstock. **Leaves** 8–18 × 5–7 mm, entire, glabrous, shortly petiolate, stipules ovate, toothed. **Cyathia** in small axillary cymes, ± 2 mm in diam., glabrous; glands 3 or 4, transversely elliptic, appendage white. **Flowering time** Dec.–Mar. **Capsule** 3 mm in diam., glabrous, exserted. Stony or rocky soil close to shore; Indian Ocean Coastal Belt, Albany Thicket (Port Edward to East London).

***prostrata** Aiton

Bisexual, sparsely pubescent, annual herb, up to 0.2 m in diam. from slender rootstock. **Leaves** 3–7 × 1–4 mm, toothed, glabrous to sparsely hairy beneath, ciliate, shortly petiolate, stipules on upper side of stem free, below fused, deltoid-ovate and apically toothed. **Cyathia** on short axillary leafy branches with 1 cyathium per pair of leaves, ± 1 mm in diam., sometimes thinly pubescent; glands 4, appendages small or obsolete. **Flowering**

time Nov.–Feb. **Capsule** 1.0–1.5 mm in diam., pubescent along angles, exserted. Widespread, introduced from America, in disturbed places; Upper Karoo, Sub-Escarpment Grassland, Sub-Escarpment Savanna (Bethulie, Kokstad, Middelburg, Alice).

2b Ascending to erect herbs; leaves alternating and without stipules; several bisexual cyathia in umbels around central cyathium; cyathial glands without petaloid appendages on outer margins (outer margins sometimes horned); seeds with caruncle

3a Leaves with finely toothed margins

*helioscopia L.

Bisexual, short-lived, glabrous, perennial herb, 0.15–0.30 m high. **Leaves** 12–32 × 6–25 mm, denticulate, usually sessile, stipules absent. **Cyathia** in terminal umbel 50–150 mm in diam., around solitary ± sessile cyathium, yellowish green; glands 4, with 2 slender spreading horns on outer margins. **Flowering time** Apr.–Oct. **Capsule** 3–4 mm in diam., obtusely 3-angled, glabrous, exserted for 3–5 mm. Widespread weed, introduced from Europe, in disturbed places, Upper Karoo, Sub-Escarpment Savanna (Middelburg, Grahamstown).

3b Leaves with entire margins
4a Annuals

*peplus L.

Bisexual, erect, annual, glabrous herb, 0.1–0.4 m high, often single-stemmed. **Leaves** 6–18 × 4–12 mm, spreading, ovate to almost circular, green, tapering into short petiole. **Cyathia** in lax panicles, 2 mm in diam., green; glands 4, with 2 spreading horns on outer margins. **Flowering time** Apr.–Oct. **Capsule** 2 mm in diam., 3-angled with 2 ridges along each angle, glabrous, exserted for 2.5–3.0 mm. Widespread weed, introduced from Europe, in disturbed areas; Albany Thicket, Sub-Escarpment Savanna (Graaff-Reinet, Alice, Komga S, Port Elizabeth and Grahamstown).

*4b Perennials, often with annual stems arising from somewhat woody perennial rootstock (*Euphorbia *sect.* Esula*)*

5a Leaves tapering into short petiole; whole plant perennial with gradually woody stem and branches

kraussiana Bernh.

Bisexual, erect, glabrous shrub, 0.5–2.0 m high, with slender, gradually woody stem and branches. **Leaves** 50–120 × 3–16 mm, spreading or ascending, elliptic to oblanceolate. **Cyathia** in lax repeatedly branched panicles, 2–3 mm in diam.; glands 5, entire. **Flowering time** Aug.–May. **Capsule** 3–4 mm in diam., obtusely 3-angled, glabrous, exserted for 4–5 mm. Edges of forests usually among bushes of similar size or as undershrub in forest; Sub-Escarpment Grassland, Indigenous Forests, Indian Ocean Coastal Belt, Sub-Escarpment Savanna, Albany Thicket, Eastern Fynbos-Renosterveld (Port Edward to George).

5b Leaves sessile; stems and branches often annual from somewhat woody perennial rootstock

epicyparissias E.Mey. ex Boiss.

Pisgoed (A)

Bisexual, erect, ± glabrous herb, 0.4–1.5 m high. **Leaves** often densely clustered, 13–25 × 0.5–3.0 mm, linear, flat or with revolute margins. **Cyathia** in terminal umbel with 3–8 short, often forked rays, 3–5 mm in diam.; glands 4 or 5, crescent-shaped, with 2 straight to much reduced horns on outer margins. **Flowering time** Sept.–Mar.

Capsule 3.5–4.0 mm in diam., obtusely 3-angled, exserted for 1.5–4.0 mm. Grassland, often in shallow, seasonally wet soils; Drakensberg Grassland, Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Albany Thicket (Port Edward to East London and to Gansbaai).

ericoides Lam.

Bisexual, erect, glabrous herb, 0.15–0.50 m high, with annual stems from perennial rootstock. **Leaves** often densely clustered, 3–12 × 0.5–1.0 mm, reflexed, linear with revolute margins. **Cyathia** in terminal umbel, ± 3 mm in diam.; glands 4, ± crescent-shaped, with 2 short horns on outer margins. **Flowering time** Sept.–Feb. **Capsule** ± 4 mm in diam., obtusely 3-angled, exserted for 3.5–5.0 mm. Grassland among other shrubs and tufts of grass; Drakensberg Grassland, Albany Thicket (Rhodes, Port Alfred and to Swellendam).

natalensis Bernh.

Bisexual, erect, ± glabrous herb, 0.1–0.6 m high, with annual stems from perennial rootstock. **Leaves** often densely clustered, 6–20 × 1–6 mm, linear, deflexed. **Cyathia** in terminal umbel with short rays, 3–5 mm in diam.; glands 4, crescent-shaped, with 2 horns or fine teeth on outer margins. **Flowering time** Oct.–Mar. **Capsule** 3–5 mm in diam., obtusely 3-angled, exserted for 3–6 mm. Montane grassland among other shrubs and tufts of grass; Drakensberg Grassland, Sub-Escarpment Grassland (Rhodes to Maclear).

[E]sclerophylla Boiss.
(incl. *E. albanica* N.E.Br., *E. muraltioides* N.E.Br., *E. ruscifolia* N.E.Br.)

Bisexual, erect, ± puberulous or glabrous herb, 0.1–0.3 m high, with often annual stems from perennial rootstock. **Leaves** often clustered, 6–18 × 1.5–9.0 mm, linear-lanceolate to ovate-lanceolate, ascending, usually with sharp tip. **Cyathia** in terminal 3–5-rayed umbel, 2.5–3.0 mm in diam.; glands 4, crescent-shaped, with 2 short horns on outer margins. **Flowering time** Dec.–Feb. **Capsule** 3–4 mm in diam., obtusely 3-angled, exserted for 1–2 mm. Flat areas in grassland; Drakensberg Grassland, Sub-Escarpment Savanna, Albany Thicket (Transkei to Fort Beaufort, King William's Town, Grahamstown and Port Alfred).

striata Thunb.

Melkgras (A)

Bisexual, erect, glabrous herb, 0.2–0.6 m high, with annual stems from perennial rootstock. **Leaves** widely spaced, 12–50 × 1–6 mm, ascending, linear-lanceolate, tapering to slender tip, flat or with incurved margins. **Cyathia** in lax rayed panicle, 3–5 mm in diam.; glands 4, crescent-shaped. **Flowering time** Sept.–Mar. **Capsule** 3.5–4.5 mm in diam., obtusely 3-angled, exserted for 1–3 mm. Sandy slopes and flats among bushes and tufts of grass; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Aliwal North to Kokstad southwards, from Humansdorp to Port Elizabeth and East London).

1b Perennial geophytes with deciduous leaves, retreating to swollen underground tuber in dry season

gueinzii Boiss.

Unisexual, glabrous or pilose geophyte with deciduous stems, 50–150 mm high. **Leaves** alternate below, opposite above, deciduous, 60–320 × 2–12 mm, linear to ovate-lanceolate, grey-green, ± sessile. **Cyathia** in terminal leafy cymes or solitary in forks of branch-

es, on peduncles 1–8 mm long, 2–6 mm in diam.; glands 5, entire or minutely crenulate. **Flowering time** Nov.–Mar. **Capsule** ± 6 mm in diam., obtusely 3-angled, pilose or glabrous, exserted for 3–6 mm. Grassland overlaying rocks; Sub-Escarpment Grassland, Sub-Escarpment Savanna (Pondoland, Mtentu South).

silenifolia (Haw.) Sweet

Melkbol, *wilderamenas* (A)

Unisexual, acaulescent, geophytic perennial, up to 50 mm high, from ellipsoidal tuber. **Leaves** deciduous, 25–120 × 2–12 mm, from narrowly oblanceolate to linear or filiform, tapering below into slender petioles 12–100 mm long, grey-green, glabrous. **Cyathia** several on deciduous peduncles 25–125 mm long, 4–6 mm in diam.; glands 5, entire, yellow-green to brown. **Flowering time** Sept.–Mar. **Capsule** 6–8 mm in diam., obtusely 3-angled, pubescent, sessile. Stony hillsides amongst tufts of grass; Eastern Fynbos-Renosterveld, Albany Thicket, Sub-Escarpment Savanna (Baviaanskloof to East London).

1c Succulents with swollen stem and photosynthetic branches, usually with leaves deciduous or reduced to minute, fleeting rudiments, opposite to whorled or spirally arranged
6a Branches ± terete and without obvious tubercles bearing leaves
7a Plants unisexual or bisexual; leaves ± conspicuous but fleeting, alternate; seeds with caruncle
8a Plants unisexual; cyathia clustered near tips of branches, sessile

***tirucalli** L.

Rubber euphorbia; *kraal-naboom* (A); *motlalamela* (NS)

Spineless, densely branched, shrub or tree, up to 10 m high; branchlets 5–7 mm thick, finely striated, glabrous. **Leaves** fleshy, caducous, 8–15 mm long, linear-lanceolate, without stipules, subsessile. **Cyathia** clustered at tips of branches, sessile; finely felty; glands 5, entire. **Flowering time** Oct.–Dec. **Capsule** 8 mm in diam., obtusely 3-angled, finely puberulous, exserted for 8 mm; seeds with small white caruncle. Widespread, introduced, probably indigenous to northern Moçambique, planted as hedges; Indian Ocean Coastal Belt, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Albany Thicket (Port Edward S along coast to East London and inland to Queenstown).

8b Plants bisexual; bisexual cyathia arising in rayed umbels around a central sessile male cyathium

mauritanica L.

Yellow milk-bush; *geel-melkbos*, *jakkalskos* (A)

Glabrous. spineless shrub, 0.5–2.0 m high, much branched above base, branches 3–6 mm in diam., bright yellow-green. **Leaves** soon deciduous, 5–15 × 2–5 mm, lanceolate, without stipules, sessile. **Cyathia** terminal, sessile male cyathium up to 15 mm in diam. surrounded by 5–7 bisexual cyathia ± 7 mm in diam. on branches 6–10 mm long; glands 5–8, entire, yellow. **Flowering time** May–Nov. **Capsule** 5–6 mm in diam., obtusely 3-angled, glabrous, usually exserted for 3–6 mm; seeds with cap-like brownish caruncle. Drier areas, slopes and flats, often among rocks, often dominant; Upper Karoo, Sub-Escarpment Grassland, Lower Karoo, Dry Highveld Grassland, Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld, Albany Thicket (Middelburg and Cala S to Willowmore, Fish River Valley and Port Elizabeth).

*7b Plants unisexual; leaves reduced to minute soon deciduous rudiments, opposite; seeds without caruncle (*Euphorbia *sect.* Articulofruticosae*)*
9a Leaves with pair of brown ± shiny glandular stipules at bases

burmannii E.Mey. ex Boiss.

Soetmelkbos, *steenbokmelkbos* (A)

Spineless, glabrous shrub, up to 1 m high, branches 3–5 mm in diam., green, articulated, smooth. **Leaf-rudiments** 2–3 mm long, spathulate, with shiny, smooth, brownish stipules, shortly petiolate. **Cyathia** many, 1–3 together terminating some branches, 2–4 mm in diam.; glands 5, green. **Flowering time** Aug.–Mar. **Capsule** 3.0–3.5 mm in diam., obtusely 3-angled, dull green, pubescent, exserted for 2–3 mm. Amongst dense bush on rocky hill slopes; Albany Thicket, Lower Karoo, Eastern Fynbos-Renosterveld, Sub-Escarpment Savanna (Wilderness and Humansdorp to Grahamstown).

9b Stipules absent

juttae Dinter

(= *E. aequoris* N.E.Br.)

Dwarf, spineless, glabrous succulent, often with elongated tuberous roots, 50–150 mm high, with short branches 4–8 mm in diam. **Leaf-rudiments** 1–2 mm long, spathulate, shortly petiolate. **Cyathia** few, solitary and terminating some branches, nearly sessile, 1.5–2.0 mm in diam.; glands 4 or 5, yellow-green. **Flowering time** July–Mar. **Capsule** 2.5–3.5 mm in diam., obtusely 3-angled, glabrous, exserted for 2–5 mm. Gravelly flats, often under small shrubs; Upper Karoo, Rainshadow Valley Karoo (Middelburg, Graaff-Reinet and Cradock to Steytlerville).

rhombifolia Boiss.

(= *E. caterviflora* N.E.Br., *E. decussata* E.Mey. ex Boiss., *nom illegit.*, *E. mundii* N.E.Br.)

Soetmelkbos, *springbokmelkbos* (A)

Spineless, ± glabrous, often densely branched shrub, 0.1–1.0 m high, branches 2–8 mm in diam., finely papillate to smooth. **Leaf-rudiments** 1–2 mm long, deltoid, usually with 2 spreading basal horns, sessile. **Cyathia** many, 1–3 together terminating some branches, sessile, 2.0–2.5 mm in diam., often pubescent outside near base; glands 4 or 5, yellow-green. **Flowering time** Aug.–May. **Capsule** 3.0–4.5 mm in diam., obtusely 3-angled, sometimes pubescent, exserted for ± 1.5 mm. Widespread in drier areas of interior, flats to stony slopes, shallow soils near rock outcrops; Upper Karoo, Dry Highveld Grassland, Sub-Escarpment Grassland, Lower Karoo, Albany Thicket (Steynsburg S to Cradock).

spartaria N.E.Br.

(= *E. rectirama* N.E.Br.)

Like *E. rhombifolia* but branches more slender and up to 0.6 m long. **Leaf-rudiments** 1–6 mm long, slender and narrowly spathulate, without basal horns. **Cyathia** glabrous. **Flowering time** Oct.–Apr. **Capsules** glabrous. Stony slopes and flats among shrubs; Upper Karoo, Sub-Escarpment Grassland, Lower Karoo, Sub-Escarpment Savanna (Queenstown to Jansenville and to Grahamstown).

6b Branches with tubercles bearing leaves, tubercles scattered to densely covering surface or fused into angles along branches
10a Plants bisexual; with minute rapidly caducous leaf-rudiments subtended by pair of sharp spreading spines; spines arising on a hardened brownish spine-shield surrounding base of leaf-rudiment, tubercles mostly fused into raised angles along stem and branches (though stem often becoming cylindrical); inflorescence a shortly pedunculate cyme of 3 cyathia (central male, 2 laterals bisexual) arising in axil of leaf-rudiment near tips of branches (Euphorbia sect. Euphorbia)
11a Dwarf and semi-geophytic, with tuberous stem, branches often dying off or eaten back

[E]stellata Willd.
(= *E. micracantha* Boiss., *E. squarrosa* Haw.)
Star euphorbia

Dwarf, glabrous succulent, 20–150 mm high, with clavate subterranean stem and spreading to ascending rosette of 2–5-angled branches above ground; branches 15–150 × 8–15 mm, sometimes slightly concave above and convex below, often tapering-cylindrical towards base; spine shields separate, spines 2–4 mm long. **Leaf-rudiments** 1–2 × 1.0–1.5 mm. **Cyathia** transversely disposed in single cyme per tubercle, on peduncle 1–2 mm long, 2.5–4.5 mm in diam.; glands 5, entire, red to deep green. **Flowering time** Nov., Dec. **Capsule** 5 mm in diam., sharply 3-angled, glabrous, exserted for 4–5 mm. Gravelly flats or open stony patches between dense scrub; Albany Thicket (Uitenhage to E of Peddie).

11b Plants large shrubs without obvious trunk, branches not dying off with age, spines present on all branches

[E]caerulescens Haw
(= *E. ledienii* A.Berger)
Suurnoors (A)

Like *E. radyeri* but without rhizomatous branches around plant, branches 20–60 mm thick, slightly constricted into elongated slightly elliptical (but mainly parallel-sided) segments, green to slightly grey-green, ovary without extended calyx around base. **Flowering time** Oct., Nov. Dry, shaley or alluvial slopes among stones and dense bush; Albany Thicket (Patensie, Uitenhage to Port Elizabeth and dry valleys N of Grahamstown).

radyeri Bruyns
Soetnoors, *noorsdoring* (A)

Glabrous shrub, 0.7–2.0 m high, branching from base and with spreading rhizomes, branches constricted into ± spherical segments, 30–70 mm thick, 4–6-angled, concave between angles, grey-green; spine shields continuous, spines 6–12 mm long. **Leaf-rudiments** 1–4 × 2–4 mm. **Cyathia** ± vertically disposed in each of 1–8 cymes per tubercle, on peduncle 2–4 mm long, 3.5–6.0 mm in diam.; glands 5, entire, bright yellow. **Flowering time** Oct.–Dec. **Capsule** 6–9 mm in diam., obtusely 3-angled, exserted for 2–5 mm. Stony ground on hillsides and flats; Lower Karoo, Albany Thicket (Klipplaat to Jansenville).

11c Trees with a substantial trunk 2–15 m high, older branches dying with age and falling off to leave trunk bare below younger branches, spines absent on highest branches

grandidens Haw.
Valley-bush euphorbia; *valleibosnaboom*, *groottandnaboom* (A)

Glabrous tree, 3–18 m high, often with several ± spherical crowns of ascending-spreading branches; branches not segmented, 10–20 mm thick, (2)3(4)-angled, flat or swollen

between angles, green, spine shields separate, spines 0.5–10.0 mm long. **Leaf-rudiments** 2.0–2.5 × 2–3 mm. **Cyathia** transversely disposed in 1 cyme per tubercle, on peduncle 1–2 mm long, 3.5–5.0 mm in diam.; glands 5, entire, green to reddish. **Flowering time** Aug.–Nov. **Capsule** 7–10 mm in diam., obtusely 3-angled, exserted for 2–5 mm. Steep slopes of valleys among dense bush; Indian Ocean Coastal Belt, Albany Thicket (Port Edward SW to Baviaanskloof and from Humansdorp to East London).

tetragona Haw.

Honey euphorbia; *heuningnaboom*, *bosnaboom* (A)

Glabrous tree, 3–15 m high, with broad rounded crown of ascending-spreading, often whorled branches, branches not segmented, 15–30 mm thick, (3)4- or 5-angled, slightly concave or flat between angles, pale to dark green, spine shields separate, spines 2–12 mm long. **Leaf-rudiments** 1–2 × 2–4 mm. **Cyathia** transversely disposed in 1(–3) cymes per tubercle, on peduncle 1–2 mm long, 5–8 mm in diam.; glands 5, entire, bright green to yellow. **Flowering time** Oct.–Dec. **Capsule** 7–9 mm in diam., very obtusely 3-angled, exserted for 2.5–6.0 mm. Stony slopes of valleys often in dense bush; Indian Ocean Coastal Belt, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Upper Karoo, Albany Thicket (Port Edward along Transkei Coast SW, from Queenstown to Cradock and Kei River Valley and from Patensie to East London).

triangularis Desf.

River euphorbia; *riviernaboom*, *noorsboom* (A); *umHlonhlo* (X)

Glabrous tree, 3–18 m high, with rounded crown of ascending-spreading often whorled branches; branches lightly segmented, 35–60 mm thick, 3(–5)-angled, flat between angles, green; spine shields continuous, spines 3–8 mm. **Leaf-rudiments** 3–7 × 4–6 mm. **Cyathia** vertically disposed in each of 1–4 cymes per tubercle, on peduncle 1.5–3.0 mm long, 4–6 mm in diam.; glands 5 entire, yellow to green. **Flowering time** Apr.–Aug. **Capsule** 6–8 mm in diam., obtusely triangular, exserted for 1.5–9.0 mm. Steep slopes of valleys among dense bush; Slopes of riverine valleys; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Albany Thicket, Eastern Fynbos-Renosterveld (Port Edward SW to Queenstown, from Cradock to Komga and from Hankey to Grahamstown and East London).

10b Plants sometimes unisexual; leaves or leaf-rudiments not subtended by spines (and hardened spine-shields absent); spines (if present) developing from hardened sterile short-shoots or from persistent woody peduncles
*12a Plants with often solitary stems (branches few or none), covered with usually prominent tubercles often spirally arranged (not forming clear rows or angles), with prominent deciduous sessile leaves in dense crown at apex, spineless but sometimes with persistent slightly woody peduncles (*Euphorbia *subsect.* Treisia)

bubalina Boiss.

Buffalo euphorbia

Bisexual, spineless, glabrous, sometimes unbranched shrub, 0.15–2.50 m high with persistent remains of peduncles, stem 10–25 mm thick, covered with widely spaced grey-green tubercles 1–2 mm long. **Leaves** 40–150 × 6–35 mm, broadly linear to oblanceolate. **Cyathia** solitary in axils of tubercles on peduncle 50–180 mm long, closely surrounded by plate of 2 larger bracts 10–20 × 10–15 mm (other rays and cyathia arising in their axils), bisexual, 6–8 mm in diam.; glands 5, green, outer margins entire or finely crenulate. **Flowering time** Oct.–May. **Capsule** 8–9 mm in diam., ± spherical, glabrous, sessile. Partial shade of trees and bushes; Albany Thicket (Hankey, Bathurst and Port Alfred to East London).

bupleurifolia Jacq.

Unisexual or bisexual spineless, glabrous, dwarf, few-branched succulent, 40–200 mm high, stem 25–70 mm thick, covered densely with brown tubercles 2–5 mm long. **Leaves** 50–230 × 10–20 mm, linear-oblanceolate to slightly spathulate. **Cyathia** solitary in axils of tubercles, on angled peduncle 5–50 mm long, closely surrounded by cup of 2 prominent yellow-green bracts 7–12 × 9–22 mm, bisexual or male, 6–8 mm in diam.; glands 5, fan-shaped, inner margins curved outwards, outer entire to finely crenulate. **Flowering time** Oct.–Feb. **Capsule** 8–9 mm in diam., obtusely 3-angled, glabrous, exserted for 3–4 mm. In shallow stony soil in grasslands often near small, rocky ridges; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Albany Thicket (Mount Fletcher S, from Queenstown to Maclear District, Alice to Komga and to Port Elizabeth, Grahamstown and East London).

[E]clava Jacq.

Club euphorbia

Bisexual, spineless, glabrous, usually single-stemmed, unbranched shrub, 0.06–1.50 m high, with persistent remains of peduncles, stem 25–60 mm thick, clavate, covered densely with grey-green tubercles 2–5 mm long. **Leaves** 20–130 × 3–6 mm, linear to linear-oblanceolate. **Cyathia** solitary in axils of tubercles on peduncle 70–180 mm long, closely surrounded by broadly bowl-like whorl of 3–5 larger bracts 6–10 × 6–12 mm, bisexual, 6–9 mm in diam.; glands 5, entire, dark green. **Flowering time** Aug.–Oct. **Capsule** 7–10 mm in diam., ± spherical, glabrous, sessile. In heavy loamy soil between other shrubs on gentle slopes or flats, mainly close to coast; Albany Thicket (Humansdorp to Peddie).

pubiglans N.E.Br.

Bisexual, spineless, ± glabrous shrub, 60–300 mm high, with persistent remains of peduncles, branches 20–50 mm thick covered densely with grey-green tubercles 2.5–5.0 mm long. **Leaves** 20–110 × 2–4 mm, linear. **Cyathia** solitary in axils of tubercles, on peduncle 15–70 mm long, closely surrounded by plate-like whorl of 3–5 larger grey-green bracts 6–12 × 8–16 mm, bisexual, 6–7 mm in diam.; glands 5, entire, slightly puberulous. **Flowering time** Mar.–June. **Capsule** 7–8 mm in diam., ± spherical, finely pubescent, sessile. Among short bushes in gravelly flats to steep slopes among stones; Eastern Fynbos-Renosterveld, Albany Thicket (Baviaanskloof, Van Stadens Pass, Uitenhage, Port Elizabeth and Humansdorp to Port Elizabeth).

12b Plants with short, thickened stems, coarsely tuberculate, usually truncate with more finely tuberculate and much more slender cylindrical branches arising ± in rosette in axils of tubercles near its apex (occasionally densely mound-like or shrubby and stem not visible: E. braunsii, E. clavarioides, E. procumbens*); tubercles densely arranged on stems and branches and often somewhat spiralling but not fused into angles, each tipped with minute soon deciduous fleshy leaf-rudiment; spineless; cyathia bisexual, many near tips of branches each solitary in axil of tubercle on fleshy usually deciduous peduncle with small ciliate caducous bracts; glands with deeply toothed outer margins or spreading finger-like projections along outer margins, rarely entire; capsule obtusely 3-angled, sessile (*Euphorbia *subsect.* Medusea*)*
13a Glands on cyathia bright yellow or yellow-green, processes on outer margin same in colour as rest of gland

clavarioides Boiss.

Lion's spoor; *vingerpol* (A)

Dwarf, glabrous succulent, up to 50 mm high, forming a dense cushion 0.15–1.00 m in diam., with many short branches above a stout, hidden, subterranean stem, branches

shortly truncate-clavate, 8–20 mm thick, tuberculate. **Leaf-rudiments** 1–2 × ± 1 mm, ovate. **Cyathia** sessile, 5–6 mm in diam.; glands 5, green to bright yellow, ± entire to short processes on outer margin. **Flowering time** Oct.–Jan. **Capsule** 6–7 mm in diam., glabrous. Gentle stony slopes usually wedged among rocks in grassland or between scattered short shrubs; Dry Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland, Upper Karoo (Aliwal North E to Matatiele S, from Steynsburg District to Queenstown and Graaff-Reinet to Cradock).

flanaganii N.E.Br.
(= *E. ernestii* N.E.Br., *E. franksiae* N.E.Br., *E. gatbergensis* N.E.Br., *E. woodii* N.E.Br.)
Vingerpol (A)

Dwarf, glabrous succulent, 20–150 mm high, stem 20–100 mm thick, projecting 10–50 mm above ground, with many cylindrical branches 5–100 × 3–10 mm in rosette on sides, green. **Leaf-rudiments** 2–10 × 0.5–1.5 mm, linear. **Cyathia** on caducous peduncle 6–25 mm long, 6–10 mm in diam.; glands 5, yellow to yellow-green, ± entire–finely 3–15-toothed on outer margin. **Flowering time** Oct.–Apr. **Capsule** 4–6 mm in diam., glabrous. Stabilised coastal dunes to short grassland on shallow soil overlaying rocks; Indian Ocean Coastal Belt, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Albany Thicket (Pondoland SW to Mazeppa Bay, East London, Bathurst).

[E]huttoniae N.E.Br.
Vingerpol (A)

Glabrous succulent, 70–200 mm high, with truncate stem 40–100 mm thick, projecting from ground up to 100 mm, with many spreading, cylindrical branches 40–200 × 8–15 mm on sides, occasionally with persistent dried-out peduncles, green. **Leaf-rudiments** 1–2 × 1 mm, deltate. **Cyathia** on often deciduous peduncle 2–5 mm long, 8–12 mm in diam.; glands 5, bright yellow ± elliptical, sometimes deeply divided radially, outer margins irregularly toothed. **Flowering time** Oct.–Feb. **Capsule** 5–6 mm in diam., pubescent. Hard stony, loamy ground often in gently sloping areas among low shrubs; Sub-Escarpment Grassland, Albany Thicket (Adelaide to Committees).

13b Glands on cyathia green to purple, processes on outer margin, if present, usually paler in colour (cream-coloured to white) than rest of gland

[E]albipollinifera L.C.Leach
Vingerpol (A)

Dwarf, glabrous succulent, 20–50 mm high, with truncate stem 20–50 mm thick, usually scarcely projecting from ground, with few spreading to ascending, cylindrical branches 5–75 × 4–8 mm in rosette on sides, brownish green. **Leaf-rudiments** 1–4 × 1 mm, ovate to ovate-lanceolate. **Cyathia** on slender, rigid, persistent peduncle 3–20 mm long, 5.0–7.5 mm in diam.; glands 5, dark green, entire or with 3–5 stubby teeth on outer margin. **Flowering time** Sept.–Mar. **Capsule** 6 mm in diam., pubescent to glabrous. Stony and loamy flats, often well-concealed under short bushes or among stones; Lower Karoo, Rainshadow Valley Karoo, Albany Thicket (Klipplaat to Steytlerville and to Addo).

arida N.E.Br.

Vingerpol (A)

Like *E. decepta* but stem often scarcely rising above surface of ground, below ground tapering into fascicle of swollen roots. **Flowering time** Sept.–Mar. Stony and loamy flats, often well-concealed under low scattered shrublets; Lower Karoo, Albany Thicket, Dry Highveld Grassland, Upper Karoo (Aberdeen to Cradock along base of mountains).

braunsii N.E.Br.

Vingerpol (A)

Glabrous succulent, up to 150 × 250 mm, with rosette of branches from stout but similar stem, branches ascending, ± clavate-cylindrical, 15–30 mm thick, tuberculate. **Leaf-rudiments** 5–15 × 1–2 mm, linear, usually with undulate margins. **Cyathia** on often persistent peduncle 3–16 mm long, 5–6 mm in diam.; glands 5, green to brown, with 2–4 fine processes on outer margins. **Flowering time** Aug.–Mar. **Capsule** 6–7 mm in diam., occasionally pubescent. Stony flat areas, often in open, among scattered small shrubs; Lower Karoo, Rainshadow Valley Karoo (Aberdeen to Willowmore).

decepta N.E.Br.

(= *E. astrophora* Marx, incl. *E. brevirama* N.E.Br.)

Sputnik, *vingerpol* (A)

Dwarf ,glabrous succulent, 50–150 mm high, with truncate stem 20–60 mm thick, projecting from ground, with many ascending-spreading cylindrical branches 5–50 × 4–8 mm on sides often with persistent whitish dried-out peduncles, brownish green. **Leaf-rudiments** 0.5–3.0 × 0.5–1.0 mm, ovate to lanceolate. **Cyathia** on slender, rigid, persistent peduncle 4–15 mm long, 4–7 mm in diam.; glands 5, dark green, with 3–6 stubby yellowish to dark green teeth on outer margin. **Flowering time** Oct.–Mar. **Capsule** 6–7 mm in diam., glabrous. Stony and loamy flats often well-concealed under short bushes; Lower Karoo, Rainshadow Valley Karoo (between Aberdeen, Klipplaat and Willowmore).

[E]esculenta Marloth

Vingerpol (A)

Glabrous succulent, 100–300 mm high, with truncate stem 50–200 mm thick projecting from ground up to 300 mm, with many spreading, cylindrical branches 20–250 × 10–25 mm on sides mostly without persistent dried-out peduncles, grey-green. **Leaf-rudiments** 1 × 1 mm, deltate. **Cyathia** on deciduous peduncle 2–8 mm long, 3.5–6.0 mm in diam., very woolly within from densely hairy bracteoles; glands 5 or 6, dark green to purple or brown ± reniform-elliptical, entire. **Flowering time** Sept.–Nov. **Capsule** 5–7 mm in diam., glabrous. Gravelly, stony, loamy flat areas in open patches among low shrubs; Lower Karoo, Rainshadow Valley Karoo, Albany Thicket (Graaff-Reinet to Jansenville S, from Willowmore to Steytlerville, Uitenhage and Port Elizabeth).

[E]inermis Mill.

Vingerpol (A)

Glabrous succulent, 70–200 mm high, with truncate stem 30–100 mm thick, projecting from ground up to 60 mm, with many spreading, cylindrical branches 40–400 × 6–12 mm on sides sometimes with persistent dried-out peduncles, grey-green. **Leaf-rudiments** 1–3 × 1 mm, ovate. **Cyathia** on stout, often deciduous peduncle 3–5 mm long, 8–13 mm in diam.; glands 5, dark green, outer margins with antler-like white

processes. **Flowering time** Sept.–Dec. **Capsule** 5–6 mm in diam., glabrous to sparsely pubescent. Stony, loamy flat areas in open patches among low shrubs; Eastern Fynbos-Renosterveld, Albany Thicket (Jeffreys Bay to Addo).

procumbens Mill.
(= *E. gorgonis* A.Berger, *E. pugniformis* Boiss)
Slanggif, vingerpol (A)

Dwarf, glabrous succulent, 20–50 mm high, with truncate stem 20–100 mm thick projecting 20–40 mm from ground (sometimes stem hidden by dense mound up to 300 mm in diam. of small ± spherical branches), with rosette of ascending-spreading, cylindrical (± spherical) branches 5–100 × 4–10 mm on sides without persistent dried-out peduncles, brownish to greyish green. **Leaf-rudiments** 1–8 × 1.0–1.5 mm, linear to oblanceolate. **Cyathia** on stout, deciduous peduncle 6–25 mm long, 4–9 mm in diam.; glands 5, green to purple, entire to with 3–7 stubby, yellow teeth on outer margins. **Flowering time** Oct.–Mar. **Capsule** 4–6 mm in diam., pubescent. Gravelly patches among short bushes in fynbos, grassland or karroid veld; Eastern Fynbos-Renosterveld, Sub-Escarpment Savanna, Albany Thicket (Willowmore, Patensie and Humansdorp to E of Peddie).

*12c Plants spineless, rhizomatous or slender and scandent from a turnip-shaped tuber (*E. bruynsii*), with green branches and few scattered low tubercles on branches bearing leaf-rudiments persisting for most of growing season (forming a very dense mound of short green branches in* E. polycephala*); usually with finger-like processes on outer margins of cyathial glands that are corrugated above, inner margins of glands folded outwards over base of gland (absent in* E. bruynsii*) (*Euphorbia *subsect.* Dactylanthes*)*
14a Glands on cyathia with entire outer margins, not corrugated above, inner margins flat; capsule obtusely 3-angled, ± sessile

[E]bruynsii L.C.Leach

Bisexual, dwarf, glabrous, sparingly branched, scandent succulent, 20–300 mm high, from turnip-shaped tuber, stem and branches irregularly cylindrical, 3–8 mm thick, simple to rebranching, grey-green with fine red lines. **Leaves** soon deciduous, 5–25 × 2–4 mm, lanceolate, ± sessile. **Cyathia** near tips of branches, 1–4 on slender, terminal peduncle 2–6 mm long, later others arising in succession from axils of upper bracts, 3–4 mm in diam.; glands 5, green, entire. **Flowering time** Nov.–Apr. **Capsule** 6 mm in diam., glabrous. Stony conglomerate or shale hills among short bushes; Rainshadow Valley Karoo (Steytlerville).

14b Glands on cyathia with 2–5 slender finger-like processes on outer margins with upper surface reticulated and corrugated above with white to cream-coloured or greenish ridges, inner margins folded outwards over base of gland; capsule obtusely 3-angled, exserted for 4–7 mm on initially decurved and later ascending pedicel

[E]globosa (Haw.) Sims
Eierpol (A)

Bisexual, dwarf, glabrous, densely mound-forming succulent, 50–300 mm in diam., branches 5–30 mm thick, tightly packed, spherical to clavate, green to yellow-green. **Leaf-rudiments** soon deciduous, 2–5 × 1–2 mm, lanceolate, sessile. **Cyathia** initially solitary, terminating branches on fleshy, later wiry peduncle 2–160 mm long, later others arising in succession from axils of upper bracts, 10–20 mm in diam.; glands 5, outer margins with 2–5 processes. **Flowering time** Oct.–Apr. **Capsule** 6–7 mm in diam., glabrous. Among pebbles on stony alluvial slopes; Albany Thicket (Port Elizabeth to Addo).

patula Mill.
(= *E. leachii* Lawant & Van Veldhuisen, *E. ornithopus* Jacq, incl. *E. tridentata* Lam.)
Bird's foot euphorbia

Bisexual, dwarf, glabrous, densely to diffusely branched, low, rhizomatous succulent, 50–300 mm in diam., branches 5–12 mm thick, cylindrical to tapering towards tips, dark to grey-green. **Leaf-rudiments** soon deciduous, 2–6 × 1–2 mm, linear to subulate, sessile. **Cyathia** initially solitary terminating branches on fleshy peduncle 6–30 mm long, later others arising in succession from axils of upper bracts, 10–17 mm in diam.; glands 4 or 5, outer margins with 2–5 processes. **Flowering time** Oct.–Apr. **Capsule** 6–7 mm in diam., glabrous. Gently sloping areas in stony ground among short bushes; Upper Karoo, Dry Highveld Grassland, Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld, Sub-Escarpment Savanna, Albany Thicket (Cradock to Patensie, to Peddie).

[E]polycephala Marloth

Bisexual, dwarf, glabrous, densely mound-forming succulent, 0.2–1.0 m in diam., branches 10–20 mm thick, very tightly packed, cylindrical to tapering towards tips, bright green. **Leaf-rudiments** soon deciduous, 3–10 × 2–6 mm, elliptical to ± circular, sessile. **Cyathia** initially solitary, terminating branches on fleshy peduncle 2–30 mm long, later others arising in succession from axils of upper bracts, 8–19 mm in diam.; glands 5, outer margins with 3–5 processes. **Flowering time** Oct.–Mar. **Capsule** 6–7 mm in diam., glabrous. Stony soil among short grasses on lower slopes of hills; Upper Karoo, Dry Highveld Grassland, Sub-Escarpment Grassland (Steynsburg, Hofmeyr, Graaff-Reinet, Cradock and mountains N of Pearston).

12d Plants with tubercles bearing soon deciduous usually minute slightly fleshy leaf-rudiment (cf. E. pulvinata*), fused into low to prominently wing-like angles along stem and branches, branches often armed with persistent woody often spine-like sterile short-shoots arising in axils of tubercles; plants unisexual (rarely some bisexual cyathia in* E. polygona*), with many cyathia near tips of branches, each at tip of peduncle arising in axil of tubercle; male cyathia up to twice as broad as females and on longer peduncles; cyathial glands with entire to very finely crenulate outer margins; capsule obtusely 3-angled to ± spherical, sessile (*E. *subsect.* Florispinae*)*
15a Sterile short-shoots absent and peduncles deciduous*

[E]obesa Hook.f.
(= *E. symmetrica* A.C.White, R.A.Dyer & B.Sloane)
Zulu hut; *klipnoors* (A)

Dwarf, spineless, glabrous succulent, 30–200 mm high, with single, unbranched, ± spherical stem 40–100 mm thick, 7–10-angled, grey-green to brown with dull purple, horizontal bands. **Leaf-rudiments** ± 1 × 1 mm, oblong. **Cyathia** 1–3 on each deciduous, finely pubescent peduncle 2–12 mm long, 2.5–6.0 mm in diam.; glands 5, dark green to red, flat. **Flowering time** Oct.–Apr., depending on rain. **Capsule** 6–7 mm in diam., ± spherical, glabrous. Lower Karoo, Rainshadow Valley Karoo (Rietbron and Kendrew S to Willowmore).

[E]tubiglans Marloth ex R.A.Dyer
(= *E. jansenvillensis* Nel)

Dwarf, spineless, glabrous, few- to many-branched succulent, 20–150 mm high with subterranean stem 20–50 mm thick, branches 10–30 mm thick, sometimes rhizomatous,

4- or 5-angled, glaucous to dark green. **Leaf-rudiments** 2–5 × 1–2 mm, linear to subulate. **Cyathia** solitary on each deciduous, glabrous peduncle 1–4 mm long, 3.5–5.0 mm in diam.; exceeded by rosette of 3–5 obovate, glabrous and apically finely toothed bracts 3–6 mm long beneath cyathium; glands 5, yellow-green, folding into inverted cone. **Flowering time** Nov.–Apr., depending on rain. **Capsule** 4–6 mm in diam., obtusely 3-angled, glabrous. Wedged among stones and in shelter of low bushes; Lower Karoo, Albany Thicket, Rainshadow Valley Karoo (Jansenville to Steytlerville).

15b Sterile short-shoots (and sometimes fertile peduncles) persistent as hard, woody and sometimes straight rigid sharp spikes along angles
16a Sterile short-shoots simple to forked or absent, sometimes persistent as spines; peduncles forked and usually bearing several cyathia (only 1 cyathium per forked peduncle in E. stellispina*)*

[E]**meloformis** Aiton
(= *E. valida* N.E.Br.)

Donkey food; *skilpadkos*, *eselkos* (A)

Dwarf, spineless, glabrous succulent, 30–300 mm high, usually with single unbranched ± spherical stem 25–140 mm thick, 7–12-angled; green usually with darker green to purple horizontal bands. **Leaf-rudiments** 1–5 × 0.5–1.0 mm, linear. **Cyathia** 1–many on finely pubescent often much-branched persistent peduncle 2–30 mm long, 2.5–6.0 mm in diam.; glands 5, pale green to reddish, entire. **Flowering time** Sept.–Nov.(–Apr.). **Capsule** 6–7 mm in diam., ± spherical, glabrous to finely pubescent. Among stones and low bushes on gentle gravelly slopes or in flats; Albany Thicket, Sub-Escarpment Grassland (Waterford, Uitenhage and Port Elizabeth to east of Peddie).

pentagona Haw.

Vyfhoeknoors (A)

Spiny, glabrous, much-branched shrub, 1–3 m high, with stem up to 150 mm thick, branches 20–40 mm thick, cylindrical, 5–7-angled, pale to deep green becoming grey below, with simple woody persistent spikes 6–20 mm long. **Leaf-rudiments** 3–10 × 1.0–1.5 mm, linear. **Cyathia** 1–4 on ± glabrous, branched, deciduous peduncle 15–30 mm long, 3.0–4.5 mm in diam., with 2 or 3 bracts 3–5 mm long under each cyathium; glands 5, green, entire. **Flowering time** Nov., Dec.(–Apr.). **Capsule** 4–6 mm in diam., obtusely 3-angled, glabrous. Flat areas to steep slopes, among scattered bushes to thickets; Sub-Escarpment Savanna, Albany Thicket (Mbashe River SW, from S of Jansenville to Uitenhage, Grahamstown and East London).

stellispina Haw.

Grootnoors, *sternoors* (A)

Spiny, glabrous, densely branched shrub, 0.3–1.0 m high, branches 30–100 mm thick, cylindrical, 8–18-angled, grey-green, with rigid short-shoots 4–20 mm long with rosette of 3–6 spreading spines 4–20 mm long at apex. **Leaf-rudiments** 3–10 × 1–3 mm, narrowly lanceolate. **Cyathia** 1 on finely pubescent, persistent peduncle 4–20 mm long, with rosette of 3–6 sterile spines in axils of bracts immediately below it, 3.5–5.0 mm in diam.; glands 5, deep green to purple, entire. **Flowering time** July–Oct. **Capsule** 5–7 mm in diam., ± spherical, finely pubescent. Stony hillsides among scattered bushes; Lower Karoo (Rietbron).

16b Sterile short-shoots and peduncles simple; cyathia solitary on each deciduous peduncle, short-shoots usually persistent as sharp simple spines

[E]cumulata R.A.Dyer

Glabrous, loosely clump-forming, rhizomatous succulent, 80–300 mm high, branches 20–30 mm thick, clavate, 7–10-angled, green aging to grey, with sharp spines 10–40 mm long. **Leaf-rudiments** soon deciduous, 2–4 × 1.0–1.5 mm, lanceolate, fleshy. **Cyathia** on finely pubescent peduncle 2–10 mm long, 3–6 mm in diam.; glands 5, dark green, entire, deeply wrinkled or pitted above. **Flowering time** Sept.–Mar. **Capsule** 6–8 mm in diam., ± spherical, pubescent to glabrescent. Stony soil in flat to gently sloping areas among low karroid shrubs; Albany Thicket (Fish River Valley N of Grahamstown).

ferox Marloth

Voetangel (A)

Glabrous, loosely to densely clump- or mound-forming succulent, 70–300 mm high and 0.2–1.0 m wide, branches 20–45 mm thick, clavate, 9–16-angled, dull dark green becoming grey with age, with sharp spines 8–50 mm long. **Leaf-rudiments** 2–3 × ±1 mm, lanceolate-oblong. **Cyathia** on glabrous peduncle 2–6 mm long, 2–4 mm in diam.; glands 5, dark to bright green, entire. **Flowering time** May–Aug. **Capsule** 5–6 mm in diam., ± spherical, glabrous. Flat areas among short karroid bushes on hard loamy ground, often dominant; Albany Thicket, Lower Karoo, Upper Karoo, Dry Highveld Grassland, Rainshadow Valley Karoo (Graaff-Reinet to Jansenville, Cradock and Pearston, S to Willowmore and E to Steytlerville).

heptagona L.

(= *E. atrispina* N.E.Br., *E. enopla* Boiss.)

Boknoors (A)

Glabrous, usually densely clump-forming, low to tall shrub, 0.2–1.0 m high and 0.3–1.0 m wide, branches 20–40 mm thick, clavate, 7–10-angled, green to grey-green, with sharp spines 6–40 mm long. **Leaf-rudiments** 1–2 × 1 mm, lanceolate. **Cyathia** on ± glabrous peduncle 10–25 mm long, 2.5–6.0 mm in diam.; glands 5, green, entire. **Flowering time** Aug.–Nov. **Capsule** 4–6 mm in diam., ± spherical, glabrous. Stony N-facing slopes among short bushes, often with scattered white quartzitic rocks of Witteberg series; Upper Karoo, Albany Thicket, Lower Karoo, Rainshadow Valley Karoo (Graaff-Reinet and Cradock S to Willowmore and Baviaanskloof).

mammillaris L.

(= *E. fimbriata* Scop.)

Corncob; *Klein Karoo noorsdoring* (A)

Glabrous, loosely to densely clump-forming shrub, 0.15–0.30 m high, branches 12–40 mm thick, clavate, 7–10-angled, bright green becoming brown below, with often whorl-like bands of sharp spines 4–20 mm long. **Leaf-rudiments** 3–6 × 1–2 mm, narrowly subulate. **Cyathia** on finely pubescent peduncle 3–10 mm long, 3.5–5.0 in mm in diam.; glands 5, deep to yellow green, entire. **Flowering time** May–Oct. **Capsule** 4–7 mm in diam., ± spherical, glabrous. Among short bushes to in dense scrub, often on alluvial deposits or shale slopes; Albany Thicket (Patensie to Bathurst).

polygona Haw.
(= *E. horrida* Boiss.)
Baboon's noors; *bulnoors*, *baviaansnoors* (A)
Glabrous, much-branched, often densely clump-forming shrub, 0.15–2.00 m high; branches 40–150 mm thick, clavate, very prominently 7–20-angled, usually with 1–5 sharp spines 4–40 mm long in each axil. **Leaf-rudiments** 1–2 × 1 mm, deltate. **Cyathia** 1(–3) on glabrous peduncle 2–12 mm long, 4–7 mm in diam.; glands 5, purple to green, entire. **Flowering time** mainly Oct.–Jan. **Capsule** 5–6 mm in diam., ± spherical, pubescent. Steep slopes in shallow pockets of soil between rocks, often on sandstones; Albany Thicket, Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld, Sub-Escarpment Savanna (Jansenville S to Baviaanskloof, to Grahamstown and Bathurst).

pulvinata Marloth
Mother-in-law's cushion; *voetangel* (A); *sihlohlwana* (S)
Glabrous, densely clump- or mound-forming succulent, 50–300 mm × 0.3–2.0 m; branches 20–55 mm thick, shortly clavate, 6–10-angled, bright shiny green becoming brown below, with sharp spines 6–20 mm long. **Leaf-rudiments** 2–50 × 2–7 mm, linear-lanceolate to spathulate. **Cyathia** on glabrous peduncle 1–8 mm long, 3–6 mm in diam.; glands 5, dark purple-red to yellow-green, entire. **Flowering time** July–Sept. **Capsule** 4.5–6.0 mm in diam., ± spherical, glabrous. Shallow soils in short grassland often with slabs of rock close to surface; Mesic Highveld Grassland, Sub-Escarpment Grassland, Dry Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Savanna (Lady Grey and Matatiele S to Cradock and E to King William's Town).
Species excluded – insufficiently known and probably conspecific with one of above: **E. aggregata** A.Berger., **E. curvirama** R.A.Dyer possibly a hybrid between **E. triangularis** and **E. caerulescens**, **E. franckiana** A.Berger, **E. inconstantia** R.A.Dyer possibly a hybrid between **E. heptagona** and **E. polygona**, **E. bothae** Lotsy & Goddijn possibly a hybrid between **E. triangularis** and **E. caerulescens** or back crosses between such hybrids and one of parents.

EXCOECARIA L.

Species ± 40, Africa to Asia and Australia; 2 in sthn Afr., KZN, EC.

simii (Kuntze) Pax
Forest pepper-seed bush; *bos-pepersaadbos* (A)
Perennial tree or shrub, 0.2–2.5 m high, typically with milky latex; monoecious, glabrous; branches slender, angular; bark fibrous; buds perulate (covered with scales) with sepals of male flowers open, exposing anthers. **Leaves** opposite or alternate, chartaceous, lamina oblong or oblong-lanceolate, base abruptly or gradually cuneate, apex acute or shortly acuminate, margins serrate; petioles eglandular. **Inflorescences**: terminal spikes, slender, with many male flowers above and 2 or 3 basal female flowers. **Bracts** eglandular or with a pair of disc- to cup-shaped, sometimes stipitate glands; male bracts many, orbicular-ovate, toothed and basally glandular; female bracts 0–3, basal. **Flowers**: pedicels short in both sexes. **Male flowers**: calyx 3-lobed; lobes small, lanceolate; petals absent; stamens 3. **Female flowers**: calyx 3-lobed; lobes wide-triangular, acute, eglandular; petals absent; ovary glabrous; styles 3, free. **Flowering time** (Aug.–)Nov.(–Mar.). **Fruit** a globose, 3-lobed capsule, breaking up into 2- or 3-valved cocci; valves thinly crustaceous. **Seeds** globose. Forest, along rivers, alt. 3–1 220 m; Indian Ocean Coastal Belt,

Indigenous Forests, Drakensberg Grassland, Sub-Escarpment Savanna (Port Edward, Port St. Johns, King William's Town, Komga).

JATROPHA L.

Species ± 156, cosmopolitan in tropics and subtropics; ± 19 in sthn Afr., widespread.

[E]capensis (L.f.) Sond.

Perennial shrub or dwarf shrub, 0.3–2.0 m high; twigs stout, obscurely 4-gonous, glabrous. **Leaves** shortly to distinctly petioled, thinly leathery, lanceolate or oblong-lanceolate, acute, base wide cuneate, truncate or hastate, margins entire, glabrous on both surfaces; petioles glabrous; stipules small. **Inflorescences**: dense cymes, few-flowered; peduncles slender, glabrous; bracts lanceolate, entire, glabrous. **Male flowers**: sepals ovate-lanceolate, acute, glabrous, entire; petals spathulate-lanceolate, obtuse, free, glabrous; disc glands free; stamens 8. **Female flowers**: sepals 38 mm long; petals as in male; disc glands free; ovary glabrous; styles 3. **Flowering time** Aug.–May. **Fruit** an ellipsoid capsule, faintly lobed. **Seeds** oblong. Closed shrubland, Nama karoo, thicket, stony/rocky, alt. 155– 1 160 m; Albany Thicket, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld (Jansenville District, Naudeshoek, Keiskamma River, Steytlerville, Baviaanskloof).

variifolia Pax

Perennial shrub, dwarf shrub or herb, 0.3–2.0 m high; 2-stemmed; sparingly branched, succulent, glabrous; rootstock thickened. **Leaves** membranous, entire, base truncate to shallowly cordate. **Stipules** flabellately multifid. **Inflorescences** terminal or subterminal, subcorymbiform; bracts linear-lanceolate, acute, glandular to long-stipitate. **Male flowers**: pedicels slender; calyx lobes lanceolate, subacute, entire; petals oblanceolate, rounded, becoming reflexed, glabrous; disk glands 5, free, minute, erect, turbinate, truncate; stamens 8; filaments glabrous. **Female flowers**: calyx and petals as in male; disk 5-lobed; ovary 3-lobed to subglobose, smooth, glabrous; styles free, erect or spreading; stigmas small, capitate, bifid, smooth. **Fruit** 3-lobed to subcylindric, shallowly nervose and verruculose, glabrous. **Seeds** compressed ellipsoid-subcylindric. Deciduous woodland, thicket, wooded grassland, dry stony soils, alt. 30–1 000 m; Sub-Escarpment Savanna (Komga District, Kei River).

LEIDESIA Müll.Arg.

Monotypic, sthn Afr., LIM, S, KZN, WC, EC.

procumbens (L.) Prain

Annual, semi-succulent herb, 0.1–0.4 m high; diffusely branched; stems glabrous, subpellucid. **Leaves**: lower opposite, upper alternate, very thinly membranous, ovate, base truncate or wide-cuneate, apex obtuse or subacute, margins crenate-dentate. **Stipules** subulate to linear-lanceolate. **Inflorescences** 10–25 mm long; male bracts 1.0–1.5 mm long; female bracts 4–5 × 1.0–1.5 mm. **Male flowers**: calyx lobes ovate, acute, glabrous; stamens minute. **Female flowers** sessile; calyx lobe, when present, resembling a stipule; ovary 2-lobed, apically setose, setae with bulbous based hairs. **Flowering time** Sept.–Mar. **Fruit** 2-lobed, smooth, apically setose, stramineous. **Seeds** reticulate. Submontane, evergreen forest, alt. 5–2 160 m; Indigenous Forests (Nqadu Forest).

MACARANGA Thouars

Species 280, mainly tropics of the Old World; 1 in sthn Afr., KZN, EC.

capensis (Baill.) Benth. ex Sim

Wild poplar; *wildepopulier* (A); *umBengele* (X); *iphumela* (Z)

Perennial tree, 2.5–25.0 m high; deciduous; single-stemmed; trunk and branches with short thorns; bark smooth. **Leaves** alternate, firmly chartaceous, glabrous above, hirsute below; lamina broadly ovate to triangular-ovate, base shallowly to deeply cordate or cordulate, apex shortly acuminate, margins entire or glandular-denticulate. **Stipules** lanceolate, acutely acuminate, deciduous. **Male inflorescences** paniculate; bracts triangular-ovate, adaxially glandular, many-flowered. **Male flowers** subsessile; calyx lobes 2 or 3, ovate; stamens 2–4; filaments free; anthers minute. **Female inflorescences** paniculate or subpaniculate; bracts 1–5-flowered. **Female flowers** shortly pedicellate; calyx urceolate, splitting into 2–4 lobes; ovary unlobed or rarely 2-lobed; styles 1 or 2, free, recurved, fimbriate-papillose. **Flowering time** Aug.–Feb. **Fruit** a subglobose capsule, glabrous. **Seeds** subglobose, smooth. Coastal forest, marshy places, alt. 5–765 m; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests (Ntsubane, Lusikisiki District, Umzimvubu District).

MICROCOCCA Benth.

Species 13, mostly tropical Africa, also Madagascar to Asia; 2 in sthn Afr., LIM, M, S, KZN, EC.

capensis (Baill.) Prain

False bead-string; *valskralesnoer*, *gewone kralesnoer* (A); *inkanga yehlathi* (X); *ububu* (Z)

Perennial shrub or small tree, 0.5–5.0 m high; dioecious or monoecious; sparingly branched. **Leaves** alternate, firmly membranous, lamina elliptic-lanceolate, base attenuate or cuneate, apex acutely acuminate, margins sharply glandular-serrate. **Stipules** minute, subulate, soon falling. **Inflorescences** racemose; flowers shortly pedicellate. **Male inflorescence**: bracts triangular-ovate, 2–20-flowered. **Male flowers**: buds subglobose, apiculate; calyx 3-lobed, suborbicular-ovate; stamens 20–30, filaments short. **Bisexual inflorescences** resembling male ones, but 1 or 2 more female flowers at base. **Female inflorescences**: bracts narrowly lanceolate, 1-flowered; flowers remote. **Female flowers**: calyx lobes 3, triangular-lanceolate, acute; disc glands 3, ligulate; ovary 3-lobed, smooth; styles 3, free; stigmas papillose. **Flowering time** July–Mar. **Fruit** a globose, 3-valved coccus, smooth. **Seeds** ovoid, shallowly and finely reticulate-rugulose. Moist forest understorey, alt. 15–1 850 m; Indigenous Forests (Mkambati Nature Reserve, Port St. Johns).

***RICINUS** L.

Monotypic, originally native to NE Africa, N, B, LIM, NW, G, M, S, KZN, L, NC, WC, EC.

communis L.

Castor oil, thorny false-nettle, Castrobean; *kasterolie*, *doringvalsnetel*, *bloubottelboom* (A); *umhlakuva* (X); *umhlakuva* (Z)

Perennial tree or shrub, 0.6–7.0 m high; erect glabrous; single-stemmed; stems hollow. **Leaves** 5–11-lobed; lobes ovate-lanceolate to lanceolate, acuminate, coarsely glandular-

serrate. **Inflorescences**: bracts lanceolate. **Male flowers**: calyx lobes ovate, acute; stamens 7–8 mm long. **Female flowers**: sepals lanceolate, acuminate; ovary 3-lobed to subglobose; styles up to 7 mm long. **Flowering time** June–Feb. **Fruit** strongly 3-lobed. **Seeds** smooth, marbled; caruncle depressed-conic. Cultivated in warm parts, mainly in LIM, often occurs as an escape, alt. 15–1 465 m; origin NE Africa, declared invader (category 2); Upper Karoo, Indigenous Forests, Drakensberg Grassland, Albany Thicket (Great Fish River E to Port St Johns, from Amatole Mts to Komga and from Hankey to East London).

SEIDELIA Baill.

Species 3, sthn Afr., EC.

[E?]**pumila** (Sond.) Baill.

Annual herb, 0.15–0.30 m high; erect; much intricately branched. **Leaves** distinctly petioled, ovate oblong, obtuse, base cuneate, margins crenate throughout, glabrous on both surfaces. **Stipules** minute, subulate. **Flowers** axillary, shortly peduncled glomerules. **Male flowers**: calyx 3-partite; lobes ovate; stamens 3. **Fruit** a 2-lobed capsule, smooth. Habitat?, alt. 5–250 m; Albany Thicket (between Coega River and Swartkops River).

SHIRAKIOPSIS Esser

Species 3, tropical and sthn Afr., S, KZN, EC.

elliptica (Hochst.) Esser

Perennial tree, 3–15 m high; monoecious, much-branched; branchlets glabrous or sparingly hairy; bark smooth. **Leaves** alternate, firmly chartaceous to thinly coriaceous; lamina elliptic-ovate, elliptic, elliptic-lanceolate or elliptic-oblong, base cuneate or rounded and slightly cordate, apex subacute or obtusely to acutely shortly acuminate, margins shallowly crenate-serrate. **Inflorescences** terminal or subterminal, all male or with 1–3(4) female flowers at base; male bracts ovate-suborbicular, 3–7-flowered; female bracts 3-lobed. **Male flowers**: calyx lobes 2 or 3, ciliolate; stamens 2 or 3, free. **Female flowers**: calyx lobes 2 or 3, ciliolate; ovary 2(–4)-lobed, smooth; styles 2–4, subpersistent. **Flowering time** Aug.–Nov. **Fruit** a 2(–4)-lobed capsule. **Seeds** subglobose, smooth. Riverine, swamp forest, wooded ravines, inland and coastal belt, alt. 30–1 200 m; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests (Lusikisiki District, Msikaba River, Port St Johns).

SUREGADA Roxb. ex Rottler

Species 31, Old World tropics, 8 in Africa; 3 in sthn Afr., LIM, M, S, KZN, EC.

africana (Sond.) Kuntze

Common canary-berry; *gewone kanariebessie* (A); *isithubi* (X); *ummemezi* (Z)

Perennial tree or shrub, 1–3 m high; dioecious, glabrous. **Stipules** triangular, acute. **Leaves** alternate, firmly chartaceous; lamina obovate, base rounded to cuneate, apex obtuse or rounded, margins subentire or crenate-serrate at apex; petioles 1–2 mm long. **Male flowers**: pedicels turbinate; sepals 3 or 4, suborbicular, eglandular, outer hooded, cornute, inner flat; glands confluent, hairy; stamens 12–14. **Female flowers**: pedicels stouter than in male flowers; sepals as in male flowers; disc subcrenate; staminodes minute, subulate; ovary 3-locular, subglobose, smooth; styles 3, recurved. **Flowering time** Dec.–Mar. **Fruit** a 3-lobed, subturbinate-globose capsule, smooth. **Seeds** subglo-

bose, smooth. Coastal forest, valley bushveld, alt. 15–1 640 m; Indigenous Forests, Sub-Escarpment Savanna, Drakensberg Grassland, Albany Thicket (Ngqeleni District, Alice, Cwencwe, Albany District).

procera (Prain) Croizat

Forest canary-berry; *boskanariebessie* (A)

Perennial tree, 3–24 m high; single-stemmed, glabrous; branches lax, horizontal; bark smooth or minutely fissured. **Stipules** triangular, acute. **Leaves** alternate, coriaceous, glossy, dark green above, paler below, the pustules paler still, drying a dull grey-green; lamina elliptic to elliptic-ovate, base asymmetric, cuneate and decurrent onto petiole, apex obtuse or obtusely acuminate, margins entire or shallowly crenate-serrate. **Male flowers**: sepals 5–7, suborbicular-ovate, eglandular, outer slightly hooded and greenish, inner flat; glands confluent; stamens (16)20–30. **Female flowers**: sepals 6–8; disc crenate; staminodes usually subulate; ovary 3-locular, 3-lobed to subglobose, smooth; styles 2-fid; stigmas oblong, slightly lobulate. **Fruit** a 3-lobed, obovoid-trigonous capsule, smooth. **Seeds** ovoid, smooth. Forest understorey, riverine forest, forest margins, alt. 120–1 675 m; Indian Ocean Coastal Belt, Indigenous Forests (Pondoland, Port St Johns).

TRAGIA L.

Species 130, cosmopolitan in warm areas; 14 in sthn Afr., N, B, LIM, NW, G, M, S, KZN, NC, EC.

Morphological and palynological heterogeneity may prove on further study to indicate recognition at the generic level for some of the more disparate elements (Radcliffe-Smith 2001). Thus *Ctenomeria* Harv., with > 30 stamens, may be recognised as a separate genus.

glabrata (Müll.Arg.) Pax & K.Hoffm.

Stinging needle creeper; *rankbrandnetel* (A)

Perennial, dwarf shrub or herb, 1.5–3.0 m high; much-branched, monoecious; rootstock woody, subglabrous or sparingly puberulous. **Stipules** ovate-lanceolate, glabrous. **Leaves** membranous, triangular-ovate to triangular, apex acute to subacute or obtuse, margins crenate to crenate-serrate or crenate-dentate, base wide-cordate, sparingly puberulous. **Inflorescences** terminal on lateral shoots and leaf-opposed on main stems, composed mostly of male flowers with 1 or 2 female flowers below or else all male; male bracts lanceolate; male bracteoles linear-lanceolate; female bracts ovate; female bracteoles resembling male bracts. **Male flowers**: buds 3-lobed to subglobose; calyx lobes suborbicular, obtuse, subglabrous; stamens 3, pistillode 3-lobed, minute. **Female flowers**: calyx lobes 3; ovary 3-lobed, setose; styles 3, glabrous; stigmas smooth, recurved. **Flowering time** Dec.–Mar. **Fruit** 3-lobed, smooth, glabrous. **Seeds** globose. Forest, open bushland, alt. 5–210 m; Indian Ocean Coastal Belt, Indigenous Forests, Sub-Escarpment Savanna (Tembuland, Port St Johns, King William's Town).

meyeriana Müll.Arg.

uBangalala, *imBabazane* (Z)

Herb, 0.10–0.15 m high; stems erect or ascending, simple or branched, pubescent or copiously branched with stinging bristles. **Stipules** spreading, lanceolate to ovate-lanceolate, bristly. **Leaves** long-petioled, membranous, triangular-ovate, acute, base widely cordate, margins toothed, sparingly pubescent with stinging hairs above, densely

bristly on nerves below. **Inflorescences** of terminal or leaf-opposed racemes, with male flowers solitary to their bracts above and with 1–3 basal female flowers. **Male flowers**: calyx 3-partite; lobes ovate; stamens 3. **Female flowers**: calyx 3-partite; lobes widely oblong or suborbicular, palmately 6–8-lobulate on each side; ovary puberulous; styles 3, connate below in short column. **Flowering time** Nov.? **Fruit** a 3-coccous capsule. **Seeds** globose. Grassland, alt. 15–1 280 m; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Albany Thicket (Komga and Kentani District to East London).

TRAGIELLA Pax & K.Hoffm.

Species 4 or 5, Africa; 1 in sthn Afr., LIM, M, S, KZN, EC.

natalensis (Sond.) Pax & K.Hoffm.

Perennial, dwarf shrub, 0.5–3.0 m high; monoecious; twining or scrambling. **Stipules** linear-lanceolate, membranous. **Leaves** membranaceous, elliptic-ovate to oblong-lanceolate or lanceolate, base truncate to cordate, apex shortly acutely acuminate. **Inflorescences** laxly few-flowered; male bracts patent-reflexed, oblanceolate-oblong to subspathulate, entire or subentire, pubescent; male bracteoles linear-oblanceolate, very fugacious; female bracts rhombic-ovate to transversely ovate, serrate or dentate, pubescent; female bracteoles linear to linear-oblanceolate, pubescent. **Male flowers**: buds subglobose; calyx tube constricted; calyx lobes broadly ovate, pubescent without, glabrous within; stamens < 1 mm long; pistillode minute, depressed-hemispherical. **Female flowers**: calyx lobes 6; ovary 3-lobed, densely appressed-pubescent. **Flowering time** Oct.–Mar. **Fruit** deeply 3-lobed, smooth. **Seeds** globose. Undergrowth and margins of evergreen rain forest and riverine forest, alt. 5–1 450 m; Indian Ocean Coastal Belt, Indigenous Forests (Port St Johns, Manubi).

BROWN, N.E. 1915. Euphorbiaceae. *Flora capensis* 5,2: 221–375.
BROWN, N.E., HUTCHINSON, J. & PRAIN, D. 1915. Euphorbiaceae [in part]. *Flora capensis* 5,2: 216–220.
BRUYNS, P.V., MAPAYA, R. & HEDDERSON, T. 2006. A new subgeneric classification for *Euphorbia* (Euphorbiaceae) based on molecular data. *Taxon* 55: 397–420.
BRUYNS, P.V., KLAK, C. & HANČŽEK, P. 2011. Age and diversity in Old World succulent species of *Euphorbia* (Euphorbiaceae). *Taxon* 60: 1717–1733.
CARTER, S. 1988. *Flora of tropical East Africa*. Euphorbiaceae [in part]. Part 2: 409–564.
DAVIS, C.C., WEBB, C.O., WURDACK, K.J., JARAMILLO, C.A., & DONOGHUE, M.J. 2005. Explosive radiation of Malpighiales supports a Mid-Cretaceous origin of modern tropical rain forests. *American Naturalist* 165: E36–E65.
DORSEY, B.L., HAEVERMANS, T., AUBRIOT, X., MORAWETZ, J.J., RIINA, R., STEINMANN, V.W. & BERRY, P.E. 2013. Phylogenetics, morphological evolution, and classification of *Euphorbia* subgenus *Euphorbia*. *Taxon* 62: 291–315.
HEYWOOD, V.H., BRUMMITT, R.K., CULHAM, A. & SEBERG, O. 2007. *Flowering plant families of the world*. Royal Botanic Gardens, Kew.
HUTCHINSON, J. 1915. Euphorbiaceae [in part]. *Flora capensis* 5,2: 376–384.
HUTCHINSON, J. 1920. Euphorbiaceae [in part]. *Flora capensis* 5,2: 385–410.
KOUTNIK, D.L. 1984. *Chamaesyce* (Euphorbiaceae)–a newly recognized genus in southern Africa. *Southern African Journal of Botany* 3: 262–264.
LÉONARD, J. 1959. Notulae systematicae XXVI. Notes sur les espèces africaines continentales des genres *Sapium* P.Br. et *Excoecaria* L. *Bulletin du Jardin Botanique de l'État Bruxelles* 29: 133–146.
PAX, F. 1894. Euphorbiaceae africanae II. *Botanische Jahrbücher* 19: 76–127.

PAX, F. 1899. Euphorbiaceae africanae V. *Botanische Jahrbücher* 28: 18–27.
PAX, F. & HOFFMANN, K. 1914. Euphorbiaceae-Acalypheae-Mercurialinae. *Das Pflanzenreich* 147,6 (Heft 63): 1–473.
PAX, F. & HOFFMANN, K. 1919. Euphorbiaceae-Acalypheae-Plukenetiinae. *Das Pflanzenreich* 147,9 (Heft 68): 1–108.
PAX, F. & HOFFMANN, K. 1931. Euphorbiaceae. *Die natürlichen Pflanzenfamilien*, edn 2, 19c: 11–233.
PEIRSON, J.A., BRUYNS, P.V., RIINA, R., MORAWETZ, J.J. & BERRY, P.E. 2013. A molecular phylogeny and classification of the largely succulent and mainly African *Euphorbia* subg. *Athymalus* (Euphorbiaceae). *Taxon* 62: 1178–1199.
PILLANS, N.S. 1950. Euphorbiaceae. In R.S. Adamson & T.M. Salter, *Flora of the Cape Peninsula*. Juta, Cape Town.
PRAIN, D. 1913a. The Mercurialieae and Adenoclineae of South Africa. *Annals of Botany* 27: 371–410.
PRAIN, D. 1913b. Euphorbiaceae [in part]. *Flora of tropical Africa* 6: 441–1020.
PRAIN, D. 1920. Euphorbiaceae [in part]. *Flora capensis* 5,2: 410–516.
RADCLIFFE-SMITH, A. 1987a. Euphorbiaceae. *Flora of tropical East Africa*. Euphorbiaceae Part 1: 1–407.
RADCLIFFE-SMITH, A. 1987b. Segregate families from the Euphorbiaceae. *Botanical Journal of the Linnean Society* 94: 47–66.
RADCLIFFE-SMITH, A. 1989. Notes on African Euphorbiaceae XX: *Acalypha* (ii), etc. *Kew Bulletin* 42: 439–454.
RADCLIFFE-SMITH, A. 1991. Notes on African Euphorbiaceae, XXV: *Jatropha*. *Kew Bulletin* 46: 141–157.
RADCLIFFE-SMITH, A. 1996. Euphorbiaceae. *Flora zambesiaca* 9,4: 1–337.
RADCLIFFE-SMITH, A. 2001. *Genera Euphorbiacearum*. Royal Botanic Gardens Kew, Kew.
RIINA, R., PEIRSON, J.A., GELTMAN, D.V., MOLERO, J., FRAJMAN, B., PAHLEVANI, A., BARRES, L., MORAWETZ, J.J., SALMAKI, Y., ZARRE, S., KRYUKOV, A., BRUYNS, P.V. & BERRY, P.E. 2013. A worldwide molecular phylogeny and classification of the leafy spurges, *Euphorbia* subgenus *Esula* (Euphorbiaceae). *Taxon* 62: 316–342.
ROTTLER, J.P. 1803. *Suregada*. *Der Gesellschaft naturforschender Freunde zu Berlin neue Schriften* 4: 206.
SOLTIS, D.E., GITZENDANNER, M.A., & SOLTIS, P.S. 2007. A 567-taxon data set for angiosperms: The challenges posed by Bayesian analyses of large data sets. *International Journal of Plant Science* 168: 137–157.
STEVENS, P.F. 2008. Angiosperm Phylogeny Website. Version 9. Internet. http://www.mobot.org/MOBOT/research/APweb/ (accessed June 2010).
WEBSTER, G.L. 1994a. Classification of the Euphorbiaceae. *Annals of the Missouri Botanical Garden* 81: 3–32.
WEBSTER, G.L. 1994b. Synopsis of the genera and suprageneric taxa of Euphorbiaceae. *Annals of the Missouri Botanical Garden* 81: 33–144.
WHITE, A., DYER, R.A. & SLOANE, B.L. 1941. *Succulent Euphorbieae (Southern Africa)*. Vols. 1 & 2. Abbey Garden, Pasadena.
WURDACK, K.J. & DAVIS, C.C. 2009. Malpighiales phylogenetics: Gaining ground on one of the most recalcitrant clades in the angiosperm tree of life. *American Journal of Botany* 96: 1551–1570.
YANG, Y., RIINA, R., MORAWETZ, J.J., HAEVERMANS, T., AUBRIOT, X. & BERRY, P.E. 2012. Molecular phylogenetics and classification of *Euphorbia* subgenus *Chamaesyce* (Euphorbiaceae). *Taxon* 61: 764–789.

FABACEAE

(Order Fabales)

Compiled by S. Boatwright, C.L. Bredenkamp, G.J. Bredenkamp, L. Coetzer, G. Germishuizen, M. Govender, A. Grobler, A. Johannsmeier, M. Kotze, A. Moteetee, T. Nkonki, B. Schrire & C.H. Stirton

Following Lewis et al. (2005).

Key to subfamilies

1a Flowers regular; petals valvate in bud, often united basally; sepals usually united basally; stamens as many as petals or twice as many or numerous, free or all united into a tube or to base of petals; anthers uniform, dehiscing lengthwise, sometimes with a deciduous gland at the apex; leaves bipinnate or, rarely, pinnate in indigenous species; seeds normally with an areole on each face or side ..... subfamily **Mimosoideae**

1b Flowers nearly always irregular; petals imbricate in bud, free or some of them united; seeds usually without an areole:

2a Adaxial (uppermost) petal overlapped on each side by the adjacent lateral petals (when present); sepals often free; stamens 10 or fewer, free or, less often, variously united; anthers uniform, rarely dimorphic, dehiscing lengthwise or by terminal pores; leaves mostly pinnate or bipinnate, rarely simple or unifoliolate; seeds with radicle usually straight..... subfamily **Caesalpinioideae**

2b Adaxial (uppermost) petal outside the adjacent lateral petals or wings and usually forming with the keel-petals an irregular corolla; sepals united basally; stamens 10 or rarely fewer, rarely free, most often the adaxial ones free or nearly so and the other 9 united, sometimes united into 2 groups of 5 or all united; anthers mostly dehiscing lengthwise; leaves very rarely bipinnate (*Rhynchosia*); seeds with radicle usually curved ..... subfamily **Papilionoideae**

Some exotic species of *Acacia* growing in this flora area have phyllodes which may appear to be simple leaves.

Subfamily Mimosoideae

1a Plant armed with prickles or spines:

2a Inflorescence bicoloured, upper part bisexual, yellow, the lower neuter, mauve, pink or white; short lateral branches terminating in spines, plants otherwise unarmed ..... **Dichrostachys**

2b Inflorescence concolorous; plants armed with recurved prickles or stipular spines, very rarely short lateral branchlets terminating in spines:

3a Plant armed with recurved prickles or stipular spines, spine-tipped lateral branchlets absent:

4a Flowers in globose or subglobose heads, rarely the inflorescence reduced to only 2–4 flowers per 'head':

5a Stamens as many as or twice as many as the (3)4 or 5(6) corolla lobes ..... **Mimosa**

5b Stamens many (±35–200):

6a Stipular spines absent; plants unarmed or armed with prickles ..... **Senegalia**

6b Stipular spines present; plants armed with paired stipular spines at nodes..... **Vachellia**

4b Flowers in spikes or spiciform racemes:

7a Stamens 10:

8a Plants with recurved prickles scattered along stem; pods compressed, slightly curved to falcate, at maturity the valves splitting transversely into 1-seeded segments..... **Adenopodia**

8b Plants with straight stipular paired spines; pods slightly curved or coiled, indehiscent, not segmented ..... ***Prosopis**

7b Stamens many (± 35–200):

3b Plant armed with spine-tipped lateral shoots, recurved prickles and stipular spines absent; inflorescence globose; stamen filaments united basally into a tube ..... **Albizia**

1b Plant unarmed:

9a Adult leaves either reduced to simple, entire phyllodes or bipinnate ..... ***Acacia** *s.s.*

9b Adult leaves without phyllodes, pinnate or bipinnate:

10a Inflorescence elongate, spicate or racemose ..... **Elephantorrhiza**

10b Inflorescence capitate, globose or subglobose:

11a Stamens 10 ..... ***Leucaena**

11b Stamens many to numerous (± 19–200):

12a Stamen filaments united basally into a tube, tube included or exserted beyond the corolla; central flower of inflorescence usually differing from and often larger than the rest..... **Albizia**

12b Stamen filaments united basally into a tube, tube included or scarcely exserted beyond the corolla; flowers uniform..... ***Paraserianthes**

Subfamily Caesalpinioideae

1a Leaves simple, emarginate apically to deeply bilobed, sometimes with a pair of leaflets..... **Bauhinia**

1b Leaves pinnately or bipinnately compound with more than 2 leaflets, very seldom leaves reduced to green, ± terete, 'needle-like' pinna-rachillae with or without minute inconspicuous leaflets, or the rachillae laterally winged and appearing flattened, '± phyllodial', with many pairs of small leaflets:

2a Leaves reduced, the pinna-rachillae green, ± terete and 'needle-like', with or without minute inconspicuous leaflets, or the rachillae laterally winged and appearing flattened, '± phyllodial', with many pairs of leaflets up to 9 × 3 mm; plant armed with stout spines..... **Parkinsonia**

2b Leaves not reduced, pinna-rachillae not 'needle-like' or '± phyllodial'; plant unarmed or armed with recurved prickles, rarely armed with spines:

3a Leaves bipinnate:

4a Plant unarmed:

5a Leaves imparipinnate; herb or low shrub up to 0.5 m high; stems, leaves and calyces with many dark sessile glands; petals up to 9 mm long..... **Pomaria**

5b Leaves paripinnate; tree or large shrub; petals 7–32 mm long..... **Caesalpinia**

4b Plant armed with prickles or spines:

6a Calyx lobes valvate; flowers small, greenish to white; spines usually branched..... ***Gleditsia**

6b Calyx lobes or teeth imbricate; flowers yellow, pale yellowish white, pink, red or magenta; spines not branched..... **Caesalpinia**

3b Leaves simply pinnate:

7a Plants armed with spines:

8a Inflorescence a lax panicle; pods 30–50 mm long, 9–12 mm wide, straight or almost so, dehiscent..... **Umtiza**

8b Inflorescence a dense drooping raceme; pods large, 150–300 mm long, 25–35 mm wide, usually slightly falcate but often twisting with age, indehiscent..... ***Gleditsia**

7b Plant unarmed:

9a Petals absent or sometimes petals present but reduced to minute, linear, inconspicuous filaments and apparently absent:

10a Stamens 10, filaments united basally for 1.5–3.5 mm, tube entire or split down one side; calyx leathery, 4(5)-lobed, red or scarlet, glabrous or sparingly puberulous; ovary glabrous; inflorescence a dense, congested, subglobose panicle, usually cauliflorous on older branches but occasionally terminal..... **Schotia**

10b Stamens 5–10, filaments free; sepals 5, fulvous or rusty brown puberulous outside; ovary densely ferruginous-hirsute; inflorescence a many-flowered panicle or raceme..... ***Ceratonia**

9b Petals 1–5, well developed:

11a Petals 1–4..... **Schotia**

11b Petals 5:

12a Anthers opening by longitudinal slits which are as long as the anther, usually dorsifixed; petals pink, red, mauve, magenta or sometimes yellow; conspicuous glands not present on petiole or rachis..... **Schotia**

12b Anthers opening by terminal or basal pores or short slits, usually basifixed; petals mostly yellow; glands often present on petiole or leaf rachis:

13a Bracteoles absent; pod either indehiscent, or breaking inelastically through one or both sutures, if through both, then the valves not coiling; androecium often irregular, the members tending to decrease in size from the abaxial to the adaxial side of the flower; anther thecae naked along the sutures; seed coat often with a closed areole on each face or margins; tree, shrub or herb..... **Senna**

13b Bracteoles 2; pod elastically indehiscent, the valves coiling at or after dehiscence; androecium virtually regular, the two cycles sometimes of different lengths but not decreasing regularly from abaxial to adaxial side of the flower; anther thecae ciliolate along the sutures; seed coat without areoles; usually a herb..... **Chamaecrista**

Subfamily Papilionoideae

1a Filaments all free from base upwards, occasionally shortly and ± equally connate at base only; anthers usually uniform in size and shape:

2a Leaves pinnately foliolate or of only 1 leaflet and then with distinct pulvinus at apex of petiolule (tribe **Sophoreae**):

3a Leaves reduced to 1 leaflet (unifoliolate); fruit linear or falcate..... **Baphia**

3b Leaves with 2 or more leaflets:

4a Fruit or pod moniliform, stalked; flowers white, yellow or rarely blue-violet, in racemes or leafy panicles ..... **Sophora**

4b Fruit not moniliform..... **Calpurnia**

2b Leaves digitately foliolate or simple, very rarely pinnate or reduced to scales (tribe **Podalyrieae**):

5a Leaflets many; flowers in extended racemes ..... **Virgilia**

5b Leaflets 1–3; flowers 1 or 2(–4):

6a Leaves digitately or palmately trifoliolate; calyx lobes longer than tube, imbricate; flowers solitary, axillary; wings with a transverse fold; fruit oblong, compressed ..... **Cyclopia**

6b Leaves simple or unifoliolate; calyx lobes longer than tube; flowers 1- or 2(–4)-nate on axillary peduncles; wings with curved, linear claw; fruit ovoid or oblong..... **Podalyria**

1b Filaments partly or almost wholly united to one another, either monadelphous in a closed tube, or diadelphous with the vexillary (adaxial) filament often free or partly so:

7a Anthers distinctly dimorphic, alternately basifixed and shorter dorsifixed; leaves simple, unifoliolate or digitately 3(–many)-foliolate, if compound, leaves generally pulvinate or with a raised leaf base, rarely distichous, never glandular-punctate; fruit never jointed:

8a Upper 2 calyx lobes joined higher than lower ones, sometimes enlarged; lowermost (keel) calyx lobe generally longer or narrower than upper ones; flowers mostly in heads or clusters; style glabrous; seeds arillate (tribe **Liparieae**):

9a Leaves digitately trifoliolate; stamens in a closed tube; bracteoles present..... **Hypocalyptus**

9b Leaves simple; stamens in an open sheath; bracteoles absent:

10a Keel petals not laterally appendaged; flowers mostly yellow; anthers ± equal in length; flowers in terminal heads or clusters..... **Liparia**

10b Keel petals gibbous on one side or with spur; flowers small; anthers dimorphic..... **Amphithalea**

8b Calyx lobes variously united, but not as above, or subequally lobed; lowermost lobe often much shorter and narrower than upper ones; flowers in terminal, rarely leaf-opposed, spikes, racemes, or heads, rarely axillary; seeds rarely arillate:

11a Filaments fused into a sheath open on upper side (tribe **Crotalarieae**):

12a Stipules absent or inconspicuous; anthers often dimorphic:

13a Leaves simple:

14a Calyx lobes subequal; leaves with 3–several parallel nerves; standard petal villous; fruit linear, compressed; shrub or shrublet, glabrous or sparsely villous..... **Aspalathus**

14b Calyx lobes unequal, the lower smaller and narrower than the upper; leaves usually with 1 main nerve and several lateral nerves:

15a Fruit lanceolate or linear; a shrub or shrublet, ± glabrous and often glaucous; leaves from orbicular to linear, sessile or subsessile ..... **Rafnia**

15b Fruit ovate, turgid; perennial herb, villous; stems prostrate from a woody rootstock; leaves lanceolate ..... **Lotononis**

13b Leaves compound, rarely reduced to a single leaflet:

16a Calyx ± regularly 5-toothed:

17a Fruit linear; leaves petiolate, trifoliolate or simple or reduced to scales..... **Lebeckia**

17b Fruit semi-ovate or lanceolate, obliquely acute or obliquely rhomboid; leaves in threes or fascicles, not petiolate..... **Aspalathus**

16b Calyx not regularly 5-toothed:

18a Calyx with 4 upper lobes ± united in pairs, the lowest free; anthers dimorphic ..... **Lotononis**

18b Calyx 2-lipped ..... **Dichilus**

12b Stipules conspicuous, free from each other and from leaf:
19a Calyx equally 5-toothed or -lobed:
20a Stipules small; flowers in terminal, often unilateral racemes; fruit linear ..... **Lebeckia**
20b Stipules conspicuous, sometimes foliaceous and toothed; peduncles leaf-opposed ..... **Crotalaria**
19b Calyx not equally 5-toothed or -lobed:
21a Calyx with the 4 upper teeth ± united in pairs, the lower one free ..... **Lotononis**
21b Calyx bilabiate; anthers alternately dissimilar; fruit linear, compressed, often torulose..... **Melolobium**
11b Filaments fused into a closed tube (tribe **Genisteae**):
22a Plant spiny..... ***Ulex**
22b Plant not spiny:
23a Leaves simple or unifoliolate, sometimes very small:
24a Calyx split to base adaxially..... ***Spartium**
24b Calyx not split to base..... ***Cytisus**
23b Leaves trifoliolate:
25a Calyx nearly as long as the keel; plant often herbaceous..... **Argyrolobium**
25b Calyx with short teeth and not as long as keel; plant always a shrub..... ***Cytisus**
7b Anthers ± uniform at least in size, some sometimes aborted, or if dimorphic (in Aeschynomeneae, Psoraleeae and a few Phaseoleae, by abortion in *Teramnus*), then leaves pinnate or glandular-punctate:
26a Leaves not pulvinate (stipules often adnate to petiole base) or reduced, often with a stipular ridge forming an abaxial commissure, generally distichous or crowded; inflorescence axillary; herb or small softly woody shrub:
27a Leaflets ± toothed; nerves extending to ± toothed margin of leaflets; stipules adnate to petiole base (tribe **Trifolieae**):
28a Petals becoming dry and persistent after flowering; filaments mostly dilated upwards; fruit indehiscent..... **Trifolium**
28b Petals falling after flowering; filaments not dilated:
29a Flowers in slender racemes; ovules few; fruit indehiscent or tardily 2-valved..... ***Melilotus**
29b Flowers in heads or short racemes or rarely solitary:
30a Fruit straight or curved, mostly linear..... **Trigonella**
30b Fruit mostly spirally coiled, scarcely dehiscent, mostly prickly..... ***Medicago**
27b Leaves not toothed (except some Psoraleeae); nerves looped within the margin (except some Galegeae):
31a Leaves generally paripinnate, ending in a tendril or bristle, rarely imparipinnate; stipules free from petioles, generally foliaceous; fruit 2-valved; seeds lenticular to globose with ± linear hilum and no radicular lobes; herb (tribe **Vicieae**)..... ***Vicia**
31b Leaves generally ending in a leaflet or a spine, less often in a bristle; stipules generally small and/or adnate to the petioles; seeds with a small round hilum generally below a radicular lobe:
32a Filaments of all or alternate stamens dilated apically; flowers 1 or 2 from axils, in heads or more often umbellate, sometimes subtended by a foliar bract; compound leaves generally with at least 3 terminal leaflets conjugate, lowermost pair sometimes stipule-like, sometimes with a glandular stipule (tribe **Loteae**)..... **Lotus**
32b Filaments not dilated upwards:
33a Ovule 1; fruit 1-seeded, glandular; inflorescences compound, with more than 1 series of bracts; foliage ± glandular-punctate or pustulate (tribe **Psoraleeae**):
34a Flower pedicel subtended by a distinctive, lobed cupulum ..... **Psoralea**
34b Flower pedicel never subtended by a distinctive, lobed cupulum..... **Otholobium**
33b Ovules 2–many; fruit not both 1-seeded and glandular; racemes or fascicles simple with flower bracts only (tribe **Galegeae**):
35a Style bearded (sometimes just a tuft of hairs below stigma on one side); claws of keel largely joined; pods generally inflated (sometimes bladdery), if compressed, generally membranous, with sutures intruding or not, but without a longitudinal septum:
36a Style bearded with hairs on the upper (adaxial) face; fruit membranous-bladdery, inflated ..... **Lessertia** (*Sutherlandia*)
36b Style bearded around the stigma; fruit membranous, slightly inflated or compressed ..... **Lessertia**
35b Style glabrous, but stigma sometimes penicillate (short, uniform hairs all round); pods not as above:

37a Pod nerves transverse, confluent over middle part of valves, fine or inconspicuous; vexillary filament generally free; keel blades generally auriculate; leaflet nerves usually looped within the margin or inconspicuous ..... ***Alhagi**

37b Pod nerves oblique, closely parallel, raised at maturity, confluent towards placental margin; vexillary filament connate with others; keel blades not auriculate; leaflet nerves extending to margin .... ***Glycyrrhiza**

26b Leaves pulvinate, mostly free from stipules if present:

38a Petals 5, all similar, ribbon-like or spathulate; fruit drupaceous or flat and curved, eglandular 1(2)-seeded, indehiscent (tribe **Dalbergieae**) ..... **Dalbergia**

38b Petals differentiated, papilionoid:

39a Stamens 9; leaves paripinnate; flowers in pseudoracemes (pedicels several at a rachis node) or axillary fascicles; pods elastically dehiscent, with brown to brightly coloured seeds (tribe **Abreae**) ..... **Abrus**

39b Not as above:

40a Anthers apiculate or appendaged; petals usually reddish and caducous; biramous hairs present (often among others); normally leafy (tribe **Indigofereae**):

41a Keel (and usually dorsal surface of standard petal) hairy; upper margin of the keel with a fringe of hairs; standard petal mostly broad at base, tapering suddenly to a short claw; keel with lateral spurs, not prolonged-rostrate at the apex..... **Indigofera**

41b Keel (and usually dorsal surface of standard petal) glabrous; standard petal narrow at base, tapering gradually to the claw; keel with lateral pockets (spurs absent), often prolonged-rostrate at the apex ... . **Indigastrum**

40b Anthers not appendaged (if petals caducous):

42a Anther thecae confluent above; perennial herb with ± glandular foliage and minute peltate scales; fruit several-seeded, dehiscent or not, often muricate or bristly (tribe **Galegeae**) ..... ***Glycyrrhiza**

42b Anther thecae separate, sometimes reduced to terminal pores (then plant woody):

43a Fruit 1-seeded, often nutlet-like, small, generally glandular, with marcescent calyx; foliage glandular-pustulate or -punctate; never twining or large tree; inflorescence axillary; leaves (1–)3(–5)-foliolate ..... tribe **Psoraleeae** (see 33a)

43b Fruit more pod-like, eglandular or woody; glands, if present, generally on surface or small internal punctae:

44a Fruit transversely jointed, sometimes of only 1 article, or less often opening down one suture (then tertiary venation of leaflets scalariform); seeds with radicular lobe longer than cotyledonary lobe; lower petals generally withering and caducous after explosive pollen release; inflorescence generally compound with more than 1 series of bracts; leaves pinnately 3(–11)-foliolate, generally stipellate; stipules and bracts often striately nerved (tribe **Desmodieae**):

45a Plants without uncinate hairs; tertiary venation reticulate; stipellae absent; flowers chasmogamous (often mixed with cleistogamous flowers), anthers not explosively dehiscent; standard petal with inflexed auricles; ovary 1-ovulate..... ***Lespedeza**

45b Plants with characteristic uncinate hairs; tertiary venation ± scalariform; stipellae present; flowers chasmogamous, anthers explosively dehiscent; standard petal with hardly or slightly inflexed auricles; ovary (1)–many-ovulate:

46a Calyx glumaceous, striate, deeply divided, persistent and often partially enclosing the fruit; fruit held erect, usually consisting of a number of 'stacked' terete or subterete articles; leaves unifoliolate .... **Alysicarpus**

46b Calyx often membranous, not glumaceous or striate, shallowly divided, usually inconspicuous in fruit; fruit mostly held away from erect; leaves (1)3(5)-foliolate:

47a Stipules stramineous, striate, erect or spreading but never sharply recurved and velutinous; fruit distinctly jointed, breaking up into individual articles ..... **Desmodium**

47b Stipules mostly sharply recurved, dark brown adaxially, silver-velutinous abaxially; fruit splitting into 2 valves ..... **Pseudarthria**

44b Fruit not jointed, or if so (Aeschynomeneae), seeds more symmetrical; lower petals more retractable or little interconnected and differentiated:

48a Style straight or curved away from standard petal; standard with a median gutter; leaves digitately trifoliolate..... tribe **Crotalarieae** (see 11a)

48b Style curved towards standard petal:

49a Hypanthium absent; intrastaminal disc generally present; vexillary filament often connate medially, but free, arched and thickened to form openings at base; flowers generally in pseudoracemes, sometimes in extensive panicles or clustered in axils; leaves generally imparipinnate, 3–many-foliolate, leaflets generally strictly opposite and stipellate, occasionally alternate, sometimes unifoliolate or simple:

50a Leaves 1–many-foliolate, if trifoliolate the lateral leaflets only slightly asymmetrical; tree, shrub or liane with hard wood, less often a subshrub or herb (*Tephrosia* generally have closely parallel nerves extending to leaflet margins, but easily confused with Phaseoleae subtribe Ophrestiinae); inflorescences aggregated towards branch ends (tribe **Tephrosieae**):

51a Herb or undershrub, never scandent: **Tephrosia**

51b Robust shrub or tree, sometimes scandent:

52a Leaves imparipinnate; stipulate; leaflets alternate or subopposite **Craibia**

52b Leaves imparipinnate; stipulate; leaflets opposite:

53a Leaflets stipellate **Millettia**

53b Leaflets not stipellate **Philenoptera**

50b Leaves (1–)3-foliolate, the laterals usually markedly asymmetrical and regularly stipellate, occasionally 5–9-foliolate; twining prostrate or erect herb, sometimes a shrub, liane or tree; inflorescences often in many axils (tribe **Phaseoleae**):

54a Leaflets and calyx generally with yellowish gland dots; bracteoles absent; style slender below, hardened and a little thickened distally, glabrous; inflorescence not nodose:

55a Ovules 4 or more; arils often prominent **Bolusafra**

55b Ovules 2, rarely 3; arils usually inconspicuous:

56a Calyx lobes enlarged and membranous or scarious after flowering, the lowest largest; fruit falcate-ovate, enclosed by the calyx **Rhynchosia**

56b Calyx lobes not enlarged after flowering:

57a Stems usually twining or trailing; funicle of the seed attached in the middle of the hilum **Rhynchosia**

57b Stems usually stiff and erect; funicle of the seed attached at the end of the linear hilum **Eriosema**

54b Leaflets and calyx eglandular:

58a Style with distinctive expansion, flattening, coiling or specialised hairs, or if rarely unbearded, as well as terete, then petals elaborate with appendages on standard and keel petals adaxially joined; hila usually covered with spongy tissue:

59a Stigma lateral, oblique; style filiform, coiled with 3–5 or more revolutions **Vigna**

59b Stigma terminal:

60a Pollen grains tuberculate or spinulose, zonatriporate; style tenuous throughout or slightly widened above; standard petal with narrow, elongated appendages; wings very narrow; flowers mostly yellow or orange; ovary 3–9-ovulate **Macrotyloma**

60b Pollen grains not spinulose or, if somewhat granulate, then other characters not as above; flowers often shades of red, violet, purple or blue:

61a Style not narrowed into a thin waist:

62a Style conspicuously flattened throughout and blade-like, slightly less than at right angles to the ovary **Lablab**

62b Style not conspicuously flattened throughout:

63a Style with apex flattened into a tenuous, spathulate portion, stigmatose along the terminal edge **Sphenostylis**

63b Style not flattened (except in *Dolichos junodii*):

64a Style strongly curved near base and apex in same direction, the middle part gently curved in opposite direction **Dipogon**

64b Style not so complicatedly curved **Dolichos**

61b Style of two parts, an upper, incrassated part and a basal, tenuous part:

65a Keel not so strongly curved; stigma terminal, scarcely penicillate; flowers on a nodulate rachis **Dolichos**

65b Keel incurved through 180–360°; stigma terminal, penicillate, with simple or branched hairs; flowers in axillary fascicles, usually precocious **Decorsea**

58b Style generally terete and unbearded (sometimes a few hairs below the stigma), occasionally coiled in Erythrininae, sometimes bearded or flattened in Clitoriinae but then petals less complex; hila rarely covered with tissue:

66a Standard petal silky hairy outside, rather small, without appendages inside; seeds smooth, with a prominent aril; inflorescence not or slightly nodose ..... **Ophrestia**

66b Standard petal glabrous, or if hairy, then inflorescence generally nodose or flowers much modified:

67a Flowers mostly adapted to pollination by birds or bats, the petals generally unequal in length, the fertile parts loosely housed or exserted, sometimes with small bee-type flowers but then either style coiled or flowers in extensive panicles and pod samaroid ..... **Erythrina**

67b Flowers mostly adapted to pollination by bees or, if bird-flowers, then petals subequal in length:

68a Inflorescence generally nodose, occasionally paniculate or axillary and few-flowered; seeds diverse, with short to long hilum:

69a Calyx not strongly 2-lipped; upper calyx lobes completely united (calyx appears 4-lobed); fruit narrowly linear, straight or curved, many-seeded; usually a herb or subshrub, prostrate, climbing or erect.. ..... **Galactia**

69b Calyx 2-lipped, the upper lip large, entire or 2-lobed, the lower lip small; fruit large, linear-oblong to oblong, usually with longitudinal ribs close to upper margin; usually a woody climber or liane..... ..... **Canavalia**

68b Inflorescence not or scarcely nodose; seeds smooth, granular or rough, with short hilum:

70a Stamens alternately aborted; persistent style of the fruit turned up into a hook ..... **Teramnus**

70b Stamens all fertile; pod without a hook ..... **Dumasia**

49b Hypanthium present, short to long; intrastaminal disc generally lacking; vexillary filament not flared at base of staminal tube; flowers almost always arising singly if inflorescence extended; leaves variously paripinnate to imparipinnate; leaflets alternate to opposite, with or without stipellae, sometimes 1–3-foliolate:

71a Fruit jointed or geocarpic (tribe **Aeschynomeneae**):

72a Conspicuous pellucid or pustular glands on leaves, calyx, etc. or, if obscure, flowers sessile in many paired bracts; pedicels without joints or bracteoles; fruit without strong longitudinal nerves on sides; articles several, quadrate, often ornamented with glands, crests or bristles..... **Zornia**

72b Pellucid or pustular glands lacking; pedicels almost always articulate and/or bracteolate:

73a Fruit exserted from the calyx..... **Aeschynomene**

73b Fruit enclosed within the calyx..... **Smithia**

71b Fruit not jointed, nor geocarpic:

74a Ovules 1–4; fruit indehiscent, the seeds generally in separate seed chambers with hard endocarp; keel petals generally overlapping abaxially or, if margins adnate, flowers usually secund on the rachis, ± free from wings; stamens often shortly and/or irregularly joined (tribe **Dalbergieae**)..... **Dalbergia**

74b Ovules generally more numerous; fruit generally more pod-like even if flat and indehiscent:

75a Flowers in axillary racemes (occasionally with 1 or 2 branches if on leafless shoots) or rarely strictly leaf-opposed or in axillary clusters; stamens $^{3}/_{4}$ joined except some bird-flowers; keel petals abaxially joined (shortly in some bird-flowers); pods usually dehiscent, often septate internally..... **Sesbania**

75b Flowers in terminal panicles, sometimes with supplementary axillary racemes, rarely all axillary; stamens very rarely joined so high and keel petals usually overlapping abaxially; fruit generally indehiscent ..... **Sophoreae** (see 2a) and **Tephrosieae** (see 50a)

ABRUS Adans.

Lucky bean

Species 17, cosmopolitan in tropical and subtropical regions; 2 in sthn Afr., N, B, M, S, KZN, EC.

1a Slender climber with leafy flowering branches; ± 9 pairs of leaflets per leaf; seeds chocolate brown

laevigatus E.Mey.

Lucky bean; *minnaarsboontjie*, *minnie-minnies* (A)

Woody climber, winding and then prostrate and assuming the habit of shrub or undershrub. **Leaves** paripinnate, multijugate with rachis ending in a bristle, reticulation on

leaflets raised. **Stipules** setaceous. **Flowers** in axillary racemes or sometimes on short leafless branches. **Calyx** campanulate with 5 small lobes. **Petals** light blue; standard glabrous, ± adnate to staminal tube below. **Stamens** 9, monadelphous, uniform with no vexillary stamen. **Flowering time** Oct.–Feb. **Pod** membranous, glabrous, linear, compressed. **Seeds** markedly compressed, chocolate brown. Coastal bush, riverbanks and grassland; Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Bizana District S to near Kei River Mouth).

1b Vigorous climber often with leafless flowering branches; > 10 pairs of leaflets per leaf; seeds bright red with a black spot around hilum

precatorius L. subsp. **africanus** Verdc.

Coral pea, Indian liquorice, jequirty bean, lucky bean, minnie-minnies, Paternoster bean

Woody climber, winding and then prostrate and assuming the habit of shrub or undershrub. **Leaves** paripinnate, multijugate with rachis ending in a bristle. **Stipules** setaceous. **Flowers** in axillary racemes or sometimes on short leafless branches. **Calyx** campanulate with 5 small lobes. **Petals** light blue; standard glabrous, ± adnate to staminal tube below. **Stamens** 9, monadelphous, uniform with no vexillary stamen. **Flowering time** Oct.–Mar. **Pod** woody, 2-valved, subseptate covered with low tubercles. **Seeds** ellipsoid-globose, bright red with a black spot around hilum. Open scrub and grassland; Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Egoso Forest, Pondoland).

*ACACIA Mill. *s.s.*

(= *ACACIA* Mill. subgen. *Phyllodineae*)

Wattle

1 045 spp. in Australia, 7 in Pacific, 3 confined to Asia, 2 in Madagascar and Mascarenes; several Australian species naturalised in SA, widespread.

At the 2011 Botanical Nomenclatural Section of the XVIII International Botanical Congress in Melbourne, it was decided not to adopt any extraordinary exception into the International Code of Nomenclature and therefore the decision of the Vienna Congress to conserve the Australian *A. penninervis* Sieb ex DC. as the type of the genus *Acacia* was approved (Miller et al. 2011).

The genus *Acacia* Mill. *s.l.* is polyphyletic and at least five new genera were resurrected or newly described from within it, including three subgenera in synonymy (Lewis et al. 2005; Kyalangalilwa et al. 2013): *Senegalia* Raf. (Tribe Mimoseae) and *Vachellia* Wight & Arn. (Tribe Mimoseae). Both occur in Africa and sthn Afr. **Acacia* Mill. *s.s.* is native to Australia. *Acaciella s.s.* (= *Acacia* subgen. *Aculeiferum* sect. *Filicinae*) comprises 15 spp. all restricted to the Neotropics. *Mariosousa* Seigler & Ebinger was previously an undescribed genus based on the '*Acacia coulteri* group' plus *Acacia* subgen. *Aculeiferum pro parte* (a small group of related species). The '*Acacia coulteri* group' comprises 13 spp. restricted to N and central America.

Macromorphological characters:

- Plants without thorns or spines.
- Phyllodia present in some species.
- Flowers arranged in globular heads.
- Globular heads solitary or in short axillary spikes or racemes.

1a Leaf lamina bipinnately compound
2a Leaves < 300 mm long

baileyana F.Muell.

Bailey's wattle, cootamundra wattle; *Bailey se wattel* (A)

Tree or shrub, 3–6 m high, covered with grey-blue powdery bloom. **Leaves** bipinnate, greyish to silvery blue, tinged purple, 20–50 mm long, rachis up to 12 mm long, pinnae 2–4 pairs, crowded, each with 12–20 leaflet pairs. **Flowers** globular heads in axillary racemes, bright yellow. **Flowering time** July–Sept. **Pod** greyish brown, 40–100 × 8–14 mm, straight or slightly curved, irregularly constricted between some seeds, dehiscent. Cultivated as ornamental, invades grassland, fynbos, urban areas; origin Australia, declared invader (Category 3); Drakensberg Grassland, Sub-Escarpment Grassland, Eastern Fynbos-Renosterveld (Lady Grey E to Matatiele, SW to Grahamstown and Port Elizabeth).

dealbata Link

Silver wattle: *silwerwattel* (A)

Tree or shrub, 5–15 m high, branchlets shallowly ridged, tinged grey or purple. **Bark** grey-brown to blackish, smooth, later rough. **Branches** hairy, yellowish when young, later grey. **Leaves** bipinnate, silvery-grey, glaucous, finely hairy, 20–50 mm long, rachis 25–100 mm long, pinnae 10–26 pairs, each with 17–50 leaflet pairs. **Flowers** globular heads in axillary racemes, bright yellow. **Flowering time** July, Aug. **Pod** brown, 30–80 × 7–13 mm, straight or slightly curved, dehiscent. Cultivated for shelter, firewood, construction, invades grassland, river courses; origin Australia, declared weed (Category 1); Drakensberg Grassland, Sub-Escarpment Grassland, Albany Thicket (Lady Grey E to Kokstad, SW to Grahamstown).

decurrens (J.C.Wendl.) Willd.

Green wattle; *groenwattel* (A)

Tree, 1.5–12.0 m high. **Branchlets** angular with wing-like ridges, young branches slightly hairy. **Leaves** bipinnate, bright green, decurrent, glabrous, rachis 30–100 mm long, pinnae 8–15 slender pairs, each with 15–35 leaflet pairs. **Flowers** globular heads in axillary racemes, bright yellow. **Flowering time** July, Aug. **Pod** dark brown, glabrous, slightly constricted, slightly curved, dehiscent. Cultivated for shelter, firewood, construction, ornamental tree, invades grassland, river courses, roadsides; origin Australia, declared invader (Category 2); Sub-Escarpment Grassland, Sub-Escarpment Savanna (Matatiele SW to Mthatha, Grahamstown District).

mearnsii De Wild.

Black wattle; *swartwattel* (A)

Tree, 5–15 m high, branchlets shallowly ridged. **Bark** grey-brown to blackish, smooth, later rough. **Branches** finely golden-hairy when young. **Leaves** bipinnate, dark olive-green, crowded, finely hairy, rachis 40–120 mm long, pinnae 8–21 pairs, each with 15–70 leaflet pairs. **Flowers** globular heads in axillary racemes, pale yellow or cream-coloured. **Flowering time** Aug., Sept. **Pod** grey-hairy, 30–100 × 5–8 mm, jointed, slightly curved, dehiscent. Cultivated for shelter, firewood, construction, tanbark, wood chips, invades grassland, river courses, open spaces; origin Australia, declared invader (Category 2); Sub-Escarpment Grassland, Drakensberg Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Albany Thicket, Eastern Fynbos-Renosterveld (Lady Grey E to Kokstad, SW to Port Elizabeth and Joubertina).

2b Leaves > 300 mm long

elata A.Cunn. ex Benth.

Peppertree wattle; *peperboomwattel* (A)

Tree, 9–20 m high, trunk with side limbs when old, young branchlets golden-hairy. **Leaves** bipinnate; upper surface dark green, glossy, 300–400 mm long; pinnae 3–5 pairs, each with 8–15 leaflet pairs. **Flowers** globular heads in axillary racemes, pale yellow. **Flowering time** Oct.–Dec. **Pod** brown, 90–150 × 9–13 mm, linear-oblong, straight or slightly curved, fine gold-coloured hairs, margins irregularly constricted between seeds, dehiscent. Cultivated as ornamental, shelter, invades forest clearings, fynbos, urban areas; origin Australia, declared invader (Category 3); Albany Thicket, Indigenous Forests, Eastern Fynbos-Renosterveld (East London District, Joubertina District).

1b Leaves reduced to simple phyllodia
3a Phyllodia ovate to elliptic, 15–40 mm long

podalyriifolia A.Cunn. ex G.Don

Pearl acacia, Queensland silver wattle; *pêrel-akasia*, *vaalmimosa* (A)

Small tree or shrub, 3–6 m high. **Branches**: young ones and phyllodia covered with grey powdery bloom and dense grey hairs. **Leaves** phyllodia, apparently simple, silvery grey to dull green, velvety, ovate to elliptic, 15–40 × 10–20 mm, one prominent midvein. **Flowers** globular heads in axillary racemes, bright yellow. **Flowering time** June–Aug. **Pod** grey-brown, 30–80 × 15–20 mm, straight, velvety, margins flattened, wavy and constricted between seeds, apex acute, dehiscent. Cultivated as ornament, invades watercourses, roadsides, fynbos; origin Australia, declared invader (category 3); Indian Ocean Coastal Belt, Eastern Fynbos-Renosterveld (Port Edward SW to Port St Johns, Joubertina District).

3b Phyllodia linear-lanceolate or narrowly oblong to oblong-elliptic, (20–)30–220 mm long

cyclops A.Cunn. ex G.Don

Red eye; *rooikrans*, *rooipitjie* (A)

Small tree or shrub, 1.5–6.0 m high. **Branches** angular, glabrous when young. **Leaves** phyllodia, apparently simple, green, glabrous, narrowly oblong, straight, 30–90 × 6–15 mm, 3–5 prominent veins, apex obliquely mucronate. **Flowers** globular heads solitary or, 2 or 3 in short axillary racemes, bright yellow. **Flowering time** Oct.–Feb. **Pod** brown, 50–150 × 8–13 mm, curved and twisted, flattened, apex acute, dehiscent; seed funicle thickened, bright red. Cultivated for dune reclamation, firewood, invades dunes, watercourses, roadsides, fynbos; origin Australia, declared invader (Category 2); Sub-Escarpment Grassland, Albany Thicket, Eastern Fynbos-Renosterveld (Joubertina E to East London, Queenstown District).

fimbriata A.Cunn. ex G.Don

Fringed wattle

Small tree or shrub, 1.5–10.0 m high. **Leaves** phyllodia, apparently simple, green, glabrous, linear to narrowly oblong-elliptic, straight, 20–45 × 2–5 mm, narrowed at base, single prominent midvein, margins densely ciliate. **Flowers** globular heads in axillary racemes, bright yellow. **Flowering time** July, Aug. **Pod** brown, linear-oblong, 70 × 7 mm, straight, flattened, dehiscent. Cultivated as ornament, firewood, invades watercourses, roadsides; origin Australia; Sub-Escarpment Grassland, Eastern Fynbos-Renosterveld (Grahamstown District).

longifolia (Andrews) Willd.

Long-leaved wattle; *langblaarwattel* (A)

Tree or shrub, 1.5–8.0 m high, stems with spherical galls caused by an introduced wasp. **Leaves** phyllodia, apparently simple, bright green, glabrous, oblong, 60–180 × 7–20 mm, 2–5 prominent longitudinal veins. **Flowers** in axillary cylindrical spikes, bright yellow. **Pod** brown, 70–140 × 4–6 mm, cylindrical, straight or slightly curved, glabrous; margins constricted between seeds, apices acute, dehiscent, valves wrinkled. **Flowering time** July–Sept. Cultivated as ornamental, shelter, dune reclamation; invades fynbos, woodland, watercourses; origin Australia, declared invader (Category 3); Indian Ocean Coastal Belt, Albany Thicket, Eastern Fynbos-Renosterveld (Port Edward SW to Joubertina).

melanoxylon R.Br.

Australian blackwood; *Australiese swarthout* (A)

Tree, 5–20 m high. **Branches** angular, glabrous or tips finely hairy when young. **Leaves** phyllodia, apparently simple, greyish turning dark, dull green, glabrous, linear-lanceolate to oblanceolate, 60–120 × 6–12 mm, straight to falcate, narrowed basally, 3–7 prominent longitudinal veins, young plants or coppice shoots may have bipinnate lamina at apex of phyllodia. **Flowers** globular heads solitary or in short axillary racemes, pale yellow to whitish. **Flowering time** Aug., Sept. **Pod** reddish brown, 50–150 × 6–8 mm, twisted, flattened, margins thickened, apex acute, dehiscent; seed funicle thickened, pink-red. Cultivated for dune reclamation, firewood, invades watercourses, roadsides, forest edges and gaps, fynbos; origin Australia, declared invader (Category 2); Sub-Escarpment Grassland, Albany Thicket, Indigenous Forests, Eastern Fynbos-Renosterveld (Kokstad SW to Joubertina).

pycnantha Benth.

Golden wattle; *goue wattel* (A)

Tree or shrub, 2–10 m high. **Branches** terete when young, pendulous, glabrous, may have knobby galls. **Leaves** phyllodia, apparently simple, dull-green, glabrous, coriaceous, obovate-lanceolate, 100–200 × 15–30 mm, straight to falcate, narrowed basally, single prominent midvein, apex obtuse, young plants or coppice shoots may have bipinnate lamina at apex of phyllodia. **Flowers** globular heads in axillary racemes, bright yellow. **Flowering time** Aug., Sept. **Pod** brown, 60–120 × 4–7 mm, straight, flattened, margins slightly constricted between some seeds, dehiscent. Cultivated for dune reclamation, ornament, invades watercourses, roadsides, fynbos; origin Australia, declared weed (Category 1); Eastern Fynbos-Renosterveld (Joubertina E to Port Elizabeth).

saligna (Labill.) H.L.Wendl.

Port Jackson willow, Port Jackson; *goudwilger* (A)

Small tree or shrub, 3–10 m high, stems deformed by large galls. **Branches** slightly angular when young, glabrous. **Leaves** phyllodia, apparently simple, blue-green to bright green, glabrous, linear-lanceolate to linear-oblong, straight or slightly falcate, narrowed at base, 80–220 × 5–14 mm, lower leaves may be larger, single prominent midvein, young plants or coppice shoots may have bipinnate lamina at apex of phyllodia. **Flowers** globular heads in short axillary racemes, bright yellow. **Flowering time** Nov. **Pod** brown, 55–150 × 5–6 mm, straight or slightly falcate, flattened, margins whitish, hard, dehiscent. Cultivated for dune reclamation, firewood, invades dunes, watercourses, roadsides,

fynbos; origin Australia, declared invader (Category 2); Sub-Escarpment Grassland, Albany Thicket, Eastern Fynbos-Renosterveld (Joubertina E to East London).

ADENOPODIA C.Presl

Species ± 10, widespread and mainly tropical; 1 in sthn Afr., LIM, M, S, KZN, WC, EC.

spicata (E.Mey.) C.Presl

Spiny splinter-bean; *stekelsplinterboontjie* (A)

Woody liane, climbing up into canopy or scrambling shrub, up to 6 m high; young branchlets with downwardly hooked prickles, sometimes also present on leaf petioles and leaf rachides. **Leaves** bipinnate with a gland above petiole base. **Pinnae** with many pairs of opposite leaflets. **Flowers** bisexual in paniculately aggregated, creamy yellow spikes. **Calyx** cupular, 5-lobed. **Petals** 5, connate. **Flowering time** Dec., Jan. **Pod** straight or slightly curved, flat, splitting into 1-seeded transverse segments. Woodlands, marginal scrub, riverbanks and indigenous forest; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Drakensberg Grassland, Albany Thicket (Oribi Gorge, Mtamvuna River, S to Hogsback and East London).

AESCHYNOMENE L.

Species > 150, mainly Africa and South America in tropical and subtropical parts; ± 10 in sthn Afr., N, LIM, NW, G, M, KZN, EC.

uniflora E.Mey. var. **uniflora**

Erect, usually annual, shrubby herb, 0.5–2.0 m high, growing in moist places; whole plant covered with tubercular-based hairs. **Leaves** sensitive to touch, pinnate. **Leaflets** linear-oblong, 18–56-foliolate. **Stipules** straight and spurred. **Flowers** solitary or sometimes ternate, axillary; bracts absent. **Calyx** subequally 2-lipped. **Petals**: standard yellow with dark veins, keel paler greenish yellow, the margins somewhat laciniate. **Flowering time** Jan.–Mar. **Pod** straight with suture somewhat constricted between articles. **Articles** oblong, densely and finely tuberculate, often rather inflated. Wetlands and other wet areas such as riverbanks, as well as roadsides; Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Pondoland, Mtamvuna River S to Port St Johns).

ALBIZIA Durazz.

Flat crown

Species ± 145, Africa, Asia and Australia; 14 (3 naturalised) in sthn Afr., N, B, LIM, NW, G, M, S, KZN, NC, EC.

adianthifolia (Schumach.) W.Wight var. **adianthifolia**

Flat-crown; *platkroon* (A); *umHlandlothi* (X); *igowane* (Z)

Tree, up to 30 m high, with spreading, flattened crown. **Bark** grey to brown, rough. **Branchlets** with rusty pubescence when young, becoming grey. **Leaves** rusty- to fulvous-pubescent. **Pinnae** (3)4–8 pairs, each narrowing upward. **Leaflets** (4)6–17 pairs obliquely rhombic-quadrate or -oblong, apex obtuse and mucronate, upper surface thinly pubescent, lower surface completely pubescent. **Stipules** and bracts at base of peduncles ovate. **Inflorescences** globose. **Flowers** whitish. **Stamens** united into a narrow tube for most of their length. **Flowering time** Sept.–Nov. **Pod** pale brown with thin, textured valves. Riverbanks, coastal bushveld and indigenous forests; Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Pondoland and Lusikisiki Districts, Port St Johns).

*ALHAGI Gagnebin

Species 3, in dry or maritime places, Mediterranean regions to Nepal; 1 naturalised in sthn Afr., NC, WC, EC.

maurorum Medik.

(= *A. camelorum* Fisch.)

Camelthorn bush, kameeldoringbos (A)

Rigid, much-branched shrub, up to 1.5 m high with extensive underground stems; aerial stems annual, armed with sharp, straight, axillary spines. **Leaves** simple, usually small (up to 20 mm long), entire, sparse. **Flowers** borne on spine-tipped branches, solitary or often few in axillary racemes, pink, red or purple. **Calyx** campanulate, with 5 short, subequal teeth. **Petals**: standard obovate, shortly clawed; wings falcate-oblong, free; keel incurved, obtuse. **Stamens** diadelphous; vexillary stamen free, remainder connate; anthers uniform. **Ovary** subsessile, many ovuled; style filiform, incurved, glabrous; stigma small, terminal. **Flowering time** Dec., Jan. **Pod** linear, thick or subterete, smooth, indehiscent, strongly contracted between seeds. **Seeds** 1–5, reniform. Agrestal weed and potential transformer (category 1); invading ploughed lands, riverbanks, often deep soil. (EC locality not documented).

ALYSICARPUS Desv.

Species 25–30, Africa to Asia; 4 in sthn Afr., N, B, LIM, NW, G, M, EC.

rugosus (Willd.) DC. subsp. **perennirufus** J.Léonard

Decumbent, spreading perennial, with many flexuous, pubescent to almost glabrous stems. **Leaves** unifoliolate or less often pinnately trifoliolate. **Leaflets** 15–110 mm long. **Stipules** lanceolate, 5–30 mm long. **Inflorescences** axillary, terminal or leaf-opposed, dense to lax. **Calyx** with ferruginous cilia. **Petals**: standard whitish, reddish or bluish, obovate; keel often greenish. **Flowering time** Oct.–May. **Pod** 5–10 mm long; fruit articulations scarcely exserted from calyx, much constricted between articles. **Seeds** olive, squarish, compressed. Grassland in well-drained soils; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Sub-Escarpment Grassland, Drakensberg Grassland, Albany Thicket (Griqualand East S along Engcobo and Morgan's Bay towards Hogsback and East London).

AMPHITHALEA Eckl. & Zeyh.

Species ± 21, Cape, WC, EC.

Adult leaves densely villous or sericeous on both sides

fourcadei Compton

Stocky, densely leafy, perennial shrub, 0.3–1.5 m high; branchlets, leaves, calyx and ovary covered by dense, appressed, silvery pubescence. **Branches** woody, tomentose. **Leaves** erect to spreading, subsessile, ovate or elliptic, acute, midrib prominent beneath, margins slightly thickened. **Flowers** solitary, small, dull light and dark mauve, axillary, sessile, concealed among leaves. **Flowering time** Nov.–Mar. **Pod** 1-seeded, sericeous. Wet, steep slopes, sand, stony/rocky soil; Eastern Fynbos-Renosterveld, Indigenous Forests (Humansdorp District to Tsitsikamma Mts).

parvifolia (Thunb.) A.L.Schutte

Perennial shrub, virgate, silvery, 0.5–1.2 m high. **Branches** tomentose; branchlets narrow, striate, densely leafy. **Leaves** sessile, ovate, acute, margins slightly incurved.

Inflorescences uni- or bi-floral, on branch ends in spike-like assemblages. **Flowers** purple, mauve or rose-coloured. **Calyx** tubular, sericeous. **Flowering time** Sept.–Dec. **Pod** obliquely ovate, acuminate and sericeous. Habitat?; Eastern Fynbos-Renosterveld, Rainshadow Valley Karoo, Albany Thicket (Misgund to Keurboomsrivier, both in the Uniondale District).

phylicoides Eckl. & Zeyh.

Coarse, lanate, densely branched, perennial shrub, 0.8–1.5 m high. **Branches** villous. **Leaves** patent, ovate-lanceolate, mucronate or mucronulate, cordate at base, margins strongly revolute. **Inflorescences** unifloral, hidden in axils of leaves. **Flowers** pale rose or whitish; keel blades purple. **Calyx** canescent. **Flowering time** Jan.–July. **Pod** obliquely oblong, acuminate, sericeous, 1-seeded. Stony/rocky soil, mesic high elevation fynbos; Albany Thicket, Eastern Fynbos-Renosterveld, Sub-Escarpment Savanna (Grahamstown to Uitenhage and Van Stadens Mts).

Adult leaves glabrous or only slightly sericeous on the upper surface

micrantha Walp.

Low, perennial shrub, densely much branched, 0.2–0.5 m high. **Leaves** minutely black dotted, ovate, acuminate, cordate; lower leaf surface glabrous or slightly villous, often concave with margins subincurved; leaf base swollen; petioles very short. **Flowers** white and purple, small, sessile, 1 or 2 in axils. **Calyx** subcoriaceous, glabrous or very sparsely pubescent. **Flowering time** Apr.–July. **Pod** obliquely ovate, sparsely pubescent. Stony/rocky soil; Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld, Albany Thicket (Swartberg Region to Uitenhage).

[E]williamsonii Harv.

Perennial, dwarf shrub, with virgate branches, 0.2–0.5 m high. **Leaves** ovate or ovate-lanceolate, acute, nearly flat with slightly incurved margins. **Inflorescences** axillary on upper 50–100 mm of branchlets, 1- or 2-flowered. **Flowers** sessile, pale mauve and purple. **Calyx** sericeous. **Flowering time** May–Aug. Grassland, stony/rocky soil; Albany Thicket, Eastern Fynbos-Renosterveld, Sub-Escarpment Savanna (Howison's Poort, Albany and Grahamstown).

ARGYROLOBIUM Eckl. & Zeyh.

Species ± 70, Africa, S Europe to India; ± 50 in sthn Afr., LIM, NW, G, M, S, FS, KZN, L, NC, WC, EC.

1a Stipules fused for more than half their length

amplexicaule (E.Mey.) Dummer

Perennial, dwarf shrub, decumbent, woody rootstock, 0.12–1.00 m high. Leaves divided into 3 elliptic leaflets. **Stipules** distinctive, large, connate, 22 × 17 mm, (1)2-tipped. **Inflorescences** dense and pseudo-umbellate. **Flowers** bright yellow. Often forms floral guilds with *Lotononis corymbosa*; grassland, abandoned land, roadsides, hills, mountain slopes; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indigenous Forests, Indian Ocean Coastal Belt, Drakensberg Grassland (Mount Currie SE to Port Edward and SW to Winterberg Mts and King William's Town).

1b Stipules free or fused for less than half their length
2a Flowers solitary

candicans Eckl. & Zeyh.
(= *A. summomontanum* Hilliard & B.L.Burtt)

Small, perennial herb, 0.1–0.3 m high. **Leaves** prominent, ovate, apex acuminate; leaflets of coastal specimens larger, widely obovate, those of high-altitude specimens smaller, strongly conduplicate. **Stipules** 2, often larger than leaflets. **Flowers** sessile, solitary. **Pod** turgid. Grassland, slopes, near rivers/coast, stony soil, rocky areas; Dry Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Albany Thicket (Bethulie District SE to Queenstown, Kei Mouth SW to East London).

2b Flowers in few- or many-flowered inflorescences
3a Inflorescences terminal and axillary, usually many-flowered; flowers never dimorphic
4a Aerial stems annual, sparingly branched below
5a Plants tall (> 0.6 m high), virgate, well branched above

longifolium (Meisn.) Walp.

Perennial, virgate suffrutex, with prolific branching in upper third, up to 1.5 m high; plants turn black when dry; stems sparsely sericeous becoming glabrous. **Leaves** glabrous adaxially, sparsely sericeous abaxially, dimorphic in mature plants; upper leaflets oblanceolate to linear, lower ones widely oblanceolate to elliptic, conduplicate, apex acute or rounded, apiculate. **Inflorescences** with slender, axillary racemes and robust, terminal racemes, up to 20-flowered. **Flowers** with unusual inrolling of standard petal base. **Pod** sparsely sericeous. Habitat?; Sub-Escarpment Savanna (Ixopo District).

5b Plants short (< 0.4 m high excluding the inflorescence), often basally branched
6a Standard petal obovate to oblanceolate, plain yellow

baptisioides (E.Mey.) Walp.
(= *A. sandersonii* Harv.)

Perennial, dwarf shrub, variable in habit, indumentum and leaf shape; populations often include broad-leaved, glabrescent and narrow-leaved, pilose individuals. In EC, narrow-leaved, pilose forms predominate and inflorescences are far more floriferous. Sourveld areas where grass cover is sparse, grassland; Drakensberg Grassland, Sub-Escarpment Savanna (Komga District, King William's Town).

6b Standard petal suborbicular, yellow with red veins

[E]speciosum Eckl. & Zeyh.

Perennial herb; plants with short, lower stem internodes. **Leaves** clustered basally, with a strong tendency towards dimorphism, lower leaflets broad and upper leaflets narrow. **Inflorescences** with peduncle development accentuated, allowing flowers to be held above surrounding vegetation. Grassland, mountain slopes and summits, forests, forest edges; Drakensberg Grassland, Indigenous Forests, Sub-Escarpment Grassland, Sub-Escarpment Savanna (Hogsback District SE to King William's Town).

4b Aerial stems perennial, somewhat woody, branched shrubs
7a Leaves dimorphic
8a Upper leaflets small 5–9(–17) × 2–4 mm on brachyblasts (reduced lateral branches)

[E]polyphyllum Eckl. & Zeyh.

Perennial, virgate, dwarf shrub, 0.3–1.5 m high; primary stems are rod-like, characterised by upper ramification of short branches. **Leaflets**: upper ones small; primary

leaflets caducous, narrowly to widely obovate; secondary leaflets narrowly obovate to elliptic. **Inflorescences** terminal. **Flowers** large. **Flowering time** Nov.–May. Grassland, forest margins; Drakensberg Grassland, Indigenous Forests, Sub-Escarpment Grassland, Albany Thicket (King William's Town, East London).

8b Upper leaflets large, 10–24 × 8–14 mm, not borne on brachyblasts

[E]trifoliatum (Thunb.) Druce
[= *A. sericeum* (E.Mey.) Eckl. & Zeyh.]

Shrub or subshrub, sparingly to well-branched, rod-like, primary stems, resprouting, frequently producing basal coppices with long internodes and villous indumentum. **Leaflets** obovate to obcordate, emarginate to recurvo-mucronate; upper surface glabrous; lower surface hairy. **Inflorescences** of terminal racemes. **Flowering time** Oct.–July. Fynbos, forest, closed shrubland, steep slopes, mountains; Albany Thicket, Eastern Fynbos-Renosterveld, Sub-Escarpment Savanna, Indigenous Forests (Suurberg SW to Humansdorp District).

7b Leaves monomorphic
9a Leaflets with projecting reticulate abaxial veins

[E]parviflorum T.J.Edwards

Perennial, well-branched shrublet, up to 1 m high. **Leaflets** widely obovate. **Inflorescences** of terminal racemes. **Flowers** small. **Flowering time** Nov.–May. Very rare and only recorded on the Baviaanskloof Mts; Eastern Fynbos-Renosterveld (Baviaanskloof).

9b Leaflets without projecting, reticulate abaxial veins
10a Leaflets densely hairy, coriaceous

[E]barbatum Walp.

Perennial herb, 0.15–1.80 m high; very woody lower stems, mature individuals are characterised by very short, gnarled, lower branches; plants distinctive with rufous, pilose indumentum. **Stipules** partially connate. **Leaves** with elongate petioles exceeding stipules. **Inflorescences**: flowers borne singly or in pairs atop elongate peduncles. **Flowers**: wing petals glabrous with lunate petal sculpturing. Rare endemic to Addo Bush; Albany Thicket (Port Elizabeth and Alexandria District).

[E]incanum Eckl. & Zeyh.

Perennial, virgate, dwarf shrub, 0.07–1.50 m high (coastal forms at Humansdorp < 0.6 m high, with small leaflets; inland forms from Baviaanskloof Mts, up to 2 m high, virgate with larger leaflets); rootstock thickened. **Leaves** densely sericeous, silvery; leaflets round. **Inflorescences** of terminal racemes. **Flowering time** July–Jan. Both forms occur in fynbos; sand, loam, stony soil, rocky areas, open shrubland, mountain slopes, riverbanks; Eastern Fynbos-Renosterveld, Albany Thicket (Grahamstown SW through to Humansdorp and to Kouga Mts).

10b Leaflets sparsely hairy, glabrous adaxially

[E]crassifolium Eckl. & Zeyh.

Perennial, dwarf shrub, 0.6–1.5 m high; much-branched, vegetative indumentum. **Leaves** diminutive; leaflets widely obovate, apiculate, sparsely hairy abaxially and glabrous adaxially. **Inflorescences** of terminal racemes. **Flowers** diminutive. **Flowering time** June–Nov. Fynbos near rivers/coast, hills; Eastern Fynbos-Renosterveld, Albany Thicket (Uitenhage, Port Elizabeth District).

3b Inflorescences mostly leaf opposed, usually few-flowered; flowers dimorphic
11a Leaves monomorphic or slightly dimorphic
12a Shrubs or suffrutices

argenteum Eckl. & Zeyh.

Perennial shrub, 0.4–1.0 m high; stature lax, shrubby; stems densely sericeous. **Leaves** with pronounced petioles, sparsely hairy; leaflets weakly dimorphic, widely obovate to obovate, somewhat conduplicate. **Inflorescences** mostly pedunculate and sometimes borne atop elongate peduncles. **Flowers** solitary, small, subsessile, sometimes up to 3 flowers borne per node. **Flowering time** mainly Apr. Widespread in dry interior; clay, stony/rocky soil, grassland, disturbed areas, on slopes; Upper Karoo, Albany Thicket, Dry Highveld Grassland, Lower Karoo, Eastern Fynbos-Renosterveld (Phillipolis District SE to Cradock and SW to Willowmore).

tomentosum (Andrews) Druce

Umadlozana (Z)

Perennial, sprawling, dwarf shrub, 0.2–2.0 m high (plants in dry habitats stunted, seldom exceeding 0.25 m high, those in moist habitats and bright light > 1.5 m high); well-branched, indumentum variable. **Leaflets** variable, small suborbicular in dry habitats, large elliptical or obovate in moist habitats; ciliate. **Inflorescences** of terminal racemes. **Flowering time** Nov.–May. Forest, forest margins, open shrubland, closed shrubland; Drakensberg Grassland, Sub-Escarpment Grassland, Indigenous Forests, Sub-Escarpment Savanna, Albany Thicket, Eastern Fynbos-Renosterveld, Indian Ocean Coastal Belt (Transkei SE to Tsitsikamma and SW to Port St Johns).

12b Herbs
13a Abaxial leaflet veins prominent

molle Eckl. & Zeyh.
(= *A. patens* Eckl. & Zeyh.)

Small herb, 0.05–0.20 m high; plant stature influenced by environmental conditions, forming a morphological continuum. **Leaflets** slightly dimorphic, oblanceolate to obovate, weakly to strongly conduplicate, venation prominent. **Inflorescences** of terminal racemes, 2- or more-flowered, precocial flowering. **Flowering time** Aug.–Feb. Common in the eastern seaboard of sthn Afr., grassland, valley and hills, rocky areas; Sub-Escarpment Grassland, Drakensberg Grassland, Albany Thicket, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld (Seymour SE to Komga and SW to Uitenhage).

13b Abaxial leaflet veins obscure
14a Leaflets discolorous

[E]pumilum Eckl. & Zeyh.

Perennial, dwarf shrub or herb, 0.10–0.25 m high. **Leaves** uniform; petioles well developed. **Leaflets** fairly flat, dark green, discolorous with silver margins. **Stipules** small, recurved. Distinctive species of rocky outcrops and areas of baked earth, often confused with *A. molle*; Fynbos, grassveld; Albany Thicket, Dry Highveld Grassland, Eastern Fynbos-Renosterveld, Sub-Escarpment Savanna (Somerset East SE to Grahamstown District, S to Uitenhage).

14b Leaflets concolorous
15a Stipules as large or larger than the leaflets

stipulaceum Eckl. & Zeyh.

Perennial herb, 0.12–0.30 m high; variable in size but consistent in morphology. Distinguished by silver indumentum, very large stipules and inflated fruits. Grassland across a wide altitudinal range, stony soil, rocky areas, sand, mountain regions; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Albany Thicket (Mount Fletcher SW to Albany Region, Grahamstown).

15b Stipules smaller than the leaflets
16a Wing petals without sculpturing

rotundifolium T.J.Edwards

Perennial herb, from 0.15 m high; with consistently prostrate habit, shortly rufous-tomentose indumentum. **Leaflets** widely elliptical to orbicular, densely tomentose beneath, apex obtuse to rounded, apiculate, margins densely rufous-tomentose. **Inflorescences** pseudo-umbellate, becoming leaf opposed. Predominantly coastal, sand, clay, loam, littoral scrub, rocky outcrops, grassy slopes, near sea/river mouths; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests, Sub-Escarpment Grassland (Oribi Gorge, Port Edward, Transkei).

16b Wing petals with sculpturing
17a Petioles of upper leaves shorter than stipules
18a Young flowers russet and yellow (unique within genus)

tuberosum Eckl. & Zeyh.

Lebesa (S); *uvemvane olubomvu* (Z)

Perennial herb, 0.5(–0.9) m high; slender, sparsely branched, resprouting, tuberous. **Leaflets** dimorphic; lower ones petiolate, widely obovate to narrowly oblanceolate; upper ones subsessile linear to oblanceolate, conduplicate. **Inflorescences** of terminal racemes. **Flowering time** Sept.–Apr. Hills, mountain slopes, grassland, near streams, damp kloofs, forest margins; Drakensberg Grassland, Sub-Escarpment Grassland, Upper Karoo, Indigenous Forests, Albany Thicket, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld (Oviston E to Transkei, King William's Town SW to Humansdorp).

18b Young flowers yellow

humile E.Phillips

Perennial herb, 0.02–0.75 m high; pilose indumentum. **Inflorescences** of 1- or 2-flowered racemes, leaf-opposed. **Pod** broad, pilose. Moist grassland, mountain slopes, near rivers/coast; Drakensberg Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests (Barkly East District S to Komga and SE to Transkei Coast).

marginatum Bolus

Perennial herb, 0.1–1.8 m high; robust. **Stipules** foliaceous, widely lanceolate, distinctly partially fused. **Inflorescences** well-developed, many-flowered, congested, terminal racemes. Occurs over a range of altitude and vegetation types but is restricted to sourveld grassland; Drakensberg Grassland, Sub-Escarpment Grassland, Mesic Highveld Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Barkly East District E to Kokstad and S to Port Edward).

17b Petioles of upper leaves longer than stipules
19a Stipules < 6 mm long

rupestre subsp. **rupestre** (E.Mey.) Walp.
(= *A. tysonii* Harms)

Perennial, decumbent herb, 0.05–0.60 m high. **Leaflets** obovate with rounded apex. Associated with afromontane vegetation, widespread in NE regions of SA and best treated as a species complex, sometimes confused with *A. humile*. Sand, bare rock, ravines, slopes, forest, grassland, stream gullies, mountainsides, riverbeds; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indigenous Forests (Rhodes District E to Kokstad).

19b Stipules > 6 mm long

collinum Eckl. & Zeyh.

Silvery, perennial, herbaceous subshrub, 0.1–0.4 m high; sparsely branched. **Leaves** subsessile. **Leaflets** sericeous, narrowly to widely obovate (resprouting coppicing plants have widely obovate leaflets; plants in moribund vegetation are decumbent and spindly with narrowly obovate leaflets). **Inflorescences** with solitary, sessile, occasionally paired flowers. **Flowering time** Sept.–Feb.(–July). Open woodland, grassland, fynbos, stony/rocky soil, loam or sand; Sub-Escarpment Grassland, Indigenous Forests, Eastern Fynbos-Renosterveld, Albany Thicket, Sub-Escarpment Savanna (Mount Currie District SW to East London and to Tsitsikamma Mts).

lotoides Harv.

Perennial herb, 0.05–0.20 m high; with considerable variation. **Stipules** distinctly foliaceous, widely ovate. **Inflorescences** of terminal and axillary racemes. Ravines, rock pools, riverbeds, valleys, sand, stony soil, rocky areas, grassland, alt. high in L, alt. lower in EC; Drakensberg Grassland, Sub-Escarpment Grassland, Dry Highveld Grassland, Mesic Highveld Grassland (Bethulie E to Kokstad and SE to Stutterheim District).

11b Leaves strongly dimorphic, upper leaflets filiform

harveyanum Oliv.

Perennial herb, 0.1–0.5 m high; sparsely branched, resprouting, tuberous, stems usually high and always slender. **Leaves** with lower leaflets petiolate, widely obovate, elliptic to lanceolate; upper leaflets subsessile, filiform or oblanceolate, conduplicate. **Flowers** solitary. **Flowering time** Sept.–Mar. Rocky outcrops, mountain slopes, grassland, coastal grassland, sand, loam; Sub-Escarpment Grassland, Drakensberg Grassland, Mesic Highveld Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests, Upper Karoo, Dry Highveld Grassland (Middelburg District E to Port Edward and SE to Grahamstown).

pauciflorum Eckl. & Zeyh.

Perennial herb, from 0.15 m high; decumbent herbaceous. **Leaves** with small, free stipules and long petioles. **Flowers** solitary. Sand, clay, stony/rocky soil, slopes, grassland, closed or open woodland, alt. high inland areas; Drakensberg Grassland, Upper Karoo, Dry Highland Grassland, Sub-Escarpment Grassland, Albany Thicket, Sub-Escarpment Savanna (Albert District S to Addo Elephant Park and SE to Stutterheim).

ASPALATHUS L.

Cape gorse

Species ± 278, the largest genus of flowering plants endemic to sthn Afr., NW, FS, KZN, L, NC, WC, EC.

Key 1 (Dahlgren 1988): Leaves simple

angustifolia (Lam.) R.Dahlgren

Perennial, erect or decumbent shrublet, 0.15–0.50(–3.00) m high; sparingly branched with branches radiating from short basal stem, young stems closely pubescent. **Leaves** linear to widely lanceolate; lower surface 3–5 prominent veins; sharply spine-tipped, green, glabrous, distinctly flat. **Inflorescences** unifloral, terminal raceme, or umbel of 1–6 flowers, on a common non-pedunculate axis. **Flowers** bright yellow to partly reddish. **Calyx**: tube glabrous; lobes lanceolate with 3 distinct veins. **Flowering time** Oct.–Apr. **Pod** > 30 mm long. Fynbos, plantations, grassland, abandoned land; Eastern Fynbos-Renosterveld, Albany Thicket, Indigenous Forests (Uitenhage to Port Elizabeth and to Humansdorp District).

Key 3: Leaves trifoliolate; petals white, violet or purple (not yellow), bracts trifoliolate, trilobate or simple (often all shapes in the same inflorescence), when simple, apparently of 3-fused leaflets; flowers in terminal spikes or heads; pod ovate, compressed, generally black, 1-seeded

nigra L.

Erect, perennial shrublet, 0.1–0.7(–1.2) m high. **Branchlets** short-tomentose. **Leaves** 3–12 together on young branches. **Leaflets** 1.0–4.5 mm long, subfiliform to sausage-shaped, subterete, obtuse to subacute, glabrous or hairy. **Flowers** slate-blue to violet; petals shortly pilose on most of back. **Calyx**: tube shortly pilose; lobes obtuse to subacute, < 3 mm long. **Inflorescences**: spikes or heads, elongate to subcapitate with 4–15(–20) flowers. **Flowering time** Aug.–Nov. Habitat?; Eastern Fynbos-Renosterveld (Uniondale District).

cerrhantha Eckl. & Zeyh.

Perennial shrublet, 0.3–0.6 m high; moderately densely branched. **Leaves** terete, subglabrous, 4–20 on each short-shoot, narrow filiform, weak, with sparse, spreading hairs, usually incurved. **Inflorescences**: globose, terminal heads of 20–30 flowers. **Flowers** white to pale violet, keel tipped purplish. **Calyx**: lobes subfiliform, sparsely silky. **Flowering time** Sept., Oct. Coastal or lowland fynbos; Eastern Fynbos-Renosterveld, Indigenous Forests, Albany Thicket (George to Port Elizabeth).

Key 4: Petals partly or entirely yellow, but often with red or purple pattern (rarely of entirely different colour, and if so, flowers solitary on lateral short-shoots); bracts trifoliolate or unifoliolate

ciliaris L.

Erect or sprawling shrub, 0.1–1.5 m high. **Branches** short-tomentose to woolly when young, pale yellow. **Leaves** alternate on long-shoots. **Leaflets** linear-subulate, 3–15 (–20) mm long, straight often slightly incurved, acute to acuminate, glabrous or softly tuberculate-hairy, pale to bright green. **Inflorescences**: terminal groups or heads, 2–6(–10)-flowered, radiating from almost one point. **Flowers** bright yellow, large; keel glabrous or silky; wing blades > 7 mm long. **Calyx** woolly; tube short tomentose; lobes linear to lanceolate or subglobose, tuberculate-hairy, acute to acuminate with distinct midvein. **Flowering time** Sept.–Feb. **Pod** triangular ovate, smooth, ± tomentose.

Grassland, closed shrubland, lowland fynbos; Eastern Fynbos-Renosterveld (Uniondale District to Humansdorp).

Key 11: Leaflets subterete or angular (sometimes sulcate or even somewhat flattened); flowers solitary or binary on lateral short-shoots, i.e. situated in the centre of lateral leaf clusters, often scattered along branches or branch ends in considerable number; petals all glabrous (base of standard or margins of basal parts of petals sometimes excepted)
1a Lateral branches ending in sharp woody thorns of almost uniform length

spinosa L.

Thorny shrub, 0.2–1.3(–2.0) m high; rigidly spreading main branches, all lateral branches armed with recurved, leafless, glabrous thorns. **Leaflets** subacute, in fascicles at bases of lateral thorns, linear or spathulate, terete or flat, 2.5–20.0 × 0.4–1.0(–4.0) mm, glabrous or sparsely puberulous, bright to greyish green. **Inflorescences** 1 or 2 in thorn axils of leaf fascicles (distributed laterally on branches). **Flowers** yellow, partly red or purplish. **Calyx**: tube sparsely appressed-pubescent; lobes reduced, short triangular to widely subulate, green, glabrous, acute. **Flowering time** Aug.–Mar. **Pod** triangular-lanceolate, sericeous-woolly on parts. Grassland, fynbos, plantations, abandoned land, near rivers, hills, slopes, kloofs; Eastern Fynbos-Renosterveld, Albany Thicket, Sub-Escarpment Savanna, Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Indigenous Forests, Drakensberg Grassland (Transkei through Stutterheim to Tsitsikamma).

1b Lateral branches not as above, but branches often thorny
2a Leaflets ending in a straight, sharp spinelet

aciphylla Harv.

Rigid shrub or shrublet, 0.3–2.0(–2.5) m high. **Branches** thick, stiff, densely tomentose when young. **Leaflets** angular, pungent, linear-subulate, 3–10 mm long, straight, rigid, ending in spinelet. **Inflorescences** unifloral on lateral short-shoots, scattered on branch tips below leafy branch ends. **Flowers** bright lemon-yellow, exceeding leaves. **Calyx** glabrous, widely campanulate; lobes ovate or lanceolate, pungent. **Flowering time** July–Nov. **Pod** obliquely ovate, thick and very hard-walled, broad, somewhat turgid. Mountain fynbos, lower to upper slopes, sand, loam, stony/rocky areas; Eastern Fynbos-Renosterveld (Kouga Mts, Baviaanskloof Mts to Humansdorp).

collina Eckl. & Zeyh.

Rigid shrub, 0.3–1.3(–2.0) m high; densely branched, young branches short-tomentose. **Leaves** glabrous. **Leaflets** subterete, pungent, 0.3–15.0 mm long, straight, stiff, usually broadest in basal half. **Inflorescences**: flowers 1 or 2 at branch tips or unifloral on lateral short-shoots. **Flowers** much exceeding leaves, yellow; standard petal sometimes reddish or purplish. **Calyx** campanulate; tube glabrous or pubescent; lobes spine-tipped, pungent. **Flowering time** July–Dec. **Pod** ovate, thick, very hard-walled, somewhat turgid, smooth to rugulose. Mountains, hills, kloofs, loam, sand, rocky areas, grassland, fynbos, shrubland; Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld, Albany Thicket (Willowmore District, Kouga Mts SE to Port Elizabeth).

2b Leaflets not spine-tipped, but often mucronulate or mucronate
3a Pedicel glabrous, often relatively long

[E]recurvispina R.Dahlgren

Like *A. obtusifolia* but leaflets apically recurved and apiculate to mucronulate. **Pedicel** glabrous, often relatively long.

Shrub, decumbent or ascending, low, sparingly branched, young branches densely short-villous. **Leaflets** linear 6–13 mm long, straight or slightly incurved but apex

recurved and apiculate, bright green, glabrous. **Inflorescences** of 1–3 flowers on lateral short-shoots, distributed along branches. **Flowers** partially hidden by leaves. **Calyx**: tube campanulate, glabrous; lobes narrowly triangular, acuminate, weak. **Petals** light yellow turning ± purplish. **Flowering time** Oct.–Apr. **Pod** lanceolate, smooth, subglabrous. Habitat not recorded; Eastern Fynbos-Renosterveld (Humewood, Port Elizabeth).

3b Pedicel, if distinct, ± pubescent, generally short

pinguis Thunb.

Sparsely branched shrublet, with erect, tail-like branches, 0.3–1.0 m high; branch ends leafy, densely white-villous on younger parts. **Leaflets** extremely variable, 1–25 mm long, subterete to ovoid, somewhat angular, obtuse to acute, straight or incurved, bright green, glabrous. **Inflorescences** unifloral (or bifloral) on lateral short-shoots, scattered along branch ends. **Flowers** rather small to fairly large, succulent, bright yellow or partly red. **Calyx** glabrous; tube cylindrical, campanulate; lobes triangular, long, green, acute. **Petals** carnose, firm, glabrous. **Flowering time** Aug.–Feb. **Pod** triangular-lanceolate, mostly glabrous. River mouth, roadsides; Eastern Fynbos-Renosterveld (Humansdorp).

steudeliana Brongn.

Erect shrublet, 0.2–1.0 m high; copiously branched with very slender branches. **Branchlets** densely short- and white-villous. **Leaflets** small, grain-like or vermiform, 0.5–2.0 mm long, often slightly incurved, terete, obtuse to subacute, glabrous. **Flowers** unifloral, on lateral short-shoots, dispersed along branches in great numbers; small, scattered, pale or bright yellow. **Calyx**: tube narrowly campanulate, sometimes reddish, puberulous, shortly hairy; lobes triangular or oblong, short. **Flowering time** Aug.–Oct. **Pod** black when ripe, obliquely triangular-ovate, sericeous-tomentose. Renosterbos-fynbos scrub, alt. 10–914 m; Eastern Fynbos-Renosterveld (Brakkloof near Grahamstown).

subtingens Eckl. & Zeyh.

Erect shrub, rarely sprawling, 0.3–2.0 m high. **Branches** short-tomentose when young, often densely leafy. **Leaflets** linear or sausage-shaped, ± 3–6 mm long, terete, obtuse or acute, often slightly incurved, glabrous. **Inflorescences** unifloral or bifloral on lateral short-shoots; flowers scattered on branches, sometimes many, as long as or exceeding leaflets. **Flowers** yellow soon turning red-brown or dark red. **Calyx**: tube campanulate, glabrous; lobes triangular, tooth-like, acute, green. **Petals** hardly carnose. **Flowering time** Oct.–Mar. **Pod** widely triangular-lanceolate, smooth. Mountain slopes, open woodland, near beaches, fynbos, grassland, disturbed land; Dry Highveld Grassland, Albany Thicket, Rainshadow Valley Karoo, Lower Karoo, Eastern Fynbos-Renosterveld, Indigenous Forests, Sub-Escarpment Savanna (Somerset East via Albany and Willowmore Districts to Port Elizabeth).

Key 12: Petals (apex and/or abaxial midrib of standard) with some pubescence; keel ± pubescent
1a Wing blades with 1(2) row(s) of rather irregular minor folds on upper basal parts and usually firmly attached to lateral bulges of keel blades (flowers small, with linear-subulate calyx lobes)

hispida Thunb.

Like *A. ericifolia* but bracts reduced and much smaller than leaves.

Decumbent or erect shrub, 0.1–1.0 m high; sparingly ramified, young branches reddish to yellowish, puberulous. **Leaflets** linear, 1–8 mm long, straight or slightly curved, subterete, fairly pale green, acute or obtuse, sparsely patent-puberulous. **Inflorescences** small and inconspicuous, distributed along branch ends. **Flowers** pale yellow or nearly

white, keel of apex and back of standard petal often dull violet; blade of standard petal often reflexed above middle. **Flowering time** Sept.–Jan. **Pod** rhombic ovate, greenish or greyish until ripe, sparsely short-tomentose. Renosterbos-fynbos scrub or coastal fynbos, valleys, hills, slopes, rocky areas; Eastern Fynbos-Renosterveld, Albany Thicket, Sub-Escarpment Savanna (Albany District SE to Port Alfred and SW to Uniondale District).

1b Wing blades with 3 or more rows of minute folds on upper basal parts and not attached to the keel
2a Wing blades glabrous

asparagoides L.f.

Erect or spreading shrublet, 0.1–0.5(–1.0) m high; diffusely branched or erect or ascending; young branches short-villous. **Leaflets** subterete-angular, glabrous to tubercled-hairy, variable, linear or subfiliform, (3–)4–10(–12) mm long, acute to acuminate, often red when dry. **Inflorescences** with few to several flowers scattered along branches. **Flowers** small. **Calyx** hairy; lobes filiform with minutely tuberculate hair bases. **Petals** yellow, fading rusty or dark red. **Flowering time** Sept.–Feb. **Pod** small, ovate, tomentose. Lowland fynbos, grassland, forests, mountains, slopes, disturbed areas; Eastern Fynbos-Renosterveld, Albany Thicket, Indigenous Forests (Uitenhage District, Alexandria to Tsitsikamma).

opaca Eckl. & Zeyh.

Erect or sprawling shrublet, 0.1–0.6(–1.5) m high; sparsely to densely branched. **Branches** often reddish, puberulous on younger parts. **Leaflets** needle-like, 1–7 mm long, acute, straight or slightly curved; leaf base sometimes spurred; glabrous or with scattered hairs. **Inflorescences** with flowers scattered few to several along branches. **Flowers** small. **Calyx**: tube short tomentose; lobes triangular to lanceolate, up to 7 mm long, sometimes incurved and beak-like, with distinct midvein. **Petals** bright yellow or brownish red, dark when dry. **Flowering time** all year. **Pod** small, ovate, sparsely tomentose. Loam, sand, open woodland, abandoned land, fynbos; Eastern Fynbos-Renosterveld, Albany Thicket (Willowmore SE to Humansdorp District).

2b Wing blades with at least some pubescence on lower apical parts

alopecurus Benth.

Shrub, 0.2–0.7(–1.0) m high; erect, sometimes decumbent, sparsely branched shrub with tail-like branches, young branches densely white-woolly. **Leaves** green, sparsely pubescent. **Leaflets** needle-like, pungent, ± sparsely hairy; leaves of long-shoots with prominent leaf base tubercles. **Inflorescences** scattered or clustered near branch ends. **Flowers** rather small, wing and keel blades < 5 mm long; pedicel lacking, yellow, keel silky. **Calyx** silky; lobes needle-like. **Flowering time** July–Sept. **Pod** elliptic-lanceolate, short-woolly. Loamy soil, alt. low; Eastern Fynbos-Renosterveld (Knysna, near Grahamstown).

[E]cliffortiifolia R.Dahlgren

Ascending, sparsely branched shrublet, 0.2–0.5 m high; densely leafy branches resembling cats tails, short-villous when young. **Leaves** glabrous. **Leaflets** linear, needle-like, 3.0–7.5 mm long, terete, straight, slightly incurved or s-curved, acuminate, glabrous, green, not very rigid. **Inflorescences** unifloral, distributed along 50 mm of branch ends. **Flowers** hidden by leaves at branch ends. **Calyx** velvety, green or purplish; lobes widely subulate. **Petals** yellow; keel shortly hairy, wing and keel blades < 5 mm long. **Flowering time** Sept.? Coastal fynbos; Eastern Fynbos-Renosterveld (Port Elizabeth, perhaps extinct).

chortophila Eckl. & Zeyh.

Tea bush; *impishimpishi* (Z)

Erect or sprawling shrublet, 0.1–0.6(–1.0) m high; weak, leafy branch ends, young branches densely white-hairy. **Leaves** green, ± sparingly pubescent. **Leaflets** variable, 1–6(–8) mm long, spreading, linear or slightly incurved, subterete, not rigid, acute to acuminate. **Inflorescences** unifloral, with 2–4 flowers scattered below leafy branchlet tips. **Flowers** relatively large, exceeding leaves. **Calyx** silky; lobes needle-like. **Petals** bright yellow-orange, often reddish centrally; outer side of wing and keel blades pubescent. **Flowering time** Oct.–Dec. **Pod** obliquely and narrowly triangular-ovate, woolly. Mountain slopes, coastal areas, roadsides, forest, fynbos, grassland; Drakensberg Grassland, Sub-Escarpment Grassland, Indigenous Forests, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Albany Thicket, Eastern Fynbos-Renosterveld (Kokstad SW through Grahamstown to Swartberg).

[E]fourcadei L.Bolus

Like *A. hirta* but keel beaked and silky and calyx lobes very short.

Shrub, 1–2 m high; young branches shortly tomentose. **Leaflets** 5–12 mm long, pointed, needle-like, straight, glabrous. **Inflorescences** unifloral on lateral short-shoots, often 2–4-flowered on branchlet ends. **Flowers** relatively large. **Calyx** globose, wider than long, densely short-villous; lobes short but spine-like. **Petals** wing and keel blades pubescent on most parts of outer side. **Flowering time** Sept.? Mountain fynbos, hills slopes, kloofs; Eastern Fynbos-Renosterveld (Kouga Mts, Suuranysberge).

intermedia Eckl. & Zeyh.

Like *A. chortophila* but flowers smaller, wing and keel blades < 5 mm long.

Dwarf shrub, 0.35–0.60 m high; young branches moderately branched, villous. **Leaflets** linear, 1.2–3.0(–5.0) mm long, subterete, ± acute, slightly incurved, non-rigid, dull green, sparsely short hairy. **Inflorescences** of solitary or paired flowers on each short branch, distributed below leafy branch tips. **Flowers** rather small. **Calyx**: tube shortly pubescent; lobes subulate to needle-like. **Petals** yellow, wing and keel blades < 5 mm long. **Flowering time** Dec.–Mar. **Pod** densely woolly on most parts. Lowland fynbos, plains and lower slopes, hills, mountains, plantations; Eastern Fynbos-Renosterveld, Albany Thicket, Sub-Escarpment Savanna (Humansdorp to East London).

kougaensis (Garab. ex R.Dahlgren) R.Dahlgren

Like *A. chortophila* but leaves grey-hairy and flowers pale lemon-yellow.

Ascending-erect shrub, 0.2–2.0(–4.0) m high; young branches villous to lanate. **Leaflets** linear, 2–12 mm long, subterete, rather weak, straight or incurved, grey-pubescent. **Inflorescences** unifloral or 2–4 on tips of lateral shoots. **Flowers** relatively large. **Calyx** campanulate, usually white-villous; lobes triangular, tapering, acute to acuminate. **Petals**: outer side of wing and keel blades pubescent on most parts. **Flowering time** Aug.–Mar. **Pod** widely lanceolate, woolly villous. Mountain fynbos, grassland, mountain slopes, stony/rocky areas; Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld, Albany Thicket (Willowmore District E to Port Alfred and SE to Humansdorp).

setacea Eckl. & Zeyh.

Erect shrub, 0.25–1.00(–3.50) m high; sparsely or densely branched, young branchlets short-villous. **Leaves** variable. **Leaflets** 3–15(–18) mm long, grey-pubescent or glabrous, spreading or ascending, linear or subterete, rigid or weak, acute or spine-tipped.

Inflorescences unifloral on lateral short-shoots, with 2–4 flowers on leafy branchlet tips. **Flowers** relatively small. **Calyx**: tube shortly hairy, widely globose-campanulate; lobes ± narrowly triangular, pungent, midvein distinct. **Petals**: wing and keel blades pubescent on outer side; pale to bright yellow, often fading brownish. **Flowering time** July–Mar. **Pod** sericeous or woolly-villous, convex lanceolate. Mountains, roadsides, river mouths, grassland, fynbos, forest/coastal bush; Indian Ocean Coastal Belt, Indigenous Forests, Sub-Escarpment Grassland, Albany Thicket, Eastern Fynbos-Renosterveld, Sub-Escarpment Savanna (Port Edward through Stutterheim to Tsitsikamma).

teres Eckl. & Zeyh.

Shrub or small tree, 1.0–4.5 m high; trunk up to 200 mm diam. **Branches** strong, short-tomentose when young. **Leaflets** 7–16 mm long, rigid, straight, glabrous, tapering into sharp spinelet > 1 mm long. **Inflorescences** unifloral; flowers scattered on branches, 2–4 on branchlet tips. **Flowers** yellow, fading brown. **Calyx**: tube short, widely campanulate, shortly hairy; lobes needle-like. **Flowering time** Oct.–June. **Pod** obliquely lanceolate, turgid. Mountain areas, forests, near rivers, fynbos, grassland, abandoned/disturbed land; Eastern Fynbos-Renosterveld, Albany Thicket, Lower Karoo, Sub-Escarpment Savanna (Tsitsikamma E to Grahamstown).

Key 13: Keel glabrous; leaflets when fully developed (i.e. not only when juvenile) covered with grey-sericeous pubescence
1a Wing blades ≥ 6.5 mm long (i.e. flowers relatively large)

[E]**argyrophanes** R.Dahlgren

Erect shrub, 0.6–1.5 m high; sparingly branched, densely leafy, white-woolly when young. **Leaflets** linear, piniform, 10–20 mm long, slightly incurved, soft, silvery sericeous, apex aristate. **Inflorescences** unifloral; flowers distributed along branches. **Flowers** relatively large. **Calyx** yellow, small in relation to petals, long- and white-sericeous; lobes tapering, weak. **Petals** lemon; standard white-tomentose on back; wings ≥ 6.5 mm long. **Pod** narrowly ovate, very long-woolly. Mountains, kloofs, fynbos, grassland; Eastern Fynbos-Renosterveld, Sub-Escarpment Savanna, Albany Thicket (Grahamstown District, endemic to Albany Region).

bowieana (Benth.) R.Dahlgren

Erect shrub, 0.9–1.5 m high. **Branches** densely leafy, tomentose. **Leaflets** linear, piniform, 8–13 mm long, subterete or slightly flat, with dense, short, silvery sericeous pubescence. **Inflorescences** unifloral but often several-flowered on each branch. **Flowers** relatively large. **Calyx** globose or shortly campanulate, densely short-villous; lobes short, triangular, with mucronulate point. **Petals** pale yellow; keel glabrous. **Flowering time** Sept. Mountain fynbos, slopes and foothills; Eastern Fynbos-Renosterveld (Baviaanskloof).

hystrix L.f.

Like *A. hirta* but leaves grey-hairy.

Erect, much-branched shrub, 0.5–3.0 m high; young branches short-woolly. **Leaflets** rigid, spreading, needle-like, 5–18 mm long, straight or slightly in- or recurved, ending in brown spinelet up to 1 mm long. **Inflorescences** unifloral; flowers often concentrated together at branch ends. **Calyx** campanulate, densely white-tomentose; lobes narrowly triangular, tapering into a sharp brown spine. **Petals** light yellow, relatively large. **Flowering time** Aug.–Nov. **Pod** obliquely lanceolate, woolly. Mountain slopes, hillsides, kloofs, rocky areas; Rainshadow Valley Karoo, Upper Karoo, Eastern Fynbos-Renosterveld (Outeniqua Mts SE to Baviaanskloof).

laricifolia P.J.Bergius
Sprawling shrublet, 0.15–0.50(–1.20) m high; sparingly branched, branchlets densely villous and leafy. **Leaflets** linear 3–7(–12) mm long, subterete, acute to acuminate, slightly incurved, green, densely silvery pubescent. **Inflorescences** unifloral; flowers scattered, on branch ends of lateral short-shoots. **Flowers** yellow, relatively large; wing blades ≥ 6.5 mm long; keel ± beak-like, glabrous. **Calyx** densely villous; lobes narrowly triangular, acuminate or with short apical mucro. **Petals**: standard mostly pubescent abaxially. **Flowering time** Sept.–Dec. **Pod** entirely woolly, widely lanceolate. Mountain fynbos, lower slopes, grassland, closed woodland, abandoned land; Indian Ocean Coastal Belt, Drakensberg Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Port Edward through King William's Town to Groot Winterhoek Mtn Range and to Grahamstown).

shawii L.Bolus
Shrub, 0.4–1.5 m high; sparsely branched with densely leafy, villous, wand-like branches. **Leaflets** needle-like, often sigmoid, pungent, usually grey-hairy, 6–15 mm long, rigid, recurved below apex. **Inflorescences** unifloral; flowers scattered, mostly concentrated at ends of branches. **Flowers** relatively large. **Calyx** campanulate, villous; lobes triangular subulate, usually spine-tipped. **Petals**: wing blades ± 6.5 mm long, pale to bright yellow; keel glabrous. **Flowering time** May–Dec. **Pod** widely lanceolate-elliptic, partly white-woolly. Mountain fynbos, mountain slopes, forestry areas; Eastern Fynbos-Renosterveld, Rainshadow Valley Karoo (Uniondale District).

1b Wing blades < 6.5 mm long

[E]cinerascens E.Mey.
Erect, branched shrub, 0.9–2.5 m. **Branches** slender, grey- or white-velutinous when young. **Leaflets** linear, 6–20(–30) mm long, terete, silvery silky, soft, flexible. **Inflorescences** scattered, 1–3-flowered on lateral short-shoots, often dispersed in high numbers along branches. **Flowers** pale yellow; bract emerging on pedicel at some distance from floral base. **Calyx** short, silky, densely sericeous; lobes linear, obtuse. **Flowering time** Jan.–Apr. **Pod** lanceolate, sericeous to villous. Fynbos, grassland, open or closed woodland, sand, gravel, mountains, kloofs, roadsides; Albany Thicket, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Indigenous Forests (Grahamstown District SW to Humansdorp).

frankenioides DC.
Low, usually ascending shrublet, 0.2–0.5 m high; closely branched, with spreading, soft, white-villous branches. **Leaflets** linear, 2.0–4.5 mm long, slightly incurved, densely white- or grey-puberulous. **Inflorescences** unifloral, one or few on lateral short-shoots. **Flowers** pale yellow, sometimes with purplish shades. **Calyx** short-tomentose, lobes narrowly triangular, obtuse-acute, densely silvery sericeous. **Petals**: back of standard almost completely pubescent. **Pod** obliquely ovate, dark, smooth, tomentose on most parts. Hills, rocky slopes, grassland, roadsides; Drakensberg Grassland, Albany Thicket, Eastern Fynbos-Renosterveld, Sub-Escarpment Savanna (Amatole Mts SE to Uniondale and Albany districts).

gerrardii Bolus
Erect shrub, 0.4–2.0 m high; sparingly branched, branches long and tail-like, with long, white hairs when young. **Leaflets** linear, (3.5–)5.0–11.0 mm long, subterete, soft and flexible, acute, densely covered with white, half-spreading long hairs. **Inflorescences**

unifloral, many, scattered on lateral short-shoots. **Flowers** pale yellow. **Calyx** covered with dense, white, sericeous pubescence; lobes linear, weak, pointed. **Petals**: standard blade densely white-tomentose. **Pod** obliquely and widely ovate, dark, glabrous to woolly. Krantzes, river/coastal areas, valleys, grassland; Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Oribi Gorge, Port Edward).

leucophylla R.Dahlgren

Erect, branched shrub, 0.5–1.5 m high; branches slender, ascending, with leafy tips, young branches short-villous. **Leaflets** 0.8–2.0(–4.0) mm long, ovoid-oblong, succulent, minutely white-hairy, terete, obtuse or subacute. **Inflorescences** uni- or bifloral, scattered on short-shoots, several on each branch end. **Flowers** small. **Calyx** shortly hairy. **Petals**: pale yellow; keel glabrous. **Flowering time** Aug.–Dec. **Pod** triangular ovate, compressed, sparsely pubescent. Stony, rocky soil; Albany Thicket, Eastern Fynbos-Renosterveld (Graaff-Reinet, Willowmore District).

Key 14: Leaflets green when mature, either glabrous, puberulous or with spreading, mostly sparse pubescence; sharply spine-tipped

acanthes Eckl. & Zeyh.

Erect, densely leafy shrub, 0.4–1.5(–3.5) m high; sparingly branched with short-villous branches. **Leaflets** 12–22 mm long, terete, subglabrous, needle-like, often slightly incurved, mucronate or spine-tipped. **Inflorescences** unifloral; flowers dispersed along branch(es). **Calyx**: tube shortly hairy; lobes needle-like, densely pubescent, apically spine-tipped. **Petals** bright yellow; keel glabrous. **Flowering time** Aug.–Dec. **Pod** widely lanceolate, white-woolly, almost entirely pubescent. Mountain fynbos; Eastern Fynbos-Renosterveld (Kouga Mts Region).

collina Eckl. & Zeyh. (see Key 11)

hirta E.Mey.

Erect, branched shrub, 0.9–1.5(–2.0) m high; branches short tomentose, with semi-globose, pubescent, short-shoot tubercles. **Leaflets** 5–12(–15) mm long, straight or slightly incurved, rigid, green, glabrous, ending in apical, sharp spinelet > 1 mm long. **Inflorescence**s uni- or bifloral; flowers scattered on lateral short-shoots, often many on each branch. **Flowers** bright yellow. **Calyx**: tube short, campanulate, shortly hairy; lobes triangular-subulate, narrowing abruptly into a sharp spinelet, midvein distinct. **Flowering time** Sept.–Dec. **Pod** widely lanceolate, densely woolly or sericeous. Habitat?; Eastern Fynbos-Renosterveld (Uniondale and Humansdorp districts).

shawii L.Bolus (see Key 13)

Key 15: Leaflets not spine-tipped, varying from obtuse to acuminate or mucronulate; leaf bases produced into a short woody spur or spine (keel ± beak-like)

spinosa L. (see Key 11)

Key 16: Leaflets not spine-tipped, varying from obtuse to acuminate or mucronulate; leaf bases without spur or spine; ovary with less than 6 ovules; fruits ovate or lanceolate
1a Margins of calyx lobes conspicuously thickened, fleshy

[E]marginalis Eckl. & Zeyh.

Erect shrublet, 0.15–0.70(–0.90) m high; branches spreading, slender, densely white-hairy when young. **Leaflets** linear, 3–8 mm long, weak, terete, straight or slightly curved, acute, pale green, glabrous. **Inflorescences** unifloral, on tips of branches. **Flowers** yellow. **Calyx**: tube campanulate, pale, shortly tomentose; lobes lanceolate, acuminate.

Flowering time Sept.? **Pod** lanceolate, densely short-sericeous. Mountain fynbos, grassy areas, slopes; Albany Thicket, Eastern Fynbos-Renosterveld, Sub-Escarpment Savanna (Uitenhage and Bathurst districts).

1b Margins of calyx lobes not prominent, fleshy or not

asparagoides L.f. (see Key 12)

hispida Thunb. (see Key 12)

laricifolia P.J.Bergius (see Key 13)

Key 17: Flowers solitary or 2–several on the tips of branchlets with one or more distinct (sometimes peduncular) internodes; petals entirely glabrous (except for some pubescence at base of standard blade and, rarely, some ciliation on petal margins)

collina Eckl. & Zeyh. (see Key 11)

katbergensis (R.Dahlgren) R.Dahlgren

Erect, much-branched shrub, 0.4–0.6(–1.0 m) high. **Branches** shortly white-villous when young. **Leaflets** linear-oblong, 1.0–2.5 mm long, green, glabrous, obtuse or subacute. **Inflorescences** solitary flowers dispersed along branchlet ends, branchlet tips with solitary or paired flowers. **Flowers** small. **Calyx** white-tomentose; lobes triangular, acute, ± 1.5 mm long. **Petals** pale yellow. **Pod** triangular-lanceolate, dark brown to black. Grassland, closed shrubland, mountain slopes; Drakensberg Grassland, Sub-Escarpment Grassland, Albany Thicket (restricted to Amatole Mts, Fort Beaufort District).

[E]lanceicarpa R.Dahlgren

Sprawling shrublet, up to 0.8 m long; branched diffusely. **Branches** reddish brown, slender. **Leaflets** terete, linear, slightly incurved, acute, glabrescent or silvery sericeous. **Inflorescences** with solitary flowers on a peduncle-like internode of slender lateral branches. **Calyx** infundibular-campanulate, glabrous or with appressed, short pubescence; lobes subterete, acute. **Petals** yellow to rusty. **Flowering time** Apr., May. **Pod** at least 15 mm long, tapering at both ends, fusiform lanceolate, very sparsely appressed puberulous, smooth. Mountain fynbos, plantation, near stream; Eastern Fynbos-Renosterveld (Van Stadens Mts in Port Elizabeth District).

simii Bolus

Erect shrublet, 0.3–0.5(–1.3) m high. **Branches** ascending, slender, tomentose on young parts. **Leaflets** linear, needle-like 3–7 mm long, straight or slightly incurved, glabrous, green, acute to acuminate. **Inflorescences** terminal, head-like umbels with up to 5 flowers; flowers sometimes solitary along branch tips. **Flowers** small. **Calyx**: tube ± 2 mm long, subglabrous; lobes subulate, acute to acuminate, often apically incurved. **Petals** pale yellow. **Pod** triangular-lanceolate, often with marked transverse folds, subglabrous, brownish black, glossy. Gentle slope, recently burnt grassland, Molteno Formation; Sub-Escarpment Grassland, Albany Thicket (Maclear District, East London).

Key 18: Petals at least with some pubescence (apart from the standard base), normally at least on distal parts of the standard back or on its midrib: keel glabrous

acicularis E.Mey.

Erect shrub, 0.3–1.5 m high. **Branches** usually straight and spreading, pale yellow, shortly sericeous when young, often with terminal, naked, pungent thorns. **Leaves** green, slightly short-sericeous. **Leaflets** flat, linear-oblanceolate, 1–7 mm long, acute, apiculate or acuminate. **Inflorescences** terminal racemes on branches, 1–10-flowered,

axis often exerted as a thorn. **Flowers** with pedicels glabrous, often relatively long. **Calyx** ± puberulous; lobes triangular-subulate, acute to acuminate. **Petals** light yellow, standard and keel often partly rose-coloured. **Pod** widely lanceolate, hard, slightly inflated, grey to rose-coloured. Habitat?; Sub-Escarpment Savanna, Upper Karoo, Dry Highveld Grassland (Matatiele S to Middelburg and Cradock Districts).

biflora E.Mey.

Sprawling shrublet, 0.1–1.0 m. **Branches** slender but rigid, densely puberulous when young; floriferous branches often with 1 or 2 long, peduncle-like internodes. **Leaflets** linear, 2–12 mm long, terete, often broadest apically, glabrous, mucronulate. **Inflorescences** of 1(–5) flowers on terminal peduncles, sometimes separated by internodes. **Calyx**: tube glabrous, smooth; lobes small and triangular, glabrous, green, ± mucronate with short spinelet. **Petals** pale yellow, orange or rusty, often darkish on standard. **Flowering time** Aug.–Apr. **Pod** triangular lanceolate, smooth, sparsely short-sericeous. Fynbos, grassland, lower slopes and hills, abandoned land; Eastern Fynbos-Renosterveld, Albany Thicket, Sub-Escarpment Savanna (Uniondale District to Grahamstown and SW to Humansdorp).

collina Eckl. & Zeyh. (see Key 11)

[E]marginalis Eckl. & Zeyh. (see Key 16)

tenuissima R.Dahlgren

Procumbent shrublet, up to 1 m long; sparingly branched. **Branchlets** short, lateral ascending, pubescence white-tomentose. **Leaflets** subterete, linear, 1.5–3.0 mm long, slightly incurved, acute-apiculate, dull green, glabrous. **Inflorescences** unifloral, small flowers at ends of 12–30 mm long, filiform peduncles. **Calyx**: tube campanulate, with spreading, puberulous pubescence; lobes ± ovoid, succulent, acute or obtuse, ± softly hairy. **Petals** yellow to orange or red-purple on back of standard, fading dark red. **Flowering time** all year. **Pod** rather compressed, not very thick, ± smooth, obliquely lanceolate, almost black, sparsely short-sericeous, ovules 2. Habitat?; Eastern Fynbos-Renosterveld (Uniondale to Humansdorp).

Key 20: Keel at least with some pubescence; leaflets not ending in a prickle or spikelet

nivea Thunb.

Shrub, 0.9–2.5 m high; much-branched almost from base; densely and smoothly white-puberulous when young. **Leaflets** (7–)12–25 mm long, soft, densely silvery sericeous, terete. **Inflorescences** unifloral on long/slender peduncles arising from a short-shoot. **Calyx**: tube infundibular-campanulate, with short, silvery-sericeous pubescence; lobes sharply demarcated from tube, linear. **Petals** pale yellow; standard partly violet. **Flowering time** Aug.–Apr. **Pod** triangular-lanceolate, somewhat compressed, dark grey, sericeous. Mountains, hills, slopes, rivers, stony/rocky areas, alt. low; Eastern Fynbos-Renosterveld, Albany Thicket (Uniondale to Uitenhage, Albany District).

rubens Thunb.

Sprawling shrublet, 0.25(–0.80) m high; young branches ascending, minutely tomentose or puberulous. **Leaves** closely white-pubescent. **Leaflets** linear, 1.5–5.0 mm long, subterete, straight or slightly incurved, acute, glabrescent or often densely silvery sericeous. **Inflorescences** with flowers scattered. **Flowers** yellow or orange, drying red. **Calyx**: tube short-tomentose; lobes linear or subulate, acute, often subterete, slightly incurved. **Petals**: keel extensively silky pubescent on the lower parts; standard short-

pubescent on most of back. **Flowering time** all year. **Pod** triangular lanceolate, brown-black, sparsely short-sericeous. Mountainsides, hills, catchment basins, kloofs, plantations, stony/rocky areas, grassland, fynbos, closed shrubland; Eastern Fynbos-Renosterveld, Albany Thicket (Steytlerville District – Baviaanskloof, Uitenhage and Port Elizabeth, S to Tsitsikamma Forest and Humansdorp District).

BAPHIA Afzel. ex G.Lodd.

Species ± 80, Africa and Madagascar; 2 in sthn Afr., N, B, LIM, KZN, EC.

racemosa (Hochst.) Baker

Forest camwood, violet pea; *boskamhout* (A)

Shrub or small tree, up to 8 m high. **Branchlets** greyish brown tomentose. **Leaves** simple, ovate to lanceolate; upper surface dark green, glabrous; lower surface sometimes slightly pubescent. **Inflorescences** axillary or rarely terminal racemes, 30–100 mm long. **Flowers** white and strongly violet-scented. **Calyx** 2-lobed, toothed. **Petals**: standard with a yellow spot near base; wings and keel with a pocket near base. **Flowering time** Sept.–Jan. **Pod** straw-coloured, containing 1 or 2 seeds. Valleys, indigenous forest and riverbanks; Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Lusikisiki District, Port St Johns S to Kei River).

BAUHINIA L.

Bauhinias; *beeskloubosse* (A)

Species number uncertain, cosmopolitan; 6 in sthn Afr., several more cultivated, N, LIM, NW, G, M, S, KZN, EC.

Leaves simple

bowkeri Harv.

Kei neat's foot; *Kei-beesklou* (A)

Tree or shrub, 3–8 m high. **Branches** puberulous when young. **Leaves** alternate, petioled; lamina bilobed apically to ± $^{2}/_{3}$ down; lobes ± semi-circular. **Inflorescences** 2–6-flowered, terminal racemes. **Flowers** bisexual, axillary. **Calyx**: sepals 5; spathaceous. **Petals** 5, white, slightly crisped. **Stamens** 10, fertile. **Gynoecium** 1-carpelled, with gynophore; ovary 1-loculed, few ovules; style 6–15 mm long, pubescent. **Flowering time** Oct.–Mar. **Pod** linear-oblong to oblanceolate, 50–140 × 10–20 mm, woody, dehiscent. **Seeds** light brown, oval to ± circular, 8 × 6 mm. Mostly valley bushveld, alt. 0–750 m; Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Butterworth, Mbashe River Bridge, Kentani, close to Haven along banks of Kei River).

galpinii N.E.Br.

Pride of De Kaap; *vlam-van-die-vlakte* (A)

Shrub or scandent climber, 1–8 m high. **Branchlets** brown pubescent. **Leaves** alternate, petioled, wider than long; lamina bilobed apically for ± $^{1}/_{4}$; lobes obliquely obovate to ovate. **Inflorescences** terminal or axillary, up to 10-flowered raceme. **Flowers** showy. **Calyx**: sepals 5, spathaceous. **Petals** 5, brick-red, lamina abruptly widened above from a basal claw. **Hypanthium** linear-lanceolate, 12–30 mm long, densely brown-puberulous. **Stamens** 3 fertile, 5–7 staminodes, red. **Gynoecium** 1-carpelled, with gynophore, linear-oblong, many ovules; style 4–7 mm, glabrous. **Flowering time** Oct.–Mar. **Pod** ± linear-oblong, woody, dehiscent, puberulous when young. **Seeds** chestnut-brown,

± oblong, 16 × 10 mm. Wooded or boulder-strewn slopes, near streams, alt. 25–1 400 m; Indigenous Forests (Lusikisiki and Ntsubane Forest to LIM).

tomentosa L.

Yellow bauhinia; *geel-beesklou* (A)

Tree or shrub, 1–8 m high. **Leaves** alternate, petioled, lamina bilobed apically to ± $^1/_3$ down, adaxially pubescent, 10–70 × 16–50 mm. **Inflorescences** 1- or 2(7)-flowered, terminal or lateral racemes. **Flowers** ± closed; hypanthium 2–8 mm long. **Calyx**: sepals 5; spathaceous. **Petals** 5, sulphur-yellow; standard with maroon basal blotch. **Stamens** 10, fertile, filaments free, 20 mm long. **Gynoecium** 1-carpelled, with gynophore, few ovules; style 3–10 mm long; stigma peltate. **Flowering time** Oct.–Apr. **Pod** linear-oblong, 60–130 × 13–20 mm, thinly woody, dehiscent, mostly tomentose. **Seeds** chestnut-brown, ± elliptic, 5–9 × 4–6 mm. Coastal forest, woodland and bushveld, alt. 0–1 250 m; Indian Ocean Coastal Belt, Indigenous Forests, Albany Thicket (East London to Port Shepstone).

Leaves compound

natalensis Oliv. ex Hook.

Natal neat's foot; *Natal-beesklou* (A)

Shrub, up to 2 m high. **Branchlets** sparingly pubescent. **Leaves** alternate, petioled. **Leaflets** 2, obliquely ovate-oblong, glabrous. **Inflorescences** inconspicuous, terminal. **Flowers** mostly solitary. **Calyx**: sepals 5, spathaceous. **Petals** 5, white, with pink main veins, obovate, margins scarcely crisped, glabrous; hypanthium short. **Stamens** 10, fertile, filaments free, 8–18 mm long. **Gynoecium** 1-carpelled, with gynophore, few ovules; style 3–10 mm long, glabrous; stigma globose. **Flowering time** Oct.–Apr. **Pod** ± linear-oblong, 30–80 × 8–12 mm, thinly woody, dehiscent, yellowish brown. **Seeds** light to dark brown, ± ovate, 4–7 × 3–5 mm. Valley bushveld and scrub, alt. 300–1 250 m; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt (uMzimkhulu, Kokstad, Lusikisiki, along coast to Kei River).

BOLUSAFRA Kuntze

Monotypic, endemic to sthn Afr., WC, EC.

bituminosa (L.) Kuntze

Twining, evergreen, perennial herb, up to 0.8 m high; covered with bulbous-based hairs, strongly scented. **Leaves** pinnately trifoliolate. **Leaflets** ovate; upper surface glabrescent; lower surface gland-dotted. **Stipules** ovate, striate. **Inflorescences** axillary, racemose, 6–10-flowered. **Calyx** 5-lobed, upper 2 lobes slightly connate. **Petals** yellow; standard obovate, reflexed; wings shorter than those of keel; keel obliquely obovate, apex dark purple. **Flowering time** Aug.–Jan. **Pod** cylindrical, gland-dotted, 4–6-seeded. Forest margins; Eastern Fynbos-Renosterveld (Assegaaibosch Nature Reserve).

CAESALPINIA L.

Species ± 200, cosmopolitan in warm regions; 6 in sthn Afr., others introduced, N, B, M, KZN, NC, EC.

1a Leaflets small and narrow, up to 10 mm in length, often shorter

***gilliesii** (Wall. ex Hook.) Benth.

Unarmed shrub, up to 5 m high; young stems and inflorescences densely covered with blackish stalked glands. **Leaves** glabrous, up to 200 mm long, occasionally with a few

glands. **Pinnae** 7–15 pairs, opposite, subopposite or alternate, often with a solitary, terminal pinna. **Leaflets** 7–12 pairs per pinna, oblong-elliptic, usually with black gland dots just inside margins. **Inflorescences** 60–180 mm long, terminal racemes. **Flowers** yellow. **Calyx**: sepals 13–21 mm long, pubescent and with many stipitate glands. **Petals** 17–32 mm long. **Stamens** scarlet. **Flowering time** Oct.–May. **Pod** asymmetrically oblanceolate-oblong. Disturbed areas, dry riverbeds and cultivated in gardens; Upper Karoo (along roads and in disturbed areas).

1b Leaflets large, much > 10 mm long
2a Stipules leafy, usually with 3 unequal-sized lobes resembling leaflets; pods covered with stiff spreading prickles; plants growing on or near the seashore

bonduc (L.) Roxb.

Perennial shrub or shrubby tree, up to 6 m high; stems fulvous-pubescent, at least when young; densely armed with prickles. **Leaves** pubescent, up to 500 mm long, rachis armed with recurved prickles, particularly below. **Pinnae** 3–10 pairs. **Leaflets** (4)6–10 pairs per pinna, asymmetrically ovate or elliptic- to ovate-oblong. **Stipules** conspicuous, leafy. **Inflorescences** up to 400 mm long, axillary racemes. **Flowers** pale yellow. **Calyx**: sepals 4–7 mm long. **Petals** 6–10 mm long, the upper one broader and stouter than others. **Stamens** 4–7 mm long. **Flowering time** Sept.–May. **Pod** brown, widely elliptic-oblong, often 1- or 2-seeded, densely covered with stiff spreading prickles. Coastal bush/scrub and riverbanks; Indian Ocean Coastal Belt (Manteku Estuary).

2b Stipules asymmetrically ovate; pods unarmed; plants growing away from the seashore

***decapetala** (Roth) Alston

Mauritius thorn

Climbing or straggling bushy shrub, up to 8 m high; often forming dense thickets; stems densely clothed with short brownish pubescence when young, armed with scattered, spreading prickles. **Leaves** finely fulvous-pubescent, 120–350 mm long, rachis armed with hooked prickles below, often in pairs; petioles eglandular, armed with hooked prickles below. **Pinnae** 4–11 pairs. **Leaflets** 8–13 pairs per pinna, oblong to somewhat obovate-oblong, pubescent on both surfaces. **Stipules** asymmetrically ovate, acuminate, margins undulate. **Inflorescences** of axillary and terminal racemes, 100–400 mm long. **Flowers** pale yellow. **Flowering time** Oct.–Feb. **Pod** brown, compressed, unarmed, dehiscing along upper suture. Forest clearings, riverbanks, scrub and grassland; Indian Ocean Coastal Belt, Sub-Escarpment Savanna (Port St Johns and surrounding areas).

CALPURNIA E.Mey.

Geelkeur (A)

Species ± 16, Africa; ± 7 in sthn Afr., LIM, NW, G, M, S, KZN, EC.

1a Calyx lobes reflexed; filament bases densely hairy; inflorescence racemose

reflexa A.J.Beaumont

Sotho calpurnia; *Sotho-geelkeur* (A)

Shrub or small tree, up to 4 m high; young stems puberulous. **Leaves** 30–100 mm long, puberulous to glabrescent; petioles 4–23 mm long. **Stipules** triangular-ovate, caducous. **Leaflets** 4–12, elliptic. **Inflorescences** racemose, 40–80 mm long, 10–30-flowered. **Hypanthium** 1–2 mm long. **Calyx** 5–7 mm long, puberulous, base campanulate; lobes shorter than or equal to tube; anterior lobe shorter than other lobes. **Petals** bright yel-

low; standard obovate, apex reflexed. **Stamens** monadelphous, base densely papillate-puberulous. **Flowering time** Sept.–Apr. Forest and thickets; Mesic Highveld Grassland (Wayhill in the Wasbankspruit Valley).

1b Calyx lobes straight; filament bases glabrous; inflorescence racemose or paniculate
2a Fruit usually > 50 × 10 mm; inflorescences racemose

aurea (Aiton) Benth. subsp. **aurea**

Wild laburnum, common calpurnia; *geelkeur* (A)

Shrub or slender tree, up to 15 m high; stems densely puberulous-tomentose to glabrescent when young. **Leaves** 40–250 mm long, puberulous to glabrescent; petioles 10–30 mm long. **Leaflets** 8–30, oblong-elliptic to ovate or obovate. **Stipules** triangular, often persistent. **Inflorescences** of pendulous racemes, 40–250 mm long, 8–40-flowered. **Hypanthium** 2–5 mm long. **Calyx** 5–13 mm long, base campanulate; lobes shorter than tube. **Petals** bright yellow; standard suborbicular to obovate, apex reflexed. **Stamens** fused basally, glabrous. **Flowering time** Sept.–Apr. Valley thickets, indigenous forests and wooded hillsides; Dry Highveld Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Drakensberg Grassland, Albany Thicket, Eastern Fynbos-Renosterveld (Aliwal North E to Oribi Gorge S throughout the eastern part of the province as far as Humansdorp).

2b Fruit usually < 50 × 10 mm; inflorescence paniculate
3a Petal claws and filaments exposed in mature flowers

sericea Harv.

Mountain calpurnia; *berggeelkeur* (A)

Virgate shrub, up to 2 m high; stems moderately puberulous to glabrous when young. **Leaves** 30–150 mm long, densely to sparsely pubescent; petioles 2–20 mm long. **Leaflets** 8–24, shape variable within and among plants. **Stipules** narrowly triangular to subulate, usually persistent. **Inflorescences** upright or pendulous, usually racemose, 30–200 mm long, 10–100-flowered. **Hypanthium** 1.0–1.5 mm long. **Calyx** 2.0–4.5 mm long, base intrusive; lobes 0.5–1.5 mm long. **Petals** bright yellow; standard suborbicular, apex not reflexed. **Stamens** fused at base of staminal sheath, glabrous. **Flowering time** Dec.–Apr. Mountain slopes, grassland and along forest margins; Drakensberg Grassland, Sub-Escarpment Savanna (Komga District).

3b Petal claws and filaments concealed by calyx in mature flowers

[E]floribunda Harv.

Eastern Cape calpurnia; *Oos-Kaapse geelkeur* (A)

Shrub or small tree, up to 3 m high; young stems moderately puberulous to glabrous. **Leaves** 20–220 mm long, moderately puberulous; petioles 2–19 mm long. **Leaflets** 4–20, elliptic-oblong to slightly ovate or obovate. **Stipules** triangular-ovate, persistent. **Inflorescences** paniculate, rarely racemose, 30–80 mm long, 5–100-flowered. **Hypanthium** 1–2 mm long. **Calyx** 3–5 mm long, base intrusive; lobes 1–2 mm long. **Petals** bright yellow; standard elliptic, apex reflexed. **Stamens** fused at base of staminal sheath, glabrous. **Flowering time** Sept.–Apr. Riverbanks and along forest and scrub margins; Drakensberg Grassland, Albany Thicket, Indigenous Forests, Sub-Escarpment Savanna (Mpofu District).

CANAVALIA DC.

Species ± 50, cosmopolitan in warm regions; 6 in sthn Afr., N, LIM, NW, G, M, S, KZN, EC.

1a Bracteoles up to 1 mm long

bonariensis Lindl.

Perennial climber, with stems climbing up to 3 m high; stems sometimes slightly pubescent with white hairs. **Leaves** pinnately trifoliolate. **Leaflets** elliptic, up to 120 mm long, hard, coriaceous, oblong-lanceolate, glabrescent on both sides. **Inflorescences** pedunculate. **Calyx** 16 mm long, sparsely pubescent; tube 10 mm long; upper lip longer than tube. **Petals**: standard mauve, 30 mm long. **Flowering time** Aug.–May. **Pod** slightly inflated; each valve with a single rib along ventral suture. **Seeds** brown speckled with black, becoming darker with age. Climbing over lower trees on floodplains and riverbanks, in grassland near the sea on black turf, clay-rich soils; Indian Ocean Coastal Belt (Port Edward S all along the coast to Transkei).

1b Bracteoles 1.5–2.0 mm long
2a Leaflets ovate to elliptic, broadest at or below middle, obtuse to acuminate at apex

*ensiformis (L.) DC.

Jack bean, sword bean, ash bean; *sewejaarboontjie*, *asboontjie* (A)

Usually an erect, bushy, annual crop plant, 1–2 m high, but can become perennial climber up to 10 m high; stems glabrous to appressed-pubescent. **Leaves** pinnately trifoliolate. **Leaflets** elliptic or ovate-elliptic, glabrescent to sparsely pubescent on both surfaces. **Inflorescences** pedunculate, 60–400 mm long. **Calyx** sparsely pubescent; tube 6–7 mm long, truncate. **Petals** standard rose to purple, 27–30 mm long. **Flowering time** Feb.–June. **Pod** linear-oblong, each valve with a sutural rib and an extra rib below this. **Seeds** white with a brownish mark around hilum. Along riverbanks; Albany Thicket (East London region).

2b Leaflets elliptic-oblong to somewhat obovate or almost round, broadest at or above middle, mostly rounded or emarginated at apex

rosea (Sw.) DC.

Strandboontjie (A)

Perennial climber, or stems trailing, 1.8–10.0 m long; stems silky hairy when young, glabrescent. **Leaves** pinnately trifoliolate. **Leaflets** elliptic, oblong-elliptic, somewhat obovate or almost round, glabrous to pubescent on both surfaces, sometimes densely so below. **Inflorescences** pedunculate, 150–400 mm long. **Calyx** pubescent; tube 7–9 mm long. **Petals** standard pink to purple or bluish mauve with a white or yellow patch near base, 30–35 mm long; wings and keel pale magenta. **Flowering time** Dec.–June. **Pod** linear-oblong, each valve with a sutural rib and an extra rib below this. **Seeds** brown, with darker marbling or streaked pale yellow, to almost black. In beach scrub and on beach dunes; Indian Ocean Coastal Belt, Albany Thicket (Port St Johns S along the coast to East London District).

*CERATONIA L.

Species 2, Arabian Peninsula and Somalia, Mediterranean region; 1 in sthn Afr., N, G, KZN, EC.

siliqua L.

Carob tree, St. John's bread; *karobboontjie* (A)

Dense, ornamental evergreen, unarmed shrub or tree, often monoecious, 1–13 m high. **Leaves** entire, simply pinnate. **Leaflets** 2–8 pairs, coriaceous. **Stipules** minute, caducous. **Inflorescences** dense, many-flowered racemes, axillary or often arising from old wood (cauliflorous). **Flowers** unisexual or bisexual, irregular, small. **Calyx** caducous. **Petals** absent. **Stamens** 5, free. **Pod** laterally compressed, coriaceous, many-seeded, indehiscent. Fairly widely cultivated in SA.

CHAMAECRISTA Moench

Species ± 250, primarily neotropical; 9 in sthn Afr., widespread, except NC, WC.

1a Petiole and rachis eglandular, that is without conspicuous, solitary glands on petiole or on rachis between at least one of the leaflet pairs

capensis (Thunb.) E.Mey.

Perennial herb, with several prostrate, semi-erect or erect stems from a woody rootstock, 0.1–0.9 m high. **Leaves**: petiolar gland subsessile or raised on a stalk, circular to elliptic concave. **Leaflets** obliquely linear to oblong-linear, apex asymmetric, usually apiculate. **Inflorescences** 2(3–5)-flowered racemes. **Petals** usually exceeding sepals, bright yellow. **Stamens** 10. **Pod** with glabrescent valves that have short curved appressed hairs, or are sparsely to densely villous. **Seeds** rhombic, testa brown with darker dots arranged in lines. Rock ledges, valleys, river mouths, disturbed areas; Sub-Escarpment Savanna, Sub-Escarpment Grassland, Drakensberg Grassland, Eastern Fynbos-Renosterveld, Albany Thicket (Mthatha SW to Port Elizabeth and E to East London).

1b Petiole and rachis glandular, that is with one (rarely two) conspicuous gland(s) on petiole or with a conspicuous gland between at least one of the leaflet pairs (minute gland, usually several to many grouped together, may be present)
2a Leaf rachis channelled adaxially (the channel lies between two short upgrowths of tissue from adaxial margins of rachis which sometimes loosely cohere, thus ± obscuring channel)

comosa E.Mey.

Perennial herb, with several erect stems arising from a woody rootstock, 0.2–1.5 m high. **Leaves**: petiolar gland sessile, elliptic or sometimes ovate-elliptic, cushion-like with a darker central depression, sunken in, lying flush with or slightly projecting from channel on adaxial petiolar surface. **Leaflets** in 11–35 pairs, asymmetrically oblong to oblong-elliptic, narrowing slightly towards apex, apex almost rounded and shortly mucronate to apiculate. **Inflorescences** (1)2- or 3(–5)-flowered racemes. **Petals** not much exceeding sepals, bright yellow. **Stamens** 10. **Pod** with glabrescent valves. Coastal sourveld, hills, grassland, forest; Indian Ocean Coastal Belt, Indigenous Forests, Sub-Escarpment Savanna, Albany Thicket (Port Shepstone to East London).

stricta E.Mey.

Annual herb, producing arcuate-spreading branches to form a frond-like mature plant, subwoody below, 0.1–1.0 m high. **Leaves**: petiolar gland sessile, never sunken, widely elliptic to oblong, concave above, reddish brown with a darker centre and dark brown when dry. **Leaflets** sessile in (15–)20–37 pairs, linear oblong, base oblique, apex acuminate to mucronate. **Inflorescences** (1–)3(4)-flowered racemes. **Petals** usually not exceeding sepals, pale yellow. **Stamens** 8 with up to 2 staminodes may be present. **Pod** valves are greyish white-strigose. **Seeds** testa shiny. Grassland, open palm veld, near river cours-

es, sand, stony/rocky soil; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Albany Thicket (Griqualand SW through Oribi Gorge and Stutterheim to Alexandria District).

2b Leaf rachis crested adaxially (crest is a short upgrowth of tissue from mid-axial line of rachis, crenate or serrate when viewed in profile, sinuses corresponding with points of attachment of leaflets)

biensis (Steyaert) Lock

Perennial herb, with several prostrate, semi-erect or erect stems from a woody rootstock, 0.05–0.60 m high. **Leaves**: petiolar gland raised on an indistinct stalk or subsessile, circular or sometimes elliptic-circular, concave. **Leaflets** in (5–)13–24(–34) pairs obliquely linear, apex acuminate, bristle-like; petiolar gland raised on an indistinct stalk or subsessile, circular, sometimes elliptic-circular, concave. **Flowers** solitary. **Petals** hardly exceeding sepals, bright yellow. **Stamens** 10. **Pod**: valves are glabrescent to sparsely velutinous with appressed straight to curved hairs. **Seeds** rhombic-elliptic; testa light brown with darker brown scattered dots. Habitat?; Indigenous Forests (Alexandria Forest).

mimosoides (L.) Greene

Boesmanstee (A); *umnyana* (X); *unobothungwana* (Z)

Annual, occasionally perennial herb, 0.1–1.6 m high; with erect stem or branching from ground-level to become ± rounded. **Leaves**: petiolar gland either sessile elliptic, projecting laterally over petiole, yellow becoming red or pink when mature, or sessile circular elliptic, pale yellow margined with a dark central zone. **Leaflets** sessile in 35–36 pairs, apex asymmetric. **Inflorescences** 1–3-flowered racemes. **Petals** pale cream-coloured or yellow to bright yellow, not much exceeding sepals. **Pod**: valves are ± lanate to villous with scattered hairs. **Seeds** rhombic, testa shiny brown with lines of darker dots, areole lacking. Grassy places, hillsides, riverbanks, rocky outcrop; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indigenous Forests, Indian Ocean Coastal Belt, Albany Thicket (Ixopo to Port St Johns and SW to Uitenhage Region).

plumosa E.Mey.

Perennial herb, either a spreading mat or an erect, diffusely branched, ± rounded bush or a spindly subsuffrutex, 0.2–2.5 m high. **Leaves**: petiolar gland sessile, but never sunken, circular elliptic or ovate, concave or shallowly depressed, yellow or light red becoming darker with age. **Leaflets** in 12–48 pairs, obliquely linear, apex asymmetric, apiculate or mucronate. **Inflorescences** axillary to markedly supra-axillary, each a short raceme bearing (1)2–5 flowers. **Petals** exceeding sepals, bright yellow. **Stamens** 10. **Seeds** testa shiny brown with lines of darker dots. Hills, slopes, mountain tops, grassy places, beach, forest, closed shrubland, disturbed areas; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests (Kokstad through Port Edward SW to Kei Mouth).

CRAIBIA Harms & Dunn

Species 10, tropical Africa; 1 in sthn Afr., S, KZN, EC.

zimmermannii (Harms) Dunn

Sandforest craibia; *sandertjiehout* (A)

Small, evergreen tree, up to 5 m high. **Leaves** glossy green, leathery, with rachis up to 90 mm long; petioles with swelling near base. **Leaflets** 3–5, alternate to suboppo-

site, up to 100 mm long, ovate to lanceolate. **Stipules** caducous. **Inflorescences** 5–10-flowered racemes, shorter than subtending leaf; pedicels up to 13 mm long. **Flowers** white becoming pink with age, sweetly scented. **Calyx** glabrous; tube 3–4 mm long. **Petals** 15–17 mm long. **Flowering time** Sept.–Nov. **Pod** 60–110 mm long, 2- or 3-seeded. On sandy ridges and slopes, indigenous forest and riverbanks; Indian Ocean Coastal Belt (Port St Johns).

CROTALARIA L.

Species over 600, fairly cosmopolitan in the tropics and extending into the subtropics particularly to the southern hemisphere; ± 64 in sthn Afr., widespread.

1a Beak of the keel spirally twisted

globifera E.Mey.

Round pod rattle bush; *klawer* (A); *ubhubhubhu-weyceke* (Z)

Annual shrub or herb, with many, erect stems from a woody rootstock, 0.2–0.9(–1.2) m high; branches appressed puberulous. **Leaflets** ± oblanceolate, 10–30 mm long, ± subglabrous beneath. **Inflorescences** mostly 50–160 mm long racemes, with 16–40(–60) flowers. **Flowers** bright yellow, pubescent outside. **Calyx** densely appressed puberulous; lobes 1–2× as long as tube. **Petals**: wings ± as long as keel; keel angular. **Pod** shortly stipitate, 7–13 mm long, densely appressed puberulous, 4–6-seeded. **Seeds** obliquecordiform, smooth, yellowish or brown. Moist or rocky grassland areas, disturbed areas; Sub-Escarpment Savanna, Sub-Escarpment Grassland, Indian Ocean Coastal Belt (Oribi Gorge to Port St Johns, Stutterheim).

griquensis L.Bolus

Divaricately branched, perennial herb, 0.1–0.4 m high. **Branchlets** ± densely white appressed puberulous. **Leaflets** ± obovate, substrigulose beneath, 5–10 mm long. **Inflorescences** of many, leaf-opposed racemes with rachis extension often pungent, (2–)4–6-flowered. **Flowers** yellow. **Calyx** appressed puberulous; lobes 1.0–1.5× as long as tube. **Petals**: wings a little shorter than keel; keel angular. **Pod** shortly stipitate, 5–8 mm long, ± ellipsoid with impressed upper suture, appressed puberulous, 2–4-seeded. Open sites, usually on sandy soil, often in disturbed or seasonally damp places; Upper Karoo (Middelburg District).

macrocarpa E.Mey.

Bushy shrub, 0.3–3.0 m high, branches finely strigulose. **Leaflets** elliptic to obovate, appressed puberulous beneath, 15–40 mm long. **Stipules** linear-subulate, becoming recurved. **Inflorescences** closely 6–16-flowered racemes. **Flowers** yellow, browning with age. **Calyx** appressed puberulous; lobes 1–2× as long as tube. **Petals**: wings nearly as long as keel; keel abruptly rounded in lower half with a slender, incurved, twisted beak. **Pod** obesely ellipsoid, abruptly contracted to stipe, appressed-pubescent, 8–18-seeded, 28–45 mm long. **Seeds** reniform, granular, dark. Grassland, closed woodland; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests (Oribi Gorge).

natalensis Baker f.

Shrub, 0.5–2.0(–3.0) m high; branches slender, ± appressed puberulous. **Leaflets** elliptic to obovate, sparsely appressed puberulous beneath. **Inflorescences** sublaxly 4–8-flowered racemes. **Flowers** pale yellow. **Calyx** ± appressed puberulous; lobes 2.0–2.5× as long as tube. **Petals**: wings slightly shorter than keel; keel subangular with

a slightly incurved twisted beak. **Pod** stipitate, ± ellipsoid-clavate, 25–30 mm long, puberulous, 6–8-seeded. **Seeds** oblique-cordiform, rugose, yellow-brown. Forest edges, roadsides, river mouths; Indian Ocean Coastal Belt, Indigenous Forests, Albany Thicket (Oribi Gorge to East London).

virgulata Klotzsch

Decumbent to erect annual, occasionally perennial herb, 0.1–1.0(–1.8) m high. **Branches** subappressed-pubescent to spreading hirsute. **Leaflets** linear to ± oblanceolate, sometimes hairy on both surfaces, 4–50 mm long. **Inflorescences**: primary racemes terminal or leaf-opposed, laxly 3–40-flowered; supplementary inflorescences in axils of main leaves with 1 or 2 flowers. **Flowers** yellow. **Calyx** pubescent; lobes 1.5–2.5× as long as tube. **Petals**: often lined red; wings nearly as long as keel; keel angular. **Pod** shortly stipitate, ± oblong-obovoid, 8–15 mm long, pubescent, 6–10(–12)-seeded. **Seeds** oblique cordiform, smooth, brown. River mouths, grassland, open woodland, abandoned land; Sub-Escarpment Savanna, Indigenous Forests, Indian Ocean Coastal Belt, Albany Thicket, Sub-Escarpment Savanna (Port St Johns SW to Bathurst District).

1b Beak of keel untwisted or circumflexed no more than 90°
2a Stipules resembling small leaflets

capensis Jacq.

Cape rattle-pod, Cape laburnum; *Kaapse klapperpeul* (A); *musumbudza-nduhu* (Venda); *ihlolo getyane* (X); *ubukheshezane* (Z)

Bushy tree or shrub, variable in indumentum, leaflet shape and calyx length, 1–3(–6) m high; branches mostly persistently tomentose. **Leaflets** elliptic to obovate, usually pubescent beneath, 15–70 mm long. **Stipules** foliaceous, obovate. **Inflorescences**: racemes with few to many relatively closely arranged flowers. **Flowers** yellow-marked, later flushed reddish. **Calyx** subglabrous; lobes longer than tube. **Petals**: wings nearly as long as keel; keel rounded about the middle with short blunt beak. **Pod** stipitate, 45–68 mm long, shortly appressed-pubescent. **Seeds** oblique-cordiform, smooth, brown. Coastal forest, river mouths, disturbed areas, grassland; Sub-Escarpment Savanna, Sub-Escarpment Grassland, Indigenous Forests, Indian Ocean Coastal Belt, Drakensberg Grassland, Albany Thicket, Eastern Fynbos-Renosterveld (Kokstad SW to Uitenhage).

natalitia Meisn.

Perennial, woody herb, (0.45–)1.00–2.60 m high, with 1–several thin, strictly ascending stems. **Leaves** mostly in tufts. **Leaflets** ± oblanceolate, appressed-pubescent beneath. **Inflorescences** up to 0.1–0.2 m long racemes, terminal. **Flowers** yellow, sometimes reddish brown-tinged. **Calyx** with lobes ± the same length as tube. **Petals**: wings exceeding keel; keel abruptly rounded about the middle with a short incurved beak. **Pod** widely cylindrical, abruptly contracted to a stipe, 34–45 mm long, glabrous, 25–40-seeded. **Seeds** oblong reniform, with small aril, granulate or smooth, dark brown. Habitat?; Indian Ocean Coastal Belt (St Michael's-on-Sea).

2b Stipules linear to linear-lanceolate or absent

***agatiflora** Schweinf.

Canarybird bush; *voëltjiebos* (A)

Perennial, bushy, woody herb or shrub, 0.3–2.0(–10.0) m high. **Leaflets** ± elliptic-ovate, glabrous to densely hairy, 25–70 mm long; petioles mostly longer than leaves. **Stipules** linear, caducous or absent. **Inflorescences** stoutly pendunculate, many-

flowered racemes. **Flowers** lemon- to greenish yellow. **Calyx** with lobes ± twice as long as tube. **Petals**: wings ± half as long as keel; keel widely rounded with a projecting greenish or purplish beak. **Pod** 75–100 mm long, oblong-clavate, stipitate, glabrous. **Seeds** oblique-cordiform, smooth, pale brown. Cultivated in sthn Afr. for ornament; origin highlands of E and NE Africa, declared invader (Category 3); Sub-Escarpment Savanna (Grahamstown, Albany Museum Garden).

dura J.M.Wood & M.S.Evans

Wild lucerne; *jagsiektebossie* (A)

Virgate shrub or subshrub, with a number of ascending stems, 0.15–0.60 m high; appressed-pubescent. **Leaves** shortly petiolate. **Leaflets** ± oblong-elliptic, 8–25 mm long, mostly appressed-pubescent at least beneath. **Inflorescences** mostly well-developed racemes with a number of flowers laxly or closely arranged towards top. **Flowers** yellow. **Calyx** appressed-pubescent; lobes longer than tube. **Petals**: wings slightly shorter than keel; keel strongly rounded and crested behind small beak. **Pod** shortly stipitate, 8–11 mm long, sericeous, 2–4-seeded. **Seeds** smooth, brown, oblique-cordiform. Grassland; Sub-Escarpment Grassland (Kokstad District).

lanceolata E.Mey.

Erect, laxly branched, annual herb, 0.2–1.7 m high; branches ribbed, young parts covered with very short, appressed hairs. **Leaflets** mostly linear-lanceolate, 40–100 (–170) mm long, thinly appressed puberulous beneath; petioles shorter than leaflets. **Stipules** lacking; upper leaves sometimes unifoliolate. **Inflorescences** many-flowered racemes, 80–350 mm long. **Flowers** yellow, veined reddish purple. **Calyx** becoming deflexed against pedicel, thinly appressed puberulous; lobes usually shorter than tube. **Petals**: keel rounded about the middle, with incurved or projecting beak. **Pod** subsessile, narrowly cylindrical, often incurved at tip, appressed puberulous, 16–38 mm long. **Seeds** oblique-cordiform, smooth, pale yellow to orange-brown. Habitat?; Dry Highveld Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests (Aliwal North, Clydesdale, uMzimkhulu and Port Edward S to Port St Johns).

obscura DC.

Perennial herb, much branched from base, with long, straggling, patently pilose branches. **Leaflets** variable, ± ovate, thinly pilose at least beneath; petioles mostly longer than leaflets. **Inflorescences** racemes with ± 3–8 flowers, rather closely arranged at top of long peduncle. **Flowers** yellow, often flushed reddish. **Calyx** sparsely pilose; lobes 3–4× as long as tube. **Petals**: wings nearly as long as keel; keel abruptly rounded below the middle, with well-developed incurved beak. **Pod** fusiform-clavate, shortly stipitate, rather pointed, 30–40 mm long, thinly pilose. **Seeds** oblique-cordiform, rugulose, brown. Rocky outcrops, hillsides, grassy places; Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Indigenous Forests, Sub-Escarpment Savanna, Albany Thicket, Drakensberg Grassland (Matatiele District SE to Port Edward and SW to Port Elizabeth).

sphaerocarpa Perr. ex DC.

Erect, annual herb, 0.3–1.0(–1.7) m high, much branched from base upwards, covered in longish hairs or glabrous. **Leaflets** very variable, linear to elliptic, 20–60 mm long; petioles shorter than leaflets. **Inflorescences** laxly 12–many-flowered racemes. **Flowers** pale yellow. **Calyx** lobes 2–3× as long as tube. **Petals**: wings shorter than keel; keel angled with long beak. **Pod** shortly stipitate, shortly ± oblong-ellipsoid, 1–4(–6)-seeded.

Seeds bluntly triangular to very obliquely cordiform, rugulose to nearly smooth, brown. Habitat?; Sub-Escarpment Grassland (Ixopo District).

CYCLOPIA Vent.

Honeybush

Species ± 23, WC, mainly southwestern districts, extending eastwards to near Uitenhage (EC).

filiformis Kies

Erect, woody? shrub. **Leaves** trifoliolate. **Leaflets** linear, flat, glabrous, except for few hairs in leaf axils, margins slightly recurved. **Flowers** yellow. **Calyx**: lobes triangular, acuminate. **Petals**: keels shortly beaked. **Flowering time** Oct.? Known only from type specimen. Sandy flats, alt. 100 m; Albany Thicket (Van Stadens River near Port Elizabeth).

intermedia E.Mey.

Kougabergtee, *bergtee* (A)

Robust, erect, multi-stemmed shrub, up to 2 m high. **Leaves** alternate, palmately trifoliolate. **Leaflets** oblanceolate, flat, glabrous except for a few hairs on upper surface when young, margins slightly recurved. **Flowers** yellow. **Calyx**: lobes triangular, acute. **Petals**: keel strongly beaked. **Flowering time** Sept.–Nov. Sandstone slopes, alt. 500–1 700 m; Eastern Fynbos-Renosterveld (Witteberg and Langeberg Mts to Van Stadens Mts).

longifolia Vogel

Vanstadensberg honeybush tea; *Vanstadensberg-heuningbostee* (A)

Erect, reseeding, single-stemmed shrub, up to 3.5 m high. **Leaves** alternate, palmately trifoliolate. **Leaflets** linear-oblanceolate, flat, sparsely pubescent on upper surface when young, glabrescent, margins slightly recurved. **Flowers** bright yellow. **Calyx**: lobes triangular, acute. **Petals**: keel petal strongly beaked. **Flowering time** Oct., Nov. Moist sandy soil along riverbanks, alt. 300–360 m; Eastern Fynbos-Renosterveld (Van Stadens Mts).

pubescens Eckl. & Zeyh.

Erect, reseeding, single-stemmed shrub, 1–2 m high. **Leaves** alternate, palmately trifoliolate. **Leaflets** linear, terete, pubescent on upper surface, sparsely so below, margins strongly revolute. **Flowers** yellow. **Calyx**: lobes triangular, tapering, acuminate, base auriculate. **Petals**: keel strongly beaked. **Flowering time** Sept. Marshes and seeps in lowland fynbos, alt. ± 300 m; Eastern Fynbos-Renosterveld (Port Elizabeth).

subternata Vogel

Honeybush tea; *heuningbostee*, *vleitee* (A)

Erect, reseeding, single-stemmed shrub, up to 3 m high. **Leaves** alternate, palmately trifoliolate. **Leaflets** obovate to oblanceolate, glabrous, margins slightly recurved. **Flowers** solitary, bright yellow. **Calyx**: lobes triangular, acute, chartaceous. **Petals**: keel strongly beaked. **Flowering time** Sept. Southern slopes, well-drained, stony, loamy soil, alt. 160–1 000 m; Eastern Fynbos-Renosterveld (Langeberg Mts to Humansdorp District).

***CYTISUS** Desf.

Tree lucerne

Species ± 50, native to Europe with a few in western Asia and North Africa, several species introduced as fodder plants and some have become naturalised, M, KZN, WC, EC.

scoparius (L.) Link

Scotch broom; *skotse brem* (A)

Unarmed shrub or small tree, 1.4–4.0 m high; with virgate branches becoming almost leafless. **Leaves** 8–15 mm long, trifoliolate and petiolate, deciduous, sometimes crowded on older branches, upper leaves often unifoliolate. **Leaflets** ± elliptic, with appressed hairs or glabrous. **Flowers** bright yellow, 25 mm long, solitary or paired in leaf axils. **Flowering time** Sept.–Mar. **Pod** oblong, slightly curved, strongly compressed, black at maturity, dehiscent with silky hairs at margin, 35–50 mm long. Grassland, forest margins, roadsides; origin Europe and Britain, declared weed (Category 1), potential transformer.

DALBERGIA L.f.

Species ± 100, pantropical in warm regions; 7 in sthn Afr., N, B, LIM, NW, G, M, S, FS, KZN, EC.

1a Plants armed with spines

armata E.Mey.

Thorny-rope; *bobbejaantou*, *doringtou* (A); *umzungulu* (X); *umhluhluwe* (Z)

Scandent shrub, with ± spine-tipped branches. **Leaves** 40–80 mm long. **Leaflets** 10–16 on either side of rachis, sparsely hairy when young, but soon glabrescent. **Stipules** small, fugaceous, leaving a prominent scar. **Inflorescences** prolifically developed panicles on leafy branches; 30–80 mm long, many-flowered. **Flowers** whitish to cream-coloured. **Calyx** 2.0–2.5 mm long. **Petals** 3–4 mm long; wings nearly as long as standard, fragrant. **Flowering time** Oct., Nov. **Pod** elliptic-oblong to oblong, narrowed at either end; 1- or 2-seeded. In coastal scrub on sandy soils, scrambling along stream valleys and in dense to open scrub; Indian Ocean Coastal Belt (Ntafufu, Transkei).

1b Plants unarmed
2a Leaves with 10–16 pairs of subopposite leaflets with terminal one

multijuga E.Mey.

Hairy flat-bean; *harige platboontjie* (A)

Climber or small tree. **Leaves** 50–80 mm long. **Leaflets** 10–16 on either side of rachis, somewhat appressed-pubescent on both sides. **Stipules** caducous. **Inflorescences** terminal and axillary panicles, up to 80 mm long, many-flowered. **Flowers** creamy white. **Calyx** 2–4 mm long. **Petals** 6–7 mm long; wings ± as long as keel, fragrant. **Flowering time** Aug.–Oct. **Pod** elliptic-oblong; 1–3-seeded. Indigenous coastal forest, often on black clay-rich soils and along forest margins; Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Bizana District S along coast to Elliotdale District and inland as far as Nqadu woods, Mthatha).

2b Leaves with 4–7 leaflets, including the terminal one

obovata E.Mey.

Climbing flat-bean; *bobbejaankoudoring*, *bobbejaantou*, *rankplatboontjie* (A)

Small tree or shrub, often scandent with modified, tendril-like branches. **Leaves** 75–125 mm long. **Leaflets** 2–4 on either side of rachis; upper surface glabrous; lower surface appressed-pubescent to subglabrous. **Stipules** 4–7 mm long, caducous. **Inflorescences** terminal and axillary panicles on leafy branches, 40–200 mm long, many-flowered. **Flowers** white. **Calyx** 3.0–4.5 mm long. **Petals** 5–8 mm long; wings shorter

than standard and ± as long as keel, fragrant. **Flowering time** Oct., Nov. **Pod** elliptic-oblong; 1–3-seeded. Indigenous forest along river valleys and forest edges; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Sub-Escarpment Grassland, Drakensberg Grassland, Albany Thicket (Griqualand East S to Port St Johns, along coast and inland to Butterworth, Kentani District to East London).

DECORSEA R.Vig.

Species ± 4, Madagascar and Africa; 3 in sthn Afr., N, LIM, NW, M, S, FS, KZN, EC.

galpinii (Burtt Davy) Verdc.

Perennial climber with several lax stems. **Leaves** trifoliolate with thin, spreading, silvery-grey pubescence on both sides, prominently reticulate. **Inflorescences** 1- or 2-flowered; peduncles slender, shorter than subtending leaf; bracteoles thinly papery, ribbed. **Flowers** white and mauve, appearing with new leaves. **Flowering time** Oct.–Jan. **Pod** linear, curved at tip to somewhat falcate. Open grassland; Drakensberg Grassland (King William's Town and surrounding areas).

DESMODIUM Desv.

Species ± 300, cosmopolitan in tropical and subtropical regions, with centres of diversity in E Asia, Mexico and Brazil; 10 in sthn Afr., LIM, NW, G, M, S, KZN, WC, EC.

1a Inflorescences of variously lax to dense, elongated, axillary or terminal pseudoracemes, the terminal ones often paniculately branched; calyx teeth short, triangular or lanceolate, the adaxial two usually markedly connate forming a lip
2a Flowers 8–14 mm long, brick red; herbs or subshrubs, climbing or scrambling and forming a dense undergrowth in forest; leaflets rhomboid, deep green venation craspedodromous; inflorescences very lax; stamens partially monadelphous

repandum (Vahl) DC.

Perennial herb or slender shrub with woody base, 0.5–1.0(–3.0) m high. **Leaves** trifoliolate. **Leaflets** 18(–85)–110 mm long, ± rhombic in outline, cuneate below, granular-puberulent, leaflet surfaces ± long-strigose, especially beneath and veins. **Inflorescences** elongate, lax, terminal or axillary, racemes or racemose-paniculate; secondary bracts present. **Flowers** large and conspicuous, pink, salmon or rusty. **Calyx** puberulent. **Flowering time** (Aug.–)Jan.–May. **Pod** stipitate, up to 5 segments, lower suture deeply indented, uncinulate-puberulent. Shaded riverine or forest areas, along paths or streams; Indigenous Forests, Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Drakensberg Grassland, Sub-Escarpment Savanna (Transkei SW through Stutterheim to Knysna).

2b Flowers 4.5–8.0 mm long, variously pink, mauve or purple but never red; plants not as above, stamens always diadelphous

adscendens (Swartz) DC.

Straggling herb or undershrub, up to 1 m high; erect branches arising from creeping stems, with stiff pilosity. **Leaves** trifoliolate. **Leaflets** elliptic, obovate or obtuse, emarginate at apex, cuneate to rounded at base; upper surface ± pilose; lower surface densely pilose. **Stipules** persistent. **Inflorescences** terminal and axillary racemes, loosely flowered. **Flowers** usually pink, corolla exceeds calyx. **Calyx** 2-lipped; tube minutely puberulent. **Flowering time** Nov.–Mar. **Pod** stipitate, 1–5 segments; segments ± obliquely oblong, straight on upper suture, curved below, uncinulate-pubescent. On forest margins along the coast, shaded mesic forest floors; Indian Ocean Coastal Belt, Indigenous Forests (Transkei Coast).

*incanum DC.

Sweethearts; *isinama* (Z)

Perennial, spreading herb to woody subshrub, 0.2–1.5(–3.0) m high; stems reddish, uncinulate-pubescent. **Leaves** trifoliolate. **Leaflets** variable in shape, mostly ± elliptic, acute at apex, rounded at base; upper surface dark with pale midrib; lower surface densely pilose. **Stipules** partially connate abaxially. **Inflorescences** terminal and axillary racemes; pedicels usually solitary, sometimes in fascicles of 3. **Flowers** blue or red to purple. **Calyx** uncinulate-puberulent, abundantly pilose. **Flowering time** Sept.–June. **Pod** stipitate; up to 8 segments, straight above, indented below, uncinulate-pubescent. Coastal forest, dunes, grassland, roadsides; origin Tropical America, weed in disturbed areas, also invading undisturbed grassland; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests (Uvongo to Port St Johns).

setigerum (E.Mey.) Benth. ex Harv.

Perennial, low, semi-erect suffrutex, 0.15–1.50 m high; stems root at lower nodes and form shoots up to 1 m long or more; stems densely spreading pilose, puberulent. **Leaves** trifoliolate. **Leaflets** ± pilose on upper surface; lower surface densely pilose; ± obovate, 3.5–8.5 mm long; petioles straw-coloured to reddish. **Inflorescences** of terminal and axillary panicles or racemes, loosely flowered. **Flowers** white, yellow or mauve. **Calyx** 2-lipped, green, minutely puberulent. **Flowering time** Dec.–May. **Pod** with up to 6 segments, obtusely curved below, ± uncinulate puberulent; style persistent, twisted. Damp open grassland, streambanks, forest margins, rocky hillsides, abandoned land, roadsides; Indian Ocean Coastal Belt, Indigenous Forests (Transkei to Port St Johns).

1b Inflorescences congested into dense spicate or capitate pseudoracemes, never paniculately branched, but often with upper axillary and terminal inflorescences crowded together; calyx teeth long-acuminate, the adaxial two not markedly connate

dregeanum Benth.

Perennial, erect or straggling herb to woody subshrub, 0.6–0.9 m high; stems glabrescent below, white-pilose above. **Leaves** trifoliolate. **Leaflets** sensitive, obovate, apiculate, ± rounded at apex, cuneate at base, venation prominent on both sides; upper surface almost glabrous; lower surface long silky pilose. **Inflorescences** of dense terminal racemes, usually appearing spike-like or head-like. **Flowers** yellow, red, purple, mauve or blue; corolla slightly exceeding calyx. **Calyx** deeply 2-lipped, long silky pilose. **Flowering time** all year. **Pod** sessile to substipitate, 2–5 segments, softly pilose; upper suture straight, lower suture curved. Open grassland, moist areas in sandy soils, semi-disturbed grasslands, roadsides, forest margins; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests (Port Shepstone District SW to Port St Johns).

Species excluded – once collected on the south coast of KZN/coast of EC (East London, Port Edward) but it has not been seen again: **D. asperum** (Poir.) Desr.

DICHILUS DC.

Species ± 5, Africa; widespread.

gracilis Eckl. & Zeyh.

Slender, perennial herb or dwarf shrub, 0.3–1.0 m high. **Leaves** petiolate, digitately trifoliolate. **Leaflets** obovate, minutely pubescent. **Stipules** consistently present. **Inflorescences** 1(2)-flowered, arising opposite a leaf on lateral branches. **Flowers** yellow. **Calyx** long, deeply bilabiate. **Flowering time** Apr.–Nov. **Pod** widely linear. **Seeds** round

to oblong in lateral view, orange to pale yellow-brown. Steep rocky koppies, alt. 762–1 220 m; Indian Ocean Coastal Belt, Lower Karoo, Upper Karoo (Mngazi River at Port St Johns S, from Graaff-Reinet to Cradock).

reflexus (N.E.Br.) A.L.Schutte

Robust, much-branched, perennial herb or dwarf shrub, 0.2–1.0 m high. **Leaves** digitately 3(–5)-foliolate, petiolate. **Leaflets** oblanceolate to widely oblanceolate, appressedly pubescent. **Stipules** usually absent. **Inflorescences** terminal, 2- or 3(–11)-flowered racemes, rarely leaf-opposed. **Flowers** yellow. **Calyx** long, more than half as long as keel petal, deeply bilabiate; lobes long-acuminate. **Petals**: standard glabrous at tip. **Flowering time** Oct.–Feb. **Pod** widely linear. **Seeds** dark green to almost black. Grassland and streambanks, alt. 5–2 715 m; Sub-Escarpment Grassland, Indian Ocean Coastal Belt (Cala to Port St Johns).

strictus E.Mey.

Erect, much-branched, dwarf shrub or shrub, 0.5–2.0 m high; branches densely strigose. **Leaves** alternate, digitately 3–5-foliolate, petiolate, estipulate. **Leaflets** narrowly oblanceolate, usually folded; upper surface glabrous; lower surface and on margins densely strigose-tomentose . **Inflorescences** terminal racemes, rarely leaf-opposed, 2–5(–10)-flowered. **Flowers** yellow. **Calyx** short, barely bilabiate. **Petals**: standard pubescent at tip. **Flowering time** Nov.–Mar. **Seeds** olive-green to dark green, often mottled yellow and green. Grassland, alt. 655–2 590 m; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna (Joubertspas to Thaba Chitja District S, from Cala to Butterworth).

DICHROSTACHYS (A.DC.) Wight & Arn.

Species ± 20, Africa to Asia and Australia; 1 in sthn Afr., N, B, LIM, NW, G, M, S, FS, KZN, EC.

cinerea (L.) Wight & Arn.

Sickle bush: *sekelbos* (A); *morêtšê* (NS); *ugagane* (Z)

Perennial shrub or small tree, (0.5–)5.0–6.0(–15.0) m high; with branches intertwined; dwarf spur branches (spines) are often leaf-bearing, not paired. **Leaves** bipinnate. **Pinnae** 4–19 pairs. **Leaflets** up to 41 pairs per pinna, narrowly obovate to lanceolate, dark green, rather glossy on upper, but dull on lower surface, rachis with little stalked glands; petioles without a gland. **Inflorescences** with flowers in a bicoloured, elongated, pendulous spike, half the spike formed by sterile pink staminodes and other half a short, compact, yellow catkin. **Calyx** campanulate, shortly 5-toothed or nearly truncate. **Pod** leathery, curly and twisted, densely clustered in bunches, indehiscent. Bushveld and thicket; invades overgrazed areas; Sub-Escarpment Savanna (Kokstad District, Oribi Gorge).

DIPOGON Liebm.

Species 1, endemic to the Cape region, WC, EC.

lignosus (L.) Verdc.

(= *Dolichos gibbosus* Thunb., *D. lignosus* L.)

Perennial, twining, herbaceous climber, up to 3.65 m high; becoming woody below, glabrescent. **Leaves** pinnately trifoliolate. **Leaflets** ovate-acuminate, 35–40(–50) mm long; lower surface glabrous, except on veins. **Inflorescences** dense, 3–6-flowered

racemes; pubescent peduncles 70–80 mm long. **Flowers** purple turning pale. **Calyx**: tube subglobose; 5 short and broad lobes. **Petals**: standard ± 10 mm long, base with prominent callosities; wings longer than keel, flared. **Style** recurved at apex, base bent at right angles to ovary, channelled, bearded inner margin; stigma capitate, penicillate. **Flowering time** July–Nov. **Pod** ± 50 mm long, attenuate at base and apex; style persistent. **Seeds** 4–6, subglobose, black-streaked. Forests, fynbos, abandoned land, open/closed woodland; Sub-Escarpment Savanna, Indigenous Forests, Albany Thicket, Eastern Fynbos-Renosterveld (Albany District to Humansdorp District).

DOLICHOS L.

Butterfly pea

Species ± 60, mainly confined to Africa but extending to India and E Asia; ± 12 in sthn Afr., widespread, except B.

Leaflets narrowly linear lanceolate to lanceolate

angustifolius Eckl. & Zeyh.

Wilde-ertjie (A)

Perennial herb, 0.15–0.50 m high; slender, glabrous; stem suberect at base, filiform with upper portions twining, laxly leafy, not much-branched. **Leaflets** linear-lanceolate, very long, rigid, net-veined and margined, either folded or opened, often hook-pointed, pale green. **Inflorescences**: peduncles filiform, flexuous, scarcely exceeding short petiole, 2–4-flowered near the extremity; flowers in pairs. **Flowers** purple. **Calyx**: lobes short and blunt. **Style** channelled, bearded on upper margin. **Pod** falcate, acute at base, 6–8-seeded; seeds brown. Grassland on basalt, soil well drained, sandy to loamy/rocky, full sun; Mesic Highveld Grassland (Joubertspas).

angustissimus E.Mey.

Perennial herb, up to 0.5 m high; glabrous; stems several, tufted from base, often decumbent, tips sometimes twining. **Leaves** either pinnately or digitately trifoliolate. **Leaflets** 35–100 mm long, ± linear-lanceolate. **Inflorescences** axillary; peduncles either shorter than or exceeding petiole; flowers 1–several and then crowded in pairs. **Petals**: standard dull pink with a purple spot between upper pair of auricles. **Style** slightly dorsiventrally compressed, weakly channelled up inner face, bearded up inner face, base swollen. N-facing slopes in Molteno Formation, rocky dolerite karroid mountain veld, climber over bushes and grass clumps; Dry Highveld Grassland, Mesic Highveld Grassland, Sub-Escarpment Grassland, Drakensberg Grassland, Upper Karoo, Sub-Escarpment Savanna, Albany Thicket (Aliwal North and Lady Grey to Griqualand East and Mount Currie S, from Burgersdorp to Jamestown and Queenstown, Cradock to Tarkastad and Komga, and to Coega near Port Elizabeth).

linearis E.Mey.

Wilde-ertjie (A)

Very like *D. angustifolius*, but style broader and legumes more obtuse. **Style** slender, subterete, slightly dorsiventrally compressed, weakly channelled down inner face, and there bearded, base swollen. Distinguished from *D. angustissimus* by difference in habit and in length of anticous calyx lobe. **Leaves** of *D. angustissimus* mostly narrower in relation to length and often with more ovules in ovary. Rocky outcrops, grassy slopes; Sub-Escarpment Grassland, Drakensberg Grassland, Sub-Escarpment Savanna (Kokstad SW to Queenstown and to Fort Beaufort).

Leaflets narrowly to widely trowel-shaped (hastate), ovate-triangular to subrotund, sometimes slightly lobed

decumbens Thunb.

Distinguished from *D. hastaeformis* by slender, terete style and foliage. Perennial, climbing or trailing shrublet, 0.2–0.6(–2.0) m high, with prostrate, scabro-hispidulous stems; root very thick, woody and deeply descending. **Leaflets** rhombic-ovate or trowel-shaped, obtuse or acute, thickish, immersedly-veiny with scabrous margins. **Inflorescences** of pedunculate corymbs; peduncles longer than leaves, 4–8(–10)-flowered. **Flowers** violet, pink or blue. **Calyx**: lobes short, broad, rounded, ciliolate. **Style** terete, slender, pubescent throughout. **Flowering time** July–Aug. **Pod** tapering much at base, straight, 1- or 2-seeded. Hills, valleys; Sub-Escarpment Grassland, Albany Thicket (Amatole Mts, Uitenhage).

falciformis E.Mey.

Beesboontjie (A)

Perennial herb, with long trailing and climbing, angular, thinly hispid stems, 0.06–1.20 m high. **Leaflets** subrotund or rhombic-obovate, hispidulous, mucronulate, rigid; lower surface prominently 3-ribbed and veiny; lateral leaflet oblique. **Inflorescences**: racemes at first dense, then lengthening; flowers often in pairs; peduncles flexuous, elongate. **Flowers** purple-blue. **Calyx**: lobes triangular, acute, puberulous. **Style** glabrous, except immediately under stigma, terete; stigma penicillate. **Pod** acute at base, septate within, compressed, falcate, glabrous, 5- or 6-seeded; seeds dark brown. Grassy places, valleys; Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Albany Thicket (Matatiele to Clydesdale S, from Queenstown to Cathcart and Port Edward, and from Grahamstown to East London).

hastaeformis E.Mey.

Perennial, occasionally annual, straggling shrublet, 0.3–0.5 m high; stems long, slender, scabro-hispidulous. **Leaflets** thickish, veinless, with scabrous margins; lowermost ones hastate-ovate and uppermost hastate-linear. **Inflorescences** subumbellate, 3–6-flowered; peduncles longer than leaves. **Flowers** bright pink or mauve. **Calyx**: lobes short and broad, ciliolate. **Style** channelled, flattened, bearded on upper side. **Flowering time** Oct.–May. **Pod** ± straight, glabrous, 2- or 3-seeded. Grassland, coastal and riverine areas, disturbed land, alt. mostly low, < 300 m; Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Lower Karoo, Albany Thicket (Alice S, from Paterson to Uitenhage, Port Elizabeth, Grahamstown, Alexandria and Hamburg).

peglerae L.Bolus

Perennial herb, climber, older parts woody, branches twining, hispid, with reflexed hairs. **Leaflets** ± rhomboid-ovate, acute to acuminate, 30–70 mm long; young ones hispid on principle veins and margins. **Flowers** reddish purple, turning mauve. **Inflorescences** with robust peduncles, 70–200 mm long, bearing abbreviated, nodule-like branchlets at nodes on which fascicles of 5–7 flowers are borne. **Calyx** slightly intruse at base, hispidulous; lower lip shortly 3-dentate. **Style** glabrous at dilated bend, terete and densely bearded towards upper half; stigma capitate. Forests, roadsides; Indigenous Forests (Ixopo District).

sericeus E.Mey.

Perennial climbing or prostrate herb, 0.6–2.1 m high; stems slender, covered with spreading or appressed hairs. **Leaflets** ± ovate-triangular, rounded or truncate at base,

silky-pubescent on both surfaces, 9–85 mm long; lateral ones oblique. **Inflorescences** 2–4-flowered racemes; peduncle ± as long as leaf. **Flowers** pink or bluish purple; standard petal sometimes greenish. **Calyx**: tube 3–4 mm long, glabrous to densely silky pubescent; lobes deltoid or narrowly triangular. **Pod** oblong, subfalcate, glabrous to silky pubescent, many-seeded. **Seeds** dark red-brown or flesh-coloured, mottled black. Closed woodland, forest fringes, riverbanks; Indian Ocean Coastal Belt, Indigenous Forests, Drakensberg Grassland (Port Edward SW to Stutterheim District).

trilobus L.

Perennial, climbing herb from a woody rootstock, 0.5–1.0 m high; stems ± appressed puberulous or with spreading hairs. **Leaflets** often with light middle vein, widely ovate-rhomboid to lanceolate, laterals often oblique, 15–90 mm long, rounded to acuminate at apex, rounded at base, ± pubescent or glabrescent on both surfaces. **Inflorescences** axillary, 2- or 3-flowered; peduncles 5–43 mm long. **Calyx** sparsely pubescent; tube 2.0–3.5 mm long; lobes triangular, short. **Petals**: standard red-brown or pink to greenish, often darker veined; wings deep purple or pink; keel whitish. **Style** flattened; stigma minute, terminal, penicillate. **Pod** oblong curved. Grassland, open woodland and forest fringes, on stony and sandy soils; Sub-Escarpment Grassland (Kokstad District).

DUMASIA DC.

Species ± 10, Africa to Asia; 1 in sthn Afr., LIM, NW, M, S, KZN, WC, EC.

villosa DC.

Climbing, perennial herb, 1.5–3.0 m high; stems slender, ferruginous-hairy. **Leaves** pinnately trifoliolate. **Leaflets** ovate, glaucous and thinly appressed-hairy below. Stipules setaceous; stipellae present. **Flowers** yellow, darkening on drying, solitary, clustered, or in axillary pedunculate racemes; bracts small. **Flowering time** Dec.–Feb. **Pod** subsessile, linear, falcate, torulose, compressed. Evergreen forests, alt. 55–1 830 m; Indigenous Forests (forests at Hogsback, Knysna and East London).

ELEPHANTORRHIZA Benth.

Species ± 9, Africa south of the equator; 8 in sthn Afr., widespread, except WC.

elephantina (Burch.) Skeels

Elephant's root; *elandsboontjie*, *elandswortel*, *looiersboontjie* (A)

Suffrutex, producing unbranched, unarmed, aerial stems up to 0.9 m high. **Leaves** dull green, glabrous, bipinnate; petioles eglandular. **Pinnae** 2–17 opposite or subopposite pairs. **Inflorescences**: racemes confined to lower part of stem. **Flowers** yellowish white; pedicels articulated near middle, with minute reddish brown glands at base of pedicels. **Flowering time** Sept.–Nov. **Pod** dark or reddish brown, compressed, with valves separating from persistent margins when open. Grassland and scrub; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Albany Thicket, Eastern Fynbos-Renosterveld (Queenstown E to Indwe and Mthatha District, S to Uitenhage).

ERIOSEMA (DC.) G.Don

Species ± 130, fairly cosmopolitan in tropical and subtropical regions; ± 36 in sthn Afr., N, B, LIM, NW, G, M, FS, KZN, L, EC.

Some species in sthn Afr. are known to hybridise.

1a Adult leaves distinctly discolorous, always trifoliolate
2a Stems densely short-hairy; abaxial side of leaves thickly grey-woolly

latifolium (Benth. ex Harv.) C.H.Stirt.

Perennial, erect suffrutex, up to 1 m high, with up to 10 stems; branching from lower nodes, stems grey-velvety. **Leaflets** 50–75 mm long, elliptic, upper surface densely sericeous and dull greenish; lower surface densely woolly, grey-white with densely hairy veins; acute at tip; basal leaves unifoliolate. **Flowers** 9–11 mm long, yellow. **Calyx** 5 mm long, densely long white-woolly. **Petals**: wings longer than keel; keel densely glandular. **Flowering time** Oct., Nov. Grassland near riverine and mountain forests; Sub-Escarpment Savanna, Indigenous Forests, Indian Ocean Coastal Belt (endemic to southern KZN and northeastern EC).

umtamvunense C.H.Stirt.

Erect, perennial herb or shrub, 0.2–0.5(–0.7) m high, with up to 20 stems; rootstock horizontal, branching from lower nodes, stems densely covered in short, appressed, gold-coloured hairs. **Leaflets** 57–70 mm long, elliptic, tip acuminate; upper surface finely appressed-hirsute with hairy midrib; lower surface woolly grey-white with gold-coloured hairs on primary veins. **Flowers** 13–14 mm long. **Calyx** 8 mm long, golden-tomentose; lobes ± equal to tube. **Petals**: standard red-brown with dark veining; wings orange-pink, longer than keel; keel sparsely covered in yellow glands. **Flowering time** Nov., Dec. **Pod** densely covered in long, straight, gold-coloured, appressed hairs. Grassland on ancient sand; Sub-Escarpment Savanna, Indian Ocean Coastal Belt (grassland endemic near Mtamvuna Gorge, northern EC border).

2b Stems sparsely hairy; abaxial side of leaves with nerve interspaces finely woolly, almost canescent

acuminatum (Eckl. & Zeyh.) C.H.Stirt.

Differs from *E. squarrosum* by long and persistent flower bracts. Perennial herb, up to 0.25 m high; stems ascending to erect, branching near base, stems shortly gold-coloured appressed-hairy. **Leaflets** 40–50 mm long, widely elliptic becoming narrower towards ends of branches, apex acute, upper surface appressed-pilose, veins hirsute, lower surface canescent-puberulent. **Flowers** 8–10 mm long, red to pink-orange. **Calyx** 6 mm long, golden-pilose; lobes narrowly lanceolate. **Petals**: wings longer than keel; keel covered in yellow glands, distinctly pocketed. **Flowering time** Oct., Nov.(–Jan.). **Pod** covered in gold-coloured shaggy hairs. **Seeds** black. Grassland, rocky outcrops; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Drakensberg Grassland (Elliot District to Port Edward and SW to Stutterheim District).

dregei E.Mey.

Suffrutex or dwarf shrub, up to 0.4 m high; stems 4–10, erect, branched from base, finely appressed silver pubescent. **Leaflets** 30–70 mm long, elliptic to obovate, apex acuminate; upper surface sericeous, dark green; lower surface finely white to silver-woolly. **Flowers** up to 14 mm long. **Calyx** 7–8 mm long; lobes shorter than tube, densely silver-sericeous. **Petals**: standard maroon with dark veining; wings yellow slightly exceeding keel; keel densely covered in yellow glands. **Flowering time** Aug.–Oct. **Pod** covered in soft tawny hairs. Endemic to low-lying coastal dune and riverine grasslands, alt. < 200 m; Indian Ocean Coastal Belt (Port Edward to Mkambati River Mouth, Transkei).

salignum E.Mey.

Perennial, erect herb, with nodular rootstock, 0.1–0.6 m high; stems sparsely appressed grey-sericeous. **Leaflets** narrowly elliptic, acute, 'fish-bone'-nerved; upper surface

glabrous; lower surface densely silvery-white appressed pilose with longer appressed hairs on veins. **Flowers** pink-orange or yellow. **Calyx** sparsely long-sericeous; segments longer than tube. **Pod** dark gold-coloured shaggy-haired. Coast, grassland, rocky areas, disturbed areas, river edges; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Drakensberg Grassland, Albany Thicket (Kokstad District to Queenstown S, from Grahamstown to East London).

[E]squarrosum (Thunb.) Walp.

Perennial ascending herb, up to 0.3 m high; somewhat woody at base, branched from root; sparsely covered with short, rusty-coloured or dirty white soft hairs. **Leaflets** elliptic to lanceolate-oblong, obtuse or acute; upper surface dark green; lower surface dull green, canescent-puberulent. **Flowers** pinkish orange. **Calyx** 5–6 mm long, sparsely short-sericeous; segments longer than tube. **Petals**: standard with dark veining; wings longer than keel; keel encrusted with yellow glands, distinctly pocketed. **Pod** covered in long, stiff, yellow hairs. **Seeds** black or dark brown. Confined to grassveld and sandy flats; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Drakensberg Grassland, Eastern Fynbos-Renosterveld, Albany Thicket (Ngangelizwe District S, from Lusikisiki to Port St Johns, across Amatole Mts to King William's Town and from Humansdorp District to Port Elizabeth, Grahamstown and East London).

1b Adult leaves not distinctly discolorous; abaxial vein interspaces glabrous to sparsely hairy
3a Leaves of one species can be either unifoliolate or trifoliolate

cordatum E.Mey.

Perennial, decumbent herb, 0.05–0.60 m high; 1–20 stems from vertical, daucate, woody rootstock; vestiture variable with reddish or white hairs. **Leaves** unifoliolate and round-cordate (along coastal areas) or trifoliolate and ± elliptic-ovate with basal leaves unifoliolate. **Leaflet** size and shape very variable, 6–10(–14) mm long, subsessile, membranous, short spreading hairs on both sides. **Flowers** red and yellow, strongly reflexed, 8–10 mm long. **Calyx** covered in few, short, stiff hairs; teeth longer than tube. **Petals**: wings greatly exceed keel; keel white-, yellow- or orange-glandular. **Flowering time** summer. **Pod** with short, spreading hairs. Diverse habitats, easily colonises disturbed areas, coastal areas, grassland; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Griqualand East to Ngangelizwe District, Engcobo and Port St Johns).

populifolium Harv.

Distinguished from other *Eriosema* spp. by its silver sericeous young leaflets and large connate incurved stipules. Perennial, ascending herb or dwarf shrub, with horizontal rhizome, stems sparsely covered in short appressed gold-coloured hairs. **Leaves** either simple, heart-shaped and up to 200 mm long (KZN) or trifoliolate. **Leaflets** smaller, elliptic (EC); young ones densely sericeous; lower surface of adult leaves glabrescent with pilose veins. **Flowers** orange-yellow; ± 15 mm long. **Calyx** pilose; lobes ± as long as tube. **Corolla**: wings orange; keel green-yellow and pink. **Flowering time** Oct., Nov. **Seeds**: plants rarely set seed because flowers abscise rapidly after opening. Grassland; Sub-Escarpment Savanna (Butterworth District SW to Stutterheim District).

3b Leaves trifoliolate

distinctum N.E.Br.

Perennial herb, 0.07–0.30 m high; 1–10 stems from vertical rootstock, shallow branching rhizomes; stems with scant tawny hairs. **Leaves**: basal leaves unifoliolate.

Leaflets 50–110 mm long, shape very variable, oblong to oblanceolate, base cuneate to obtuse, apex mucronate to acute; margin ciliate, scantily spread hairs on both surfaces, veins hirsute. **Flowers** red- or orange-yellow. **Calyx** equal lobed with fine white pubescence or unequal lobed with long yellow hairs. **Petals**: wings orange, longer than keel; keel mostly eglandular. **Flowering time** Aug.–Dec. **Pod** softly tawny hairy with short white hairs interspersed with white glands. **Seeds** deep purple black. Grassland, disturbed areas; Sub-Escarpment Savanna, Sub-Escarpment Grassland, Albany Thicket (Kokstad District, outlying location S of East London).

kraussianum Meisn.

Erect, dwarf shrub, woody root, several incurved stems, thinly covered in soft straight grey hairs. **Leaflets** almost glabrous or with thinly spreading silky hairs, oblanceolate with short petiole; margin slightly recurved, abaxial veins hirsute. **Inflorescences** of racemes with elongate peduncles. **Flowers** yellow. **Calyx**: tube thinly covered in soft white hairs; lobes shorter than tube. Sandy grassland areas; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Drakensberg Grassland (Matatiele District SE to Port Edward and SW to Stutterheim).

parviflorum E.Mey.

Perennial, spreading suffrutex, arising from a horizontal woody rootstock, 0.15–0.60 m high; stems up to 1 m long, thinly white pubescent or densely shaggy, densely leafy. **Leaves** unifoliolate at base. **Leaflets** 20–62 mm long, elliptic or wide elliptic, sometimes almost suborbiculate, narrow obovate, base rounded, apex obtuse to rounded, finely pubescent on both surfaces. **Flowers** yellow, 5–6 mm long. **Calyx** lobes half length of flower, pubescent with short appressed hairs. **Petals**: wings shorter than keel; keel densely glandular. **Pod** shaggy with red-brown hairs. **Seeds** khaki with purple flecks, chestnut or black. Restricted to alluvial coastal plain of KZN, open moist grassland, coastal forest margins, damp marshland and bushy sand dunes; Indian Ocean Coastal Belt (Port Edward to Port St Johns).

ERYTHRINA L.

Coral trees; *koraalbome* (A)

Species ± 100, fairly cosmopolitan in warm regions; 9 in sthn Afr., widespread, but not extending into central NC or WC.

1a Shrub; flowers appearing simultaneously with leaves in spring to summer
2a Flower peduncle 10 mm long; calyx green with purple flush; tube widely campanulate; keel segments free; seeds brown

acanthocarpa E.Mey.

Tambookie thorn; *tamboekiedoring* (A)

Shrub, 1–2 m high; grows in masses forming low thickets. **Branches** armed with prickles. **Leaves** 3-foliate; petioles armed with prickles. **Leaflets** widely ovate or transversely elliptic, apiculate or subacute. **Flowers** orange-scarlet; horizontal or ascending at anthesis, not gaping; appearing simultaneously with leaves; peduncle 10 mm long. **Calyx** green with purple flush; tube widely campanulate; glabrous or thinly villous outside. **Petals**: standard tricoloured, red proximally grading to yellow distally with green tip; keel segments free. **Stamens** diadelphous, exserted. **Flowering time** spring to summer. **Pod** brown, constricted, armed with prickles. **Seeds** brown; hilum pale. Closed shrubland or woodland habitat; Sub-Escarpment Grassland, Sub-Escarpment Savanna (Queenstown E to Glen Grey and SE to Kei River).

2b Flower stalks long; calyx red; tube narrowly campanulate; keel segments partly fused abaxially; seeds scarlet

humeana Spreng.

Dwarf coral tree; *kleinkoraalboom* (A); *umsintsane* (X); *umsinsana*, *ikati* (Z)

Small shrub or tree, 0.5–3.0 m high; stem and branches ashen-grey with prickles; juvenile parts thinly pubescent. **Leaves** pinnately 3-foliate, widely ovate, gradually narrowing to acute apex. **Stipules** glandular, large variation in leaflet shape; petioles armed with prickles. **Flowers** deflexed at anthesis; appearing simultaneously with leaves; peduncle up to 500 mm. **Calyx** red; tube narrowly campanulate, subtruncate. **Petals**: keel segments partly fused abaxially. **Stamens** diadelphous. **Flowering time** summer. **Pod** 2–5-seeded, beaded with wide spaces between seeds; pod subligneous, sickle-shaped, blackish, smooth. **Seeds** scarlet; hilum oval, depressed, pale. Grassland and stony/rocky soil habitat; Sub-Escarpment Savanna, Drakensberg Grassland, Albany Thicket (Shawbury S, from Fort Beaufort to Komga and Albany District to East London).

1b Tree; flowers appearing before new leaves; winter to spring flowering
3a Leaflets glabrous; pod subligneous, smooth
4a Standard petal short and broad, strongly arcuate, exposing stamens; keel and wing petals relatively long

caffra Thunb.

Coast coral tree; *kuskoraalboom* (A); *umsintsi* (X); *umsinsi* (Z)

Tree, 6–18 m high. **Branches** pale, rugose with prickles. **Leaves** 3-foliate, clustered near ends of twigs, glabrous with two small glands at base of petiolule. **Leaflets**: lateral ones similar in shape to terminal leaflet, usually acuminate, glabrous; leaves unarmed. **Flowers** orange-scarlet in colour, horizontal or ascending, gaping; flowers appearing before new leaves. **Calyx** with brown, campanulate tube, splitting laterally at anthesis. **Petals**: standard short and broad, strongly arcuate, exposing stamens; wings and keel comparatively long. **Stamens** monadelphous with filament tube slit right or left of vexillary stamen. **Flowering time** winter to early spring. **Pod** few seeded, constricted between seeds, subligneous, sickle-shaped, smooth. **Seeds** scarlet, with a black hilum. Forest and closed woodland habitat. Indian Ocean Coastal Belt, Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Lower Karoo, Eastern Fynbos-Renosterveld, Albany Thicket (Mbashe River to Port St Johns S, from Komga to Kentani, Uitenhage to East London and to Clarkson).

4b Standard petal long and narrow, slightly arcuate, enclosing stamens; keel and wing petals relatively short

lysistemon Hutch.

Common coral tree, lucky bean tree; *gewone koraalboom*, *kanniedood* (A); *mokhungwane* (Sotho); *mophete* (T); *muvhale* (Venda); *umsintsi* (X); *umsinsi* (Z)

Tree, up to 12 m high. **Leaves** widely ovate, base cuneate, apex acute. **Stipules** glandular. **Flowers** are normally brilliant scarlet, deflexed at anthesis, appearing before new leaves. **Petals**: standard scarlet, long and narrow, slightly arcuate, enclosing stamens; keel and wing relatively short; wings exceeding keel. **Stamens** diadelphous. **Flowering time** winter to early spring. **Pod** subligneous, sickle-shaped, smooth. **Seeds** scarlet or vermilion red; hilum oval, depressed, blackish. Closed woodland, cultivated land and stony/rocky soil habitat; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests, Albany Thicket (Mtamvuna River, Lusikisiki and Bathurst).

3b Leaflets tomentose when young; pod ligneous, tomentose when young

latissima E.Mey.

Broad-leaved coral tree; *breëblaarkoraalboom* (A); *umnqwane* (X); *umgqwabagqwaba* (Z)

Tree, 5–8 m high; branching high above base, crown rounded. **Bark** dark grey, thick, corky with deep fissures. **Branches** tomentose when young, becoming glabrous with age, armed with prickles. **Leaves** pinnately trifoliolate, terminal leaflet remote from the laterals; deciduous; leaflet armed with prickles, tomentose on both surfaces when young. **Flowers** horizontal, gaping at anthesis, borne in verticils of three and appearing before leaves. **Calyx** red; tube sheath-like, tomentose, splitting abaxially at anthesis. **Petals**: standard scarlet to crimson; wings exceeding keel; keel free. **Stamens** diadelphous. **Flowering time** late winter to spring. **Pod** ligneous, sickle-shaped, constricted between seeds, tomentose when young. **Seeds** crimson; hilum oval, prominent, blackish. Forest and grassland habitat; Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Clydesdale S to Port St Johns, Kentani District and King William's Town).

Hybridisation occurs between species, e.g. × *dyeri* Hennessy (Elliotdale District) and × *johnsoniae* Hennessy (Port St Johns District).

GALACTIA P.Browne

Species ± 50, mostly New World, tropical and subtropical; 1 in sthn Afr., M, S, KZN, EC.

tenuiflora (Willd.) Wight & Arn.

Perennial, climbing or trailing herb, 0.6–3.6 m long from a woody rootstock; stems slender, finely pubescent to velvety. **Leaves** pinnately trifoliolate. **Leaflets** ± oblong, 20–65 mm long, rounded or emarginate or mucronulate at apex, glabrescent; lower surface pale, sometimes densely appressed-pubescent, hairs grey or rusty. **Stipules** small, deciduous. **Inflorescences** lax, 1–10-flowered racemes; flowers in groups of 1–3. **Flowers** glabrous. **Calyx**: tube pubescent, campanulate, 2.5–3.0 mm long; lobes ± elliptic, lowest the longest. **Petals**: standard whitish to pinkish or purple. **Pod** linear-oblong, compressed, (15–)30–60 mm long, finely appressed-pubescent, 7- or 8-seeded. **Seeds** yellowish brown to dark blackish red, mottled grey. Grassland, coastal bushland, river mouths; Indian Ocean Coastal Belt, Albany Thicket (Port Shepstone, East London).

*GLEDITSIA L.

Species ± 14, North and South America, central and eastern Asia, Iran and parts of Africa; 1 in sthn Afr., cultivated for fodder, honey production, shade, donga reclamation, LIM, NW, G, M, FS, KZN, NC, WC, EC.

triacanthos L.

Honey locust; *driedoringboom* (A); *leoka* (SS)

Spreading tree or shrub, (3–)15–20 m high; armed with stout straight or branched thorns, 50–100 mm long; roots from suckers. **Leaves** bright green, pinnate or bipinnate, 120–200 mm long. **Leaflets** oblong to widely lance-shaped, minutely toothed, 10–20 mm long. **Inflorescences** with male and female flowers borne separately in long narrow sprays, 30–60 mm long. **Flowers** small, yellowish green. **Calyx** campanulate, 3–5 lobes, subequal. **Flowering time** Oct., Nov. **Pod** dark reddish brown, flattened, up to 400 × 30 mm, compressed, leathery, indehiscent. **Seeds** many, embedded in

a sweetish pulp. Invades grassland, savanna, roadsides, riverbanks; origin USA, declared invader (Category 2), potential transformer (excluding sterile cultivars); Upper Karoo (Middelburg District, Grootfontein).

*GLYCYRRHIZA L.

Species ± 20, mostly in Eurasia but thinly extending to Australia, North America and temperate South America; 1 in sthn Afr., originates in S and E Europe, cultivated as source of liquorice, WC, EC.

glabra L.

Liquorice; *soethout* (A); *umLomomnandomncane* (Z)

Perennial, rhizomatous herb; stems 0.5(–1.0)m high; pubescent sometimes scabrid, glandular above. **Leaves** imparipinnate. **Leaflets** (3–)9–17, elliptical to oblong-ovate, obtuse, sometimes mucronate often viscid, 20–40(–55) mm long. **Stipules** membranous, caducous. **Inflorescences** axillary racemes, more than 20 mm long, exceeded by their subtending leaves at least at anthesis, lax, elongate. **Flowers** 8–12 mm long; blue, pale violet or white. **Pod** up to 30 mm long, linear-oblong, straight, compressed, glabrous or glandular setose, red-brown with thickened sutures. **Seeds** (2)3–6. Cultivated land; Upper Karoo, Albany Thicket (Middelburg and Graaff-Reinet districts).

HYPOCALYPTUS Thunb.

Species 3, endemic to Cape region, WC, EC.

coluteoides (Lam.) R.Dahlgren

Much-branched shrub, 1.5–3.0 m high; branches slender, smooth or longitudinally striate, sparsely to densely puberulous. **Leaves** digitately trifoliolate, petiolate, stipulate. **Leaflets** entire, elliptic to narrowly obovate, rounded-obtuse to truncate at apex, shortly mucronate; lower surface pale green. **Inflorescence** a sparse or rarely dense, terminal raceme of 6–15(–25) flowers. **Flowers** bright mauvish pink with yellow at base of standard petal. **Calyx**: tube with short appressed hairs. **Flowering time** mainly Sept.–Nov. **Pod** long-stipitate, inflated. Sandstone slopes, alt. 50–1 150 m; Eastern Fynbos-Renosterveld (Tsitsikamma Mts, Kareedouw Pass, Port Elizabeth and to Humansdorp).

oxalidifolius (Sims) Baill.

Sprawling shrublet, 0.1–0.6 m high; branches slender, usually dark reddish black, sometimes longitudinally sulcate, glabrous or with sparse hairs on young parts. **Leaves** digitately trifoliolate, petiolate, stipulate. **Leaflets** small, widely obovate, drooping, rounded to slightly retuse at apex. **Inflorescence** a short terminal raceme of 2–6(–15) flowers. **Flowers** pale purple to almost white. **Calyx**: tube glabrous. **Flowering time** July–Sept. **Pod** stipitate, ovate to obliquely oblong, flattened. Sandstone slopes, streamsides or moist places, alt. 50–1 000 m; Eastern Fynbos-Renosterveld (Tsitsikamma E to Storms River, Witelsbos and Humansdorp).

INDIGASTRUM Jaub. & Spach

Species 9, mostly south tropical Africa and 1 pantropical; ± 4 in sthn Afr., N, B, LIM, NW, G, M, S, FS, KZN, L, NC, EC.

Leaflets alternate, < 3× longer than wide, the terminal leaflet larger than the laterals, upper surfaces hairy; racemes sessile to subsessile, densely flowered in the axils of the leaves; pods 4–8 seeded, < 20 mm long

niveum (Willd. ex Spreng.) Schrire & Callm.
[= *I. argyraeum* (Eckl. & Zeyh.) Schrire]
Seeroogbossie (A)

Annual (sometimes woody) herb, stems prostrate, mat-forming, silvery appearance due to dense, whitish, biramous hairs. **Leaves** 3–5-foliolate, leaflets alternate. **Terminal leaflet** 4–12(20) mm long, obovate to cuneate. **Inflorescences** 3–7(9)-flowered racemes congested in the leaf axils ± equalling to shorter than the subtending leaf, bracts caducous; peduncles ± 1 mm long. **Flowers** pink to purple. **Calyx** 3–4 mm long, with lanceolate-lobes ± equalling the tube. **Stamens** (4)5–6 mm long, exceeding the calyx. **Style** 3–4 mm long. **Flowering time** Dec.–July. **Pod** 9–20 mm long, spreading to reflexed, terete to nodiform, slightly curved. Disturbed grassland, rocky outcrops, short karroid veld; Sub-Escarpment Grassland, Upper Karoo, Lower Karoo (Albany Broken Veld), Albany Thicket (Queenstown E to Cala, Graaff-Reinet District, Grahamstown District, Fort Brown).

Leaflets opposite, > 3× longer than wide, upper surfaces glabrous; racemes long-pedunculate, elongate and becoming lax later; pods 10–20 seeded, > 20 mm long

costatum (Guill. & Perr.) Schrire subsp. **macrum** (E.Mey.) Schrire

Annual or bushy perennial herbs, 0.1–1.0 m high; covered with silvery biramous hairs. **Leaves** pinnately 5–11-foliolate; petioles 2–10 mm long. **Terminal leaflet** 6–25(35) × 1.5–8.0(12.0) mm, elliptic-oblong, lanceolate or linear; glabrous above, ± densely strigose beneath. **Inflorescences** of 40–220 mm long racemes, including peduncle of (10)25–85 mm long, ± densely many-flowered. **Flowers** salmon-pink; pedicels ± 1 mm long. **Calyx** 2–4 mm long, lobes narrowly triangular, ± equal in length to the tube. **Stamens** 3.5–5.0 mm long. **Flowering time** Nov.–Mar. **Pod** 18–40 × 1.5–2.5 mm, densely appressed strigose, ± canescent, laterally compressed, straight. Grassland, valleys, mixed woodland, thornveld; Sub-Escarpment Savanna (Komga, Idutywa, Xobo Valley).

fastigiatum (E.Mey.) Schrire
Leta-laphofu, *phehleloane* (SS); *uluhlomantethe* (Z)

Perennial herb, 0.2–0.8 m high; covered with silvery, biramous hairs. **Leaves** 3–5(7)-foliolate. **Terminal leaflet** ± 20 mm long, oblanceolate, entire, base acute, apex mucronulate, upper surface glabrous, midvein impressed, lower surface hairy, midvein prominent. **Inflorescences** of racemes with caducous bracts, as long as or longer than upper buds; peduncles up to 80 mm long. **Flowers** salmon-red. **Calyx** with lobes longer than tube, linear-triangular, apex long drawn out. **Flowering time** Sept.–Mar. **Pod** up to 34 mm long, laterally compressed, straight. Grassy slopes, riverbanks and mouths; Sub-Escarpment Savanna, Sub-Escarpment Grassland, Eastern Fynbos-Renosterveld, Albany Thicket (Kokstad, Queenstown, Port Edward, southwards to Elandsberg Mts, Grahamstown and East London).

INDIGOFERA L.

Species 720–730, tropical and subtropical Africa-Madagascar (± 510 spp.), Arabia to SE Asia and Pacific (± 115 spp. [centred in the Sino-Himalayan region]), Australia (± 50 spp.), Mexico to subtropical N and S America (± 45 spp.); ± 270 in sthn Afr., N, B, LIM, NW, G, M, S, FS, KZN, L, NC, EC.

1a Leaves 1-foliolate to digitately 3-foliolate; subsessile or on petioles up to 8(10) mm long

Group 1

Leaves 1-foliolate to digitately 3-foliolate (sometimes pinnately 3-foliolate in *I. sessilifolia*), subsessile or on petioles up to 8(10) mm long; racemes subsessile or peduncle up to 5(10) mm long (up to 16 mm long in *I. leptocarpa* and *I. sessilifolia*); pods spreading.

[E]**angustata** E.Mey.

(= *I. stenophylla* Eckl. & Zeyh. *nom. illegit.*)

Much-branched, erect, woody shrublets 0.3–0.8 m high, branches virgate, densely leafy. **Stems** ribbed, sparsely strigose, brown to silvery grey, splitting and exfoliating longitudinally. **Leaves** digitately 3-foliolate, subfleshy to leathery, glaucous; petioles 0.5–7.0 mm long. **Terminal leaflet** (6)8–20 × 0.5–3.0(5.0) mm, narrowly oblanceolate to linear, glabrous above, sparsely strigose below, apex acute to obtuse. **Inflorescences** of 5–45 mm long racemes, usually subsessile, ± equalling (sometimes longer than) the leaves, 5–40(50)-flowered; pedicels 1–3 mm long. **Flowers** pink to mauve; calyx 1.5–2.5(3.0) mm long, strigose, lobes triangular, ± shorter than tube; standard softly white pubescent dorsally. **Stamens** 6–7 mm long. **Ovary** densely strigose. **Flowering time** Apr.–Nov. **Pod** 17–24 × 2–3 mm, dark brown, strigose. Grassland and fynbos (not karroid vegetation), on rocky hillsides; Eastern Fynbos-Renosterveld (Grahamstown District).

[E]**denudata** L.f.

Woody herb, shrublet or shrub, up to 2 m high. **Stems** ribbed, sparsely strigose, brown to silvery grey, exfoliating longitudinally. **Leaves** 1–3-foliolate, subfleshy to leathery, glaucous; petioles 1–8(10) mm long. **Terminal leaflet** 4–22 × 1–17 mm, oblanceolate to linear-elliptic, minutely hairy, sparsely strigose below, apex rounded or emarginate. **Inflorescences** of 4–50 mm long racemes, subsessile, ± equalling (sometimes longer than) the leaves, 5–50-flowered; pedicels 1–3(5) mm long. **Flowers** pink to mauve; calyx 1.5–2.0(3.0) mm long, strigose, lobes triangular, ± shorter than tube; standard softly white pubescent dorsally. **Stamens** (5.0)5.5–8.0 mm long. **Ovary** densely strigose. **Flowering time** July–May. **Pod** 22–30 × 2–4 mm, dark brown, strigose. Grassland, fynbos and succulent to woody scrub, rocky hillsides, rivers and roadsides; Eastern Fynbos-Renosterveld, Rainshadow Valley Karoo (Willowmore E to Port Elizabeth, Suurberg and to south of Grahamstown, Joubertina to Humansdorp).

leptocarpa Eckl. & Zeyh.

Prostrate, scrambling to erect suffrutex, up to 0.4 m high; stems slender, flexuous, angular, ribbed, strigose, greenish red. **Leaves** unifoliolate or digitately 3-foliolate; petioles 0.5–4.0 mm long. **Terminal leaflet** 4–30 × 0.5–4.0 mm, linear to oblanceolate, ± complicate, subglaucous, strigose, apex often recurved. **Inflorescences** of 20–50(90) mm long, 7–25-flowered racemes; peduncle 5–16 mm long; pedicels 1–2 mm long. **Flowers** 5–6 mm long, red; calyx (2.6)3.0–3.5 mm long, strigose; lobes ± stiffly lanceolate-subulate, 2–3× tube length ; standard strigose dorsally. **Stamens** 3–4 mm long. **Ovary** densely strigose. **Flowering time** Oct.–Apr. **Pod** 12–22 × 2.0–2.5 mm. Grassy fynbos and renosterveld; Eastern Fynbos-Renosterveld (Baviaanskloof, Great Winterhoek Mts, Elandsberg and Van Stadens Mts to Uitenhage and S of Grahamstown).

Intermediates between *I. leptocarpa* and *I. disticha* Eckl. & Zeyh. occur in the Elandsberg region.

nigromontana Eckl. & Zeyh.
Woody, rigid shrub, 0.5–2.0 m high, branches exfoliating in longitudinal strips, tips spinescent. **Stipules** scale-like up to 1 mm long. **Leaves** digitately 3-foliolate; petioles (1)2–8 mm long. **Terminal leaflet** 2.5–8.0 × 1–4 mm, obovate to elliptic, concave, keeled or complicate, thick-textured, margin raised, sparsely to coarsely strigose above, more densely and finely strigose below, apex obtuse to acute. **Inflorescences** of subsessile, 2–7 mm long racemes, ± equalling the leaves, (1)2–5(6)-flowered; pedicels 1–3 mm long. **Flowers** pink to mauve; calyx 1–2(3) mm long, ± tomentose, lobes triangular, ± shorter than tube; standard densely white pubescent, hairs spreading. **Stamens** 5–6 mm long. **Ovary** glabrous. **Flowering time** Mar.–Jan. **Pod** 17–24 × 2–4 mm, dark brown, glabrous. Rocky sandstone slopes, grassland, *Aloe*-rich montane shrubland; Dry Highveld Grassland, Mesic Highveld Grassland, Sub-Escarpment Grassland (Aliwal North to Herschel and Queenstown Districts).

obcordata Eckl. & Zeyh.
Rigid, woody, divaricately branching shrub, up to 0.5(1.0) m high, branches sometimes spine-tipped, indumentum ± densely appressed canescent to strigose. **Leaves** unifoliolate or digitately 3-foliolate, subsessile, scattered. **Terminal leaflet** 3–16 × 1–5 mm, obcordate, obovate to linear-oblanceolate, often thick-textured, conduplicate, apex retuse to emarginate or recurved-mucronate, appressed strigose on both surfaces. **Inflorescences** of 0.2–20 mm long, 2–10-flowered racemes, pedicels 1.0–2.0(2.5) mm long. **Flowers** 5–7 mm long, red; calyx 1.5–2.0(2.5) mm long, densely strigose, lobes triangular to lanceolate, ± equalling tube; standard strigose dorsally; keel apex obtuse to rostrate. **Stamens** (3.5)4.0–5.5 mm long. **Ovary** strigose. **Flowering time** May–Sept., also Nov., Jan. and Mar. **Pod** 9–15 × 1.5–2.0 mm, ± laterally compressed. Karroid shrubland and open sandy or stony places; Rainshadow Valley Karoo (Steytlerville Karoo).

sessilifolia DC.
Erect, woody suffrutices, up to 0.6 m high; young stems rigid, ± geniculate, angular, densely appressed strigose. **Stipules** 1–3 mm long, lanceolate-subulate. **Leaves** digitately 3-foliolate, sessile, petioles 1–3 mm long. **Terminal leaflet** on rachis extending to 1 mm beyond lateral leaflets, 4–16 × 1–5(7) mm, cuneate-obovate to oblanceolate, glaucous, upper surface glabrous, lower surface strigose, apex ± rounded. **Inflorescences** of 10–70 mm long, 10–30(40)-flowered racemes; peduncle (1.5)3.0–14 mm long; rachis woody, spinescent; pedicels 0.5–1.5 mm long. **Flowers** 5–7 mm long, orange-red; calyx 1.5–2.5 mm long, ± densely strigose, lobes lanceolate-subulate; standard strigose dorsally, keel apex obtuse. **Stamens** (3.5)4.0–5.5 mm long. **Ovary** densely strigose. **Flowering time** Sept.–May. **Pod** 7–34 × 3.0–3.5 mm, flattened, often falcate, netted with veins. Grassland, karroid vegetation, thorntree scrub on rocky hillsides; Upper Karoo, Sub-Escarpment Grassland, Albany Thicket, Drakensberg Grassland, Rainshadow Valley Karoo (Venterstad, Middelburg and Queenstown districts S, Graaff-Reinet to King William's Town and Willowmore to East London).

1b Leaves digitately 3-foliolate; leaflets terminal on petioles (5)10–30 mm long

Group 2

Leaves digitately 3-foliolate (tending to pinnately 3-foliolate in *I. heterophylla* and *I. candicans*), leaflets terminal on petioles (5)10–30 mm long, 2–12 mm in *I. tomentosa*); peduncle (10)20–100 mm long; stipules narrow (± 1 mm wide at base) (see also *I. glaucescens*); ovary and pods hairy; pods mostly deflexed.

[E]candicans Aiton

Prostrate or decumbent suffrutex, up to 0.4 m high; stems angular, appressed canescent-strigillose. **Stipules** 1–3 mm long, subulate-falcate. **Leaves**: rachis sometimes extended to 1 mm beyond lateral leaflets; petioles (3)4–20 mm long. **Terminal leaflet** (3)4–28 × 1–5 mm, oblong, oblanceolate or elliptic, ± complicate, strigose above, more densely strigose below, apex ± rounded, mucronate. **Inflorescences** of 20–90 mm long, 10–20(25)-flowered racemes; peduncle 10–40(45) mm long; pedicels 0.5–1.0 mm long. **Flowers** 8.0–10.5 mm long, orange-red; calyx 2–3 mm long, appressed canescent-strigillose; lobes triangular, ± equalling tube; standard moderately densely crisped pubescent dorsally; keel apex rostrate. **Stamens** (5.5)6.0–7.0 mm long. **Flowering time** May–Nov. **Pod** 14–24 × 2.0–2.5 mm. Coastal dune grassland and renosterveld; Sub-Escarpment Grassland, Albany Thicket (Kei River Mouth to East London).

erecta Thunb.

Somewhat delicate scandent suffrutex, up to 0.9 m high; branches many, slender, from a woody rootstock; stems angular, glabrous to strigose. **Stipules** 3–8 mm long, filiform-setaceous. **Leaves**: petioles 5–22 mm long. **Terminal leaflet** 4–15 × 2.5–10.0 mm, broadly obovate to oblanceolate, glabrous above, sparsely strigose below, apex rounded to truncate, apical region often subserrate or multi-apiculate. **Inflorescences** of 25–130 mm long, (10)15–30-flowered racemes; pedicels 0.5–1.5 mm long. **Flowers** 6.5–8.0 mm long, orange-red; calyx 2–3 mm long, sparsely strigose, lobes triangular to lanceolate, ± equalling to twice tube length; standard crisped white-pubescent dorsally; keel apex rostrate. **Stamens** 4.5–6.5 mm long. **Ovary** strigose. **Flowering time** June–Apr. **Pod** 14–25 × 2.0–2.5 mm; coastal dune bush and grassy fynbos below 200 m often on cooler slopes; Eastern Fynbos-Renosterbos (Tsitsikamma).

heterophylla Thunb.

Scrambling or ascending suffrutex, 0.3–1.0 m high; much-branched from woody rootstock; stems angular, strigose to glabrous. **Stipules** 1–3(4) mm long, subulate-falcate to setaceous. **Leaves** sometimes heteromorphic; petioles (3)5–24 mm long. **Terminal leaflet** (2)4–25 × 1.0–8.5 mm, cuneate-obovate or ± elliptic to oblanceolate, ± complicate, strigose above and below, apex rounded to acute. **Inflorescences** of 50–220 mm long, 20–40(60)-flowered racemes; pedicels 0.5–1.0 mm long. **Flowers** wine-red to orange-red; calyx 2.5–3.5 mm long, ± appressed strigose, lobes subulate-setaceous, ± equalling to 3× tube length; standard crisped-pubescent dorsally, lamina dark purple; keel apex obtuse to acute. **Stamens** 4.5–6.0 mm long. **Ovary** densely strigose. **Flowering time** July–Jan. **Pod** 12–26 × 2.0–2.5 mm. Fynbos, grassland and renosterveld; Eastern Fynbos-Renosterveld, Albany Thicket, Dry Highveld Grassland, Drakensberg Grassland (Cradock to Stutterheim S and from Joubertina to Peddie).

[E]porrecta Eckl. & Zeyh.

Like *I. heterophylla* but stems decumbent, often densely leaved, spreading greyish strigose to hirsute. **Stipules** up to 5 × 0.5 mm, lanceolate to subulate, largely spreading or deflexed (not arching recurved and often appearing 'hooked' as in *I. heterophylla*). **Terminal leaflet** broadly obovate, apex rounded to truncate, less often obtuse. **Inflorescences** of 30–100(120) mm long racemes, rounded or expanding broadly at tips (not mostly tapering, tail-like as in *I. heterophylla*), including a peduncle 10–50 mm long. **Calyx** 3–5 mm long. **Stamens** 5–7 mm long, exceeding calyx. **Flowering time** Aug.–Dec. Coastal grassland and bush behind dunes and near coastal reaches of river systems; Eastern Fynbos-Renosterveld, Albany Thicket (Cape St Francis, Port Elizabeth, East London).

[E]**tomentosa** Eckl. & Zeyh.

Prostrate or decumbent herb or suffrutex, up to 0.6 m high; stems angular, crisped hirsute to greyish white-tomentose. **Stipules** 2–7 mm long, lanceolate to linear-acuminate. **Leaves** petioles 2–12 mm long, robust. **Terminal leaflet** 4.5–20.0 × 4–13 mm, broadly cuneate-obovate, both surfaces densely hirsute-tomentose, venation prominent below, apex rounded to truncate. **Inflorescences** of 35–100 mm long, 20–50-flowered racemes; peduncle 25–70 mm long, many times longer than leaves; pedicels 0.5–2.0 mm long. **Flowers** 5–6 mm long, orange-red; calyx (3.5)4.0–5.0 mm long, densely tomentose, lobes subulate-setaceous, ± 3 or more times tube length; standard spreading pubescent dorsally to almost glabrous; keel apex obtuse to subrostrate. **Stamens** 3.5–4.5 mm long, ± equalling the calyx. **Flowering time** Aug.–Dec. **Pod** 10–20 × 2.0–2.5 mm. Coastal dune vegetation; Eastern Fynbos-Renosterveld (Port Elizabeth).

[E]**sp. nov. A**

Prostrate or ascending suffrutex, up to 0.3 m high; rootstock woody, slender-branched; stems angular, sparsely appressed strigose. **Stipules** 1–3 mm long, subulate, spreading. **Leaves**: petioles 8–30 mm long, slender. **Terminal leaflet** 9–25 × 2.5–9.5 mm, broadly to very narrowly elliptic, apex acute to obtuse; glabrous above, strigose below, surfaces discolorous, paler below. **Inflorescences** of 50–200 mm long, (20)40–80(120)-flowered racemes; peduncle (30)40–90 mm long; pedicels 0.5–1.5 mm long. **Flowers** 6.5–8.0 mm long, orange-red; calyx 2.0–2.5 mm long, densely appressed strigose, lobes triangular to lanceolate, ± equalling to slightly longer than tube; standard densely crisped, white-pubescent dorsally; keel apex acute to subrostrate. **Stamens** 4.0–4.5 mm long. **Ovary** densely strigose. **Flowering time** June–Oct. **Pod** 12–24 × 2.0–2.5 mm. Coastal dune bush; Eastern Fynbos-Renosterveld, Albany Thicket (Oyster Bay, Port Elizabeth to Bushman's River Mouth).

Group 3

Leaves digitately 3-foliolate, leaflets terminal on petioles 2–150 mm long; some hairs subsimple, indumentum hirsute, villous or pilose; peduncle (10)20–200 mm long; stipules broad, ± amplexicaul (1.5–15 mm wide at base); ovary and pods glabrous; pods deflexed.

alpina Eckl. & Zeyh.

Rhizomatous suffrutex, up to 0.3 m high, stems decumbent, angular, hirsute-strigose, hairs unequally biramous. **Stipules** 2.5–16 × (1.5)2.0–9.0 mm, amplexicaul, asymmetrically ovate-cordate. **Leaves** digitately 3-foliolate; petioles 2–7 mm long. **Terminal leaflet** 4–26 × 4–11 mm, obovate-cuneate, apex ± rounded, both surfaces hispid-strigose, midrib and marginal vein prominent below, surfaces discolorous, paler below. **Inflorescences** of 40–160 mm long, (15)20–40(60)-flowered racemes; peduncle 20–100 mm long; pedicels 1–2 mm long, slender. **Flowers** 6.5–8.0 mm long, deep pink to brick-red; calyx 2.5–5.0(5.5) mm long, hirsute-strigose; lobes lanceolate to subulate, ± equalling to 3× tube length; standard dorsally glabrous. **Stamens** (4.0)4.5–7.0 mm long. **Flowering time** Oct.–Jan. **Pod** immature, deflexed. Mountain Fynbos, grassland; Dry Highveld Grassland, Sub-Escarpment Grassland, Drakensberg Grassland, Eastern Fynbos-Renosterveld (Burgersdorp, Rhodes, Molteno, Queenstown, Katberg, Amatole Mts and Grahamstown District).

[E]alpina Eckl. & Zeyh. subsp. nov.
Laxly leafy suffrutex with trailing decumbent stems, ± densely spreading strigose, hairs crisped, unequally biramous. **Stipules** 2.5–10.0 × (1.5)2.0–10.0 mm, not much longer than wide, those of larger leaves shorter than to equalling the petioles, asymmetrically rounded-ovate, obtuse to acuminate. **Leaves**: petioles up to 12 mm long. **Terminal leaflet** up to 16 mm wide, obovate, apex truncate to rounded; both surfaces finely and relatively densely spreading strigose, ± concolorous. **Flowers** 5–6 mm long, deep pink to brick-red; calyx 2–3 mm long, lobes lanceolate to subulate, ± twice as long as tube. **Stamens** 3.5–4.5 mm long. Upper Karoo, Dry Highveld Grassland, Sub-Escarpment Grassland (Sneeuberg to Queenstown Districts).

mollis Eckl. & Zeyh.
Trailing to mat-forming suffrutex, up to 0.3 m high, stems angular, villous-pilose. **Stipules** 3–6 × (1.5)2.0–5.0 mm, ± ovate, apex obtuse to shortly acuminate. **Leaves** digitately 3-foliolate; petioles 1–150 mm long, slender. **Terminal leaflet** (5)6–30 × (4)5–22 mm, broadly obovate, apex ± rounded; glabrous above, villous-pilose beneath. **Inflorescences** of 40–250 mm long, 15–35-flowered racemes; peduncle 20–170 mm long; pedicels 1.0–2.5 mm long. **Flowers** 6.5–8.0 mm long, bright rose-red; calyx 3.0–3.5 mm long, sparsely to densely villous-pilose; lobes broadly triangular to lanceolate, ± equalling to twice tube length; standard glabrous dorsally; keel apex obtuse to apiculate. **Stamens** 5.5–6.5 mm long. **Flowering time** Oct.–Jan. **Pod** 17–28 × 2–3 mm. Mountain grassland, straggling in rocks; Drakensberg Grassland (Maclear, Amatole Mts to Stutterheim and King William's Town Districts).

trifolioides Baker f.
Decumbent suffrutex, up to 0.4 m high, many-stemmed, angular to flattened, spreading hirsute-strigose, hairs unequally biramous. **Stipules** 4–25 × 3–15 mm, asymmetrically ovate-cordate, acuminate. **Leaves** with petioles 7–35(45) mm long. **Terminal leaflet** (15)20–50 × 10–35 mm, ovate to broadly obovate-cuneate, apex rounded to obtuse, both surfaces hirsute-strigose, venation prominent below. **Inflorescences** of 12–300 mm long, (20)40–60-flowered racemes; peduncle 70–200 mm long; pedicels 1–2 mm long, slender. **Flowers** 8–11 mm long, orange-pink to coral; calyx 3.5–5.0 mm long, lobes lanceolate to subulate, ± equalling to twice tube length; standard glabrous dorsally; keel apex obtuse. **Stamens** 7–8 mm long. **Ovary** glabrous. **Flowering time** Sept.–Jan. **Pod** immature, deflexed. Mountain grassland; Sub-Escarpment Grassland, Drakensberg Grassland, Sub-Escarpment Savanna (Xalanga, Nqamakwe, Kentani, Komga to King William's Town and East London Districts).

Group 4

Leaves digitately 3-foliolate, leaflets terminal on petioles 2–40 mm long; plants with appressed biramous hairs (strigose indumentum) or glabrescent; peduncle (10)20–200 mm long (9–24 mm long in *I. cuneifolia*); stipules broad, ± amplexicaul (1.5–15 mm wide at base); ovary and pods glabrous; pods mostly deflexed (spreading in *I. cuneifolia* and *I. monostachya*).

cuneifolia Eckl. & Zeyh.
Resprouting, decumbent to erect, often glaucous suffrutex, up to 2 m high, stems angular, strigose to glabrous. **Stipules** (3)4–20(24) × (1.5)2.0–6.0(9.0) mm, leaving annular sheath scars; obliquely ovate. **Leaves** with petioles 2–11 mm long. **Terminal leaflet**

(4)5–35(38) × (2)3–16(18) mm, broadly to narrowly obovate, both surfaces strigillose or one side glabrous and the other strigose. **Inflorescences** of 20–120 mm long, densely (15)20–60(70)-flowered racemes; peduncle 9–24 mm long; pedicels 1–2 mm long. **Flowers** 7.0–9.5(10.5) mm long, pink to deep pink; calyx 2.0–3.5 mm long, glabrous, sometimes with sparse hairs; lobes triangular to lanceolate, ± equalling the tube; standard glabrous dorsally; keel apex acute to rostrate. **Stamens** 5.0–7.5 mm long. **Ovary** glabrous. **Pod** 20–36(40) × 3.5 mm.

cuneifolia Eckl. & Zeyh. subsp. **cuneifolia**

Upper and lower leaflet surfaces strigose with relatively thin biramous hairs. **Flowering time** Aug.–Dec. Grassland and fynbos, forest margins, damp hillside scrub and kloofs, alt. 600–1 600 m; Sub-Escarpment Grassland, SE and southern elements of Drakensberg Grassland, Albany Thicket, Eastern Fynbos-Renosterveld (Engcobo, Tsolo, Mount Ayliff and Ngeli regions S, from Somerset East across Amatole Mts to King William's Town District and Suurberg District to Grahamstown).

cuneifolia Eckl. & Zeyh. subsp. nov. **A**

Erect, laxly-leaved herb or spindly to straggling shrub, 0.8–2.0 m high. **Leaflets** glabrous below (with faint brochidodromous venation), sparsely strigose above with relatively thick, coarse biramous hairs. **Terminal leaflet** (13)15–38 × 6–18 mm, obovate to oblanceolate, 2–3× as long as wide, apex rounded. **Flowering time** Sept.–Dec. Streambanks, forest margins, clearings and damp cliffs, alt. 1 500–2 200 m; N Sub-Escarpment Grassland and S Drakensberg Grassland (Ongeluksnek region eastwards).

[E]**cuneifolia** Eckl. & Zeyh. subsp. nov. **B**

(= *I. amatolensis* Phillipson *nom. nud.*, *I. elandsbergensis* P.B.Philipson)

Erect, densely-leaved, much-branched, twiggy shrub, 0.8–1.5 m high; stems with many short internodes, mostly shorter than the stipules. **Leaflets** glabrous below (with marked brochidodromous venation), sparsely strigose above with relatively thick, coarse biramous hairs. **Terminal leaflet** 5–14(16) × 3–7(9) mm, obovate to subrotund, subequal, apex rounded to truncate. **Flowering time** Oct.–Jan. Forming dominant patches in Afromontane grassland and scrub on upper rocky slopes, alt. 1 500–2 000 m; southern elements of Drakensberg Grassland (from Elandsberg near Seymour and Amatole Montane and Mistbelt Grasslands to Pirie Forest).

[E]**cuneifolia** Eckl. & Zeyh. subsp. nov. **C**

Sprawling suffrutex, 0.1–0.6 m high. **Leaflets** glabrous below (with faint brochidodromous venation), sparsely strigose above with relatively thick, coarse biramous hairs. **Terminal leaflet** 7–50 × 2–6(8) mm, narrowly oblong-elliptic to oblanceolate, if more than 3 mm wide then four or more times as long as wide, apex obtuse to acute. **Flowering time** Aug.–Dec. Grassland, scarp woodland and fynbos often in damp areas, alt. 450–1 850 m; Upper Karoo, Lower Karoo, Dry Highveld Grassland, Eastern Fynbos-Renosterveld (Kamdeboo, Koudeveld Mts and Sneeuberg Mts S, from Elandsberg and Great Winterhoek Mts to Van Stadens Mts in Uitenhage District).

[E]**cuneifolia** Eckl. & Zeyh. subsp. nov. **D**

Decumbent herb or suffrutex, 0.1–0.8 m high, stems rooting at lower nodes. **Leaflets** glabrous above, sparsely strigose with relatively thin biramous hairs below. **Terminal leaflet** 5–10 × 2–4 mm, oblanceolate, < 3× as long as wide, apex rounded

to obtuse. **Flowering time** Oct. Grassland, alt. 1 200–1 300 m; Sub-Escarpment Grassland (E Griqualand Grassland from Maclear region).

dimidiata Vogel ex Walp.

Semi-prostrate, slender suffrutex, trailing up to 1 m long (up to 0.3 m high), many-stemmed from a woody rootstock, angular, strigose to glabrous. **Stipules** 4–19 × 1.5–7.5 mm, obliquely ovate-acuminate, base cordate on leaf-opposed side. **Leaves** with petioles (2.5)6.0–40.0 mm long, channelled. **Terminal leaflet** (6)10–42 × (2)3–20 mm, elliptic or obovate, apex obtuse to acute; ± densely appressed strigose on both surfaces. **Inflorescences** of 40–300 mm long, (20)40–60(80)-flowered racemes; peduncle 20–240 mm long; pedicels 0.5–1.5 mm long. **Flowers** 5.5–6.5 mm long, brick-red; calyx 1.5–2.5 mm long, sparsely to densely strigose; lobes triangular to lanceolate, ± equalling to twice tube length; standard glabrous dorsally; keel apex obtuse. **Stamens** 3.5–5.0 mm long. **Flowering time** Sept.–Feb. **Pod** 18–24 × 1.5 mm. Mountain grassland; Drakensberg Grassland (Griqualand East, Rhodes, Cathcart to Stutterheim Districts).

An undescribed new variety occurs from the higher altitude regions of Ongeluksnek Pass and the Witteberg Mts north of Barkly East, which has dimensions at the smaller end of the ranges above and is distinguished by the ± densely strigose upper leaflet surfaces vs. these glabrous in typical *I. dimidiata*.

monostachya Eckl. & Zeyh.

(= *I. oroboides* E.Mey.)

Resprouting suffrutex, 0.1–0.3 m high; rhizomatous, stems slender, angular, ascending to erect, strigose. **Stipules** (4)6–17 × 1.5–2.5 mm, leaving annular sheath scars, obliquely lanceolate-acuminate, apex subaristate. **Leaves** with petioles 2–5 mm long. **Terminal leaflet** (6)8–40(50) × 13–4(5) mm, linear- to lanceolate, apex acute to subaristate; upper surface with coarsely biramous hairs, discolorous; lower surface glabrous, venation prominent, margins inrolled. **Inflorescences** of 30–140 mm long, densely (15)20–60(70)-flowered racemes; peduncle 10–60(75) mm long; pedicels 0.5–1.5 mm long. **Flowers** 8–9 mm long, pink to deep pink; calyx 3.0–3.5 mm long, glabrous; lobes ± triangular, ± equalling the tube; standard dorsally glabrous; keel apex ± acute. **Stamens** 6–7 mm long. **Flowering time** Sept.–Feb. **Pod** immature, spreading. Grassland and open shrubland; Drakensberg Grassland (Amatole Montane Grassland between Somerset East (Boschberg) and King William's Town District).

Hybrids sometimes found with *I. alpina* subsp. *alpina* in disturbed areas where the two species overlap.

[E]sp. nov. B

Prostrate, mat-forming or scrambling suffrutex, up to 0.4 m high, rhizomatous. **Stipules** 4–16 × 2.0–7.5 mm, obliquely oblong to ovate, apex obtuse to caudate, abaxially glabrous, adaxially sparsely strigose. **Leaves** with petioles 9–40 mm long, slender. **Terminal leaflet** (5)6–23 × (4)5–21 mm, broadly obovate-cuneate, apex rounded to truncate, glabrous above, sparsely appressed strigose beneath, discolorous, paler below. **Inflorescences** of 60–350 mm long, 15–25-flowered racemes; peduncle curving-erect, 40–270 mm long; pedicels 1–2 mm long. **Flowers** 8.0–10.5 mm long, deep pink to scarlet; calyx 2.5–3.0 mm long, membranaceous, sparsely strigose; lobes broadly triangular, shorter than to ± equalling tube; standard glabrous dorsally; keel apex obtuse to subrostrate. **Stamens** 6.5–8.5 mm long. **Flowering time** Oct.– Dec. **Pod** immature, spreading. Mountain grassland; Drakensberg Grassland (Hogsback area).

Group 5

Leaves digitately 5–7-foliolate, leaflets terminal on petioles 2–14 mm long, not ericoid (mostly < 3× as long as wide); restricted to grassland and Karoo shrublands.

burchellii DC.

Prostrate, cushion-forming or sprawling suffrutex; rootstock woody, branches many; stems angular, densely grey-hoary. **Stipules** 1–2(3) mm long, triangular-lanceolate, decurrent on stems. **Leaves** digitately 5–7-foliolate, arranged fan-like at apex of petioles 1–14 mm long. **Terminal leaflet** 2–11 × 1.0–4.5 mm, obovate to oblanceolate, densely to sparsely strigose above and below. **Inflorescences** of 20–70 mm long, distantly 5–10(15)-flowered racemes; peduncle 10–50 mm long; pedicels 0.5–1.5 mm long. **Flowers** 6.5–8.0 mm long, pink to red; calyx 2.0–3.0(3.5) mm long, grey-hoary strigillose; lobes narrowly triangular, shorter than to ± equalling tube; standard partially strigillose along midrib and apex. **Stamens** 5–6 mm long. **Ovary** densely strigose. **Flowering time** Oct.–Jan. **Pod** 10–18 × 2.0–2.5 mm. Grassland and shrubland on rocky mountain slopes; Upper Karoo, Dry Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland (Molteno to Maclear S, Graaff-Reinet District to Tarkastad).

[E]**sp. nov. C**

Prostrate or decumbent suffrutex; rootstock woody, branches many; stems angular, spreading strigose. **Stipules** (1.5)2.0–4.0 mm long, ovate, apex acute to acuminate, midrib and secondary venation ± prominent; annular scars remaining around older stems. **Leaves** digitately 5-foliolate, petioles 2–5 mm long. **Terminal leaflet** 3–12 × 2–4 mm, obovate to oblanceolate, complicate, apex acute, spreading strigose above and below, venation ± prominent below. **Inflorescences** of 20–70 mm long, distantly 12–20(25)-flowered racemes; peduncle 10–50 mm long; pedicels 0.5–1.5 mm long. **Flowers** 6–7 mm long, wine-red; calyx 2–3 mm long, sparsely strigose; lobes broadly lanceolate, shorter than to ± equalling tube. **Stamens** 4–5 mm long. **Ovary** glabrous. **Flowering time** Dec. Grassland on high altitude rocky mountain slopes; Dry Highveld Grassland (Upper slopes and plateau of Sneeuberg Mts E of Nardousberg).

Group 6

Leaves subdigitately to digitately (3)5–7(9)-foliolate, leaves subsessile, densely fascicled on stems, leaflets coriaceous, ± ericoid, linear to oblong or oblanceolate (> 3× as long as wide to ± 3× in *I. hispida*), margins often retuse and midrib prominent below; pods spreading; restricted to fynbos (see also *I. alopecuroides*, Group 7).

flabellata Harv.

Reseeding shrub, 0.4–2.5 m high; stems woody, rigid, the many long-branches erect, ± closely parallel, indumentum densely canescent strigose to subtomentose and with biramous hairs on raised gland-like epidermal papillae. **Stipules** tooth-like, up to 1 mm long. **Leaves** (3)5(7)-foliolate, densely fascicled, subsessile or petioles up to 1 mm long. **Terminal leaflet** 6–22 × 1.5–4.5 mm, oblanceolate, glossy foveolate-subrugulate above, ± densely canescent strigose below, revolute margins up to 0.3 mm wide on lower surface, apex rounded to subacute. **Inflorescences** of 0.5–20 mm long, 3–10(15)-flowered racemes; peduncle 1–4 mm long; pedicels (2.0)2.5–5.0 mm long; plants mass-flowering. **Flowers** 7–8 mm long, pink to mauve, petals persistent; calyx 2.0–2.5(3.0) mm long, grey strigillose-puberulent; lobes triangular, shorter than to ± equalling tube; standard strigillose-subsericeous dorsally, keel apex acute. **Stamens** 4–5 mm long. **Ovary** dense-

ly canescent-strigose. **Flowering time** Mar.–Nov. **Pod** 10–17 × 2.0–2.5 mm. Fynbos; Eastern Fynbos-Renosterveld (Tsitsikamma).

[E]grisophylla Fourc.

Bushy shrublets, up to 800 mm high; stems woody, rigid, the many long-branches erect, ± closely parallel, densely appressed strigillose. **Stipules** 1–2 mm long, subulate, erect. **Leaves** (3–)5-foliolate, spreading to erect. **Terminal leaflet** 12–32 × 1.5–4.5 mm, smaller on terminal twigs, linear, glossy foveolate-subrugulate above, densely canescent strigillose below, margins slightly revolute, not rolled back ± to midrib, apex rounded to subacute. **Inflorescences** of 10–30 mm long, 8–20-flowered racemes; peduncle 1–6 mm long; pedicels 2–7 mm long; plants mass-flowering. **Flowers** 7–8 mm long, pink to mauve, petals semi-persistent; calyx 2.5–3.0 mm long, strigillose-puberulent; lobes triangular, ± equalling tube; standard strigillose to subsericeous dorsally, keel apex acute to rostrate. **Stamens** 4.0–4.5 mm long. **Ovary** glabrous. **Flowering time** Mar., Apr. **Pod** 14–22 × 2 mm. Fynbos; Eastern Fynbos-Renosterveld (Elandsberg & Groot Winterhoek Mts).

hispida Eckl. & Zeyh.

Reseeding shrub, 0.4–3.0 m high; stems woody, the many long-branches erect, ± closely parallel, indumentum densely subtomentose to hispid with biramous hairs on raised gland-like epidermal papillae. **Stipules** subulate, up to 4 mm long. **Leaves** pinnately to subdigitately (3–)5–7-foliolate; petioles 1–2 mm long. **Terminal leaflet** 8–22 × (2.0)2.5–8.0 mm, oblanceolate, glossy foveolate-subrugulate and densely strigose to sericeous above, densely canescent strigose below, revolute margin to ± 0.3 mm wide on lower surface, apex ± rounded. **Inflorescences** of 5–15 mm long, 6–12-flowered racemes; peduncle 1–4 mm long; pedicels (2.0)2.5–6.0 mm long; mass-flowering towards branch tips. **Flowers** 7–8 mm long, pink to mauve; calyx (3.0)3.5–5.0 mm long, densely hirsute; lobes ± lanceolate, ± equalling to slightly longer than tube; standard subsericeous dorsally, keel apex acute to rostrate. **Stamens** 4.5–5.0 mm long. **Ovary** canescent-tomentose. **Flowering time** Mar.–June. **Pod** 8–12 × 2.0–2.5 mm. Fynbos; Eastern Fynbos-Renosterveld (Tsitsikamma and Winterhoek Mts to Port Elizabeth).

pappei Fourc.

Reseeding shrublet, 0.3–1.0 m high; stems woody, the many long-branches erect, wiry, ± closely parallel, indumentum strigillose and with biramous hairs on raised gland-like epidermal papillae. **Stipules** tooth-like, up to 1 mm long. **Leaves** 5–7(9)-foliolate, densely fascicled, subsessile or petioles up to 1 mm long. **Terminal leaflet** 4–16 × 0.5–1.5 mm, linear, glossy foveolate-subrugulate above, sparsely strigose below, keeled, subcomplicate, margins slightly revolute, apex acute. **Inflorescences** of 5–15 mm long, 3–8-flowered racemes; peduncle 1–4 mm long; pedicels 1.0–2.5 mm long; plants mass-flowering. **Flowers** 6–7 mm long, pink to mauve, petals persistent; calyx 2.0–2.5 mm long, grey strigillose-puberulent; lobes triangular, shorter than to ± equalling tube; standard appressed strigillose-subsericeous dorsally, keel apex obtuse. **Stamens** 4–5 mm long. **Ovary** strigose. **Flowering time** Apr.–June. **Pod** 10–16 × 2 mm. Fynbos and grassy fynbos, montane; Eastern Fynbos-Renosterveld (Tsitsikamma, Kareedouw to Humansdorp districts).

rhodantha Fourc.

Reseeding shrub, 0.3–1.0 m high; stems woody, the usually many long-branches erect, ± closely parallel, indumentum densely subtomentose to hirsute and with biramous hairs

on raised gland-like epidermal papillae. **Stipules** subulate, up to 4 mm long. **Leaves** 5-foliolate, densely fascicled; petioles 1–2 mm long. **Terminal leaflet** 5–15 × 1–2 mm, linear, glossy foveolate-subrugulate and densely spreading strigose-hirsute above, densely woolly tomentose below, revolute margin to ± 0.6 mm wide on lower surface, apex ± rounded. **Inflorescences** of 5–15 mm long, 3–8-flowered racemes; peduncle 1–4 mm long; pedicels 2.5–6.0 mm long; plants mass-flowering towards branch tips. **Flowers** 7–8 mm long, pink to mauve, petals persistent; calyx 3.5–5.0 mm long, densely hirsute; lobes lanceolate, ± equalling to slightly longer than tube; standard subsericeous dorsally, keel apex acute. **Stamens** 4.5–5.0 mm long. **Ovary** densely canescent-tomentose. **Flowering time** Mar.–July. Fynbos; Eastern Fynbos-Renosterveld (Joubertina to Humansdorp districts).

[E]**sulcata** DC.

Reseeding shrublets, up to 800 mm high; stems woody, rigid, the many long-branches ascending-erect, ± closely parallel, sparsely appressed strigillose. **Stipules** 1–2 mm long, subulate, erect. **Leaves** (3–)5-foliolate, sparsely to densely fascicled on stems, spreading. **Terminal leaflet** ericoid, 5–30 × 0.5–2.0 mm, linear, glossy foveolate-subrugulate above, densely canescent strigillose below, margins strongly revolute, apex acute. **Inflorescences** of 5–20 mm long, 2–7-flowered racemes; peduncle 1–6 mm long; pedicels 2–6 mm long; plants mass-flowering. **Flowers** 6–8 mm long, pink to mauve, petals semi-persistent; calyx (2.5)3.0–4.0(5.0) mm long, grey strigillose-puberulent; lobes triangular, ± equalling to twice tube length; standard subsericeous dorsally; keel apex ± acute. **Stamens** 4–5 mm long. **Ovary** glabrous. **Flowering time** Mar.–Aug. **Pod** 14–22 × 2 mm. Fynbos and on dunes; Eastern Fynbos-Renosterveld (Kouga Mts, Port Elizabeth, Uitenhage, Grahamstown and to Humansdorp).

1c Leaves pinnately foliolate

Group 7

Leaves pinnate, subsessile, leaflets coriaceous, darker above than below, margins prominent or retuse; ovary and pods hairy (glabrous in *I. alopecuroides*), spreading; restricted to fynbos and grassy fynbos.

alopecuroides (Burm.f.) DC. var. **minor** E.Mey.

Prostrate, decumbent or sprawling suffrutex; stems diffuse, strigose-pubescent to sparsely villous. **Stipules** 1–3 mm long, subulate. **Leaves** pinnately (3)5–7-foliolate, on very short petioles, appearing imperfectly subdigitate. **Terminal leaflet** 2–8 × 1–5 mm, ± orbicular to broadly obovate, coriaceous, darker coloured above than below, strigose, apex rounded to apiculate, margins ± prominent. **Inflorescences** of 15–90 mm long, initially laxly subcapitate, 5–15(30)-flowered racemes; peduncle slender, 10–50 mm long; pedicels 0.5–2.0 mm long. **Flowers** pink to mauve; calyx 3.0–3.5(4.0) mm long, grey sericeous; lobes more than twice tube length; standard subsericeous dorsally. **Stamens** 3.0–3.5 mm long. **Ovary** glabrous. **Flowering time** Aug.–Dec. **Pod** 15–22 × 2 mm. Grassland and fynbos often on mountain slopes; Eastern Fynbos-Renosterveld (Tsitsikamma to Grahamstown Districts).

[E]**sp. nov. D**

Prostrate or semi-erect shrublets, up to 0.3 m high; stems woody, wiry, densely spreading strigose to subtomentose and sometimes with biramous hairs on raised gland-like epidermal papillae. **Stipules** subulate, up to 1 mm long. **Leaves** digitately 3- to pinnately 5-foliolate; petioles up to 1.5 mm long. **Terminal leaflet** 2–11 × 1.5–4.0 mm, obovate

or oblanceolate, glossy foveolate-subrugulate and densely appressed strigose above, densely strigose to woolly tomentose below, margins revolute 0.1–0.6 mm wide on lower surface, apex rounded to emarginate. **Inflorescences** of 10–25 mm long, 4–10(15)-flowered racemes; peduncle 1–9 mm long; pedicels (2.0)2.5–5.0 mm long. **Flowers** 5.0–6.5 mm long, pink to mauve, petals persistent; calyx 2.5–4.0 mm long, densely hirsute to tomentose; lobes lanceolate to subulate, ± equalling to twice tube length; standard subsericeous dorsally, keel apex obtuse. **Stamens** 3.5–5.0 mm long. **Ovary** densely canescent-tomentose. **Flowering time** Dec., Jan. **Pod** immature, tomentose. Fynbos on mountainsides; Eastern Fynbos-Renosterveld (Outeniqua to Kouga Mts).

Group 8

Leaves pinnate; leaflets usually ± glaucous or subsucculent; ovary and pods glabrous, pods terete, often drying blackish, spreading to suberect; restricted to fynbos.

declinata E.Mey.

Prostrate or decumbent shrublets, up to 0.2 m high; stems woody below, sparsely strigose, angular. **Stipules** 1–5 mm long, lanceolate-falcate. **Leaves** pinnately 5–13-foliolate, dark green, subsucculent, petioles 2–8(10) mm long. **Terminal leaflet** 3–13 × 2–6 mm, obovate-oblong to oblanceolate, glabrous or sparsely strigose above, sparsely strigose beneath, margins often involute, apex rounded to emarginate. **Inflorescences** of 30–170 mm long, 8–30(40)-flowered racemes; peduncle slender, 24–90 mm long; pedicels 0.5–1.5 mm long. **Flowers** 5.5–7.0 mm long, pink to magenta; calyx 2–3 mm long, subhirsute; lobes triangular to lanceolate, ± equalling to twice tube length; standard crisped, dorsally puberulent, keel apex obtuse. **Stamens** 4–5 mm long. **Ovary** glabrous. **Flowering time** July–Nov. **Pod** 16–32 × 2.0–2.5 mm. Mountain fynbos on rocky slopes; Eastern Fynbos-Renosterveld (Kouga Mts, Baviaanskloof to Groot Winterhoek Mts).

filifolia Thunb.

Resprouting, broom-like shrub, up to 3 m high; stems almost leafless, sparsely strigose or glabrous, glaucous. **Stipules** 2–3 mm long, lanceolate. **Leaves**: 4–10-foliolate, up to 180 mm long, usually found as a rachis with pairs of scale-like, reduced leaflets; petioles 25–60 mm long. **Terminal leaflet** scale-like, reduced, rachis tapering to a point, basal 2–4 pairs of leaflets 9–26 × 3–11 mm, elliptic to obovate, glaucous, fleshy, glabrous above, sparsely strigose below, apex ± obtuse. **Inflorescences** of 25–200 mm long, 10–50(65)-flowered racemes; peduncle 6–85 mm long; pedicels 3–7 mm long. **Flowers** (8)9–11 mm long, pink to magenta; calyx 2.5–5.0 mm long, glabrous; lobes broadly triangular to lanceolate, shorter than to twice tube length; standard glabrous dorsally, keel apex acute to subrostrate. **Stamens** (7.0)7.5–9.5(10.0) mm long. **Ovary** glabrous. **Flowering time** Jan.–Oct. **Pod** 40–55 × 3.0–4.5 mm. Streams and slopes in mountain fynbos; Eastern Fynbos-Renosterveld (Tsitsikamma).

Group 9

Leaves pinnate; leaflets alternate; occurring in Karoo shrublands and grassland.

alternans DC. subsp. **alternans**

Typical subspecies does not occur in EC but is widespread in Namibia, northern part of NC, NW and western to southern FS.

The new taxon below differs from the typical subspecies in its longer stamens (4–5 mm long which exceed the ± 3 mm long calyx vs. 3.0–3.5 mm long, not exceeding the

3–5 mm long calyx in subsp. *alternans*), the longer persistent style (3 mm vs. 2 mm long) and the indumentum of the upper leaflet surfaces (often subglabrous vs. evenly strigose, although hairs do not fully obscure the leaflet surface). The new taxon is widespread in central parts of NC to northern EC and southern FS, sympatric and partially grading with the typical subspecies along a line from Kenhardt to Kimberley and Bloemfontein.

alternans DC. subsp. **nov.**

Perennial, prostrate, mat-forming herb, up to 1 m long; rootstock woody, stems many-branched, trailing, slender, ribbed, strigose. **Stipules** 1.5–4.0 mm long, lanceolate-subulate. **Leaves** pinnately (3)5–9(10)-foliolate, leaflets alternate; petioles 1–5 mm long. **Terminal leaflet** 4–12(14) × 1.5–5.0(8.0) mm, cuneate-obovate to oblanceolate, apex ± rounded, drying greenish yellow; sparsely strigose nearer midrib above, densely strigose beneath. **Inflorescences** of 15–60 mm long, (20)30–60-flowered racemes; peduncle (3)6–22 mm long; pedicels 0.5–1.0 mm long. **Flowers** 6.0–7.5 mm long, pink to red; calyx 3.0–4.5 mm long, densely strigose to subsericeous; lobes lanceolate-acuminate, ± equalling to slightly more than twice tube length; standard sparsely strigose towards apex dorsally. **Stamens** 4.0–5.5(6.0) mm long. **Flowering time** Oct.–July. **Pod** 5–14 × 1.5–2.0 mm. Karroid shrubland, grassland, riverbeds; Upper Karoo, Dry Highveld Grassland and western parts of Sub-Escarpment Grassland (Aliwal North, Middelburg, Graaff-Reinet, Cradock, Bedford, Tarkastad districts).

hendecaphylla Jacq.

Perennial trailing herb, up to 1.2 m long; rootstock woody, stems flattened or angular, sparsely appressed strigose. **Stipules** 6–14 mm long, lanceolate-acuminate, scarious at base, midrib prominent. **Leaves** pinnately (7)9–11(13)-foliolate, leaflets alternate; petioles 1–3 mm long. **Terminal leaflet** (7)10–37 × (2.5)3.0–9.0(14.0) mm, narrowly oblanceolate to oblong-elliptic, glabrous above, ± densely appressed strigose beneath. **Inflorescences** of 100–230 mm long, densely many-flowered racemes; peduncle 8–25 mm long; pedicels 0.5–1.0 mm long. **Flowers** 5–6 mm long, red. **Calyx** 2–3(4) mm long, sparsely strigose; lobes narrowly lanceolate-subulate, 2–3× tube length; standard with dorsal surface densely strigillose. **Stamens** (3.5)4.0–5.0 mm long. **Flowering time** Dec.–July. **Pod** 16–25 × 1.0–1.8 mm, overlapping in dense infructescences. Disturbed woodland or grassland, damp sandy or rocky areas, weeds of cultivation; Indian Ocean Coastal Belt (Qora Mouth, Port St Johns to Port Edward districts).

Group 10

Leaves pinnate; leaflets opposite; pods strigose, ± tetragonous, tapering to an acute apex and long beak, pale yellowish brown, spreading to subreflexed.

[E]disticha Eckl. & Zeyh.

Scrambling suffrutex, 0.1–2.0 m high; stems woody-based, distichously branched, strongly angular, appressed subcanescent-strigillose. **Stipules** 0.5–3.0 mm long, ± subulate, decurrent. **Leaves** pinnately 3–7-foliolate; petioles 1–10 mm long. **Terminal leaflet** on rachis extending to 1–5 mm beyond distal leaflet pair, 4–20(30) × 1–8 mm, ± oblong-elliptic to linear, apex ± rounded, both surfaces strigose. **Inflorescences** of (15)20–160 mm long, (15)20–50-flowered racemes; peduncle 5–16 mm long; pedicels 0.5–1.0 mm long. **Flowers** 5.5–7.0 mm long, red; calyx 2.0–2.5(3.5) mm long, sub-canescent-strigose; lobes lanceolate-subulate, less than (rarely up to) twice tube length; standard dorsally strigose; keel apex obtuse. **Stamens** (4.5)5.0–6.0 mm long.

Ovary densely strigose. **Flowering time** Sept.–May. **Pod** 12–30 × 2.0–2.8 mm. Grassland, karroid dwarf shrubland, grassy fynbos and thicket; Lower Karoo, Sub-Escarpment Grassland, Eastern Fynbos-Renosterveld, Albany Thicket (Graaff-Reinet and Jansenville districts S, Cradock to Bedford, Baviaanskloof to Port Elizabeth and Grahamstown).
Intermediates between *I. disticha* and *I. leptocarpa* Eckl. & Zeyh. occur in the Elandsberg region and sometimes *I. disticha* approaches *I. leptocarpa* morphologically in the Sneeuberg and Graaff-Reinet Districts, making unifoliolate forms of *I. disticha* difficult to tell apart from *I. leptocarpa*.

glaucescens Eckl. & Zeyh.

Prostrate to scrambling-erect suffrutex, 0.1–0.4 m high; stems strongly ribbed, densely appressed subcanescent-strigillose. **Stipules** 1–3 × 1 mm, ± lanceolate, decurrent. **Leaves** pinnately 3–9(11)-foliolate; petioles 0–6 mm long. **Terminal leaflet** sessile or on rachis extending to 1 mm beyond distal leaflet pair, (4)6–30 × 1–4 mm, linear-oblong or oblanceolate, apex rounded, both surfaces ± densely subcanescent-strigillose. **Inflorescences** of 30–160 mm long, (15)20–60-flowered racemes; peduncle (8)10–22 mm long; pedicels 0.5–2.0 mm long. **Flowers** 5.5–7.5 mm long, red to orange-red; calyx 3.0–3.5(4.5) mm long, ± densely subcanescent strigillose; lobes ± stiffly lanceolate-subulate, ≥ 2× longer than tube; standard dorsally strigose; keel apex obtuse. **Stamens** (4.5)5.0–6.0 mm long. **Ovary** densely strigose. **Flowering time** Aug.–Apr. **Pod** 14–30 × 2 mm. Coastal and hinterland fynbos and grassland or limestone; Eastern Fynbos-Renosterveld, Albany Thicket (Kei River Mouth S, Port Elizabeth to East London).

Group 11

Leaves pinnate; leaflets opposite; pods flattened, often falcate, with raised ridges above the seeds or reddish brown, netted with veins.

torulosa E.Mey. var. **torulosa**

Prostrate, mat-forming, bushy suffrutex, 0.1–0.6 m high; stems spreading from woody-based rootstock, angular, ± subcanescent strigillose. **Stipules** 1.5–5.0(6.0) mm long, subulate. **Leaves** pinnately (3)5–7-foliolate; petioles 4–15 mm long. **Terminal leaflet** on rachis extending to 0.5–5.0 mm beyond distal leaflet pair, (5)6–20 × (2.5)3.0–8.0 mm, oblong to oblanceolate, apex ± rounded, sparsely strigose. **Inflorescences** of 15–80(100) mm long, (15)20–80(100)-flowered racemes; peduncle 1–5(7) mm long; pedicels 0.5–1.0 mm long. **Flowers** 3.5–4.5 mm long, red; calyx (2)2.5–3.5 mm long, ± densely strigose; lobes subulate-setaceous, 4–6× tube length; standard strigose dorsally; keel apex obtuse. **Stamens** 3.0–3.5 mm long. **Ovary** densely strigose. **Flowering time** Dec.–May. **Pod** 7–13 × 2.5–3.0 mm. Grassland, riverbanks and rocky hillsides; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Albany Thicket (Queenstown S, Mortimer, Butterworth and Kei River Mouth to East London).

torulosa E.Mey. var. **angustiloba** (Baker f.) J.B.Gillett

Decumbent to ascending suffrutex, up to 0.6. m high; rhizomatous, multi-stemmed. **Stipules** (3.0)4.0–7.5 mm long, often with prominent midrib. **Leaves** pinnately 3–7-foliolate; petioles 2.5–6.5(14.0) mm long. **Terminal leaflet** (5)6–20 × 2.0–3.5 (4.0) mm, narrowly elliptic to oblong, apex acute, densely strigose on both surfaces. **Inflorescences** of 15–150 mm long, (15)20–120-flowered racemes; peduncle 5–10 mm long. **Flowers** orange; calyx (3.0)4.0–5.5 mm long; lobes setaceous, 5–10× tube length. **Stamens** 3.5–4.0 mm long. **Ovary** densely canescent-strigose. **Flowering time** Oct.

Pod without raised ridges above the seeds, ± torulose or margins sometimes straight, appressed, densely canescent-strigose. Grassland, riverbanks and rocky hillsides, Sub-Escarpment Savanna (Mthatha District).

Group 12

Leaves pinnate; leaflets opposite; long subsimple to simple hairs present in addition to biramous hairs, providing a hirsute, pilose, sericeous, villous, velutinous or tomentose indumentum (particularly on the stems and/or leaflets); leaves without dense clusters of red pearl bodies between the leaflets of each pair; calyx lobes 2–6× as long as tube.

schlechteri Baker f.

(= *I. longibarbata sensu auct. non* Engl.)

Perennial suffrutex or woody-based herb, 0.1–1.3 m high; rootstock woody, hirsute or greyish pilose with long subsimple hairs, pearl bodies scattered. **Stipules** 4–11 mm long, linear-attenuate. **Leaves** pinnately 9–13(15)-foliolate; petioles 1–4 mm long. **Terminal leaflet** 2–11 × 1–7 mm, obovate to oblanceolate, softly hyaline, indumentum as above. **Inflorescences** of 50–260 mm long, densely 30–140-flowered racemes; peduncle 18–70(90) mm long; pedicels 1–3 mm long. **Flowers** 4.5–6.0 mm long, bright pink. **Calyx** (2.5)3.0–5.0 mm long, stiffly hirsute; lobes linear-lanceolate to setaceous; standard puberulent dorsally; keel apex acute. **Stamens** 3.5–4.5(5.5) mm long. **Flowering time** Dec.–Feb. **Pod** 11–19 × 2–3 mm, endocarp brown, without tannin dots. Grassland, forest margins, rocky hillsides, streambanks; Sub-Escarpment Grassland (Sigoga, Cala, Maclear, Engcobo and Baziya districts).

sp. nov. E

Erect, gregarious suffrutex, forming rounded bushy clumps, 0.3–0.7(0.8) m high; rootstock woody, stems woody below, angular, canescent-villous, scattered with pearl bodies. **Stipules** (2)3–12 mm long, linear-setaceous. **Leaves** pinnately (3–7)9–21-foliolate, rachis 15–60 mm long; petioles 2–12 mm long. **Terminal leaflet** 5–11 × 2.5–4.5 mm, oblanceolate to obovate, apex ± rounded, both surfaces subsericeous and strigose, indumentum appressed and spreading below. **Inflorescences** of (6)10–40(60) mm long, laxly (2)4–10(15)-flowered racemes; peduncle (2)4–19 mm long; pedicels 1.0–2.0(2.5) mm long. **Flowers** 7–8 mm long, pink to carmine-red and green; calyx (2.5)3.0–4.0 mm long, indumentum as for leaflets; lobes narrowly triangular or subulate; standard dorsal surface spreading strigose, keel apex obtuse. **Stamens** (5.5)6.0–7.0 mm long. **Flowering time** Nov.–Jan. **Pod** 15–30 × 1.5–3.0 mm, straight, cylindrical, sparsely appressed hyaline strigose; grassland, mostly flowering after fire; Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Dwessa to Port Edward Districts).

Group 13

Leaves pinnate; leaflets opposite; long subsimple to simple hairs present in addition to biramous hairs, providing a hirsute, pilose, sericeous, villous, velutinous or tomentose indumentum (particularly on the stems and/or leaflets); leaves with dense clusters of red pearl bodies between the leaflets of each pair; calyx lobes (2)3–6× as long as tube.

velutina E.Mey.

Semi-erect to prostrate suffrutex or woody based herb, 0.1–0.5 m high; stems many-branched, white velutinous or tomentose with scattered dark setose hairs, pearl bodies ± densely scattered. **Stipules** 5–9 mm long, linear-attenuate. **Leaves** pinnately

(9)13–23-foliolate, clusters of dark pearl bodies at base of petiole and between leaflets; petioles 1–5(12) mm long. **Terminal leaflet** 7–11(16) × 3–7(10) mm, ± broadly elliptic to obovate, appressed pilose or sericeous above, sericeous beneath. **Inflorescences** of 50–190 mm long, many-flowered racemes; peduncle 25–70 mm long; pedicels 1–2 mm long. **Flowers** 12–14 mm long, pink; calyx 5–8 mm long, grey-white sericeous; lobes lanceolate-attenuate; standard dorsal surface hyaline-pubescent to sericeous; keel apex obtuse. **Stamens** 10–13 mm long. **Flowering time** Nov.–Mar. **Pod** 18–23 × 2–3 mm, hyaline velutinous with ± sparse dark brown/black hairs; endocarp spotted with tannin vesicles. Open rocky grassland, Indian Ocean Coastal Belt (Mateku to Port Edward districts).

williamsonii (Harv.) N.E.Br.

Bushy suffrutex, or woody-based herb, 0.2–1.0 m high; stems decumbent, many-branched, hyaline strigose-pubescent. **Stipules** 4–8 mm long, linear-lanceolate to setaceous. **Leaves** pinnately (5)9–13(15)-foliolate; dense clusters of dark pearl bodies at petiole base and between leaflets; petioles 5–10(12) mm long. **Terminal leaflet** 8–16(25) × 4–8(11) mm, elliptic to obovate, glabrous above, ± appressed pilose or strigose beneath. **Inflorescences** of 50–210 mm long, many-flowered racemes; peduncle 13–60 mm long; pedicels 1.0–1.5 mm long. **Flowers** 8–9 mm long, pink; calyx 3–4 mm long, ± sericeous with hyaline hairs; lobes lanceolate; standard dorsal surface hyaline pubescent to subsericeous; keel apex ± obtuse. **Stamens** 6.5–8.0 mm long. **Flowering time** Nov.–Mar. **Pod** 9–12 × 2–3 mm, hyaline sericeous to subhirsute with dark brown setose hairs; endocarp spotted with tannin vesicles. Often disturbed grassland, in sand; Sub-Escarpment Grassland, Sub-Escarpment Savanna (Clydesdale and uMzimkhulu districts).

Group 14

Leaves pinnate; leaflets opposite; multicellular, often gland-tipped trichomes usually present on stems and /or leaves (see also *I. grata*, group 15, sometimes with gland-tipped hairs, especially on pods); calyx lobes 2–5× as long as tube.

hilaris Eckl. & Zeyh.

Suffrutex or subshrub, up to 0.1–0.8(1.0) m high; rootstock woody, many-stemmed, much-branched, angular, reddish brown; indumentum canescent-strigose and with patent reddish multicellular hairs up to 0.2 mm long, sometimes gland-tipped, pearl bodies on juvenile growth. **Stipules** 2–9 mm long, linear-setaceous. **Leaves** pinnate, mostly with 3–7 leaflets, rachis 2–15(25) mm long; petioles 0.5–4.0 mm long. **Terminal leaflet** (5)6–16(25) × 1–5(6) mm, oblanceolate to oblong-elliptic, apex acute; sparsely to densely appressed to spreading strigose above, more coarsely strigose below. **Inflorescences** of 10–40(50) mm long, ± densely (4)5–12(15)-flowered racemes; peduncle 3–10(17) mm long; pedicels (0.5)1.0–3.5 mm long. **Flowers** 7–9 mm long, rose-pink to deep carmine-red; calyx (3.5)4.0–5.0(6.0) mm long, grey strigillose; lobes narrowly triangular; standard dorsally appressed strigillose, keel apex obtuse. **Stamens** (5.5)6.0–7.0(8.0) mm long. **Flowering time** July–Jan. **Pod** (10)12–30 × 2 mm. Grassland; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Albany Thicket (Thaba Chitja and Clydesdale Districts S, Queenstown to Port Edward, King William's Town to Coffee Bay and Grahamstown to East London).

rubroglandulosa Germish.

Small, gregarious, pyrophytic suffrutex, (7)10–35 mm high; rootstock woody, globose-tuberous; stems many, decumbent to erect, angular, reddish brown, strigose,

hairs spreading at tips, interspersed with reddish multicellular gland-tipped hairs. **Stipules** 2–8(9) mm long, linear-setaceous. **Leaves** pinnately 3–7(11)-foliolate, rachis 2–24 mm long; petioles (1)2–4 mm long. **Terminal leaflet** (5)10–17(20) × 0.7–5.0 mm, obovate to narrowly elliptic, apex acute to apiculate; both surfaces sparsely strigose, more coarsely so below, midrib and margins with scattered gland-tipped hairs. **Inflorescences** of 10–50 mm long, laxly (2)3–10(12)-flowered racemes; peduncle 7–20 mm long; pedicels (2.5)3.0–6.0 mm long. **Flowers** 7–9 mm long, bright pink-red; calyx (3.5)4.0–7.0 mm long, indumentum as above; lobes lanceolate-attenuate; standard dorsal surface ± appressed strigillose, keel apex acute. **Stamens** 5–6 mm long. **Flowering time** Apr.–Nov. **Pod** 14–25 × 1.8–3.0 mm, straight, cylindrical, indumentum as for group. Grassland, mostly flowering in season after fire; Indian Ocean Coastal Belt (Mkambati to Port Edward districts).

[E]sp. nov. F

(= *I. heterotricha* DC. var. *ecklonii* Harv.)

Suffrutex, up to 0.4 m high; rootstock woody; stems many, decumbent to erect, robust, divaricately-branched, strigillose, scattered with patent yellowish to orange multicellular gland-tipped hairs up to 0.4 mm long, pungently aromatic. **Stipules** 2–5 mm long, subulate. **Leaves** pinnately 5–11-foliolate, rachis 2–15(25) mm long; petioles 0.5–5.0 mm long. **Terminal leaflet** 3–8 × 2–4 mm, obovate to obcordate, apex rounded, ± sparsely appressed strigose above, more densely and coarsely so below, margins and midrib below with gland-tipped hairs. **Inflorescences** of 2.5–70.0(80.0) mm long, ± laxly 15–30-flowered racemes; peduncle 7–17 mm long; pedicels 0.5–2.0 mm long. **Flowers** 6–7 mm long, carmine-red; calyx 2–3 mm long, hyaline strigose with gland-tipped multicellular hairs; lobes narrowly triangular to subulate, ± equalling the length or the tube; standard dorsally hyaline strigillose, keel apex obtuse to apiculate. **Stamens** 3.5–4.5 mm long. **Flowering time** Nov.–Apr. **Pod** 7–20 × 2–3 mm, hyaline strigose. Succulent thicket scrub and grassy roadsides; Albany Thicket (E and NE of Grahamstown and Fort Beaufort district).

Group 15

Leaves pinnate; leaflets opposite; multicellular, often gland-tipped trichomes lacking on stems and /or leaves (see also *I. hilaris,* Group 14); calyx lobes 2–4× as long as tube (sometimes shorter in *I. vicioides*, Group 14).

grata E.Mey.

Erect to scrambling, clump-forming suffrutex, 0.3–0.8 m high; stems woody below, much-branched above, wiry, angular, densely appressed strigose. **Stipules** 0.5–2.5(3.5) mm long, subulate. **Leaves** pinnately (5)7–11-foliolate, rachis (3)5–22(40) mm long; petioles 0.5–8.0(16.0) mm long. **Terminal leaflet** (2)3–9(10) × 1.0–3.5(4.5) mm, linear-oblanceolate to obovate, apex ± rounded, both surfaces strigose, differently sized hairs below. **Inflorescences** of (0.7)1.0–25.0(60.0) mm long, ± densely (3)5–15(30)-flowered racemes; peduncle (2.5)4.0–9.0(15.0) mm long; pedicels ± 1 mm long. **Flowers** 5–6 mm long, carmine-red; calyx 3.0–4.5 mm long, ± densely strigose, with scattered gland-tipped hairs; lobes lanceolate; standard dorsal surface hyaline strigose, keel apex obtuse. **Stamens** 4–5 mm long. **Flowering time** Feb., Mar. **Pod** 3–11 × 2 mm, straight, cylindrical, hyaline strigillose and with gland-tipped hairs. Mature grassland, wooded grassland, scrub, rocky outcrops; Indian Ocean Coast Belt (Pondoland-Ugu Sandstone Coastal Sourveld, Port St Johns to Port Edward districts).

pauciflora Eckl. & Zeyh.
Bushy suffrutex, 0.2–0.5 m high; stems many, diffusely spreading, woody below, flexuous, angular, ± densely appressed strigose. **Stipules** (1.0)1.5–3.5 mm long, filiform. **Leaves** pinnately (3)5–7-foliolate, rachis (1)3–10 mm long; petioles (1)2–4 mm long; stipellae absent. **Terminal leaflet** (2)3–7 × 1.5–4.5 mm, elliptic to oblanceolate, apex ± rounded, appressed, evenly strigose above, more densely and coarsely strigose with differently sized hairs below. **Inflorescences** of (0.7)1.0–35.0(55.0) mm long, laxly (1)2–4(8)-flowered racemes; peduncle 4–17(242) mm long; pedicels 1.0–1.5 mm long. **Flowers** 4.0–4.5 mm long, carmine-red; calyx 2.5–3.5 mm long, ± densely strigose; lobes lanceolate; standard dorsal surface hyaline strigose, keel apex obtuse. **Stamens** 3.0–3.5 mm long. **Flowering time** Aug.–Jan. **Pod** 7–12 × 1.5 mm, straight, cylindrical, hyaline strigose. Grassland, forest margins, fynbos; Eastern Fynbos-Renosterveld (Groot Winterhoek and Suurberg Mts).

poliotes Eckl. & Zeyh.
Erect to scrambling suffrutex, up to 0.6(0.8) m high; stems many, woody below, wiry, angular, densely ± canescent appressed strigose, pearl bodies in leaf axils. **Stipules** 0.5–1.5(3.5) mm long, subulate. **Leaves** pinnately 5–9-foliolate, rachis 3–9(15) mm long; petioles 0.5–1.5(3.5) mm long. **Terminal leaflet** ± sessile, 1.1–7.0(10.0) × 0.8–2.0(3.5) mm, linear-oblanceolate, apex ± acute; both surfaces ± densely strigose, differently sized hairs below;. **Inflorescences** of (3)5–25(50) mm long, laxly 3–10(15)-flowered racemes; peduncle (2)3–7(12) mm long; pedicels 1.0–1.5 mm long. **Flowers** 4–5 mm long, carmine-red; calyx 2.0–3.0(4.5) mm long, ± densely strigose; lobes narrowly triangular to subulate, ± equalling to 2(4)× tube length; standard dorsal surface hyaline strigose, keel apex obtuse. **Stamens** 3–4 mm long. **Flowering time** Oct.–Apr. **Pod** 5–12 × 1.5 mm, straight, cylindrical, hyaline strigillose. Grassland, fynbos, rocky outcrops; Albany Thicket, Sub-Escarpment Savanna (Fort Beaufort to King William's Town S, Albany District, Peddie and Grahamstown to East London).

vicioides Jaub. & Spach subsp. **vicioides**
Annual or perennial, prostrate, ascending or mat-forming herb, 0.2–0.6 m high; stems trailing, strigose to glabrescent, often scattered with pearl bodies. **Stipules** 2–4(6) mm long, subulate-filiform. **Leaves** pinnately (5)7–13-foliolate; petioles 1–5 mm long. **Terminal leaflet** 5–14(24) × 2–4(5) mm, oblanceolate to narrowly elliptic or linear, sparsely strigose to pilose above, ± densely appressed strigose to subsericeous beneath. **Inflorescences** of 20–110(160) mm long, 3–10-flowered racemes; peduncle 7–30 mm long; pedicels 0.5–1.5 mm long, slender. **Flowers** 3.5–4.5 mm long, pink, magenta or white. **Calyx** 1.0–2.5 mm long, strigose; lobes lanceolate, up to 3× tube length; standard dorsal surface hyaline pubescent. **Stamens** 2.0–3.5(3.8) mm long. **Flowering time** Feb. **Pod** 8–16 × 1.5–2.0 mm, oblong, often slightly falcate, ± torulose; endocarp spotted with large pale tannin vesicles. Mixed wooded grassland, gravel or sand, also roadsides and cultivated areas; Sub-Escarpment Savanna (Queenstown District).

Group 16

Leaves pinnate; leaflets subopposite to opposite; woody shrubs to small trees of evergreen forest; pedicels 2.5–9.0 mm long; flowers white, or white and pink; calyx lobes ± $^1/_3$ as long as tube; standard dorsal surface white puberulent; pods cylindrical, glabrous, spreading.

jucunda Schrire

Robust shrub or small tree, (0.8)1.5–3.0(7.0) m high; stems greyish brown, pale cream-coloured or yellowish, scattered with dark red pearl bodies. **Stipules** (2)3–4 mm long, lanceolate. **Leaves** pinnately (7)9–15-foliolate, rachis (30)40–100(140) mm long; petioles (6)10–20(24) mm long. **Terminal leaflet** (7)14–25(30) × (3)6–15(20) mm, obovate to oblong-elliptic, base cuneate, apex emarginate, rounded, both surfaces strigillose, the lower more densely so, discolorous, paler. **Inflorescences** of 50–100(200) mm long, ± densely 20–50-flowered racemes; peduncle 9–45 mm long; pedicels (2.5)4.0–7.0(9.0) mm long. **Flowers** 7–9 mm long, pink and white; calyx 1–2 mm long, open, 5-lobed, strigillose, lobes triangular, up to $^1/_3$ of tube length; standard dorsal surface densely white puberulent, keel apex obtuse. **Stamens** (4.5)5.0–6.5 mm long. **Flowering time** July–Apr. **Pod** (25)30–50 × 3–4 mm. Forest, forest margins, riverbanks; Indigenous Forests, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Albany Thicket (Mthatha, Libode, Port St Johns to Port Edward districts S, Kentani, East London).

micrantha E.Mey.

Illegitimate name, *nom. nov.* required.

Softly wooded shrublet to small tree, 0.4–3.0 m high; branches greyish brown to glossy pale cream-coloured, often ± horizontal, slender, flexuous, ± geniculate; glabrous. **Stipules** 0.5–2.5 mm long, subulate. **Leaves** (5)7–11-foliolate, rachis 12–35(40) mm long; petioles 1–12 mm long. **Terminal leaflet** 5–16(20) × 3–11(14) mm, oblanceolate to obovate, membranous, apex obtuse; both surfaces sparsely strigose, discolorous, lower surface distinctly paler. **Inflorescences** of (8)10–30(80) mm long, ± laxly (4)10–35-flowered racemes; peduncle 2–18 mm long; pedicels 3.0–7.5 mm long. **Flowers** 6.5–7.5 mm long, white; calyx 1.0–1.8 mm long, 5-lobed; lobes triangular, to ± $^1/_3$ of tube length, ± glabrous; standard dorsal surface white puberulent, keel apex obtuse. **Stamens** 5.5–6.0 mm long. **Flowering time** Dec.–Mar. **Pod** 15–35 × 2.5–3.0 mm. Forest, forest margins, riverbanks; Indian Ocean Coastal Belt, Indigenous Forests (Port St Johns to Port Edward districts, Dwesa).

natalensis Bolus

Spindly shrub to small tree, 1–4(5) m high; branches greyish brown to glossy pale cream-coloured, often ± horizontal, slender, flexuous, ± geniculate; glabrous. **Stipules** 0.5–1.5 mm long, ± triangular. **Leaves** 3–5-foliolate, rachis terete, 11–55 mm long; petioles 5–16 mm. **Terminal leaflet** largest, 19–74 × (8)9–33 mm, ovate-acuminate, membranous, both surfaces sparsely strigose, lower surface distinctly paler than above. **Inflorescences** of (0.8)1.0–9.0 mm long, ± laxly 8–35(60)-flowered racemes; peduncle 2–20(35) mm long; pedicels (2.0)2.5–4.0(5.0) mm long. **Flowers** 4–5 mm long, white; calyx 1.0–1.8 mm long, 5-lobed, lobes triangular, to ± $^1/_3$ of tube length; standard dorsal surface white puberulent, keel apex obtuse. **Stamens** 3.5–4.5 mm long. **Flowering time** Oct.–Mar. **Pod** 20–45 × 2.5–3.5 mm. Forest, forest margins, riverbanks; Indigenous Forests, Indian Ocean Coastal Belt, Sub-Escarpment Savanna (Port Edward and Port St Johns districts, Elliotdale, Mbashe).

sp. nov. G

Erect, woody shrub, 1–2(3) m high. **Branches** greyish brown to glossy pale cream-coloured, often ± horizontal, slender, flexuous, ± geniculate, glabrous. **Stipules** 0.5–2.0 mm long, ± erect, triangular to subulate. **Leaves** pinnately (3)7–9-foliolate, rachis terete, 90–50 mm long; petioles 3–10 mm long. **Terminal leaflet** largest,

10–35 × 7–20 mm, broadly elliptic to ovate, apex ± obtuse, membranous, both surfaces sparsely strigose; lower surface distinctly paler than above. **Inflorescences** of (8)10–60 mm long, ± laxly 8–35-flowered racemes; peduncle 6–25 mm long; pedicels 2.5–4.0 mm long. **Flowers** 4–5 mm long, white; calyx 1.0–1.5 mm long, 5-lobed; lobes triangular, up to $^1/_3$ of tube length; standard dorsal surface white puberulent, keel apex obtuse. **Stamens** 3.5–4.5 mm long. **Flowering time** Nov.–Jan. **Pod** 25–35 × 3.0–3.5 mm. Forest margins, riverbanks; Indigenous Forests, Indian Ocean Coastal Belt (Mzamba to Port Edward District, Dwesa).

Group 17

Leaves pinnate; leaflets opposite; pedicels 1.0–1.5 mm long; flowers carmine-red and green, dorsal surface of standard petals with ferruginous to dark brown hairs; calyx lobes shorter than to equalling tube; stamens 3.5–5.0 mm long; pods deflexed.

arrecta Hochst. ex A.Rich.

Single to multi-stemmed shrub or bushy suffrutex, 0.2–3.0 m high; stems woody, angular, densely strigillose, hairs hyaline or brown. **Stipules** 2–9 mm long, subulate-setaceous. **Leaves** pinnately (7)11–25-foliolate, rachis 22–70(90) mm long, extended 1–5 mm beyond lateral leaflets; petioles 7–15 mm long. **Terminal leaflet** 8–20(25) × 2–10 mm, oblanceolate to obovate, apex ± rounded; both surfaces sparsely strigose, appressed hyaline or brown hairs beneath. **Inflorescences** of 15–50(60) mm long, densely (10)20–40-flowered racemes; peduncle 1–4 mm long; pedicels 1.0–1.5 mm long. **Flowers** 5–6 mm long, greenish red; calyx 1.0–1.5 mm long, densely strigose; lobes triangular, shorter than to ± equalling tube; standard dorsal surface densely strigose, hairs closely appressed, brown or ferruginous. **Stamens** 3.5–4.8 mm long. **Flowering time** Feb.–Apr. **Pod** 11–25(30) × 2–3 mm. Wooded grassland, disturbed areas, roadsides; Sub-Escarpment Savanna (Ngongoni Veld, Clydesdale District).

Group 18

Leaves pinnate; leaflets opposite; pedicels 2–9 mm long; flowers carmine-red to magenta, dorsal surface of standard petals with ferruginous to dark brown hairs; stamens 2.5–4.0 mm long; pods cylindrical, spreading to suberect.

foliosa E.Mey.

Virgate, 2–8-stemmed suffrutex, 0.3–1.0 m high; stems erect, often unbranched, woody below, angular, ± densely appressed, often subcanescent strigose, scattered with pearl bodies. **Stipules** 0.5–1.0 mm long, subulate. **Leaves** pinnately 7–13-foliolate, rachis 7–20 mm long, leaflet pairs mostly (1)2–4 mm or more apart; petioles 0.5–2.0 mm long. **Terminal leaflet** 5–22 × 1–4 mm, ± oblanceolate to narrowly oblong-elliptic, apex ± rounded; both surfaces sparsely appressed strigose, paler green above, more densely and coarsely strigose beneath. **Inflorescences** of 7–20(25) mm long, laxly (5)10–25-flowered racemes; peduncle 2–10 mm long; pedicels 3.0–7.5 mm long. **Flowers** 4–6 mm long, red; calyx 2–3 mm long, strigose; lobes lanceolate-subulate, 1.5–2.5× tube length; standard densely ferruginous to dark brown strigose dorsally; keel apex obtuse. **Stamens** 3–4 mm long. **Flowering time** Nov.–Mar. **Pod** 12–30 × 1.5–2.5 mm. Grassland, forest clearings, riverbanks and rocky hillsides; Sub-Escarpment Grassland and Drakensberg Grassland (Mount Currie S, Cala and Tsolo districts to Stutterheim).

obscura N.E.Br.

Prostrate, decumbent or erect, multi-stemmed suffrutex, 0.2–1.0 m high; rootstock woody, stems either annual and herbaceous or woody below, appressed strigose, scattered

with pearl bodies. **Stipules** 0.5–2.5 mm long, subulate-setaceous. **Leaves** pinnately 3–11-foliolate, rachis 1.5–13 mm long, leaflet pairs mostly 1.0–2.5 mm apart; petioles 0.5–2.5 mm long, dark pearl bodies at leaf base. **Terminal leaflet** 4–11(17) × 0.5–3.5 mm, oblanceolate to narrowly oblong-elliptic, apex acute; both surfaces strigose, paler green above, more densely appressed strigose beneath. **Inflorescences** of 0.1–10.0(–32.0 outside EC) mm long, (1)2–10(12)-flowered racemes; peduncle slender, 0.5–4.0(8.0) mm long; pedicels 2–6 mm long. **Flowers** 5–6 mm long, carmine-red to magenta; calyx 2.0–3.5 mm long, strigose; lobes narrowly lanceolate-subulate, ± equalling to 3× tube length; standard ferruginous to dark brown strigose dorsally; keel apex acute, often ± rostrate. **Stamens** 3–4 mm long. **Flowering time** Nov.–Jan. **Pod** 11–17 × 1.5–2.0 mm. Grassland, wooded-, bushland, rocky hillsides; Sub-Escarpment Grassland, Sub-Escarpment Savanna (Franklin, Kokstad, Mount Ayliff and uMzimkhulu districts).

placida N.E.Br.

Woody subshrub, 0.2–1.5 m high, stems many-branched, angular, ± densely appressed strigose (often with dark brown to blackish hairs), pearl bodies present. **Stipules** 0.5–2.0(2.5) mm long, filiform. **Leaves** pinnately 9–19-foliolate, rachis 1.5–40.0 mm long; petioles 1.0–2.5 mm long. **Terminal leaflet** (5)6–15 × 2–5 mm, oblanceolate to oblong-elliptic, apex rounded; glabrous, often paler green above, appressed strigose beneath. **Inflorescences** of 20–100 mm long, ± densely (15)25–60-flowered racemes; peduncle 12–35 mm long; pedicels 3–6 mm long. **Flowers** 4.0–4.5 mm long, red; calyx 1.5–2.0(2.5) mm long, ± densely strigose; lobes lanceolate to subulate, up to 3× tube length; standard densely ferruginous to dark brown strigose dorsally; keel apex obtuse. **Stamens** 3–4 mm long. **Flowering time** Nov.–Mar. **Pod** 16–28 × 1.5–2.5 mm. Rocky grassland, poorly drained soil, along streams and riverbeds; Sub-Escarpment Grassland (Clydesdale and uMzimkhulu districts).

woodii Bolus

Many-stemmed suffrutex or dense bushes, up to 0.4 m high; rootstock woody or plants rhizomatous, stems herbaceous or woody-based, prostrate, mat-forming or scrambling, appressed strigose, scattered with pearl bodies. **Stipules** 0.5–3.0 mm long, filiform. **Leaves** pinnately (5)7–13(15)-foliolate, rachis (1)4–14 mm long; petioles 0–2(3) mm long. **Terminal leaflet** (1.5)2.0–8.0 × 0.5–3.0 mm, ± oblanceolate to oblong-elliptic, apex rounded; sparsely strigose, paler green above, appressed strigose beneath. **Inflorescences** of (10)20–100 mm long, 5–25-flowered racemes; peduncle (3)7–30 mm long; pedicels 3–7(9) mm long. **Flowers** 3.5–4.5 mm long, red; calyx (2.5)3.0–5.0 mm long, ± densely strigose; lobes subulate-setaceous, 1.5–2.5× tube length; standard ferruginous-tomentose to strigose dorsally; keel apex obtuse. **Stamens** 2.5–4.0 mm long. **Flowering time** Nov.–May. **Pod** 12–18 × 1.5–2.0 mm.

woodii Bolus var. **woodii**

Prostrate or decumbent suffrutex; rootstock woody, stems herbaceous, laxly many-branched. **Leaflets** mostly not complicate, often less than 3× longer than wide, pairs more than 1 mm apart on most leaves. **Inflorescences** slender, filiform, up to 100 mm long, apex less crowded with flower buds, appearing more laxly flowered (than var. *longissima*); peduncle up to 30 mm long, laxly flowering (lower flower scars often further apart than in var. *parvifolia*). **Calyx** 2.5–3.5 mm long. **Stamens** 2.5–3.5 mm long. Grassland, rocky hillsides; Sub-Escarpment Grassland and Drakensberg Grassland (Mount Ayliff and uMzimkhulu districts S to Elliot, Hogsback and Stutterheim).

woodii Bolus var. **nov.**
Prostrate or ascending suffrutex, stems herbaceous, laxly many-branched. **Leaflets** mostly not complicate, 2–3× longer than wide, pairs more than 1 mm apart. **Inflorescences** up to 80 mm long, apex crowded with flower buds, appearing tail-like and also somewhat wispy due to long, filiform, calyx lobes on buds. **Calyx** (3.0)3.5–5.0 mm long. **Stamens** 3.5–4.0 mm long. Higher altitude rocky grassland, boulder beds, rock banks and slopes; Sub-Escarpment Grassland (Drakensberg Foothill Moist Grassland, Nungi and Insizwa mts near Kokstad).

woodii Bolus var. **parvifolia** Bolus
Rhizomatous, densely leafy, intricately branched, woody-based suffrutex. **Leaves** frond-like, rachis up to 11 mm long. **Leaflets** narrow (0.5–1.5 mm wide), complicate, ± 3× longer than wide or more, leaflet pairs close, ± 1 mm or less apart. **Inflorescences** wiry, (10)20–40 mm long, (5)10–15-flowered; peduncle up to 16 mm long, ± densely flowering (flower scars often closer together than in var. *woodii*). **Stamens** 2.5–3.8 mm long. Exposed higher altitudes, on steep slopes and rocky outcrops; Sub-Escarpment Grassland (East Griqualand Grassland; Drakensberg Foothill Moist Grassland, uMzimkhulu districts to Matatiele).

[E]sp. nov. H
Spreading to erect, woody-based subshrub 0.2–0.6(0.8) m high; stems much-branched, angular, appressed strigose. **Stipules** 0.5–2.0 mm long, subulate. **Leaves** pinnately 3–7(9)-foliolate, rachis 2–10(12) mm long, leaflet pairs mostly 1–3(4) mm apart; petioles 1.0–1.5 mm long, dark pearl bodies absent at leaf base **Terminal leaflet** 5–20 × 1.0–5.5 mm, oblanceolate to oblong-elliptic, apex acute, glabrous or sparsely strigose, often paler green above, more densely strigose beneath. **Inflorescences** of 1–55(60) mm long, 5–14(18)-flowered racemes; peduncle slender, 5–22 mm long; pedicels (2)3–5 mm long. **Flowers** 4.0–5.5 mm long, red; calyx 2–3 mm long, strigose; lobes narrowly lanceolate-subulate, 1.5–3.0× tube length; standard ferruginous to dark brown strigose dorsally; keel apex obtuse. **Stamens** 3–4 mm long. **Flowering time** Jan.–Mar. **Pod** 11–24 × 1.5–2.0 mm. Wooded grassland, thicket, steep slopes and rocky ledges; Sub-Escarpment Savanna (Mthatha, Mqanduli, Idutywa to Bizana districts).

sp. nov. I
Short-term perennial herb to woody-based subshrub 0.1–1.2 m high; woody rootstock or fibrous root system, stems much-branched, scrambling to erect, angular, appressed strigose. **Stipules** 0.5–2.0 mm long, subulate. **Leaves** pinnately (1)3–7-foliolate, densely clustered, rachis 0.5–10 mm long, leaflet pairs mostly 1–3 mm apart; petioles 0.5–2.0 mm long, clumps of pearl bodies present between leaflet pairs. **Terminal leaflet** 9–20(25) × 0.5–3.0(7.5) mm, linear to oblanceolate or oblong-elliptic, apex acute; glabrous or sparsely strigose, paler green above, more densely appressed strigose beneath. **Inflorescences** of 7–50 mm long, (4)6–10(15)-flowered racemes; peduncle slender, (2)3–28 mm long; pedicels 3–6(7) mm long. **Flowers** 4.5–6.0 mm long, red; calyx (2.0)2.5–4.0(4.5) mm long, strigose; lobes lanceolate-subulate, 2–3(4)× tube length; standard ferruginous to dark brown strigose dorsally; keel apex acute. **Stamens** 3.5–4.5 mm long. **Flowering time** Aug.–May. **Pod** 11–28 × 1.5–2.5 mm. Grassland on underlying Msikaba Formation sandstone, burned with at least one year intervals, poorly drained; Indian Ocean Coastal Belt, Sub Escarpment Savanna (Mkambati, Port Edward and Lusikisiki districts to Port St Johns).

[E]sp. nov. I subsp. nov.

Prostrate to ascending perennial herb, 0.1–0.3 m high; stems sometimes woody below, much-branched or stoloniferous, angular, appressed strigose. **Stipules** 0.5–1.5 mm long, subulate. **Leaves** pinnately 5–7-foliolate, rachis (0.5)1.0–8.0 mm long, leaflet pairs mostly 1.5–2.0(4.0) mm apart; petioles 0.2–1.0 mm long, leaf base sometimes with dark pearl bodies. **Terminal leaflet** 5–13(15) × 2.0–6.5(7.0) mm, oblanceolate to obovate, apex ± rounded, glabrous or sparsely strigose, paler green above, more densely appressed strigose beneath. **Inflorescences** of 2–12(15) mm long, 5–8(10)-flowered racemes; peduncle slender, 0.5–3.0 mm long; pedicels (2.5)3.0–6.0(7.0) mm long. **Flowers** 5.0–6.5 mm long, carmine-red; calyx 1.5–2.5 mm long, strigose; lobes lanceolate-subulate, ± equalling to twice tube length; standard ferruginous to dark brown strigose dorsally; keel apex acute. **Stamens** 3.5–4.2 mm long. **Flowering time** Dec.–May. **Pod** 15–25 × 1.5–2.5 mm. Grassy hillsides near sea, wooded grassland, seasonally wet areas; Indian Ocean Coastal Belt (Mkambati to Haga Haga).

sp. nov. J

Woody-stemmed subshrub, 0.1–0.8 m high; stems many-branched, sometimes prostrate, angular, appressed strigose, scattered with pearl bodies. **Stipules** 0.5–2.0 mm long, filiform. **Leaves** pinnately (3)5–13(17)-foliolate, rachis (1.5)2.0–30.0 mm long; petioles 1.0–2.5 mm long, leaf base with dark pearl bodies. **Terminal leaflet** (4)5–12 × 1.0–3.0(5.5) mm, ± linear-oblong to oblanceolate, apex ± rounded; glabrous, often paler green above, appressed strigose beneath. **Inflorescences** of 10–70 mm long, laxly 5–15-flowered racemes; peduncle 3–23 mm long; pedicels 3–6 mm long. **Flowers** 3.5–4.5 mm long, red; calyx (2.0)2.5–3.5(4.0) mm long, ± densely strigose; lobes subulate, up to 2–4× tube length; standard ferruginous to dark brown strigose dorsally; keel apex obtuse. **Stamens** 3–4 mm long. **Flowering time** Nov.–May. **Pod** 8–21 × 1.5–2.0 mm. Grassland slopes, near forest margins or rocky outcrops; Sub-Escarpment Grassland (Clydesdale District).

Group 19

Leaves pinnate; leaflets opposite; pedicels 2–9 mm long; flowers carmine-red to magenta, dorsal surface of standard petals with ferruginous to dark brown hairs (see also *I. jucunda*, group 16); stamens 4.5–7.0 mm long; pods spreading to suberect.

longipes N.E.Br. ex Baker f.

Virgate herb or subshrub, 0.3–2.0 m high; stems from a woody rootstock or taproot, angular, ribbed, ± densely appressed strigose, pearl bodies isolated. **Stipules** 1.5–3.0 mm long, subulate. **Leaves** pinnately 3–7-foliolate, rachis (7)10–42 mm long, leaflet pairs mostly (3.5)4.0–13.0 mm apart; petioles 3–13 mm long. **Terminal leaflet** (11)16–42 × 1–10 mm, linear to oblong-elliptic, apex acute to rounded; appressed strigillose, paler green above, appressed strigose beneath. **Inflorescences** of (50)70–180 mm long, spike-like (20)40–80-flowered racemes; peduncle 24–70 mm long; pedicels 3.5–9.0 mm long. **Flowers** 6–7 mm long, red; calyx 2–3 mm long, strigose; lobes triangular-lanceolate, ± equalling to twice tube length; standard densely ferruginous to dark brown strigose dorsally; keel apex obtuse. **Stamens** 5–6 mm long. **Flowering time** Nov.–June. **Pod** 20–35 × 2.0–2.5 mm. Wooded grassland, forest margins, rocky hillsides, areas of poor drainage; Indian Ocean Coastal Belt (Mkambati to Port Edward districts).

[E]ovina Harv.

Woody-stemmed subshrub, 0.2–0.4 m high; rootstock woody, stems prostrate to ascending, angular, ± densely appressed silvery strigose. **Stipules** 0.5–1.0 mm long, deltoid. **Leaves** pinnately 5–11(13)-foliolate, rachis 2–20 mm long, leaflets mostly 2 mm or more apart; petioles 0.5–2.5 mm long. **Terminal leaflet** 5–15 × 1–2 mm, linear-oblanceolate, apex ± obtuse; sparsely to densely strigose, paler green above, densely appressed silvery strigose beneath. **Inflorescences** of 15–45 mm long, laxly 6–15(20)-flowered racemes; peduncle 7–16 mm long; pedicels (1.5)2.0–4.0 mm long. **Flowers** 7–8 mm long, red; calyx 3–4 mm long, densely strigose; lobes narrowly lanceolate-subulate, 1.5–2.5× tube length; standard ferruginous to dark brown strigose dorsally; keel apex obtuse. **Stamens** 6–7 mm long. **Flowering time** Nov.–Feb. **Pod** 18–26 × 2 mm. Grassland and scrub often associated with rocky outcrops; Sub-Escarpment Grassland (Queenstown S, Cathcart and Stutterheim districts).

punctata Thunb.

(= *I. zeyheri* Spreng. ex Eckl. & Zeyh.)

Virgate subshrub, 0.2–1.0 m high; stems arising from rootstock, ± densely appressed, strigose, often with dark brown hairs, pearl bodies isolated. **Stipules** 1–3 mm long, subulate. **Leaves** pinnately 5–11(13)-foliolate, rachis 2–20 mm long, leaflet pairs mostly 2 mm or more apart; petioles 0.5–2.0 mm long. **Terminal leaflet** (4)5–20 × 1–3(4) mm, ± linear to oblanceolate, apex truncate; sparsely appressed strigose, often paler green above, more densely appressed strigose beneath. **Inflorescences** of 20–60(80) mm long, spike-like, densely (5)20–40-flowered racemes; peduncle 7–35 mm long; pedicels 3–7 mm long. **Flowers** 5.5–7.0 mm long, red; calyx 1.5–2.5 mm long, strigose; lobes triangular-lanceolate, ± equalling to twice tube length; standard densely ferruginous to dark brown strigose dorsally; keel apex obtuse. **Stamens** 4.5–6.0 mm long. **Flowering time** Oct.–May. **Pod** 15–32 × 1.6–2.0 mm. Grassland, wooded-, rocky hillsides; in all bioregions, except Upper Karoo, Rainshadow Valley Karoo and Indigenous Forests (Lady Grey S, from Dordrecht to Port Edward, Aberdeen to King William's Town and Komga, Port Elizabeth to East London and to Humansdorp).

stricta L.f.

Decumbent to erect, resprouting subshrub, 0.2–1.0(1.2) m high, stems woody below, angular, ± densely appressed strigose, scattered with pearl bodies. **Stipules** 0.5–1.0 mm long, deltoid- subulate. **Leaves** pinnately (3)5–11(13)-foliolate, rachis 1–10(12) mm long, leaflet pairs mostly 1 mm or less, sometimes up to 2 mm apart; petioles 0.5–1.5(2.0) mm long, pearl bodies between leaflet pairs. **Terminal leaflet** 3–12(16) × 0.5–2.0(3.8) mm, oblanceolate to linear-oblong, apex ± rounded; sparsely strigose, more densely appressed strigose beneath. **Inflorescences** of 3–12(15) mm long, (1)2–6(7)-flowered racemes; peduncle robust, 0.5–4.0(7.0) mm long; pedicels (1)2–4 mm long. **Flowers** 5–7 mm long, red; calyx 1–2 mm long, strigose; lobes triangular-lanceolate, ± equalling to 1.5× tube length; standard ferruginous to dark brown strigose dorsally; keel apex obtuse. **Stamens** 4–5(6) mm long. **Flowering time** Aug.–Apr. **Pod** 11–26 × 1.5–2.5 mm. Dune thicket, bush and forest margins, thornveld and grassland; Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Drakensberg Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Haga Haga S, Seymour to Komga, Tsitsikamma to East London and to Humansdorp).

verrucosa Eckl. & Zeyh.

Prostrate to erect subshrub, 0.2–0.5 m high, stems woody below, scrambling, angular, ± densely appressed, sometimes canescent strigose, scattered with pearl bodies. **Stipules** 0.5–1.5 mm long, triangular. **Leaves** pinnately 5–11(15)-foliolate, rachis 2–8(15) mm long, leaflet pairs mostly less than 2 (often 1 or less) mm apart; petioles 0.5–1.0 mm long, clumps of pearl bodies on rachis between leaflet pairs. **Terminal leaflet** 3–10(15) × 0.5–2.0(4.0) mm, ± linear to oblanceolate, 3–6 or more times longer than wide, apex ± obtuse, sparsely appressed strigose, paler green above, more densely appressed strigose beneath. **Inflorescences** of (10)2–60(80) mm long, laxly subcapitate, (2)3–15(20)-flowered racemes; peduncle 6–45(55) mm long; pedicels 3.0–7.5 mm long. **Flowers** 5–7 mm long, red; calyx 1.5–2.5 mm long, strigose; lobes triangular-lanceolate, ± equalling to twice tube length; standard ferruginous to dark brown strigose dorsally; keel apex obtuse. **Stamens** 4.5–6.0 mm long. **Flowering time** Sept.–Aug. **Pod** 18–32 × 2–3 mm. Grassland, fynbos, dune thicket; Eastern Fynbos-Renosterveld, Albany Thicket (Joubertina, Suurberg Mts, Port Elizabeth, Grahamstown and East London to Humansdorp).

[E]sp. nov. K

Sprawling to erect, wiry-stemmed subshrub, 0.3–1.0 m high; stems woody below, angular, ± densely appressed strigose. **Stipules** 0.5–1.0 mm long, deltoid. **Leaves** pinnately 13–29-foliolate, rachis 4–11 mm long, leaflet pairs mostly less than 1 mm apart; petioles 0.5–1.0 mm long, leaf base with clumps of dark pearl bodies. **Terminal leaflet** (1)2–5(6) × 0.4–1.0 mm, linear-oblanceolate, apex ± obtuse; glabrous, often paler green above, appressed strigose beneath. **Inflorescences** of 10–30 mm long, laxly 2–5-flowered racemes; peduncle 5–20 mm long, 0.1–0.4 mm wide; pedicels (2.0)2.5–5.0(6.0) mm long. **Flowers** 6–7 mm long, red; calyx (1.5)2.0–3.0 mm long, strigose; lobes triangular-lanceolate, ± equalling to 2.5× tube length; standard ferruginous to dark brown strigose dorsally; keel apex obtuse. **Stamens** (4.5)5.0–6.0 mm long. **Flowering time** Oct.–Apr. **Pod** 15–22 × 2.0–2.6 mm. Moist grassland and scrub often near forest margins; Dry Highveld Grassland, Drakensberg Grassland (Somerset East to Hogsback districts).

sp. nov. L

Softly woody suffrutex or shrub, 1.0–2.5 m high; stems, much-branched, scandent to erect, angular, ± densely appressed strigose, pearl bodies often present. **Stipules** 0.5–2.5 mm long, subulate. **Leaves** pinnately (5)7–13-foliolate, rachis 7–35 mm long, leaflet pairs mostly 1.5–4.0(5.0) mm or more apart; petioles 1–6 mm long; clumps of pearl bodies between leaflet pairs. **Terminal leaflet** 6–20 × 1.0–5.0(6.5) mm, oblanceolate to narrowly oblong, apex rounded; sparsely appressed strigose, paler green above, more densely appressed strigose beneath. **Inflorescences** of 8–30(35) mm long, laxly (4)6–25-flowered racemes; peduncle 2–14 mm long; pedicels 2.5–6.5 mm long. **Flowers** 5–6 mm long, red; calyx 1.5–2.5 mm long, strigose; lobes triangular-lanceolate, ± equalling to twice tube length; standard ferruginous to dark brown strigose dorsally; keel apex obtuse. **Stamens** 4.5–5.5 mm long. **Flowering time** Nov.–Mar. **Pod** 16–30 × 1.5–2.5 mm. Forest margins and understory, wooded hillsides, grassland, drainage lines; Indigenous Forests, Sub-Escarpment Grassland, Sub-Escarpment Savanna (Mount Frere and Tsolo districts S, Mthatha to Lusikisiki and Fort Beaufort to Hogsback).

Group 20

Leaves pinnate; leaflets opposite; pedicels 2–9 mm long; flowers carmine to crimson-red, dorsal surface of standard petals with ferruginous to dark brown hairs; stamens 9–14 mm long; pods spreading.

dregeana E.Mey.
Multi-stemmed suffrutex, up to 0.8 m high, or single-stemmed subshrub, up to 1.5 m high; rootstock woody, stems densely grey villous-tomentose to crisped pubescent, with dark brown hairs and scattered pearl bodies. **Stipules** 2–7 mm long, subulate-setaceous. **Leaves** pinnately (5)7–15(17)-foliolate, rachis 6–40 mm long; petioles 1–4 mm long. **Terminal leaflet** (4)6–20 × (1)2–6 mm, ± linear-oblong to oblanceolate, apex ± acute; indumentum on both surfaces as for stems. **Inflorescences** of (15)25–150(180) mm long, ± densely (6)20–100-flowered racemes; peduncle 10–60 mm long; pedicels (2.5)3.0–7.0 mm long. **Flowers** 10–13 mm long, crimson-red; calyx (2.5)3.0–6.0 mm long, densely grey-white-tomentose, lobes triangular, ± equalling to 2(3)× tube length; standard dorsal surface densely ferruginous to dark brown strigose; keel apex obtuse. **Stamens** 9–12 mm long. **Flowering time** Oct.–Mar. **Pod** 18–40 × 2.5–3.0 mm. Grassland, rocky hillsides and boulder screes; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna (Ongeluksnek, Thaba Chitja, Ntsikeni to Kokstad districts S, Queenstown, Baziya, Mthatha).

hedyantha Eckl. & Zeyh. subsp. **hedyantha**
Erect to decumbent suffrutex, 0.4(0.6) m high; rootstock woody, many-stemmed, herbaceous or becoming woody, angular, sparsely to densely appressed hyaline strigose. **Stipules** 1–3 mm long, subulate-setaceous. **Leaves** pinnately (3)5–9(11)-foliolate, rachis 1–11(13) mm long; petioles 0.5–2.0 mm. **Terminal leaflet** (2)3–16 × 0.7–2.5(3.0) mm, linear-oblong to narrowly elliptic, apex acute to rounded; paler green and glabrous or sparsely strigose above, sparsely strigose beneath. **Inflorescences** of 25–150 mm long, ± densely (5)10–70-flowered racemes, relatively sparse in number (± 1–3) per branch; peduncle 18–80(100) mm long; pedicels 3–9 mm long. **Flowers** 10–15 mm long, crimson-red; calyx 2–4 mm long, densely appressed dark brown to ferruginous-strigose, lobes triangular to lanceolate, ± equalling to 1.5× tube length; standard dorsal surface densely ferruginous to dark brown strigose or subtomentose; keel apex obtuse. **Stamens** 9–14 mm long. **Flowering time** July.–Mar. **Pod** 20–42 × 2.5–3.0 mm. Grassland, rocky slopes, riverine vegetation; Drakensberg Grassland, Sub-Escarpment Grassland, Albany Thicket (Clydesdale S, Barkly East to Port Edward, Dordrect to Queenstown, Hogsback to Kei River Mouth and Suurberg to Grahamstown and East London).

rostrata Bolus subsp. **rostrata**
Virgate subshrub, up to 1.2 m high, or robust-stemmed suffrutex, up to 0.6 m high; rootstock woody, stems woody below, angular, ± densely appressed hyaline strigillose or strigose, or arms of hairs spreading at tips. **Stipules** 0.5–3.0 mm long, subulate-setaceous. **Leaves** pinnately (5)7–13-foliolate, usually ascending to erect, closely arranged and overlapping around stems, rachis 4–30(45) mm long; petioles 0.5–2.0 mm long. **Terminal leaflet** 6–25 × 1.5–8.0 mm, ± linear-oblong to oblanceolate, apex acute to obtuse; paler green and sparsely strigose above, sparsely to densely strigose beneath. **Inflorescences** of 35–160 mm long, ± densely (20)30–80(100)-flowered racemes, usually many in number (> 3) per branch, particularly in upper half; peduncle 25–100 mm long; pedicels 3–8 mm long. **Flowers** 10–15 mm long, crimson-red; calyx 2–5 mm long, densely appressed dark brown, ferruginous and/or hyaline-strigose, lobes triangular to lanceolate, ± equalling to twice tube length; standard dorsal surface densely ferruginous to dark brown strigose or subtomentose; keel apex obtuse. **Stamens** 9–13 mm long. **Flowering time** Nov.–Mar. **Pod** 30–60 × 2.0–2.5 mm. Grassland, mountain slopes,

marshy places; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Kokstad S to Baziya, Lusikisiki and Mkambati Districts and to Komga).

tristis E.Mey.

Erect, slender subshrub, 0.5–2.0(2.5) m high; stems single or few, woody below, branched in upper third, angular, appressed hyaline strigillose. **Stipules** 0.5–2.0 mm long, subulate. **Leaves** pinnately 7–13-foliolate, rachis 4–20(30) mm long; petioles 0.5–3.0(4.0) mm long. **Terminal leaflet** 5–16(22) × 1.5–4.0(5.0) mm, oblanceolate to narrowly oblong-elliptic, apex ± rounded; paler green and sparsely strigose above, sparsely to densely strigose beneath. **Inflorescences** of (20)30–240 mm long, ± densely (10)15–70(150)-flowered racemes, usually many in number (> 3) per branch, particularly in upper half, buds often blackish; peduncle 8–80 mm long; pedicels (2)3–7 mm long. **Flowers** 10–14 mm long, crimson-red; calyx 1.5–2.5 mm long, densely appressed grey to dark brown strigose, also with ferruginous hairs, lobes broadly triangular, shorter than to ± equalling tube; standard dorsal surface densely dark brown to blackish strigose often scattered with ferruginous and sometimes hyaline hairs; keel apex obtuse. **Stamens** 9–13 mm long. **Flowering time** Nov.–May. **Pod** 24–50 × 1.5–2.6 mm. Grassland, areas of poor drainage or along watercourses, forest margins; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Mount Frere to Clydesdale and Port Edward districts).

[E]sp. nov. M

Erect, rigid subshrub, 0.6–1.2 m high; stems woody, many-branched, angular, reddish brown, sparsely to densely ± appressed hyaline strigose. **Stipules** 0.5–1.5 mm long, subulate. **Leaves** pinnately 7–9-foliolate, rachis 2–10 mm long; petioles 0.5–1.0 mm long. **Terminal leaflet** 3–10 × 0.8–2.0 mm, ± linear-oblong, apex acute to obtuse; paler green and glabrous above, sparsely to densely strigose beneath. **Inflorescences** of 8–15 mm long, 3–6-flowered racemes, not or hardly exceeding leaves in length; peduncle 3–7 mm long; pedicels (2)3–7 mm long. **Flowers** 11–13 mm long, crimson-red; calyx 3–4 mm long, densely dark brown to ferruginous-strigose or subtomentose, lobes triangular, ± equalling to 1.5× tube length; standard dorsal surface densely ferruginous to dark brown strigose or subtomentose; keel apex obtuse. **Stamens** 10–12 mm long. **Flowering time** Sept. **Pod** 25–36 × 2–3 mm. Grassland, valley bushveld; Sub-Escarpment Savanna (Kentani District).

sp. nov. N

Decumbent to ascending, resprouting suffrutex, 0.5–0.8 m high; rootstock woody, stems few to many, angular, appressed hyaline strigillose. **Stipules** 0.5–2.5 mm long, subulate. **Leaves** pinnately 7–15-foliolate, rachis (4)5–20(26) mm long; petioles 0.5–1.0 mm long. **Terminal leaflet** 5–16(22) × 1.5–8.0(9.0) mm, ± oblanceolate to narrowly oblong-elliptic, apex ± acute, paler green and sparsely strigose above, sparsely to densely strigose beneath. **Inflorescences** of (20)30–180 mm long, ± densely (10)15–70(140)-flowered racemes, usually many in number (> 3) per branch, particularly in upper half, buds often blackish; peduncle 15–80 mm long; pedicels (2)3–7 mm long. **Flowers** 7–9 mm long, crimson-red; calyx 1.5–2.5 mm long, densely appressed grey to dark brown strigose, also with ferruginous hairs, lobes broadly triangular, shorter than to equalling tube length; standard dorsal surface densely dark brown to blackish strigose, scattered with ferruginous hyaline hairs; keel apex obtuse. **Stamens** 6.5–7.0 mm long. **Flowering time** Dec.–Feb. **Pod** 24–45 × 2.5–3.0 mm. Grassland; Indian Ocean Coastal Belt, Sub-Escarpment Savanna (Lusikisiki to Port Edward Districts S, East London).

LABLAB Adans.

Species 1, variable under worldwide cultivation, widespread in Africa; widespread in sthn Afr., except NC.

purpureus (L.) Sweet

Perennial, climbing herb, 0.2–5.0 m long; stems pubescent or glabrous, entire plant often flushed purple. **Leaflets** ovate-triangular, 25–150 × 15–140 mm, acuminate, cuneate to truncate at base, glabrous or pubescent. **Inflorescences**: axillary racemes. **Calyx**: tube 3–4 mm long. **Petals**: standard crimson, partially purple or white; wings purple; keel pale tinged mauve. **Pod** linear oblong to oblong-falcate, 35–140 mm long, pubescent or glabrescent, tuberculate, 2–5-seeded. **Seeds** white or red to black. Forest, grassland, fynbos, disturbed areas, riverine areas, near coast; Indian Ocean Coastal Belt, Lower Karoo, Indigenous Forests, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Albany Thicket, Eastern Fynbos-Renosterveld (widespread throughout EC).

L. purpureus subsp. **uncinatus** Verdc.: wild plants with pods ± 40 × 15 mm;

***L. purpureus** subsp. **purpureus**: cultivated plants with larger pods, ± emarginate below persistent style, up to 100 × 40 mm.

LEBECKIA Thunb.

Species ± 35, sthn Afr., N, NC, WC, EC.

1a Leaves unifoliolate or simple
2a Leaves filiform; tips of branches herbaceous

brevipes M.M.le Roux & B.-E.van Wyk

Perennial, glabrous suffrutex, up to 0.5 m high, decumbent to diffuse. **Leaves** terete, not distinctly jointed. **Inflorescences** few-flowered, terminal racemes. **Flowers** small, yellow. **Calyx**: teeth shorter or as long as tube, deltoid. **Flowering time** mainly Nov.–Jan. **Pod** narrowly elliptic, straight. Sandy soil usually in recently burnt vegetation, alt. 500–1 100 m; Eastern Fynbos-Renosterveld (Willowmore, Spitskop and Helpmekaar Peak).

gracilis Eckl. & Zeyh.

Perennial, glaucous, ascending, suffrutex, 0.15–0.30(–0.80) m high; many-stemmed, erect, ends of branches ascending. **Leaves** simple, acicular, 3–6 per 10 mm length of stem, articulated near middle, mucronulate. **Inflorescences** elongate, densely many-flowered, terminal racemes. **Flowers** small, bright yellow. **Calyx**: teeth shorter than tube, deltoid. **Flowering time** July–Nov. **Pod** deflexed, linear, straight or very slightly falcate, subcompressed, semi-terete, acute at each end. Deep, sandy soil, coastal, alt. below 300 m; Albany Thicket, Eastern Fynbos-Renosterveld (Uitenhage, Port Elizabeth).

pauciflora Eckl. & Zeyh.

Perennial, glabrous suffrutex, 0.6–0.9(–1.0) m high; slender, suberect, many-stemmed, unbranched. **Leaves** terete, acute, sometimes distinctly jointed. **Inflorescences** relatively many-flowered or many, terminal racemes. **Flowers** erect, yellow. **Calyx**: teeth triangular, longer than tube. **Petals**: standard partly purple; keel spirally twisted. **Flowering time** Sept.–Jan. **Pod** very slender. Sandy places, mountain areas; Eastern Fynbos-Renosterveld (Swartberg Mts, Ongelee, Joubertina District).

2b Leaves obovate to oblong; branches spiny/pungent

macrantha Harv.

Perennial shrub, divaricately much branched, 0.5–2.5 m high; spiny, rigid, nearly naked; twigs thinly tomentose-canescent. **Leaves** few and distant, obovate or oblong, subsessile, puberulous. **Inflorescences**: racemes on rigidly pungent, robust branchlets. **Flowers** large. **Calyx** widely campanulate, puberulous; teeth short, acute. **Petals**: keel bluntly rostrate, longer than erect standard. **Pod** oblong, compressed, several-seeded, glabrous. Dry Highveld Grassland, Upper Karoo (Cradock).

psiloloba Walp.

Perennial, divaricately much-branched shrub or dwarf shrub, 0.3–2.0(–2.5) m high; rigid, spiny; glabrous. **Leaves** few and distant, mostly unifoliolate, obovate or oblong to spathulate, flattish. **Inflorescences**: racemes on rigid, spine-tipped branchlets. **Flowers** bright yellow, nodding. **Calyx**: teeth very short and broad. **Flowering time** Mar.–June, sometimes spring and summer. **Pod** membranaceous, glabrous, oblong. Grassland, open woodland; can become invasive; Upper Karoo, Eastern Fynbos-Renosterveld, Albany Thicket (outliers at Cradock S, Port Elizabeth, Addo and Grahamstown).

pungens Thunb.

Divaricately much-branched, perennial shrub, 1.2–1.6(–2.5) m high; spiny, very rigid; twigs finely tomentose, sericeous. **Leaves** unifoliolate, rarely trifoliolate, flattish, few and distant, obovate to widely obovate. **Flowers** bright yellow, spread along pungent branchlets. **Calyx**: tube widely campanulate; teeth very short and broad, almost absent. **Flowering time** Sept.–Dec. **Pod** white-tomentose. Habitat not recorded; Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld (Swartberg Mts, Willowmore and Baviaanskloof).

1b Leaves trifoliolate (see also L. pungens, L. psiloloba*)*

mucronata Benth.

Unarmed, erect, perennial, dwarf shrub, up to 0.3 m high; densely branching; at first thinly appressed-pubescent, afterwards glabrate; twigs furrowed, reddish. **Leaves** petiolate, flattish. **Leaflets** cuneate-oblong or sublinear, mucronate, glabrous or minutely puberulous underneath. **Inflorescences** short, several-flowered, terminal racemes. **Flowers** nodding, yellow, turning dark when dry. **Calyx** campanulate, puberulous; teeth widely triangular, acute. **Petals** glabrous; standard brown on back. **Flowering time** Sept.–Nov. **Pod** subcompressed, acute, glabrous. Mountains, fynbos, rocky places, near streams; Eastern Fynbos-Renosterveld, Albany Thicket (Grahamstown SW to Joubertina).

*LESPEDEZA Michx.

Species ± 40, in temperate North America, east and tropical Asia and Australia; 1 in sthn Afr., has become naturalised in the midlands of KZN in the Pietermaritzburg, Kokstad and Ixopo districts.

cuneata (Dum.Cours.) G.Don

Japanese bushclover

Perennial, dwarf shrub, 0.8–1.0 m high; with virgate, densely leafy branches arising from a woody rhizome. **Leaves** with terminal leaflet not or very shortly stalked, 7–20 mm long, long-tapered to base, truncate or notched at apex; upper surface hairless; lower surface sparsely to densely hairy. **Inflorescence** a dense raceme, shorter than subtending leaves. **Flowers** often cleistogamous. **Calyx** ± 4 mm long; teeth acuminate. **Petals**

whitish; standard 6–7 mm long; keel longer than standard. **Flowering time** Feb.–Apr. **Pod** 1.5–2.0 mm long, not stalked, hairy. Old lands, along roadsides/railways, grasslands.

LESSERTIA DC.

Manning & Goldblatt (2012).

(= *SUTHERLANDIA* R.Br. ex W.T.Aiton)

Balloon pea; *blaasertjie* (A)

Species ± 55, E tropical Africa and sthn Afr., widespread.

Recent studies suggest a lack of differentiation between *Sutherlandia* taxa (Moshe et al. 1998).

1a Flowers red, 25–30 mm long; wing petals small, concealed in calyx; standard petal much shorter than keel

frutescens (L.) Goldblatt & Manning

Manning & Goldblatt (2012).

[= *Colutea frutescens* L., *Sutherlandia frutescens* (L.) R.Br., *S. microphylla* Burch. ex DC.]

Belletjie, *eendjies*, *gansies*, *gansiebos*, *gansieskeur*, *hondebelletjie*, *kanker-bossie* (A)

Shrublet, up to 1.5 m high. **Leaves** imparipinnate; leaflets alternate, oblong to elliptical, obtuse; upper surface almost glabrous; lower surface hairy. **Inflorescences** of 5- or 6-flowered racemes. **Flowers** ornamental, brick-red, drying purplish. **Flowering time** Apr.–Jan. **Pod** large, inflated, papery, glabrous flushed red. **Seeds** many, black, flattened. Dry hills, mountainsides, roadsides; Dry Highveld Grassland, Drakensberg Grassland, Upper Karoo, Lower Karoo, Albany Thicket, Eastern Fynbos-Renosterveld (Oviston E to Naude's Neck, southwards from Graaff-Reinet and Cradock to Grahamstown and to Humansdorp).

frutescens (L.) Goldblatt & Manning subsp. **frutescens**

[= *Sutherlandia humilis* E.Phillips & R.A.Dyer, *L. humilis* (E.Phillips & R.A.Dyer) Goldblatt & Manning, *S. montana* E.Phillips & R.A.Dyer, *L. montana* (E.Phillips & R.A.Dyer) Goldblatt & Manning]

Blaasbossie, *kleingansies*, *kleinkankerbossie*, *rooi-ertjie* (A); *unwele* (Z)

Shrub, up to 2 m high; branching from apex of deep tap root. **Branches** ridged, densely strigose, becoming almost glabrous. **Leaves** up to 80 mm long, imparipinnate. **Leaflets** alternate, ± linear-oblong; upper surface glabrous; lower surface pubescent. **Stipules** small, ovate. **Inflorescences** of 2–5-flowered racemes. **Flowers** red, purplish when dry. **Flowering time** Apr.–Dec.? **Pod** greenish, flushed purplish. **Seeds** many, black. Roadsides, grassland, karoo, closed woodland and high mountains of EC; Upper Karoo, Dry Highveld Grassland, Drakensberg Grassland, Lower Karoo, Eastern Fynbos-Renosterveld, Albany Thicket (Bethulie and Aliwal North to Naude's Neck S, from Graaff-Reinet to Mountain Zebra National Park, Somerset East, Cathcart, Little Fish River and Amatole Mts, from Uitenhage to Grahamstown and to Humansdorp).

frutescens (L.) Goldblatt & Manning subsp. **microphylla** (Burch. ex DC.) J.C.Manning & Boatwr.
[= *Sutherlandia microphylla* Burch. ex DC., *L. microphylla* (Burch. ex DC.) Goldblatt & J.C.Manning]
Jantjie-Bêrend, *kalkoentjiebos*, *bitterblaar*, *groot kankerbos* (A)
Erect, robust dwarf-shrub, up to 1.5 m high. **Branches** shallowly fluted, strigose, more rarely glabrous. **Leaves** imparipinnate. **Leaflets** alternate, oblong to linear-oblong, obtuse; upper surface glabrous or somewhat pubescent; lower surface pubescent. **Stipules** small, ovate. **Inflorescences** of 2–8-flowered racemes. **Flowers** showy, scarlet. **Flowering time** Aug.–Jan. **Pod** flushed red. **Seeds** many, black, flattened. Roadsides, rocky grassland, karoo, river-/streambanks; Drakensberg Grassland, Upper Karoo, Dry Highveld Grassland, Sub-Escarpment Grassland, Albany Thicket (Aliwal North E to Maclear, southwards from Middelburg, Graaff-Reinet and Cradock to Grahamstown).

1b Flowers pinkish or mauve to red, or mostly white, up to 15 mm long; wing petals conspicuous and protruding; standard petal ± as long as keel
2a Peduncles > 80 mm long
3a Bracts foliaceous, 5–10 mm long

kensitii L.Bolus
Perennial, non-climbing herb, up to 0.4 m high. **Leaves** up to 55 mm long. **Leaflets** 8–12 × 2 mm, 6–9-jugate, linear, glabrous. **Inflorescence** elongating, 20–30-flowered. **Flowers** up to 10 mm long; peduncles 90–100 mm long; bracts foliaceous, ovate to ovate-lanceolate, acute, 5–10 mm long. **Pedicels** 2–3 mm long. **Calyx** 3–4 mm long. **Gynoecium**: ovary hairy, 14-ovuled; style bearded nearly halfway ventrally and also around stigma. **Flowering time** Sept., Oct. **Pod** linear and under section *Stenolobae* (only specimen available has very young fruits therefore impossible to take measurements). In sandy soil; Albany Thicket, Eastern Fynbos-Renosterveld (Bakens River Valley to Humewood and to Slang River near Humansdorp).

perennans (Jacq.) DC.
Perennial, non-climbing suffrutex, 0.6–1.6 m high. **Leaves** 35–120 mm long. **Leaflets** 6–11-jugate, 7–21 × 1–11 mm, ovate to slightly obovate or elliptic, apex rounded, base cuneate, either both surfaces villous to tomentose or hairy on one surface. **Stipules** 3.5–12.0 mm long, lanceolate-acuminate. **Inflorescence** laxly racemose, 15–50-flowered; peduncles 50–140 mm long; bracts 2–6 mm long. **Pedicels** 4–5 mm long. **Flowers** 5–7 mm long. **Calyx** 2–3 mm long. **Gynoecium**: ovary glabrous or slightly hairy along adaxial suture; style bearded only around stigma. **Flowering time** Apr.–Oct. **Pod** 11–20 × 6–11 mm, obliquely elliptic, sharply cuneate at base, glabrous, but sometimes with scattered hairs along suture. Grassy places; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Drakensberg Grassland, Albany Thicket, Indigenous Forests (Matatiele, Kokstad, Lady Frere, Mthatha, Fort Beaufort, Stutterheim to Grahamstown).

3b Bracts not foliaceous, < 5 mm long

stenoloba E.Mey.
Perennial, non-climbing herb, up to 0.3 m high, erect or diffuse. **Leaves** 45–75 mm long. **Leaflets** 11–18 × 2 mm, 5–10-jugate, linear-oblong or sublanceolate, variably pubescent. **Stipules** 3–5 mm long, lanceolate, strigose. **Inflorescence** shortly racemose, 10–30-flowered at the summit; peduncles 25–120 mm long, longer than leaves; bracts widely cordate, 1–2 mm long. **Pedicels** 1–3 mm long. **Flowers** up to 11 mm long. **Calyx** 3–4 mm long. **Gynoecium**: ovary hairy, 14-ovuled; style hairy nearly halfway ventrally

and also around stigma. **Flowering time** July–Dec. **Pod** 46 × 9 mm, linear, obtuse, mucronate, nearly straight, 4× as long as wide, thinly strigose, many-seeded. Grassland, sandy soil; Sub-Escarpment Savanna, Albany Thicket (King William's Town SW, Port Elizabeth to Port Alfred).

2b Peduncles ≤ 80 mm short
4a Leaflets few, 1–6-jugate

depressa Harv.

Perennial, non-climbing herb, procumbent or prostrate, up to 0.6 m high. **Leaves** 30–60 mm long. **Leaflets** 6–8 × 1 mm, 3–6-jugate, oblong-lanceolate or oblong, acute or obtuse, thinly strigose-pilose beneath. **Inflorescence** a short, dense raceme, up to 10 flowers; peduncles shorter than leaves or scarcely longer, 11–40 mm long; bracts 1 mm long, widely ovate, obtuse. **Pedicels** 1–2 mm long. **Flowers** up to 10 mm long. **Calyx** 2–4 mm long. **Flowering time** June–Sept. **Pod** 20–30 × 10–15 mm, glabrous, inflated, obliquely ovoid, substipitate, many-seeded. Rocky places, karroid conditions, grassland; Dry Highveld Grassland, Drakensberg Grassland, Upper Karoo, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Albany Thicket (Bethulie, between Barkly East and Rhodes, Middelburg to Queenstown, Graaff-Reinet to Fort Beaufort and Grahamstown to Port Alfred).

flanaganii L.Bolus

Perennial, non-climbing herb, 0.8–1.0 m high. **Leaves** up to 35 mm long. **Leaflets** 3–6-jugate, 6–9 × 2 mm, lanceolate or ovate-lanceolate, setaceous-acuminate, glabrescent, margins subinvolute. **Stipules** 4–5 mm long, lanceolate or ovate-lanceolate, setaceous-acuminate. **Inflorescence** shortly racemose, 5–8-flowered; peduncles 13–35 mm long; bracts up to 4 mm long. **Pedicels** up to 2 mm long. **Flowers** up to 10 mm long. **Calyx** up to 4 mm long. **Gynoecium**: ovary glabrous, 14-ovuled; style bearded only around the stigma. **Flowering time** Sept. **Pod** unknown. Grassy hills; Sub-Escarpment Savanna (near Komga).

harveyana L.Bolus

Perennial, non-climbing herb, sometimes erect or decumbent to prostrate, 0.4–1.0 m high. **Leaves** 15–25 mm long. **Leaflets** 7–11 × 3–7 mm, 4- or 5-jugate, elliptic to obovate, base cuneate, apex rounded and mucronulate; upper surface glabrous; lower surface strigose. **Stipules** 3–4 mm long, narrowly triangular, acuminate, glabrescent. **Inflorescence** lax, 2–10-flowered; peduncles 35–60 mm long; bracts 2–3 mm long. **Pedicels** 3–4 mm long. **Flowers** up to 6 mm long. **Calyx** 4–5 mm long. **Gynoecium**: ovary narrowly elliptic, oblique basal, substipitate, glabrous; style 2 mm long, bearded only around stigma. **Flowering time** all year. **Pod** 20–24 × 8–13 mm, obliquely depressed-ovate or ovate, scarious, glabrous. Grassland, valley bushveld and forest margins; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Drakensberg Grassland, Albany Thicket, Indigenous Forests (Engcobo E to Mthatha, from Stutterheim to Grahamstown).

physodes Eckl. & Zeyh.

Perennial herb, erect or ascending, up to 0.5 m high. **Leaves** 68–70 mm long. **Leaflets** 14–16 × 2 mm, 4–6-jugate, linear-oblong or sublanceolate, obtuse or acute; upper surface glabrous; lower surface strigose. **Stipules** 2–5 mm long, lanceolate, strigillose on sides. **Inflorescence** corymbose-racemose near the top, 10–20-flowered; peduncles 45–80 mm long, longer than leaves; bracts 1 mm long. **Pedicels** 2–3 mm long. **Flowers** 8–10 mm long. **Calyx** 1–3 mm long, puberulous. **Gynoecium**: ovary glabrous, 11-ovuled;

style bearded nearly halfway ventrally and also around stigma. **Flowering time** Jan.–Oct. **Pod** 18–28 × 8–11 mm, glabrous, inflated, oval-oblong, acute at each end, not very unequal sided. Disturbed grassland and grassy slopes; Sub-Escarpment Savanna, Albany Thicket (Alice District, Keiskamma River, Kei River Mouth, East London District).

sneeuwbergensis Germishuizen

Annual, non-climbing herb, 0.03–0.2 m high; stems strigose, with scattered white hairs. **Leaves** variable, 60–70 mm long. **Leaflets** 2–12 × 1.0–1.5 mm, usually solitary, terminal, rarely up to 4, opposite to subopposite pairs, linear, acute or obtuse at apex, obtuse at base strigose, with white hairs on both surfaces. **Stipules** up to 2 mm long. **Inflorescence** 3–5-flowered; peduncles 40–45 mm long; bracts up to 1 mm long. **Pedicels** up to 2 mm long. **Flowers** up to 9 mm long. **Calyx** 3–4 mm long. **Gynoecium**: ovary glabrous, 17-ovuled; style hairy only around stigma. **Flowering time** Oct. **Pod** 18–21 × 11–12 mm, inflated, widely oblong ovoid, yellow-brown, sometimes mottled with purple, conspicuously veined. Karroid Merxmuellera Mountain Veld of upper southern slopes; Upper Karoo and Lower Karoo (Middelburg, Oppermanskraal, Sneeuberg Mts; near Zuurpoort).

4b Leaflets many, 6–12-jugate
5a Inflorescence with many flowers, up to 20; pedicels long, 6–9 mm long

brachystachya DC.

Perennial, non-climbing herb, thinly albo-strigose, 0.3–1.0 m high. **Leaves** 70–100 mm long. **Leaflets** 8–15 × 2–3 mm, 7–10-jugate, linear-oblong; upper surface glabrous; lower surface thinly strigose. **Stipules** 2–4 mm long, triangular. **Inflorescence** densely 15–20-flowered; peduncles 10–17 mm long, shorter than leaves; bracts up to 1 mm long. **Pedicels** 6–9 mm long. **Flowers** 5–7 mm long. **Calyx** 1–2 mm long. **Gynoecium**: ovary hairy, 7-ovuled; style bearded nearly halfway ventrally and also around stigma. **Flowering time** Apr.–July. **Pod** 30–44 × 8–10 mm, linear, obtuse or acute, mucronate, 4–5× longer than wide, nearly straight, thinly strigose, distantly 7- or 8-seeded. Habitat? Upper Karoo, Lower Karoo, Drakensberg Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Graaff-Reinet, Fort Beaufort, Stutterheim, Butterworth, Willowmore, Port Elizabeth to Grahamstown).

5b Inflorescence with few flowers, less than or equal to 12; pedicels short, 1–4 mm long

annularis Burch.

Perennial, erect or diffuse herb, 0.1–0.8 m high. **Leaves** 40–60 mm long. **Leaflets** 2.5–8.0 × 2–3 mm, 6–10-jugate, oblong-obovate or linear-oblong, obtuse or emarginate, thinly strigose on one or both sides. **Stipules** 2–3 mm long. **Inflorescence** 10-flowered, shortly racemose near top; peduncles 35–50 mm long, longer or shorter than the leaf; bracts 1 mm long, triangular, sparsely strigose. **Pedicels** up to 2 mm long. **Flowers** 9 mm long. **Calyx** up to 4 mm long. **Gynoecium**: ovary hairy; style hairy nearly halfway and also around stigma. **Flowering time** all year. **Pod** 40–52 × 4–6 mm, linear, compressed, obtuse, mucronate, arched in a semi-circle or ± completely annular. Well-drained, sandy clay or loam soil, gravel flats, rocky streamsides or riverbanks, shaley soil, quartz stones, open ground, stony slopes, limestone; Upper Karoo, Lower Karoo, Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld, Albany Thicket (Steynsburg, Graaff-Reinet, Willowmore, Steytlerville to Grahamstown).

carnosa Eckl. & Zeyh.

Perennial, non-climbing herb, diffuse or ascending; stem, petioles and peduncles thinly strigose or glabrescent. **Leaves** 25–38 mm long. **Leaflets** 8–12 × 1 mm, closely

7–9-jugate, linear, complicate with involute margins, appearing terete and furrowed on upper surface, glabrescent. **Stipules** 3–5 mm long, lanceolate. **Inflorescence** 8–12-flowered; peduncles 50–76 mm long; bracts up to 3 mm long. **Pedicels** up to 3 mm long. **Flowers** 11 mm long. **Calyx**: segment much shorter than tube and very blunt. **Gynoecium**: ovary canescent, 15-ovuled. **Flowering time** all year. **Pod** 32 × 14–16 mm, pubescent, widely oblong, subinflated; central suture straight or concave; dorsal suture arcuate, several-seeded. Karroid places, river mouths; Albany Thicket (Coega Kop/Motherwell, E of Port Elizabeth, Coega and Sundays Rivers).

pauciflora Harv.

Perennial, non-climbing herb; many stemmed; suberect or prostrate, dwarf, variably strigose-pubescent or canescent. **Leaves** 38–65 mm long. **Leaflets** distantly 8–12-jugate, 6–7 × 1–2 mm, oblong, obtuse or retuse, with involute margins; upper surface glabrous; lower surface strigillose. **Stipules** 2–3 mm long, subulate or ovate-lanceolate. **Inflorescence** 2-flowered; peduncles 12–25 mm long. **Pedicels** 1–2 mm long. **Flowers** up to 7 mm (rarely subumbellately 4–6-flowered). **Calyx** 2–3 mm long. **Flowering time** all year. **Pod** 36–40 × 7–10 mm, linear, obtuse, mucronate, straight or somewhat falcate, 3–4× as long as wide, thinly strigose, 10–12-seeded. In thicket on shale in full sun, otherwise at disturbed places, grazed; Upper Karoo, Lower Karoo, Dry Highveld Grassland, Albany Thicket (Steynsburg, Graaff-Reinet to Somerset East, Ecca Pass).

tenuifolia E.Mey.

Perennial, non-climbing herb, 0.2–0.3 m high. **Leaves** 50–60 mm long. **Leaflets** 6–15 × 1–3 mm, laxly 10–12-jugate, linear oblong or obovate, obtuse or retuse, glabrous or thinly strigose beneath. **Stipules** up to 4 mm long, triangular. **Inflorescence** laxly racemose, 4–10-flowered; peduncles 10–35 mm long, shorter than leaves; bracts up to 2 mm long. **Pedicels** 1–2 mm long. **Flowers** 5–8 mm long. **Calyx** 2–3 mm long, strigillose. **Gynoecium**: ovary glabrous, 11-ovuled; style bearded nearly halfway ventrally and also around stigma. **Flowering time** Sept. **Pod** 23–26 × 10–11 mm, glabrous, much inflated, membranous, ovoid, substipitate, many-seeded. Habitat not recorded; Upper Karoo, Mesic Highveld Grassland, Albany Thicket (Aliwal North, Lady Grey, Graaff-Reinet to Grahamstown).

Species excluded – poorly known and probably conspecific with one of the above: **L. flexuosa** E.Mey.

***LEUCAENA** Benth.

Species ± 50, widespread in the tropics and subtropics; 1 naturalised in sthn Afr., LIM, M, S, KZN, EC.

leucocephala (Lam.) de Wit

Reuse wattel (A)

Unarmed shrub or small tree, up to 4 m high; branchlets densely grey-puberulous. **Leaves** dark green, often grey-puberulous; glands at junction of lowest pair of pinnae. **Pinnae** in (2)3–8 opposite pairs. **Leaflets** 7–20 pairs, 7–15 mm long, obliquely oblong-lanceolate, acute apically. **Inflorescences** globose heads up to 18 mm in diam., borne singly or in groups of 2 or 3 in leaf axils at branch ends. **Flowers** white or pale yellow. **Anthers** hairy, distinguishing it from all other Mimosoideae in sthn Afr. **Flowering time** July–Mar. **Pod** brown, 110–180 mm long, ± straight, compressed, in distinctive clusters. Spread from forestry planting, invades forest margins, roadsides, wasteland,

riverbanks; origin Tropical America, declared invader (Category 2), potential transformer; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Albany Thicket (Queenstown E to Bomvini Location in Lusikisiki District, Port St Johns and Port Edward, S to Kidd's Beach near East London).

LIPARIA L.

Mountain pea; *hardeblaar-ertjies* (A)

Species ± 20, endemic to the Cape region, WC, EC.

hirsuta Thunb.

Common hard-leaved pea; *gewone hardeblaar-ertjie* (A)

Reseeding, single-stemmed, sometimes multi-stemmed shrub, up to 3 m high; closely leafy. **Leaves** simple, oblanceolate to obovate, pungent. **Stipules** usually present, small, persistent. **Flowers** yellow, 7–12 in terminal racemes; bracts large, longer than pedicel, clasping base of calyx, densely pubescent; bracteoles 0. **Flowering time** Aug.–Apr. **Pod** coriaceous, ovate or oblong, flat, oblique, compressed, 2-valved, glabrescent. Mountain fynbos, alt. 30–1 066 m; Eastern Fynbos-Renosterveld (Langeberg to Kareedouw Mts).

LOTONONIS (DC.) Eckl. & Zeyh.

Species ± 150, Africa, mainly sthn Afr., with a few extending to east tropical Africa, the Mediterranean and W Asia, Arabia and Pakistan; 145 in sthn Afr., widespread.

Modified from Van Wyk (1991).

1a Bracts inserted on pedicel (some distance above base); flowers 4–many per inflorescence; pedicels much longer than calyx (if short, then with distinct bracteoles and large foliaceous bracts); petioles much shorter than leaflets (section Lipozygis*)*

corymbosa (E.Mey.) Benth.

Ihlamvusenhla, *incinci*, *umamatheka*, *umhlambulul*, *umuza*, *uvelabahleka* (Z)

Suffrutescent, pyrophytic, decumbent herb, 0.07–0.90 m high; multi-stemmed. **Leaves** alternate, digitally trifoliolate. **Leaflets** obovate. **Stipules** present. **Inflorescences** usually with > 8 flowers. **Flowers** yellow; standard petal ± 2–3 mm wide, densely pubescent. **Flowering time** Sept.–May. Recently burnt grassland, steep slopes, rocky cracks; Sub-Escarpment Grassland, Drakensberg Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Kokstad District, Queenstown, Ugie, Elliot, Maclear, Mthatha, Mkambati Nature Reserve).

eriantha Benth.

Suffrutescent, pyrophytic, decumbent herb; flowering twigs herbaceous, unbranched. **Leaves** alternate, digitally trifoliolate. **Leaflets** narrowly oblanceolate to narrowly elliptic. **Stipules** similar to leaflets in size. **Inflorescences** mostly with < 8 flowers. **Flowers** yellow; standard petal ± 4 mm wide; densely pubescent. **Flowering time** Dec.–Mar. Hills, rocky S-facing slopes; Drakensberg Grassland, Sub-Escarpment Grassland (Qacha's Neck, Cedarville District, Nungi Mts, Kokstad District).

pulchra Dummer

Distinguished from *L. corymbosa* and *L. eriantha* by standard petal being ± glabrous or with a line of hairs along middle of lamina. **Flowering time** (July) Oct.–Feb. Recently burnt grassland, forest margins, mountain slopes; Sub-Escarpment Grassland, Indian Ocean Coastal Belt (uMzimkhulu District, Mount Currie, Malowe Mtn, Weza State Forest, Mkambati Nature Reserve).

1b Bracts inserted at base of pedicels (if slightly above base, then flowers fewer than 4 per inflorescence)
2a Bracteoles present (visible under 10× magnification)
3a Keel and wing glabrous (section Listia*)*

listii Polhill

Geelklawer (A); *senamanama* (SS)

Perennial, flat creeper, branches 0.05–0.60 m long, mat-forming, runners rooting at nodes. **Leaves** mostly trifoliolate. **Leaflets** narrowly obovate. **Inflorescences** axillary racemes; peduncles up to 100 mm long. **Flowers** 7–10 mm long, yellow. **Calyx**: lobes widely triangular, short, obtuse, ± glabrous. **Gynoecium** glabrous. **Flowering time** Sept.–Jan. **Pod** glabrous or pubescent only along upper suture; folded like a concertina, rarely not folded. Grazed grassland, rocky outcrops, seepage areas, moderate slopes; Dry Highveld Grassland, Upper Karoo, Sub-Escarpment Grassland, Indian Ocean Coastal Belt (Albert District, southwards to Queenstown, Lady Frere, Mkambati Nature Reserve and to Kei River Mouth).

3b Keel and wing densely pubescent (section Leptis*, also see 7a below)*

adpressa N.E.Br.

Prostrate, perennial, suffrutescent herb, 0.1 m high; densely pubescent. **Leaves** trifoliolate. **Leaflets** obovate, both surfaces densely silky-sericeous with uniseriate epidermal hairs. **Inflorescences** mostly up to 5-flowered. **Flowers** yellow. **Calyx** with lower (keel) lobe similar to upper 4. **Flowering time** Dec.? Roadside, steep mountain slopes, cliffs; Drakensberg Grassland (between Rhodes and Maclear, Naude's Neck).

arida Dummer

Decumbent, perennial herb, branches up to 180 mm? long, mat-forming, twigs densely silky-sericeous when young. **Leaves** trifoliolate, with slender petioles much longer than leaflets on vigorous shoots. **Leaflets** narrowly oblanceolate. **Inflorescences** terminal on short lateral branches. **Flowers** small, up to 8 mm long, yellow. **Petals**: standard with large part hairy. **Flowering time** Apr.? **Pod** as long as or slightly longer than calyx, almost orbicular laterally. Grazed grassland, flat rock plates, shallow soil; Sub-Escarpment Grassland (Umga Flats between Ugie and Maclear).

calycina (E.Mey.) Benth.

Annual, decumbent herb, branches 0.03–0.30 m long. **Leaf** trifoliolate, shape and vestiture very variable. **Leaflets** with upper surface glabrous. **Inflorescences** leaf-opposed. **Flowers** with corolla as long or scarcely longer than calyx. **Calyx** slightly inflated. **Petals**: keel completely covered with hairs. **Flowering time** Sept.–Feb. **Pod** not longer than calyx, widely obovate, apex obtuse, curved downwards. Grassland, rock sheets on hills; Drakensberg Grassland, Sub-Escarpment Savanna (Swartberg to Matatiele, King William's Town, Komga).

[E]decumbens (Thunb.) B.-E.van Wyk subsp. **decumbens**

Distinguished from *L. calycina* by glabrescent keel. Perennial herb, mat-forming, 0.1–0.5 m in diam.; pubescence silvery. **Leaves** trifoliolate. **Leaflets** with upper surface glabrous. **Inflorescences** terminal on short, lateral branches. **Flowers** relatively large, more than 9 mm long; corolla longer than calyx; yellow. **Flowering time** Sept.–Jan. Grazed grassland, exposed to wind, deep sand disturbed by moles and earthworms, moderate slopes; Sub-Escarpment Grassland, Eastern Fynbos-Renosterveld, Albany Thicket (Lady Frere, Uitenhage District, Port Elizabeth, Boknes, Bushman's River, Kowie, Kasuka).

mucronata Conrath

Grey-green prostrate herb, branches 0.01–0.30 m long. **Leaves** trifoliolate. **Inflorescences** terminal on short, lateral branches. **Flowers** small, up to 8 mm long, not narrow; corolla longer than calyx, not curved upwards; cream-coloured to yellow. **Petals**: standard with a line of hairs along middle only; keel nearly glabrous. **Flowering time** Jan., Feb.? **Pod** widely oblong, virtually glabrous, much longer than calyx. Grazed grassland, moderate slopes, rocky outcrops; Sub-Escarpment Grassland (Dordrecht E to Queenstown, Indwe, Elliot, Engcobo, Mthatha).

[E]prolifera (E.Mey.) B.-E.van Wyk

Can be confused with *L. decumbens*.

Perennial herb. **Leaves** trifoliolate. **Flowers** small, up to 8 mm long, narrow corolla curved upwards. **Petals**: standard with a line of hairs along middle only; keel nearly glabrous. **Pod** widely obovate, much longer than calyx, densely covered with short hairs. Habitat?; Albany Thicket?, Eastern Fynbos-Renosterveld Albany Thicket (Beaufort District, Swartkops River near Uitenhage).

pusilla Dummer

Procumbent suffrutex; branchlets 60–120 mm long, in a rosette with strong woody base and taproot, minutely pubescent. **Leaves** trifoliolate, with petioles as long or shorter than leaflets, especially on vigorous shoots. **Leaflets** obovate. **Flowers** small, up to 8 mm long; yellow. **Petals**: standard hairy for large part of surface. **Flowering time** Sept.–Mar. **Pod** as long or slightly longer than calyx. Mountain slopes; Dry Highveld Grassland, Mesic Highveld Grassland, Drakensberg Grassland (Elandshoek at Aliwal North, Aasvoëlberg at Zastron and Barkly East).

2b Bracteoles absent (rarely vestigial, inconspicuous > 0.1 mm long)
4a Standard and wing petal much longer than the keel
5a Inflorescences 1-flowered (section Lotononis*)*

acuminata Eckl. & Zeyh.

Prostrate or procumbent shrublet, up to 0.25 m high. **Leaves** trifoliolate, sparsely silky or pubescent, surface of lamina visible. **Leaflets** elliptic, conspicuously net-veined on lower surface, apex acute. **Stipules** solitary. **Flowers** yellow; on slender peduncles, up to 38 mm long. **Petals**: standard with outer surface brick-red. **Flowering time** Nov., Dec. **Pod** oblong, much longer than calyx, apex rounded when mature. Disturbed Renosterveld, grassy fynbos; Eastern Fynbos-Renosterveld (Humansdorp District to Uitenhage and Port Elizabeth, localised to Swartkops River).

azurea (Eckl. & Zeyh.) Benth.

Prostrate or procumbent shrublet, up to 0.3 m high. **Leaves** trifoliolate, pubescent at least on lower surface. **Stipules** paired, unequal. **Flowers** blue, on slender peduncles ± 55 mm long. **Flowering time** Aug.–Nov. **Pod** oblong-elliptic, margins pubescent. Mountain and lowland fynbos, alt. 80–1 260 m; Eastern Fynbos-Renosterveld (Uniondale to Kraggakamma and Port Elizabeth).

elongata (Thunb.) D.Dietr.

Prostrate, creeping, perennial herb, up to 1.2 m wide and up to 0.2 m high; twigs densely pilose. **Leaves** trifoliolate. **Leaflets** linear to oblanceolate, thinly hairy. **Stipules** solitary. **Inflorescences** leaf-opposed. **Flowers** yellow; on slender peduncles, up to 75 mm long. **Petals**: standard almost orbicular, adaxially yellow, abaxially brownish. **Gynoecium**

linear, upper part without ovules. **Flowering time** Nov., Dec. **Pod** ovate, terete, very short, up to 14 mm long. Grassy, disturbed, mountain fynbos, in deep, moist, loamy soil on N-facing sandstone slopes; Eastern Fynbos-Renosterveld (Swartberg Mts, Blesberg to Langkloof).

5b Inflorescences with 2 or more flowers (section Buchenroedera*)*

6a Wing and keel petals glabrous

lotononoides (Scott-Elliot) B.-E.van Wyk

Suffrutex, up to 1 m high; annual, branching from woody rootstock; pubescence sericeous to tawny-hairy. **Leaves** trifoliolate. **Leaflets** obovate, apex rounded, apiculate. **Stipules** paired. **Inflorescences** terminal racemes; bracts lanceolate to elliptic. **Flowers** 2–30, evenly spaced, deep to pale violet. **Calyx** turbinate, densely sericeous; lobes narrowly triangular, lateral sinuses > 2 mm deep. **Flowering time** Nov.–Apr. **Pod** obliquely ovoid, upwardly apiculate, sericeous, 1–3-seeded. Linear range of 300 km along Drakensberg, forming extensive populations; Sub-Escarpment Grassland (Kokstad District, Insizwa).

viminea (E.Mey.) B.-E.van Wyk

Suffrutex, up to 1.5 m high; rootstock woody, branches annual, erect, villous, sericeous to tawny. **Leaves** trifoliolate. **Leaflets** obovate to subfalcate, apex rounded, apiculate. **Stipules** 0. **Inflorescences** racemes, comprising an aggregation of 2-flowered axillary branchlets; bracts elliptic. **Flowers** porcelain-white with maroon veins. **Calyx** turbinate, densely villous; lobes narrowly triangular, lower lobes divergent. **Flowering time** Nov.–June. **Pod** ovoid, villous, 1–3-seeded; Sub-Escarpment Grassland (Pondoland: 'Euthlenzi District', 'Ntlenzi'. Transkei: between 'Omsamcabo' and 'Omtendo').

6b Wing and keel pubescent

[E]alpina (Eckl. & Zeyh.) B.-E.van Wyk

Much-branched shrublet 0.6–1.5 m. **Leaves** trifoliolate. **Leaflets** oblanceolate, thinly hairy. **Stipules** paired. **Inflorescences** umbellate or subumbellate; bracts up to 2 mm wide. **Flowers** yellow, tip of keel not purple inside. **Calyx** with lateral sinuses < 2 mm deep, lobes widely triangular. **Petals**: standard and keel silky. **Flowering time** Sept.–June. Mountain fynbos, grassland, forest margins; Sub-Escarpment Grassland, Drakensberg Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (between Engcobo and Elliot, southwards across Amatole Mts to Baviaanskloof Mts, Grahamstown and East London).

L. alpina subsp. *alpina* can be distinguished from *L. alpina* subsp. *multiflora* (Eckl. & Zeyh.) B.-E.van Wyk by the thick and robust branches, larger leaves and stipules, and the smaller flowers.

[E]harveyi B.-E.van Wyk

Similar to *L. trichodes*. **Leaflets** hirsute. **Inflorescences** elongated racemes. **Flowers** white. **Calyx**: lobes long. **Petals** densely hairy. Known from type locality only (sides of the Winterberg).

[E]holosericea (E.Mey.) B.-E.van Wyk

Similar to *L. meyeri*. **Vestiture** very densely silky. **Bracts** unusually large. Known from type locality only (probably Mngazana south of Port St Johns).

meyeri (C.Presl) B.-E.van Wyk

Similar to *L. alpina* subsp. *multiflora*. **Leaflets** somewhat less recurved. **Flowers** white with purple veins. **Keel** with tip dark purple inside. On plains of Transkei.

pulchella (E.Mey.) B.-E.van Wyk

Erect shrub with robust woody branches. **Leaves** trifoliolate. **Leaflets** obovate to obcuneate, silver-grey to tawny-hairy. **Stipules** paired. **Inflorescences** umbellate or subumbellate; bracts shorter than calyx. **Flowers** blue. **Calyx** with lateral sinuses < 2 mm deep; lobes widely triangular. **Flowering time** Sept.–Mar. Recently burnt grassland, mountain slopes, rock faces, forest margins; Mesic Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland, Dry Highveld Grassland, Sub-Escarpment Savanna (Witteberg Mts E to Kokstad, southwards across Amatole Mts to Cradock and Grahamstown).

[E]trichodes (E.Mey.) B.-E.van Wyk

Similar to *L. pulchella* but can be distinguished by prostrate and suffrutescent habit and thin, slender branches from horizontal woody base. **Inflorescences** umbellate to subumbellate; bracts as long or longer than calyx. **Flowers** blue. Restricted to high altitude, mountain summits; Drakensberg Grassland (Winterberg Mts, Katberg).

4b Standard and wing petals as long or shorter than keel petals
7a Keel petal pubescent, at least with a few hairs along the lower margin (section Leptis*)*

decumbens (Thunb.) B.-E.van Wyk. (see 3b above)

mucronata Conrath (see 3b above)

7b Keel petal totally glabrous
8a Keel petal acute or beaked, or if somewhat obtuse, then the lamina of the standard petal panduriform (section Oxydium*)*

[E]fruticoides B.-E.van Wyk

Robust annual, 0.3–0.6 m high; branches divaricate, sparsely leafy, glabrescent, mature parts sparsely strigillose. **Leaves** trifoliolate, 12–25 mm long. **Leaflets** narrowly elliptic to linear. **Stipules** absent. **Inflorescences** leaf-opposed, distinctly pedunculate, umbellate. **Flowers** yellow, pedicels short. **Calyx** subequally lobed, lower lobe narrower than upper four, sinuses of equal depth, lobes narrowly triangular. **Petals**: standard panduriform, often reddish brown along midrib; keel oblong-elliptic, auriculate. **Pod** shortly oblong, 6-seeded; seeds subtriangular. Karroid, rocky slabs, gravelly sand, full sun; Upper Karoo (Naude's Pass, Graaff-Reinet, Cradock).

glabra (Thunb.) D.Dietr.

Prostrate, suffrutescent herb; branches 0.05–0.25 m long, from woody base; plants minutely strigillose. **Leaves** trifoliolate; basal leaves unifoliolate. **Leaflets** widely obovate, shortly silky. **Stipules** solitary. **Inflorescences** subumbellate on slender peduncles. **Flowers** few, yellow or white fading to pale pink, never cleistogamous. **Flowering time** Oct.–May. **Pod** oblong-linear. Calcareous areas along coastal fynbos, sandflats, chalky riverbanks; Albany Thicket, Eastern Fynbos-Renosterveld (Addo Elephant National Park, Van Stadens River, Uitenhage District, Port Elizabeth, Alexandria District).

laxa Eckl. & Zeyh.

Prostrate or procumbent perennials. **Leaves** densely strigillose, trifoliolate, basal ones unifoliolate. **Leaflets** small, < 6 mm wide. **Inflorescences** usually 1-flowered; peduncles short or absent. **Flowers** small, < 8 mm long; yellow or partly white, often cleistogamous. **Calyx** subequally lobed, upper two lobes wider than lateral ones. **Petals**: standard ovate, not panduriform. **Flowering time** Oct.–Apr. **Pod** oblong, slightly inflated. Three forms present: form A associated with dry habitats, distribution more western; form B in grassland; form C at higher altitudes and in Drakensberg areas; Upper

Karoo, all grassland bioregions, Sub-Escarpment Savanna, Albany Thicket (Oviston E to Ntsikeni, southwards along Winterberg and Amatole Mts to Grahamstown and Peddie).

[E]monophylla Harv.

Prostrate herb, branchlets 0.05–0.15 m long; plants minutely strigillose. **Leaves** unifoliolate. **Leaflets** sessile, ovate to oblong, totally glabrous on upper surface. **Stipules** solitary. **Inflorescences** subumbellate, on slender peduncles up to 85 mm long. **Flowers** few, yellow. **Flowering time** Oct., Nov. Mountain fynbos, dry loamy soil, granitic, termite heaps, N- and E-facing slopes; Eastern Fynbos-Renosterveld (Van Stadens Mts).

pumila Eckl. & Zeyh.

Prostrate annual, branches 0.1–0.2 m long. **Leaves** trifoliolate, basal ones often unifoliolate. **Leaflets** obovate to suborbicular, sparsely but conspicuously strigillose. **Stipules** solitary, widely ovate. **Inflorescences** umbellate on short peduncles. **Flowers** up to 4, yellow, pink or white, 8–9 mm long when open during pollination (occasionally cleistogamous); pedicels shorter than calyx. **Calyx** with lower lobe much narrower than upper four. **Petals**: standard ovate or oblong; keel dark purple at tip. **Flowering time** Sept.–Dec. **Pod** oblong to oblong-linear, slightly turgid. Karroid scrub, renosterveld, hilltops, roadsides, gardens; Upper Karoo, Lower Karoo, Eastern Fynbos-Renosterveld (Middelburg District to Port Elizabeth).

sparsiflora (E.Mey.) B.-E.van Wyk

Prostrate annuals, branchlets up to 0.2 m long, distinctly brittle. **Leaves** trifoliolate. **Flowers** single, yellow and white, not cleistogamous. **Calyx** with valvate lobes. **Pod** ovate-oblong, much inflated, with neatly orientated strigillose hairs; seeds on exceptionally long funicles. Habitat not recorded; Eastern Fynbos-Renosterveld, Rainshadow Valley Karoo (widely distributed in WC, most easterly distribution Willowmore and Steytlerville Districts).

8b Keel obtuse or rounded
9a Stipules totally absent (section Krebsia*, EC)*
10a Upper surface of the leaflets with at least some hairs

caerulescens (E.Mey.) B.-E.van Wyk

Perennial, woody, much-branched shrub, procumbent, 0.2–0.5 m long. **Leaves** trifoliolate. **Leaflets** narrowly linear, conduplicate. **Flowers** bright blue. **Calyx** widely to narrowly triangular, densely sericeous. **Petals**: standard widely ovate or depressed ovate to rounded. **Flowering time** Nov.–Feb. Grassland, stony soils, rocky; Upper Karoo, Drakensberg Grassland, Sub-Escarpment Grassland, Albany Thicket (Middelburg to Queenstown S to Somerset East and Cathcart).

divaricata (Eckl. & Zeyh.) Benth.

Perennial shrub, 0.6–2.0 m high. **Leaves** trifoliolate. **Leaflets** sparsely pubescent. **Stipules** solitary. **Flowers** blue. **Petals**: keel glabrous. **Flowering time** Nov.–Mar. Grassland, shrubland, Nama-karoo; Upper Karoo, Dry Highveld Grassland, Mesic Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland, Albany Thicket (Aliwal North E to Rhodes, southwards to Graaff-Reinet, Cradock and Mountain Zebra National Park).

eriocarpa (E.Mey.) B.-E.van Wyk

Similar to *L. stricta* but can be distinguished by its more robust habit. **Petals**: standard with upper half densely pubescent. **Flowering time** Apr.–July. Grassland, closed woodland; Sub-Escarpment Grassland, Indian Ocean Coastal Belt (uMzimkhulu to Insizwa and Port Edward).

galpinii Dummer

Perennial, prostrate shrub or herb, 0.2–1.8 m high. **Leaves** trifoliolate. **Calyx** lateral and upper lobes on either side well separated, not forming a distinct pair on either side. **Flowers** purple-blue. **Petals**: standard glabrous. **Flowering time** Dec.–Mar. Grassland; Drakensberg Grassland, Sub-Escarpment Grassland (Naude's Neck to Mount Fletcher and Spitskop).

jacottetii (Schinz) B.-E.van Wyk

Similar to *L. galpinii* but can be distinguished by erect, more robust habit, larger leaves and flowers and longer calyx lobes. **Stipules** paired. **Petals**: keel hairy towards apex. **Flowering time** Feb., Mar. Drakensberg Grassland (Lady Grey).

minor Dummer & Jenn.

Similar to *L. galpinii* but can be distinguished by: **Peduncles** long and slender. **Flowering time** Aug.? Grassland, basalt and Drakensberg slopes; Drakensberg Grassland (Barkly East District E to Naude's Neck).

sericophylla Benth.

Khongani-stowhana, *motoaitoai* (SS)

Perennial, shrub, 0.2–2.4 m high. **Leaves** trifoliolate. **Calyx** lateral and upper lobes close together forming a pair on either side. **Stipules** paired. **Petals** yellow and purple; standard purple. **Flowering time** Dec.–Mar.

Form A associated with a silky vestiture on leaves, twigs and standard petal, distribution more on the western/southwestern parts of the Drakensberg, spreading slightly into the interior.

Form B with densely sericeous leaves, distributed on the northeastern parts of the Drakensberg.

Form C with appressedly silky leaves and distributed along the eastern, northern and western slopes of the Drakensberg; fynbos, grassland; Dry Highveld Grassland, Mesic Highveld Grassland, Drakensberg Grassland, Albany Thicket (Witteberg Mts to Ongeluk Nature Reserve, S to Elliot and East London).

stricta (Eckl. & Zeyh.) B.-E.van Wyk

Perennial shrub, with erect branches, 0.1–1.2 m high. **Leaves** trifoliolate. **Flowers** blue and yellow. **Petals**: standard glabrous. **Flowering time** Jan.–May. Grassland; Dry Highveld Grassland, Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Albany Thicket (Aliwal North E to Transkei, Queenstown E to Mazeppa Bay and SE to Port Elizabeth).

10b Upper surface of the leaflets totally glabrous

bachmanniana Dummer

Perennial herb or suffrutescent. **Leaves** trifoliolate. **Leaflets** oblanceolate, adaxial surface glabrous. **Stipules** paired, shorter than petioles. **Inflorescences** umbellate with larger flowers (in comparison to *L. carnosa*). **Calyx** lobes narrowly triangular. **Flowering time** Aug.–Oct. Recently burned grassland; Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Ntsubane to Port Edward).

[E]**carnosa** (Eckl. & Zeyh.) Benth. subsp. **carnosa**

Small shrub. **Leaves** trifoliolate. **Leaflets** small usually linear terminal leaflet up to 8 mm. **Inflorescences** racemose with up to 4 flowers. **Flowers** partly blue. **Flowering time** Nov.–Feb. Grassland; Sub-Escarpment Grassland, Dry-Highveld Grassland,

Drakensberg Grassland, Indian Ocean Coastal Belt (Molteno E to Matatiele and Engcobo, southwards across Amatole Mts to Seymour and Kentani).

[E]carnosa (Eckl. & Zeyh.) Benth. subsp. **condensata** (Harv.)
Similar to *L. carnosa* (Eckl. & Zeyh.) Benth. subsp. *carnosa* but can be distinguished by smaller habit. **Leaves** linear-lanceolate. **Stipules** longer than petioles. **Inflorescences** densely subumbellate and many-flowered.

[E]carnosa (Eckl. & Zeyh.) Benth. subsp. **latifolia** B.-E.van Wyk
Similar to *L. carnosa* (Eckl. & Zeyh.) Benth. subsp. *carnosa* but can be distinguished by more robust habit. **Leaves** trifoliolate. **Leaflets** large, oblanceolate, the terminal leaflet >10 mm.

9b Stipules present, singly or in pairs
11a Calyx with lateral sinuses as deep as the upper and lower ones (calyx thus subequally lobed); flowers often cleistogamous (i.e. petals included within calyx, stylar remains on fruit very short) (section Cleistogama*)*

pungens Eckl. & Zeyh.
Prostrate or procumbent shrub, up to 1 m high. **Leaves** trifoliolate. **Leaflets** elliptic to obovate, sparsely pilose to glabrous. **Stipules** single. **Inflorescences** single-flowered; bracts small. **Flowers** yellow. **Petals**: standard striated, venation not conspicuous. **Flowering time** Sept.–Dec. **Pod** sessile, ovoid to widely oblong. Fynbos, forest margins; Upper Karoo, Albany Thicket, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld (Middelburg S to Graaff-Reinet and Cradock, S to Willowmore Port Elizabeth and Grahamstown).

tenella (E.Mey.) Eckl. & Zeyh.
Perennial herb, ?–0.03 mm high. **Leaves** trifoliolate. **Leaflets** elliptic to obovate, sparsely pilose to glabrous. **Stipules** single. **Inflorescences** single-flowered; bracts small. **Flowers** yellow. **Petals**: standard striated, venation conspicuous. **Flowering time** Sept.–Dec. **Pod** sessile, ovoid to widely oblong. Fynbos, forest margins; Sub-Escarpment Grassland, Dry Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Savanna (Queenstown to Graaff-Reinet, southeastwards to Stutterheim and Grahamstown).

11b Calyx with lateral sinuses shallower than upper and lower ones (upper and lateral lobes on either sides united in pairs); flowers large or small but never cleistogamous (section Aulacinthus*)*

umbellata (L.) Benth.
Prostrate shrublet, with thick, woody branches. **Leaves** trifoliolate, much longer than 10 mm including petioles. **Leaflets** cuneate-obcordate, thinly hairy. **Stipules** solitary. **Inflorescences** umbellate, with (2)3 to several flowers on slender peduncles, much longer than flowers. **Flowers** yellow, > 8 mm long. **Petals**: standard cuneate. **Flowering time** May–Oct. **Pod** oblong, slightly inflated. Mountain and coastal fynbos; Eastern Fynbos-Renosterveld (Uitenhage to Port Elizabeth).

LOTUS L.

Species ± 125, fairly cosmopolitan; 1 in sthn Afr., several others introduced and rare as escapees, LIM, G, M, S, KZN, WC, EC.

Corolla richly yellow or yellow with red markings

*corniculatus L.

Birdsfoot, trefoil

Perennial herb, erect, up to 0.2 m? high; upright to spreading; ± glabrous. **Leaves** 5-foliolate; leaf rachis shorter than length of basal leaflets. **Leaflets**: basal ones ovate, apical leaflets obovate, apex cuspidate, both surfaces glabrous. **Inflorescences** 1–3-flowered umbels; peduncle 35–50 mm long. **Calyx** bluish green, glabrous, scarcely hairy at margins; hypanthium purple, ± 2 mm long, tube above insertion of stamens ± 2 mm long; lobes with rounded base, points subulate, ± 3 mm long. **Flowering time** Jan.? Major agronomic species, valuable forage, pasture, green manure and cover plants; Albany Thicket (Bathurst Experimental Station).

*subbiflorus Lag.

Subshrub, 0.03–0.30 m high; semi-prostrate to mat-forming; young stems slender, light-brown to tawny velutinous. **Leaves** 5-foliolate; leaf rachis slightly shorter than length of basal leaflets. **Leaflets**: basal ones ovate, apical leaflets obovate, apex apiculate, both surfaces velutinous and with small, rusty dots. **Inflorescences** 1–3-flowered umbels; peduncle 35–60 mm long. **Calyx** green, light-brown to tawny-villous; hypanthium ± 1 mm long, tube above insertion of stamens ± 2 mm long, papery; lobes subulate, ± 4 mm long. **Flowering time** Nov.–Mar. Well-grazed, moist soil; Eastern Fynbos-Renosterveld, Indigenous Forests, Albany Thicket (Tsitsikamma Forest, Storms River, Assegaaibos, Bathurst).

Corolla white or cream-coloured, veined with purple, keel with purple tip

discolor E.Mey.

Coral plant; *isiphunga*, *umhlambaluku* (Z)

Perennial herb, erect 0.3–0.9 m high; many herbaceous stems from a woody root-stock, sometimes scrambling, yellowish green when dry; indumentum variable, from appressed-pubescent to pilose. **Leaves** 5-foliolate; leaf rachis shorter than half the length of basal leaflets. **Leaflets**: basal ones oblanceolate, apical leaflets cuneate-oblanceolate to cuneate-obovate, apiculate at apex; both surfaces sparsely appressed-pubescent or spreading hairy, with conspicuous brown dots, especially on lower surface. **Inflorescences** (2)5- or 6(8)-flowered umbels; peduncle 20–90 mm long. **Calyx** light green, purple-tinged, appressed or spreading hairy; hypanthium ± 1 mm long, tube above insertion of stamens 2.0–2.5 mm long; teeth triangular-acuminate, 1.5–3.0 mm long. **Flowering time** Aug.–Jan. Grassland, littoral dunes; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Albany Thicket (Clydesdale S to Lusikisiki, Port St Johns, Kei River Mouth and East London).

MACROTYLOMA (Wight & Arn.) Verdc.

Species ± 24, Africa and Asia; 6 in sthn Afr., widespread, but not reaching WC.

axillare (E.Mey.) Verdc.

Perennial, climbing or trailing herb, up to 3.5 m long; stems with dense spreading hairs, arising from a stout woody rootstock. **Leaves** pinnately trifoliolate. **Leaflets** elliptic, ovate or subrhombic, often with a margin of whitish hairs. Stipules ovate-lanceolate. **Flowers** axillary, in 2–4(–10)-flowered fascicles, whitish, yellow-green to yellow with a purplish spot on inside of standard petal near centre. **Flowering time** Aug.–Mar., sometimes to June. **Pod** linear-oblong, compressed, beaked, glabrous to pubescent. Grassland, alt. 10–1 647 m; Sub-Escarpment Savanna (KZN border S to Kei River Mouth).

*MEDICAGO L.

Species ± 83, Europe, except for northernmost part, Africa, and Asia, often naturalised in warm climates; 4 naturalised in sthn Afr., widespread.

1a Corolla purple, mauve or lilac

sativa L.

Lucerne, alfalfa, purple medic; *lusern*, *makklawer* (A)

Perennial herb, 0.3–0.8 m high; or stems prostrate; arising from stout rootstock; indumentum of simple appressed hairs. **Central leaflets** up to 25 × 15 mm, oblanceolate, margins serrate in upper part; midrib ending in terminal tooth. **Stipules** entire or irregularly toothed. **Inflorescences** 10–35-flowered racemes. **Flowers** 6–12 mm long. **Petals**: standard oblong; wings longer than keel. **Flowering time** Oct.–Feb. **Pod** coiled along full length, brown; smooth, veins emerging obliquely from ventral suture, branching somewhat, then anastomosing in outer part of coil face; many-seeded. Forage legume for livestock, roadsides; Upper Karoo, Sub-Escarpment Grassland, Eastern Fynbos-Renosterveld, Albany Thicket (Burgersdorp E to Mthatha southwards, from Port Elizabeth to East London).

1b Corolla yellow or gold-coloured
2a Flowers 10–30; peduncles longer than twice the petiole of subtending leaf

lupulina L.

Black medic

Short-lived perennial or annual herb, 0.2–0.6 m long; densely covered by simple, tawny, appressed hairs. **Central leaflets** up to 6 × 7 mm, cuneate-obovate, margins slightly toothed in upper part. **Stipules** lanceolate, irregularly toothed. **Flowers** 2.5–3.5 mm long. **Petals**: standard subrotund; wings shorter than keel. **Flowering time** Oct.–Jan. **Pod** with only distal end coiled, black; smooth or with small tubercles; 1-seeded. Moister and cooler habitats, waste ground, relished by livestock; Upper Karoo, Drakensberg Grassland, Sub-Escarpment Savanna (Middelburg District, Grootfontein, Adelaide, Amatole Mts, Grahamstown).

2b Flowers 1–10; peduncles shorter than twice the petiole of subtending leaf

laciniata (L.) Mill.

Cut-leaf medic; *klitsklawer*, *karooklits* (A); *bohomenyane* (SS)

Annual herb, 0.15–0.35 m long; branching from near base, stems prostrate; glabrous or sparsely pilose. **Central leaflets** up to 15 × 7 mm, cuneate. **Stipules** deeply incised or laciniate; lower surface covered by simple hairs. **Flowers** 4–6 mm long. **Calyx** with teeth shorter than tube. **Petals**: standard ovate; wings shorter than keel. **Flowering time** Sept.–Apr. **Pod** globular or cylindrical, coils 5–7; spines 2–4 mm long, grooved basally; without partitions between seeds. Dry, stony, desert-like conditions, in SA near agricultural experimental stations; in all bioregions, except Indian Ocean Coastal Belt and Rainshadow Valley Karoo (Aliwal North, Middelburg and Queenstown districts southwards, from Willowmore E to Uitenhage, Grahamstown and East London).

polymorpha L.

Burr medic; *growwe medicago*, *klawergras*, *stekel-/wildeklawer* (A)

Annual, procumbent herb, 0.2–0.6 m high; branched from long taproot, glabrous. **Central leaflets** up to 20 × 15 mm, cuneate to obovate. **Stipules** laciniate, lower surface

glabrous, sparsely hairy along margins. **Inflorescence** 1–5-flowered raceme. **Flowers** 4–6 mm long. **Calyx** with teeth ± equal to length of tube. **Petals**: standard widely obovate, emarginate; wings longer than keel. **Flowering time** Aug.–Dec. **Pod** 1–5 per raceme, discoid, coils 1–7; spineless or spines up to 4 mm long, mostly glabrous; seeds partitioned. Weed of cultivation and pastures, pods cling to wool of sheep; origin Mediterranean; Upper Karoo, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Albany Thicket, Drakensberg Grassland, Eastern Fynbos-Renosterveld (Middelburg E to Mthatha southwards, from Humansdorp E to Uitenhage, Port Elizabeth, Grahamstown and East London).

*MELILOTUS Mill.

Species ± 20, temperate and subtropical regions of Europe, Asia and North Africa; 3 naturalised in sthn Afr., widespread near cultivated lands, N, LIM, NW, G, M, FS, KZN, NC, WC, EC.

alba Desr.

Hubam clover, bokhara clover, sweetclover, white melilot, white-sweet clover; *bokhaargras*, *bokhaarklawer*, *witstinkklawer* (A)

Annual, erect, branching herb with glabrous stem, 0.6–1.8 m long. **Leaves** trifoliolate. **Stipules** entire. **Inflorescences** spike-like racemes. **Flowers** white. **Flowering time** Nov.–Jan. **Pod** small, weak, irregular network of veins. Grassland, fynbos, karoo; Dry Highveld Grassland, Upper Karoo, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Albany Thicket (Aliwal North to Middelburg and Mthatha, southwards to Komga, Alexandria and Great Fish River).

indica (L.) All.

Hexham scent, melilot, stink clover, sweet clover, white sweet clover, annual yellow sweet clover; *geelstinkklawer*, *bitterklawer*, *stinkklawer*, *steenklawer*, *eenjarige geel stinkklawer*, *melilot* (A)

Annual, erect, branching shrub with pilose stem. **Leaves** trifoliolate. **Leaflets** cuneate-oblong or lanceolate with rounded apex, roughly toothed. **Stipules** denticulate near base. **Inflorescences** many-flowered racemes. **Flowers** yellow. **Flowering time** Oct.–Jan. **Pod** 1-seeded, prominent reticulate veins. Disturbed areas, farms, water furrows, orchards and beaches; Dry Highveld Grassland, Upper Karoo, Lower Karoo, Albany Thicket, Sub-Escarpment Savanna (Aliwal North to Middelburg, Willowmore and East London).

MELOLOBIUM Eckl. & Zeyh.

Species 15, sthn Afr., widespread, prominent in arid parts.

1a Inflorescence axes ending in flower buds, often elongate and ascending, with 5–28 flowers, in fruit sometimes subspinescent but the tip not branched, differently coloured and rigidly sharp
2a Perennial herbs, soon with many stems from a woody rootstock; stems erect and mostly unbranched to procumbent and laxly branched, with extended distal racemes; bracts linear-lanceolate or narrowly elliptic, 0.3–1.0(–2.0) mm wide

adenodes Eckl. & Zeyh.

Slightly spiny suffrutex, up to 1 m high and 0.5 m wide; all parts covered with stalked glands. **Leaflets** widely obovate, glandular. **Flowers** 6–11 mm long; bracts ovate;

bracteoles narrowly ovate. **Calyx** shortly bilabiate, glandular, sparsely hairy. **Petals** yellow; standard suborbicular, with a well-developed, channelled claw; wings oblong, sculptured, with a linear claw; keel shorter than wings, with a linear claw. **Flowering time** Sept.–Feb. Sand dunes, sandy flats, rocky mountain slopes, dry riverbeds, sandstone or shale ridges, well-drained soils on granite and on coastal plains, alt. 75–1 140 m; Albany Thicket (Port Elizabeth).

2b Herbs or subshrubs with a taproot, the stem branching shortly above ground level, much branched above, the flowering branches usually rather short and divaricate, terminating in short or extended racemes; bracts ovate to cordate, rarely ovate-lanceolate, (1–)2–4 mm wide

alpinum Eckl. & Zeyh.

Unarmed, virgate shrublet, up to 1.5 m high. **Leaflets** linear-oblong to oblanceolate or narrowly obovate, with sessile glands, sparsely hairy, apex mucronate. **Flowers** 8–10 mm long; bracts lanceolate to ovate; bracteoles linear to narrowly ovate. **Calyx** shortly bilabiate, with sessile glands, pubescent. **Petals** yellow; standard suborbicular, with a well-developed, channelled claw; wings oblong, sculptured, with linear claw; keel shorter than wings, with a linear claw. **Flowering time** Sept.–Feb. Grassland valley and mountain slopes, alt. 730–2 324 m; Drakensberg Grassland, Sub-Escarpment Grassland, Indigenous Forests (Maclear, S to Elandsberg Mtn in Seymour and Stutterheim).

1b Inflorescence axes ending in a pale, rigid spine, developed at flowering stage and persistent on relatively short divaricate fertile branches, generally with only 1–3 flowers, occasionally up to 6
3a Leaves mostly crowded on short-shoots; whole plant villous with hairs ± 1 mm long, eglandular; pods shortly oblong, 6–10 mm long, villous, 1- or 2(3)-seeded

calycinum Benth.

Divaricately-branched, spiny shrub, 0.2–0.6 m high. **Leaflets** oblong to widely obovate, densely hairy, eglandular. **Flowers** 6–10 mm long; bracts ovate-lanceolate to cordate; bracteoles narrowly ovate to lanceolate. **Calyx** shortly bilabiate, eglandular, densely hairy. **Petals** yellow; standard ovate-oblong, with a well-developed, channelled claw; wing oblong, sculptured, with a linear claw; keel shorter than wing, with a linear claw. **Flowering time** Dec., Jan. Calcareous sand on riverbanks, red Kalahari sand, red-brown sands, open grasslands on calcrete bedrock and karoo, alt. 854–2 100 m; Upper Karoo, Sub-Escarpment Grassland (Middelberg, E to Queenstown, S to Graaff-Reinet and Cradock).

3b Leaves mostly dispersed along branchlets; plants with much shorter hairs, with sessile to stalked hairs; pods narrowly oblong, straight or falcate, 10–18 mm long, glabrous or shortly hairy and ± glandular, 2–5-seeded

candicans (E.Mey.) Eckl. & Zeyh.

Divaricately-branched, spiny shrub, 0.3–1.0 m high; covered with white hairs. **Leaflets** oblong to widely obovate, with sessile glands. **Flowers** 6–8(–12) mm long; bracts cordate; bracteoles ovate. **Calyx** shortly bilabiate, with sessile glands (stalked glands in glandular forms), hairy. **Petals** yellow; standard suborbicular, with a well-developed, channelled claw; wing oblong, sculptured, with a linear claw; keel shorter than wing, with a linear claw. **Flowering time** all year. Sand dunes, sandy flats, rocky mountain slopes, dry riverbeds, sandstone or shale ridges, well-drained soils on granite and on coastal plains, alt. 138–1 920 m; Dry Highveld Grassland, Mesic Highveld Grassland, Upper Karoo, Drakensberg Grassland, Sub-Escarpment Grassland, Lower Karoo, Albany Thicket, Sub-

Escarpment Savanna, Eastern Fynbos-Renosterveld (Sneeuberg Mts, Middelberg to Queenstown, Graaff-Reinet to Stutterheim and along coast from Humansdorp to Port Alfred).

canescens Benth.

Divaricately-branched, spiny shrub 0.3–1.0 m high. **Leaflets** oblong to widely obovate, with sessile glands. **Flowers** 5–7 mm long; bracts cordate; bracteoles ovate. **Calyx** shortly bilabiate, with sessile glands (stalked glands in glandular forms), silky-canescent. **Petals** yellow; standard ovate-oblong, with a well-developed, channelled claw; wing oblong, sculptured, with a linear claw; keel shorter than wing, with a linear claw. **Flowering time** all year. Deep red or pink red sand, moist black-grey alluvial sand and on dry rocky slopes, alt. 915–1 340 m; Upper Karoo, Lower Karoo (Albert District, SW to Graaff-Reinet and further west to Prince Albert).

microphyllum (L.f.) Eckl. & Zeyh.

Divaricately-branched, spiny shrub, 0.15–1.0 m high. **Leaflets** oblong to widely obovate, glandular, hairy. **Flowers** (5–)7–10 mm long; bracts narrowly cordate; bracteoles narrowly ovate. **Calyx** shortly bilabiate, with stalked glands, hairy. **Petals** yellow; standard suborbicular, with a well-developed, channelled claw; wing oblong, sculptured, with a linear claw; keel shorter than wing, with a linear claw. **Flowering time** all year. Slopes, rocky ledges, basalt outcrops, dry sandy soil and stony ravines, alt. 1 100–2 300 m; Upper Karoo, Dry Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland, Lower Karoo, Albany Thicket, Indigenous Forests (widely distributed in inland EC).

obcordatum Harv.

Divaricately-branched, slightly spiny decumbent, forming clumps of mats, up to 0.5 m high and 0.2 m wide. **Leaflets** obovate, apex emarginate, glandular. **Flowers** 6–11 mm long; bracts obliquely ovate; bracteoles obliquely narrowly ovate. **Calyx** shortly bilabiate, glandular, hairy. **Petals** yellow; standard ovate-oblong, with a well-developed, channelled claw; wing oblong, sculptured, with a linear claw; keel shorter than wing, with a linear claw. **Flowering time** Aug.–May. Mountain grassland slopes, near riverbanks, boulder beds, foot of sandstone cliffs, cave sandstone, rocky riverbeds, basalt pediment, dark clay soil, rocky dolerite slopes and rocky grassland shale in mountain peaks, alt. 1 370–2 900 m; Dry Highveld Grassland, Mesic Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland (northern to central EC, Aliwal North, Queenstown and Cradock).

MILLETTIA Wight & Arn.

Umzimbeet trees; *umzimbeet-bome* (A)

Species nearly 150, cosmopolitan in tropical and subtropical regions; 2 in sthn Afr., KZN, EC.

grandis (E.Mey.) Skeels

Umzimbeet; *omsambeet* (A); *umsimbithi* (X); *umkunye*, *umsimbithwa* (Z)

Medium-sized, evergreen to semi-deciduous tree, up to 13 m high, sometimes up to 25 m high in forests, with a somewhat flattened crown. **Bark** pale brown to grey, smooth to flaky; young parts reddish brown hairy. **Leaves** compound with 3–7 pairs of opposite leaflets and a terminal one. **Leaflets** entire, oblong to narrowly elliptic; lower surface with conspicuous, parallel, well-spaced lateral veins, fine silky hairy; stipellae usually present, linear. **Flowers** in erect, dense, terminal racemes much longer than leaves.

Calyx campanulate, somewhat 2-lipped. **Petals** mauve to purple; standard conspicuous with oblong claw; wing falcate-ovate, claw broad; keel incurved, obtuse, clawed. **Flowering time** Dec.–Feb. **Pod** erect, woody, flat, dehiscent, golden-brown, velvety. Wood hard and strong, making beautiful durable furniture; seeds and roots used medicinally. Coastal forests and forest margins, alt. 0–900 m; Indian Ocean Coastal Belt, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indigenous Forests (Kei River Mouth to Ngoye Forest Reserve).

MIMOSA L.

Species ± 500, widely distributed throughout the tropics mostly in South America; 2 (1 naturalised) in sthn Afr., N, B, NW, G, M, S, KZN, EC.

pigra L.

Africa sensitive plant; *kruidjie-roer-my-nie* (A); *iMbuna* (Z)

Perennial shrub; stems with bristly hairs, often scandent and armed with broad-based prickles, up to 7 mm long. **Leaves** bipinnate, sensitive to touch, rachis 20–120 mm long, with straight, erect or forward-pointing, slender prickles up to 10 mm long at junction between pinnae. **Pinnae** in (2)4–14 pairs, often with stouter prickles in between. **Leaflets** in 8–33 pairs, linear-oblong. **Stipules** often persistent, up to 5 mm long. **Flowers** pink in subglobose, pedunculate heads. **Flowering time** all year. **Pod** clustered, brown, compressed, straight to slightly falcate, bristly all over, breaking up transversely into segments and margins persisting as an empty frame. Along riverine areas, growing in or near water, often in disturbed areas; Albany Thicket, Sub-Escarpment Savanna (King William's Town area).

OPHRESTIA H.M.L.Forbes

Species ± 16, Africa and Asia; 1 variable species in sthn Afr., LIM, NW, G, S, KZN, EC.

oblongifolia (E.Mey.) H.M.L.Forbes

Perennial herb, with long, appressed or patently pubescent, slightly flexuous, ascending or procumbent stems, branched from base. **Leaves** subsessile to petiolate, 1–5-jugate. **Leaflets** ± elliptic-oblong, apex obtuse to acute; midrib with conspicuous, 5–7 lateral nerves on each side; nerves prominent on lower surface; impressed on upper surface, looping back and not forming a marginal nerve; glabrous or densely hairy, especially on nerves. **Stipules** linear, slender. **Flowers** white, creamy, pink, lilac or mauve, in dense axillary racemes, with peduncles much longer than leaves; each flower subtended by linear bracts. **Flowering time** Nov.–Mar. **Pod** ± oblanceolate, beaked, flat, pale brown, dehiscent. Grassland, open woodland, alt. 12–1 700 m; Indian Ocean Coastal Belt (Mkambati Nature Reserve, through KZN to tropical Africa).

OTHOLOBIUM C.H.Stirt.

Vlieëbos, *bloukeur*, *skaapbostee* (A)

Species ± 50, mainly restricted to SE and E Africa, but also extending into the winter rainfall region of SA, LIM, G, M, S, FS, KZN, L, NC, WC, EC.

1a Leaves subsessile
2a Lateral leaflets symmetrical

candicans (Eckl. & Zeyh.) C.H.Stirt.

Perennial, reseeding shrublet, up to 1.2 m high; stems slender, virgate and canescent. **Leaves** shortly petiolate, trifoliolate. **Leaflets** linear-oblong or cuneate-obovate,

recurved mucronate at apex, prominently nigro-punctate in dried specimens. **Stipules** minute, ciliate. **Inflorescences** subumbellate racemes, 3-flowered on very short axillary peduncles. **Flowers** white with pink and purple keel tip. **Calyx** silky with lobes tapering, much longer than tube. **Flowering time** Sept.–Nov. Along riverine areas and in forests; Albany Thicket, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld (Bruintjieshoogte S, from Kouga Mts E to Grahamstown, Bathurst and Alexandria districts).

2b Lateral leaflets oblique

carneum (E.Mey.) C.H.Stirt.

Perennial shrublet, up to 0.2 m high; stems slender with reddish brown pubescence on younger parts. **Leaves** trifoliolate, subsessile. **Leaflets** narrow-oblong or cuneate-oblong, recurved mucronate, prominently nigro-punctate in dried specimens. **Stipules** deltoid and membranous. **Inflorescence** axillary. **Flowers** 2 or 3 together, white. **Calyx** pale, netted with dark veins; lobes ciliate. **Flowering time** Oct., Nov. In mountainous areas; Albany Thicket, Eastern Fynbos-Renosterveld (Steytlerville and Kouga Mts to Port Elizabeth, Suurberg Pass and Humansdorp).

heterosepalum (Fourc.) C.H.Stirt.

Perennial, resprouting shrub, up to 2 m high. **Leaves** trifoliolate. **Leaflets**: medial ones obovate-cuneate; lateral ones shorter and very unequal sided, glabrescent, recurved mucronate; prominently nigro-punctate in dried specimens. **Stipules** small and ciliate. **Flowers** with pedicels axillary, usually 3 together, white and purple. **Calyx** subglabrous. **Flowering time** Oct., Nov. Along forest margins and in mountainous areas; Indigenous Forests, Eastern Fynbos-Renosterveld, Albany Thicket (Longmore State Forest, Humansdorp Kareedouw and Zuuranys).

polyphyllum (Eckl. & Zeyh.) C.H.Stirt.

Erect, perennial shrublet, much branched from base, up to 1 m high; stems pubescent when young, becoming glabrous with age. **Leaves** trifoliolate, subsessile. **Leaflets** linear or linear-oblong, mucronate, margins minutely ciliate; lateral leaflets noticeably unequal-sided; prominently nigro-punctate in dried specimens. **Stipules** small, ovate-acuminate, caducous. **Inflorescences** axillary. **Flowers** 2 or 3 together, white and blue. **Calyx** nigro-villous with prominent veins. **Flowering time** May–Nov. Widespread in wooded areas; Indian Ocean Coastal Belt, Sub-Escarpment Savanna, Sub-Escarpment Grassland, Drakensberg Grassland, Eastern Fynbos-Renosterveld, Albany Thicket (Umtamvuma Nature Reserve and Lusikisiki District S, from Katberg to Hogsback and Uniondale to Uitenhage).

polystictum (Benth. ex Harv.) C.H.Stirt.

Kite hook-leaved pea; *vlieër-vlieëkeurtjie* (A)

Perennial, virgate shrub, up to 2 m high; stems densely leafy and tomentose. **Leaves** trifoliolate, subsessile. **Leaflets** cuneate-oblong, with very blunt, recurved mucronulate apex, prominently nigro-punctate in dried specimens. **Stipules** minute, triangular. **Flowers** 4 or 5 together, axillary. **Calyx** tomentose, campanulate. **Petals** white and purple. **Flowering time** Apr.–June. **Pod** tomentose, longer than calyx. In dry, grassy areas; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna (Ongeluksnek Nature Reserve and Pondoland).

1b Leaves petiolate
3a Lateral leaflets symmetrical

bracteolatum (Eckl. & Zeyh.) C.H.Stirt.

Perennial, densely branched, leafy shrub, up to 2 m high; often erect when growing in sheltered and moist areas; stems pubescent or subcanescent. **Leaves** trifoliolate, subsessile. **Leaflets** widely obovate or obcordate, mucronate, prominently nigro-punctate in dried specimens. **Stipules** ciliate, membranous. **Inflorescences** of sessile, terminal spikes, densely many-flowered; bracts membranous. **Calyx**: lobes acuminate. **Petals** varying from white to purplish blue. **Flowering time** Nov.–Apr. In moist places on mountains and plains, often close to coast; Eastern Fynbos-Renosterveld, Albany Thicket (Uitenhage District and Port Elizabeth to Kariega River Mouth).

caffrum (Eckl. & Zeyh.) C.H.Stirt.

Broad hook-leaved pea; *breëblaar-vlieëkeurtjie* (A)

Perennial, diffuse shrub, up to 2 m high; stems densely leafy, covered with coarse, wart-like glands, young twigs tomentose. **Leaves** trifoliolate, penninerved. **Leaflets**: terminal leaflet elliptic or obovate, much larger than widely elliptic lateral leaflets; prominently nigro-punctate in dried specimens. **Stipules** small, deltoid-acuminate. **Inflorescences** of elongated, axillary spikes, laxly many-flowered. **Flowers** 2 or 3 together, white and purple. **Flowering time** Apr.–June. **Pod** pubescent. Along grassy hills and forest margins; Sub-Escarpment Savanna, Sub-Escarpment Grassland, Drakensberg Grassland (Griqualand East S, from Maclear along Amatole Mts to Fort Beaufort and Stutterheim districts).

virgatum (Burm.f) C.H.Stirt.

Perennial, suffrutescent subshrub, with trailing, resprouting branches, up to 0.2 m high. **Leaves** shortly petiolate, trifoliolate. **Leaflets** widely obovate-obcordate, recurved mucronate and somewhat pubescent; prominently nigro-punctate in dried specimens. **Stipules** adnate to petioles, ciliate. **Inflorescence** axillary. **Flowers** 2 or 3 together, pale pink to purplish. **Flowering time** Nov. Moist marshy areas to drier mountainous places; Drakensberg Grassland, Eastern Fynbos-Renosterveld, Albany Thicket, Sub-Escarpment Savanna (Stutterheim District S, from Assegaaibos Nature Reserve to Uitenhage, Bethelsdorp and Grahamstown).

3b Lateral leaflets oblique

pictum C.H.Stirt.

Erect shrub, up to 2 m high; with slender, glabrous, yellowish-brown stems. **Flowering shoots** clustered at ends of previous years shoots. **Leaves** trifoliolate. **Leaflets** 15–25 mm long, narrowly linear-oblanceolate, terminal leaflet longer and wider than laterals. **Stipules** 2.5–3.0 mm long, fused to base of petioles, shortly triangular, densely encrusted with orange glands, prominently nigro-punctate in dried specimens. **Inflorescence** densely spicate, comprising 20–30 sets of triplet flowers. **Flowers** 9–10 mm long, subsessile, white with blue centre. **Flowering time** Aug., Sept. Mostly in Mesic Grassy Fynbos, mountain slopes; Rainshadow Valley Karoo, Albany Thicket, Eastern Fynbos-Renosterveld (Steytlerville, Baviaanskloof Mts, Patensie and Humansdorp).

sericeum (Poir.) C.H.Stirt.

Perennial shrub, up to 2 m high; stems densely leafy, silky and silvery; twigs striate. **Leaves** trifoliolate. **Leaflets** elliptic-lanceolate; upper surface glabrous and silvery; lower surface silky-canescent and prominently veined; mucronate, penninerved. **Stipules** lanceolate, as long as petioles. **Inflorescences** with terminal and axillary peduncles

much longer than leaves; heads densely globose. **Flowers** deep blue. **Flowering time** Sept.–Jan. Riverbeds and grassy areas; Eastern Fynbos-Renosterveld (Tsitsikamma Forest E to Grahamstown and Humansdorp districts).

stachyerum (Eckl. & Zeyh.) C.H.Stirt.

Perennial, reseeding shrub, up to 3 m high. **Leaves** trifoliolate. **Leaflets** obovate-cuneate, hairy on midribs, prominently nigro-punctate in dried specimens. **Stipules** silky. **Inflorescences** elongated racemes. **Flowers** purplish blue. **Calyx** hairy and glandular. **Flowering time** Sept.–Mar. Grassy areas, riverbanks and along forest margins; Sub-Escarpment Grassland, Drakensberg Grassland, Sub-Escarpment Savanna, Indigenous Forests, Eastern Fynbos-Renosterveld, Albany Thicket (Keiskamma River Valley S, from Fort Beaufort to Komga, Tsitsikamma Forest to Uitenhage, Port Elizabeth and Grahamstown, and to Humansdorp).

***PARASERIANTHES** I.C.Nielsen

Species 1, SE Asia (Malesia) and SW Australia; 1 naturalised in sthn Afr., WC, EC.

lophantha (Willd.) I.C.Nielsen

Cape leeuwin wattle, crested wattle, brush wattle, plume albizzia, stink bean; *stinkboon* (A)

Evergreen, unarmed tree or shrub, 2.4–15.0 m high. **Leaves** bipinnate, rachis with a conspicuous gland just below junction of top pinna pair; golden-hairy, becoming glabrous. **Stipules** linear, caducous. **Inflorescences** of bottlebrush-like, pedunculate racemes, axillary. **Flowers** bisexual, pedicellate, usually pubescent, subtended by bracts. **Calyx** gamosepalous, 5-valvate. **Corolla** gamopetalous, 5-valvate. **Stamens** many, united into a tube at base; anthers quadrangular, minute, opening by 2 slits. **Ovary** solitary. **Flowering time** June–Aug. **Pod** brown, chartaceous, flat, straight, not segmented, dehiscent along both sutures. **Seeds** subcircular-elliptical to oblong, flat to convex. Forest margins, riverbanks, moist fynbos slopes, poisonous; origin Australia, declared weed (category 1); Eastern Fynbos-Renosterveld, Albany Thicket, Sub-Escarpment Savanna (Elandsberg Mts, Humansdorp, Port Elizabeth, Grahamstown).

PARKINSONIA L.

Species 11 or 12 and 2 named hybrids, southern U.S.A., Mexico and South America, 4 in Africa (1 endemic to Kenya and 1 to Somalia); 2 (1 naturalised) in sthn Afr., N, B, LIM, M, S, FS, KZN, NC, EC.

***aculeata** L.

Jerusalem thorn, paloverde; *Meksikaanse groenhaarboom* (A)

Evergreen, small tree or shrub, 6–9 m high; not climbing, armed with stout spines, eglandular. **Leaves** at first pinnate, later bipinnate, with common petiole sometimes flattened, often ending in a spine. **Leaflets** ± opposite, small or obsolete. **Stipules** often short, spinescent. **Inflorescences** axillary racemes. **Flowers** bisexual, irregular, yellow, fragrant. **Calyx**: tube campanulate; lobes 5, ± imbricate. **Petals** 5, spreading, clawed. **Stamens** 10, free. **Ovary** free, shortly stalked, many-ovuled. **Flowering time** Oct.–Apr. **Pod** linear to ± elliptic, nearly straight, subbivalved, sometimes constricted between seeds. **Seeds** oblong, hard, compressed. Invades watercourses, floodplains, roadsides, potential transformer; origin tropical America; Albany Thicket, Upper Karoo, Sub-Escarpment Savanna (Graaff-Reinet, Cradock, Grahamstown).

PHILENOPTERA Fenzl ex A.Rich.

Species 12, Africa and Madagascar; 4? in sthn Afr., N, B, LIM, M, S, KZN, EC.

sutherlandii (Harv.) Schrire

Forest apple-leaf; *bosappelblaar* (A); *umkhunye* (X); *umsimbithana* (Z)

Large, evergreen, forest tree, 2.5–21.5 m high; producing a blood-red exudate when slashed. **Leaves** imparipinnate, 0.1–0.3 m long. **Leaflets** subopposite, 3 or 4 pairs, lanceolate to narrowly obovate, dark green, veins dark brown below, lateral veins looping to margin, apex acuminate. **Inflorescences** terminal panicles, only with lax, lateral branchlets. **Flowers** 15–18 mm long, pinkish red to purple. **Calyx** fulvous-sericeous. **Flowering time** Dec., Jan. **Pod** up to 120 mm long, light-brown, velvety. Abundant in evergreen forests of Pondoland to Ngoye region, alt. 50–750 m; Indigenous Forests (Egoso Forest E to Lusikisiki and Port St Johns).

PODALYRIA Willd.

Bush sweet pea; *keurtjie*, *keurblom* (A)

Species ± 19, subendemic to Cape Region, extending eastwards, FS, KZN, WC, EC.

Leaves shiny and glabrous or glabrescent on upper surface

burchellii DC.

Willowy to dense and much-branched, resprouting shrub, up to 1 m high; branches virgate, tomentose, young growth tawny. **Leaves** 1-foliolate, ovate; upper surface thinly silky and shiny glabrescent; lower surface velutinous. **Inflorescences** 1- or 2-flowered; bracts widely ovate, prominently veined, mucronate. **Flowers** dark pink, magenta and white. **Calyx** velutinous with rusty hairs; lobes strap-shaped to triangular, shorter than keel. **Flowering time** Aug.–June. Sandstone slopes, grassy and marginal fynbos; Albany Thicket, Eastern Fynbos-Renosterveld, Sub-Escarpment Savanna (Swartberg and Langeberg mts to Somerset East S, from Humansdorp District to Uitenhage, Port Elizabeth and Grahamstown).

buxifolia (Retz.) Willd.

Dwarf shrub, ± 1.2 m high; indumentum on young growth and inflorescences tawny-velutinous. **Leaves** narrowly oblong to obovate; upper surface glabrous, main vein sunken; lower surface tawny-velutinous, main vein conspicuous. **Inflorescences** axillary, 1- or 2-flowered; peduncles longer than leaves. **Flowers** pink to magenta. **Calyx**: tube 2.2 × 6 mm; lobes 9 × 2.5 mm, lanceolate, apex acuminate; 2 upper lobes connate high up; tawny-velutinous. **Flowering time** Aug.–Oct.? Fynbos vegetation, hill slopes, sandstone, well drained, W aspect, biotic effect: fire belt; Eastern Fynbos-Renosterveld, Albany Thicket (Port Elizabeth, East London).

glauca DC.

Willowy, resprouting shrublet, up to 0.9 m high. **Leaves** 1-foliolate, elliptic-oblong, main vein prominent, margins slightly rolled under; upper surface shiny and glabrous; lower surface felted. **Flowers** magenta; bracts linear-lanceolate. **Flowering time** Aug.–Apr. Rocky sandstone slopes, forest edges, alt. 50–1 000 m; Eastern Fynbos-Renosterveld (Outeniqua to Kareedouw mts, Kareedouw Pass, Clarkson).

Leaves ± hairy on upper surface

calyptrata (Retz.) Willd.

Bush sweatpea (-bush), water blossom pea; *ertjiebossie*, *klapperbos*(*-sie*), *keurtjie*, *keurblom*, *waterkeurtjie* (A)

Much-branched shrub, becoming a small tree in moist shady conditions. **Leaves** obovate-elliptical, obtuse at base, mucronate. **Inflorescences** axillary, 1- or 2-flowered; peduncles almost as long as leaves; bracts broad, fused to form a calyptra. **Flowers** white or mauve with white central portion. **Calyx** sharp and pointed, ± length of keel, ferruginous-tomentose. **Flowering time** Sept.? **Pod** thinly villous with whitish hairs. Sandstone slopes, marshy places, alt. 0–1 250 m; Eastern Fynbos-Renosterveld, Albany Thicket (Stellenbosch to Howison's Poort).

canescens E.Mey.

Similar to *P. cordata* but can be distinguished by: **Leaves** more ovate; lower surface reticulated with veins. **Pubescence** on stem, branches and lower surface of leaves and calyx densely rusty-villous. **Inflorescences** axillary, 1-flowered; peduncles shorter than leaves. **Flowering time** June? Mountainsides; Upper Karoo, Sub-Escarpment Savanna (Baviaanskloof to Kouga Mts).

cordata R.Br.

Keurtjie (A)

Erect, woody, resprouting shrub, up to 1.7 m high; tawny-velutinous in all parts. **Leaves** orbicular or widely ovate, rounded or cordate at base, both surfaces tawny-velutinous. **Inflorescences** axillary, 1-flowered; peduncles shorter than leaves. **Flowers** purple; bracts lanceolate to widely ovate. **Calyx**: lobes widely cultrate; nearly as long as keel; tawny-velutinous. **Flowering time** Nov.–Feb. Sandstone slopes; Albany Thicket, Eastern Fynbos-Renosterveld (Steytlerville to Humansdorp).

cuneifolia Vent.

Keurtjie, *wilde-ertjie* (A)

Erect or procumbent shrub, variable in habit, shape of leaves, hairiness and flower colour. **Leaves** obcordate, obovate or cuneate-oblong; acute at base; retuse or recurvo-mucronulate; sericeous on both surfaces. **Inflorescences** terminal, 1- or 2-flowered; peduncles shorter than leaves; bracts lanceolate to widely ovate. **Flowers** purple. **Calyx** with lobes deltoid-acuminate; half as long as keel; tawny-velutinous. **Flowering time** Sept.? Sandstone slopes; Eastern Fynbos-Renosterveld, Albany Thicket (Noetzie in WC to Port Elizabeth).

montana Hutch.

Perennial, not climbing shrub, up to 1 m high. **Leaves** elliptic to widely elliptic, apiculate; upper and lower surfaces densely greyish white-tomentose. **Inflorescences** terminal and axillary, 1- or 2-flowered; peduncles shorter than mature leaves. **Flowers** dark purple; bracts lanceolate, densely greyish white-tomentose. **Calyx** densely ferruginous-tomentose. **Flowering time** Sept.? Wet areas near streams, fynbos; Eastern Fynbos-Renosterveld (Van Stadens Mts and Port Elizabeth).

myrtillifolia (Retz.) Willd.

Erect, woody, reseeding shrub, up to 2 m high, sometimes resprouting after fire, branches tomentose. **Leaves** obovate, more sericeous on lower than upper surface; veins prominent

on lower surface of older leaves. **Inflorescences** terminal, 1- or 2-flowered; peduncles shorter or scarcely longer than leaves; bracts lanceolate. **Flowers** pink and white. **Calyx** with lobes pointed, acute, longer than tube, shorter than keel, dark brown, velutinous. **Flowering time** June.–Nov. Sandstone, limestone or shale flats and lower slopes; Albany Thicket, Eastern Fynbos-Renosterveld (Swartberg and Uitenhage District to Grahamstown and Humansdorp).

sericea (Andrews) R.Br. ex W.T.Aiton

Erect or procumbent, reseeding shrub, up to 1 m high; whole plant sericeous, sometimes tawny-velutinous. **Leaves** obovate or cuneate-oblong, acute at base, older leaves sericeous, younger leaves tawny-velutinous. **Inflorescences** terminal, 1-flowered; peduncles shorter than leaves; bracts linear. **Flowers** pink and white. **Calyx** subulate, acute, as long as keel, sericeous. **Flowering time** May, June. Stony soil, rocky, grassland; Eastern Fynbos-Renosterveld (Uitenhage District).

velutina Burch. ex Benth.

Keurtjie (A)

Erect, virgate shrub, up to 2 m high; branches tomentose. **Leaves** narrow-oblong, acute or mucronate; upper surface pilose; lower surface velutinous, midrib prominent. **Inflorescences** axillary, 1-flowered; peduncles shorter than leaves; bracts linear-lanceolate. **Flowers** mauve, pink, purple and white. **Calyx** acute to acuminate, ferruginous-velutinous. **Flowering time** May–Dec. **Pod** rusty-villous. Forest, grassland, open shrubland, coastal bush; Upper Karoo, Indian Ocean Coastal Belt, Sub-Escarpment Savanna (Bolelo E to Collingham, Lusikisiki District and Port Edward S to Grahamstown).

POMARIA Cavaco.

Species 3, sthn Afr., KZN, EC.

sandersonii (Harv.) B.B.Simpson & G.P.Lewis
[= *Hoffmannseggia sandersonii* (Harv.) Engl.]

Suffrutex with several, erect, herbaceous, annual stems, 0.1–0.4(–0.5) m high; arising from slender woody rhizome; stems covered in sparse to dense spreading hairs and with reddish brown or pink setae; dark glands present, conspicuous on leaflets and calyces. **Leaves** with rachis and petioles pubescent like the stem, setae aggregated at insertions of pinnae and leaflets. **Pinnae**: 3–7 pairs. **Leaflets** 5–14 mm long, oblong to elliptic oblong. **Stipules** with marginal setae or distinctly branched. **Inflorescence** up to 0.3 m long (including peduncle) raceme. **Flowers** red, rusty, pink or salmon. **Calyx**: tube short, 5 unequal lobes. **Petals** up to 9 mm long. **Pod** obliquely oblong, dark brown, covered in pinkish indumentum when young; 3 or 4 seeds per pod. Grassland; Sub-Escarpment Grassland, Sub-Escarpment Savanna (Kokstad District).

***PROSOPIS** L.

Species ± 44, SW Asia, Africa, and predominantly America; 4 (2 declared invaders) in sthn Afr., N, B, NW, WC, FS, WC, EC.

Cultivated for fodder, shade, fuel and as honey source. Hybridises with other *Prosopis* species making identification difficult.

glandulosa Torr. var. **glandulosa**

Honey mesquite, mesquite; *duitswesdoring*, *muskietboom*, *suidwesdoring* (A)

Multi-stemmed shrub or small tree (thorntree-like), armed with paired straight spines. **Leaves** bipinnately compound in pairs, dark green. **Leaflets** 8–15× longer than wide, subcoriaceous. **Inflorescences**: axillary spikes. **Flowers** yellow. **Flowering time** Oct.–Apr. **Pod** brown, slender, linear, woody. Riverbeds, riverbanks, drainage lines, semi-arid to arid regions; declared invader; Upper Karoo, Lower Karoo (Aliwal North to Jansenville).

glandulosa Torr. var. **torreyana** (Benson) Johnst.

Honey mesquite; *heuningprosopis* (A)

Similar to *P. glandulosa* var. *glandulosa* but can be distinguished by linear leaflets, 5–8× longer than wide. **Flowering time** June–Nov. Dry Highveld Grassland, Lower Karoo, Upper Karoo (Aberdeen to Graaff-Reinet).

velutina Wooton

Velvet mesquite; *fluweelboontjie* (A)

Perennial, multi-stemmed tree or shrub (thorntree-like), 1–6 m high; armed with paired straight spines. **Leaves** bipinnately compound in pairs, greyish green to dark green. **Leaflets** small, pubescent, oblong. **Inflorescences**: axillary spikes. **Flowers** yellow. **Flowering time** June–Nov. **Pod** slender, linear to slightly curved, woody. Riverbeds, riverbanks, drainage lines, dry stony soils, semi-arid to arid regions; declared invader; Upper Karoo (Middelburg).

PSEUDARTHRIA Wight & Arn.

Species ± 3 or 4, from sthn Afr. into Asia; 1 in sthn Afr., LIM, M, S, KZN, EC.

hookeri Wight & Arn.

Perennial, erect to suberect, herb or subshrub, up to 3 m high; arising from thick rhizomatous, woody rootstock; stems strongly ribbed, tomentose-villous with white or yellow hairs. **Leaves** pinnately trifoliolate. **Leaflets** elliptic or obovate-elliptic, pubescent to velvety below. **Stipules** lanceolate-attenuate. **Inflorescences** often much-branched and very lax racemes, sometimes paniculate, bracteate. **Flowers** pink. **Flowering time** Nov.–May. **Pod** linear-oblong or slightly falcate, compressed, with sutures straight or slightly sinuate, imperfectly articulated. Mixed woodland or bushveld, along forest margins, in open grassland or as a ruderal along roadsides or in disturbed areas, alt. 30–1 525 m; Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Kentani District).

PSORALEA L.

Blue pea, fountain bush; *bloukeurtjie*, *fonteinbos* (A)

Species ± 70, endemic to sthn Afr., mainly restricted to the Cape Floristic Region, but a few extending to eastern parts and Afromontane regions, outliers in Angola and St Helena Island (now extinct); LIM, M, S, KZN, NC, WC, EC.

All species have glandular calyces, stipules, and leaves. A defining feature of the genus is the cupulum. This is a collection of bracts that are fused together to different degrees (2-toothed, or 3-toothed with one tooth cleft) and occur in different positions on the flower pedicel (middle or top of pedicel).

Seasonal shoots refer to shoots produced annually. **Burst branching** is quite typical and distinctive of a number of species (*P. margaretiflora*, *P. oligophylla*, *P.* sp. *E*) in which multiple shoots burst from the end of the previous seasons growth giving the plant an overall floppy habit with the appearance of mini-shrubs being borne in the aerial canopy.

1a Leaves 5–9-foliolate

abbottii C.H.Stirt.

Decumbent or procumbent subshrub, resprouter. **Stems** dark green, 1–many, up to 1.5 m long, flexuous. **Stipules** setose, glabrous, spreading. **Leaves** pinnate 3–5(–7)-foliolate, spreading. **Leaflets** linear, glabrous, dull dark green, basal leaflets longest. **Inflorescences** axillary, 1-flowered. **Flowers** dark mauve. **Cupulum** apical on pedicel, 3-fid, teeth subequal, adaxial largest, all acuminate. **Calyx**: lobes lanceolate to triangular, acute, glabrous. **Petals**: standard very broadly ovate, mauve with dark purple nectar patch, apex truncate, slightly auriculate; wings mauve, longer than keel. **Flowering time** Oct.–Mar. Margins of swamp forest, grassland adjacent to marshes; Sub-Escarpment Grassland, Indian Ocean Coastal Belt (Weza to Engcobo, Mkambati Nature Reserve).

affinis Eckl. & Zeyh.

High shrub or small tree, up to 5 m high, reseeder. **Stems** brown with white storied lenticels, becoming striate. **Stipules** small, deltoid, spreading to recurved, twisted, becoming woody. **Leaves** (5)7–9(11)-foliolate, up folded. **Leaflets** linear-lanceolate, basal pair longest. **Inflorescences** axillary, 1–3 or more together. **Flowers** dark blue, pedicel 2–3× longer than flower. **Cupulum** covering base of calyx, 2- or 3-fid, split unevenly, yellowish green, senescent. **Calyx**: lobes lanceolate-ovate, equal, acute, pilose. **Petals**: standard broadly ovate, blue, with diffuse white M-shaped nectar patch and central purple flash; wings blue, longer than keel. **Flowering time** Sept.–Feb. Mountain, lowland and coastal fynbos seepages, grassland, forest margins, stony rocky soils; Eastern Fynbos-Renosterveld (Elandsrivierberg to KwaZunga Catchment Basin, Kareedouw Pass E to Humansdorp and Port Elizabeth).

glabra E.Mey.

Woody shrub, up to 1.5 m high, resprouter. **Stems** greyish brown, with white lenticels and vertical fissuring. **Stipules** subulate, recurved, twisted, acute, glabrous, equalling or ± $^1/_2$ length of petioles. **Leaves** 5–9-foliolate. **Leaflets** linear, apiculate, tip down curving, glabrous, basal pair longest, keel-shaped. **Inflorescences** axillary, 1–3-flowered, clustered along seasonal shoots. **Cupulum** 2-fid with lower cleft. **Flowers** blue and white. **Calyx**: teeth equal, glabrous to sparsely haired. **Petals**: standard obovate, dark blue to dark mauve with large M-shaped nectar guide and purple patch in cleft, veins purple; wings white, longer than keel. **Flowering time** Aug.–Apr. Grassland, seepages, damp vleis, grassy slopes, Mountain Fynbos; Sub-Escarpment Savanna, Albany Thicket (Msikaba S, from Bosberg at eastern end of Sneeuberg to Grahamstown).

latifolia (Harv). C.H.Stirt.

Woody shrub, up to 3 m high, reseeder. **Stems** greyish brown with white lenticels and vertical fissuring. **Stipules** subulate from broad base, swollen, recurved, persistent. **Leaves** 7-foliolate, basal pair longest. **Leaflets** linear-lanceolate, unequal, flat, distinctly veined, with many small glands, apiculate, lower surface sparsely pubescent, upper surface glabrous, flattish, spreading. **Inflorescences** axillary, 1–several, clustered along end of seasonal shoots. **Flowers** dark mauve to purple. **Calyx**: lobes unequal, subacute, densely nigro-pubescent. **Petals**: standard suborbicular or broadly obovate, purple with

darker veins and white V-shaped nectar patch with violet blotch in notch; wings purple or dark mauve, longer than keel. **Flowering time** Nov.–Feb. Grassland, mountain fynbos, margins of thickets in damp vleis and seepages; Indian Ocean Coastal Belt, Drakensberg Grassland (Port Edward S to Katberg and Hogsback).

[E]**margaretiflora** C.H.Stirt. & V.R.Clarke

Erect, up to 2 m high, resprouter. **Stems** grey, with white lenticels and broadly reticulate vertical fissuring; burst branching occurs in upper axils. **Stipules** rigid, triangular, semi-spreading. **Leaves** 5–7-foliolate, glabrous. **Leaflets** variable, basal pair longest, glabrous, dark green. **Flowers** greenish white, 1–5 in leaf axils along flowering shoot. **Cupulum** terminal on pedicel, 3-fid. **Calyx** pale green, glabrous. **Petals**: standard broadly elliptic, greenish white with a purple ring surrounding a bright yellow nectar patch; wings greenish white, longer than keel. **Flowering time** Oct.–Jan. (Apr.). Karoo Escarpment grassland, Afromontane grassland and mountain fynbos; Upper Karoo, Dry Highveld Grassland, Sub-Escarpment Grassland (Sneeuberg: Kamdeboo Mts, Koudeveldberge and Toorberg in the west, and from the Nardousberg to Aasvoëlkrans (behind Pearston) in the east).

speciosa Eckl. & Zeyh.

Tree-like shrub, up to 2 m high, resprouter, colonial. **Stems** 1–3, arching, grey. **Stipules** minute, erect, appressed, becoming woody. **Leaves** 5-foliolate, clasping. **Leaflets** linear, thickened, base acute, apex acute, densely gland-dotted, glabrous, basal pair longest. **Inflorescences** vertical on short vernal shoots off horizontal branches. **Flowers** axillary, solitary, up to 5 per shoot. **Calyx**: lobes equal, lanceolate-acuminate, fringed with dark hairs, nigro-punctate, fleshy, yellowish, accrescent, persistent after seed shed. **Petals**: standard suborbicular, deep blue or indigo-blue with large white M-shaped nectar patch; wings deep blue, longer than keel. **Flowering time** Aug.–Dec. Mountain fynbos, hillsides and streamsides; Eastern Fynbos-Renosterveld (Langeberg to Kouga mts, Willowmore SE to Joubertina, Kareedouw and Humansdorp).

sp. nov. A ('floccosa')

Erect shrub, up to 1 m high, reseeder. **Leaves** 5-foliolate. **Flowers** white to cream-coloured. **Flowering time** Sept.–Dec. Mountain fynbos, dry northern slopes and moist humic soils, gulleys and rocky outcrops; Eastern Fynbos-Renosterveld (Langeberg to Tsitsikamma mts).

sp. nov. B ('imminens')

High, virgate tree, up to 5 m high, reseeder. **Stems** greenish brown with storied white lenticels, becoming grey and deeply fissured. **Stipules** subulate, spreading, sides inrolled. **Leaves** 7–9-foliolate, spreading, curving, with raised glands, basal pair of leaflets longest. **Inflorescences** axillary, 1–5-flowered per axil, many borne along seasonal shoots. **Flowers** white to pale mauve, bud with long extended, lower calyx tooth. **Cupulum** 3-fid, $^{2}/_{3}$ up pedicel. **Calyx**: with lobes triangular, equal, glabrous, pale green. **Petals**: standard broadly ovate, white to pale mauve with large white V-shaped nectar patch with a small purple linear flash, sweet smelling; wings white, longer than keel, upturned. **Flowering time** Oct.–Dec. Mountain fynbos, streamsides; Eastern Fynbos-Renosterveld (Baviaanskloof Wilderness area).

1b Leaves 1- or 3-foliolate
2a Leaves 1-foliolate, sometimes scale-like or lacking

laxa T.M.Salter

Straggling, prostrate, mat-like, lax shrublet, up to 0.4 m high, resprouter. **Stems** many, green, weakly angular. **Stipules** triangular, adnate to base, small, appressed. **Leaves** 1-foliolate. **Leaflet** narrowly lanceolate to linear, asymmetrical, glabrous, acute at both ends, shiny. **Inflorescences** axillary, 1-flowered, on long glabrous, filiform pedicels up to 4× longer than flowers, equal to or exceeding leaves. **Cupulum** subterminal, $^{2}/_{3}$ up pedicel, minute. **Flowers** mauve. **Calyx**: lobes equal, triangular, black-dotted. **Petals**: standard mauve with violet and white nectar patch, sharply reflexed; wings mauve, as long as keel. **Flowering time** Nov.–Mar. Mountain and coastal fynbos, streamsides; Eastern Fynbos-Renosterveld, Albany Thicket (Albertinia, Uitenhage, Port Elizabeth).

monophylla (L.) C.H.Stirt.

Trailing, decumbent shrublet, up to 0.3 m high, resprouter. **Stems** green, hirsute, white-hairy. **Stipules** linear triangular, hirsute, spreading to recurved. **Leaves** 1-foliolate. **Leaflet** narrowly ovate to broadly lanceolate, symmetrical, base cordate, apex acute, both surfaces with reticulate venation, upper surface sparsely hairy, margins and main vein of lower surface hirsute. **Inflorescences** axillary, 1-flowered, equal to or longer than subtending leaf. **Cupulum** terminal, small, senescent, 3-fid. **Flowers** blue, on long, hairy, filiform pedicels up to 4× longer than flowers. **Calyx**: equally lobed, ± lanceolate, villous. **Petals**: standard blue with white and purple nectar patch; wings blue, slightly longer than keel. **Flowering time** Oct.–May. Recently burned mountain fynbos, grassland; Eastern Fynbos-Renosterveld, Albany Thicket (Storms River, Greater Addo Elephant National Park, Humansdorp).

plauta C.H.Stirt.

Prostrate trailing shrub, resprouter. **Stems** green, flattened. **Stipules** lanceolate, with conspicuous parallel venation, spreading. **Leaves** 1-foliolate. **Leaflet** elliptic to oblong, base cordate, apex mucronate, both surfaces with wispy white hairs. **Inflorescences** axillary, 1-flowered; pedicels slender to filiform, up to twice longer than flowers, shorter than subtending leaf. **Flowers** purple. **Cupulum** terminal, small, senescent, 3-fid. **Calyx** with triangular lobes, hirsute. **Petals**: standard purple with white and deep purple nectar patch; wings purple, slightly longer than keel. **Flowering time** Sept.–May. Mountain and lowland fynbos, grassland, streamsides, forest; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Eastern Fynbos-Renosterveld, Albany Thicket, Indigenous Forests (King William's Town to Kei River Mouth, Van Stadens River, Joubertina, Kareedouw, Humansdorp, Port Elizabeth, Alexandria and Grahamstown).

sp. nov. C ('arida')

Large, erect shrub, up to 3.5 m high, densely branched, reseeder, bluish green; densely warty. **Stems** green and ribbed when young becoming grey, coarsely fissured. **Stipules** acicular to narrowly triangular, spreading, senescent. **Leaves** 1-foliolate, 3-foliolate at base of seasonal shoots. **Leaflet** semi-flat, somewhat succulent. **Inflorescences** 1-flowered, axillary, many produced along seasonal shoots. **Cupulum** apical, 3-fid, teeth equal. **Flowers** white; pedicels slender, ± twice length of flower. **Calyx**: lobes equally triangular, glabrous, ribbed; persistent after seed shed, turning reddish brown. **Petals**: standard white with violet flush and purple veins in middle of blade; wings white, longer than keel, blade flared. **Flowering time** Nov.–Apr. Riverine habitats and seepages;

Eastern Fynbos-Renosterveld, Albany Thicket (Hex River to Groendal Wilderness Nature Reserve and Port Elizabeth).
Previously known in area as *P. verrucosa*, a Cederberg species.

2b Leaves 3-foliolate (see also P. arida*)*

axillaris L.f.

Tree-like, erect, compact shrub, up to 3 m high, reseeder, forms dense stands. **Stems** green, glabrous, glandular, and striate when young, becoming greyish tan with blackish vertical fissures and white lenticels. **Stipules** minute, subulate, spreading, senescent. **Leaves** 3-foliolate, flat, dark green, glabrous. **Leaflets** linear-oblong, acute at base, obtuse and mucronate at apex, densely gland-dotted, glabrous, terminal longest. **Inflorescences** axillary, 1-flowered; pedicels stout, as long as leaves. **Flowers** purple and white, held above the subtending leaf. **Cupulum** apical, 3-fid, teeth subequal. **Calyx**: lobes unequal, ovate, obtuse, nigro-punctate, glabrous. **Petals**: standard suborbicular, purple, with violet flash, veins deep purple; wings white, longer than keel. **Flowering time** Nov.–Apr. Mountain fynbos, vleis, seepages, streambanks; Eastern Fynbos-Renosterveld (George to Joubertina).

ensifolia (Houtt.) Merr.

Perennial, laxly spreading shrub, up to 400 mm high, shoots up to 1.2 m long, resprouter. **Stems** green, ribbed. **Stipules** adnate to base of petioles, subulate, acute, appressed. **Leaves** 3-foliolate. **Leaflets** linear, acute at both ends, sparsely pilose to glabrous, nigro-punctate. **Inflorescences** aggregated in 1 or 2 axillary heads, terminating seasonal shoots, subtending leaf 3–4× longer than the inflorescence. **Flowers** violet, subsessile, shorter than subtending leaf. **Cupulum** 3-fid, ovate lanceolate, large, overlapping calyx tube. **Calyx**: lobes lanceolate, long-acuminate, glandular, sparsely hairy. **Petals**: standard obovate, violet with white nectar patch; wings violet, equal to keel. **Flowering time** Nov.–Apr. Mountain and coastal fynbos; Sub-Escarpment Savanna, Albany Thicket, Eastern Fynbos-Renosterveld (Komga to Kei River Mouth SW, from Joubertina to Uitenhage, Grahamstown and East London).

keetii Schönland ex H.M.L.Forbes

High shrub, up to 2 m high, reseeder. **Stems** glabrous, pustulate. **Stipules** ovate, lanceolate, acute, spreading, pustulate. **Leaves** 3-foliolate. **Leaflets** obovate or obcordate, apex obtuse to emarginate, glabrous, profusely nigro-punctate, lateral leaflets subsessile, shorter than terminal. **Inflorescences** axillary, 1-flowered, along seasonal shoots; pedicels slender, 2–3× longer than leaves. **Flowers** colour unknown. **Calyx**: lobes ovate, glabrous. **Wing petals** longer than keel. **Flowering time** Jan., Feb. Dry slopes and seepages, mountain fynbos; Eastern Fynbos-Renosterveld (Outeniqua and Tsitsikamma Mts).

oligophylla Eckl. & Zeyh.

Bloukeur, swartstorm (A)

Erect or weeping twiggy shrub, up to 2 m high, resprouter, burst-branching on older stems. **Stems** smooth, glabrous, bluish green when young becoming woody and blackish with white lenticels, sparsely leafy. **Stipules** absent to small, subulate, rapidly caducous, appressed. **Leaves** 1–3-foliolate, lowermost 3-foliolate then reducing to single leaflets at shoot apex. **Leaflets** linear, bluish green, acute, glabrous, glandular, semi-flat, terminal longest. **Inflorescences** axillary, 1–3-flowered, scattered along shoots. **Flowers** dirty-white. **Cupulum** 2-fid, one lobe with deep cleft, small, margins white scarious.

Calyx: lobes ovate, glandular, glabrous. **Petals**: standard suborbicular, dirty white, nectar flash violet; wing petals white, longer than keel. **Flowering time** Aug.–Apr. Mountain fynbos, streamsides; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Maclear southwards to Kei River Mouth, from Clarkson E to Kariega River).

repens L.

Prostrate, trailing shrublet sending out long, thick runners up to 10 m long, resprouter. **Stems** brown, young shoots sparsely pilose, glandular. **Stipules** ovate, acute, appressed. **Leaves** 3-foliolate, succulent, densely glandular. **Leaflets** obovate–oblong, base cuneate, apex retuse or obtuse, sparsely pilose, nigro-punctate, leaflets equal. **Inflorescences** axillary, 1 or more together. **Cupulum** 3-fid, teeth equal, situated halfway to $^{2}/_{3}$ up pedicel. **Flowers** violet on thick pedicels, shorter than leaves. **Calyx**: lobes ovate or acute, glabrous or villous, nigro-punctate. **Petals**: standard obovate, violet with deep purple nectar patch, glandular; wings violet, longer than keel, flared laterally. **Flowering time** Nov.–Feb. Coastal fore-dunes; Eastern Fynbos-Renosterveld, Albany Thicket (Humansdorp, Swartkops River, Port Elizabeth and Kenton on Sea).

triflora Thunb.

Erect, bluish green shrub, up to 2 m high, resprouter; upper parts branching and leaves held tightly erect. **Stipules** adnate to petioles, acute, appressed to semi-erect. **Leaves** 3-foliolate. **Leaflets** linear to lanceolate, base and apex acute to acuminate, nigro-punctate, terminal longest. **Inflorescences** axillary, 1-flowered, on short, erect, few-flowered, seasonal shoots. **Flowers** exceeding leaves, mauve and white. **Calyx**: lobes ovate, glabrous, nigro-punctate. **Petals**: standard mauve with purple flash; wings white, longer than keel. **Flowering time** Oct.–Feb. Mountain and lowland fynbos, seepages; Eastern Fynbos-Renosterveld, Indigenous Forests (Storms River to Humansdorp and Groendal Wilderness Area).

trullata C.H.Stirt.

Tangled, multi-stemmed suffrutex, reseeder. **Stems** up to 2 m long, glabrous, ribbed, prominently glandular. **Stipules** linear-lanceolate, adnate to petioles, fused for $^{3}/_{4}$ of length, appressed. **Leaves** 3-foliolate. **Leaflets** linear to linear oblong, base cuneate, apex acuminate, glabrous, laterals equal to or shorter than terminal. **Inflorescences** axillary, 1-flowered, occurring in upper 2 to 5 axils. **Buds** elongated. **Flowers** deep purple. **Cupulum** 3-fid, two teeth filiform other rounded and short. **Calyx**: vexillary lobes fused for $^{3}/_{4}$ of their length, glabrous, ribbed, densely glandular. **Standard petals** broadly triangular to trullate, deep purple with large white nectar patch. **Petals**: standard deep purple, equal to elongated keel. **Flowering time** Oct.–Jan. Steep rocky slopes and ledges, marshy places, peaty soils overlying TMS rock; Eastern Fynbos-Renosterveld, Albany Thicket (Tsitsikamma, Langkloof, Outeniqua and Great Winterhoek Mts).

[E]sp. nov. D ('crista')

Low shrub. **Stems** slender, ridged, rounded, covered in variously sized glands. **Stipules** broadly triangular, narrowing up the shoot. **Leaves** 3-foliolate. **Leaflets** glabrous, flat, dark green, spreading to drooping, base cuneate, apex mucronate, symmetrical, terminal leaflet longest. **Inflorescences** axillary, 1-flowered, occurring along seasonal shoots. **Flowers** blue, exserted beyond the leaf; pedicels twice longer than flowers, slender. **Cupulum** < 2 mm long, terminal, shortly 3-fid, keel tooth longer. **Calyx**: lobes subequal, keel lobe shorter, glabrous. **Petals**: standard broadly obovate, apex truncate;

wings longer than keel, colour unknown. **Flowering time** Feb. Mountain fynbos; Eastern Fynbos-Renosterveld (Great Winterhoek Mts).

sp. nov. E ('forbesii')

High, densely branched shrub, up to 2.5 m high, reseeder, bluish green, most parts covered in small crater-like glands. **Stems** grey, coarsely fissured, older plants produce burst branching giving an untidy habit. **Leaves** 3-foliolate, bluish green, flattish, somewhat succulent. **Stipules** narrowly triangular, straight, semi-erect, senescent. **Leaflets** glabrous, bluish green, apex acute, terminal leaflet longest. **Flowers** pale purple and white. **Cupulum** terminal, 3-fid, teeth equal, minute, warty. **Calyx**: lobes equal, glabrous. **Petals**: standard with purple nectar flash and purple veins in middle of blade, back flushed green; wings white, longer than keel, blade flared outwards. **Flowering time** Dec.–Feb. Moist mountain fynbos, streamsides and seepage areas, alt. 1 500–1 800 m; Rainshadow Valley Karoo (Swartberg Mountains to bordering on EC).

RAFNIA Thunb.

Species ± 22, sthn Afr., mostly WC from Clanwilliam, extending eastwards through EC into KZN.

elliptica Thunb.

Robust, erect, much-branched suffrutex, up to 1 m high. **Leaves** simple, subopposite to opposite, lanceolate to elliptic, penninerved, sometimes involute when young. **Inflorescences** single- or rarely 2- or 3-flowered, sometimes pedunculate. **Flowers** large, yellow; pedicels very long; bracts foliaceous. **Flowering time** Sept.–Apr. **Pod** obliquely lanceolate, compressed. Sand, grassy coastal fynbos, on foothills and gentle slopes, alt. 30–1 341 m; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Albany Thicket, Eastern Fynbos-Renosterveld (Ntsubane Forest to Port Edward, Komga and Kei River Mouth southwards, from Kouga Mts to Kareedouw, Greater Addo Elephant National Park, Albany District and Grahamstown).

RHYNCHOSIA Lour.

Vaal-ertjie (A)

Species ± 230, cosmopolitan throughout the tropics and subtropics; ± 60 in sthn Afr., widespread.

1a Plants climbing; flowers in axillary umbels or solitary

chrysoscias Benth. ex Harv.

Climbing, resprouting shrub, up to 1 m high. **Leaves** pinnately trifoliolate. **Leaflets** lanceolate-oblong. **Flowers** yellow, large; upper calyx lobes separate almost to base. **Flowering time** July–Dec. Fynbos, closed shrubland, sandstone slopes, alt. 154–700 m; Eastern Fynbos-Renosterveld (Caledon in WC to Uitenhage District: Groendal Wilderness Area, Swartkops Catchment Basin).

leucoscias Benth. ex Harv.

Blink-ertjie (A)

Perennial, climbing shrub. **Leaves** pinnately trifoliolate, shortly petiolate. **Leaflets** linear to lanceolate, white-felted on undersurface. **Flowers** yellow; bracts widely oblong, obtuse. **Flowering time** Sept.–Dec. Sandstone slopes and flats, alt. 15–1 030 m; Eastern Fynbos-Renosterveld (Hermanus to Port Elizabeth).

microscias Benth.
Perennial, climbing shrub, up to 1.5 m high. **Leaves** pinnately trifoliolate, shortly petiolate. **Leaflets** linear to lanceolate, white-felted on undersurface. **Flowers** small, yellow; bracts ovate-lanceolate, acute. **Flowering time** July–Sept. Closed woodland, sandstone slopes, alt. 155–1 065 m; Eastern Fynbos-Renosterveld (Riversdale to Humansdorp District: between Assegaaibos and Witelsbos and to Clarkson; further E to Cambria in Baviaanskloof).

1b Plants erect, prostrate, sprawling or climbing; flowers in racemes
2a Leaflets narrow, linear to elliptic

capensis (Burm.f.) Schinz
Decumbent, resprouting, prostrate to twining herb. **Leaves** pinnately trifoliolate, conspicuously stipulate. **Leaflets** ovate, oblong-elliptic or oblong-lanceolate. **Stipules** ovate or lanceolate. **Inflorescence** an axillary raceme with flowers congested at end of slender peduncle. **Flowers** yellow. **Flowering time** Aug.–Mar. Riverbanks, fynbos, grassland, alt. 6–1 275 m; Sub-Escarpment Grassland, Eastern Fynbos-Renosterveld, Albany Thicket (Alice SW, from Tsitsikamma to Loerie Plantation, Walmer, Howison's Poort and Grahamstown, and to Humansdorp).

ciliata (Thunb.) Schinz
Sprawling, resprouting shrublet or dwarf shrub, up to 0.3 m high, much-branched from a thick, woody rootstock; internodes short giving a leafy appearance. **Leaves** pinnately trifoliolate. **Leaflets** elliptic, elliptic-oblong or elliptic-lanceolate, silky hairy. **Inflorescence** a few-flowered raceme, shorter than leaves, terminal. **Flowers** yellow. **Flowering time** Oct.–Mar., May, June. **Pod** flat, ovate, long-pilose. Sandstone slope and flats, thicket, open woodland and grassland, alt. 215–1 980 m; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Queenstown southwards, from Fort Beaufort to Dwessa Forest, Assegaaibos to Grahamstown and to Jeffreys Bay).

totta (Thunb.) DC.
Variable, trailing or climbing herb, up to 1 m long; arising from a tuberous rootstock. **Leaves** pinnately trifoliolate. **Leaflets** oblong-lanceolate, mostly twice as long as wide, distinctly veined, hispidulous or smooth. **Inflorescence** a lax, few-flowered raceme. **Flowers** small, yellow. **Flowering time** Sept.–Mar., sometimes later. Grassland, closed woodland, railway side reserves, alt. 50–2 090 m; Drakensberg Grassland, Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (eastern half of EC: Thaba Chitja to Kokstad S, from Queenstown to Mkambati Nature Reserve, Katberg Pass to Willowvale District and from Hankey to Grahamstown).

2b Leaflets ovate, ovate-rhomboid, ovate-orbicular, subrhomboid, deltoid
3a Plants erect

peglerae Baker f.
Erect, perennial herb, up to 0.5 m high; stems rigid, longitudinally ribbed, each rib pubescent?, densely covered with orange pellucid glands. **Leaves** pinnately trifoliolate. **Leaflets** ovate-orbicular or subrhomboid, pubescent especially on veins, conspicuously orange, resinous-dotted on undersurface. **Stipules** conspicuous, linear-lanceolate. **Inflorescence** an erect, long-pedunculate, axillary, several- to many-flowered raceme, much longer than leaves. **Flowers** yellow; standard petal pubescent externally. **Flowering time** May. Grassland, open woodland, alt. up to 460 m; Sub-Escarpment Savanna (Kentani).

sordida (E.Mey.) Schinz

Robust, erect herb or small shrub, up to 2 m high; stems silky villous or glabrous, closely leafy. **Leaves** pinnately trifoliolate. **Leaflets** elliptic-oblong, oblong or oblanceolate, finely appressed-pubescent, silky villous or glabrescent, prominently veined below. **Inflorescence** an axillary, terminal, 1–6-flowered raceme, much shorter than leaves. **Flowering time** Nov.–Mar. **Pod** compressed, oblong, 2-seeded, densely hirsute, tipped with remains of style. Grassland, alt. 45–1 740 m; Sub-Escarpment Grassland, Drakensberg Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Clydesdale S, from Queenstown to Maclear District and from Stutterheim to Kentani District).

3b Plants prostrate, sprawling or climbing

adenodes Eckl. & Zeyh.

Prostrate, perennial herb, much-branched from a woody rootstock. **Leaves** erect, pinnately trifoliolate. **Leaflets** small, ovate-orbicular or subrhomboid, mucronate, conspicuously resinous-dotted, especially on lower surface. **Inflorescence** an erect, long-pedunculate, axillary, several- to many-flowered raceme, much longer than leaves. **Flowers** yellow to orange. **Flowering time** Sept.–Jan. Grassland, open woodland, alt. 10–2 195 m; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Albany Thicket (Barkly East to UMzimvubu Flats S, from Penhoek Pass to Mthatha, Somerset East to Kentani and from Keiskamma River Mouth to East London).

argentea (Thunb.) Harv.

Woody, climbing shrub. **Leaves** pinnately trifoliolate. **Leaflets** widely ovate, leathery; upper surface dark green; lower surface pale green, densely grey-hairy. **Inflorescence** an axillary, several- to many-flowered raceme. **Flowers** yellow. **Flowering time** Oct.–Mar. Grassland, forest margins, among rocky ridges, alt. 360–1 280 m; Albany Thicket, Drakensberg Grassland, Eastern Fynbos-Renosterveld, Indigenous Forests (Somerset East to Juanasberg and SW to Storms River Mouth and Clarkson).

calvescens Meikle

Herbaceous climber, up to 1.5 m high. **Leaves** pinnately trifoliolate, conspicuously stipulate. **Leaflets** small, widely ovate, rhomboid or deltoid, shortly hairy on veins on undersurface. **Stipules** widely ovate, blunt. **Inflorescence** an axillary, several- to many-flowered raceme. **Flowers** yellow, with purple venation on outside of standard petal. **Flowering time** Jan.–May. **Pod** falcate, shortly hairy. Closed shrubland, grassland, thicket, alt. 155–855 m; Albany Thicket, Indian Ocean Coastal Belt (Graaff-Reinet to Fort Beaufort SE and from Grahamstown to Nahoon River Mouth).

caribaea (Jacq.) DC.

Vigorous, perennial climber, up to 1 m high, or prostrate; stems slender, pubescent. **Leaves** pinnately trifoliolate. **Leaflets** ovate-rhomboid or deltoid; sparsely pubescent or subglabrous on upper surface, pubescent on veins; dotted with raised golden glands on lower surface. **Inflorescence** long-pedunculate, many-flowered, lax, axillary raceme, longer than leaves. **Flowers** yellow, with purple venation on outside of standard petal. **Flowering time** Dec.–Apr. Coastal forests, closed shrubland, closed woodland, grassland, stream margins, alt. 5–2 010 m; Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Drakensberg Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Clydesdale to Insizwa southwards, from Haga Haga to Port St Johns, Fort Beaufort to Hole-in-the-Wall, Steytlerville to Riet River Mouth and to Cape Recife).

cooperi (Harv. ex Baker f.) Burtt Davy

Robust, sprawling herb with long trailing stems; stems longitudinally ribbed. **Leaves** pinnately trifoliolate, erect. **Leaflets**, widely ovate-orbicular or subrhomboid, conspicuously net-veined. **Stipules** paired subulate. **Inflorescence** an erect, axillary, dense, many-flowered raceme; flowers congested at end of long peduncle, much longer than leaves. **Flowers** large, deep yellow, each subtended by a large, reddish, lanceolate bract. **Flowering time** Oct.–Apr. Grassland, margin of forest, closed shrubland, alt. 260–1 830 m; Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Indigenous Forests (Clydesdale and Mzimkhulu River S to Mount Frere District and Mkambati Nature Reserve).

harmsiana Schltr. ex Zahlbr.

Slender, climbing herb, up to 1 m high. **Leaves** pinnately trifoliolate. **Leaflets** ovate-rhomboid, shortly hairy, discolorous. **Inflorescence** a lax, few-flowered raceme, shorter than leaves, terminal. **Flowers** yellow. **Flowering time** Feb.–May. **Pod** flat, ovate, long-pilose. Closed woodland, grassland, well-drained, stony, sandy soil, alt. 365–1 981 m; Drakensberg Grassland, Sub-Escarpment Savanna, Albany Thicket (Menziesberg to Komga and Kentani District S, Grahamstown and Alexandria).

harveyi Eckl. & Zeyh.

Prostrate, closely leafy herb, sometimes climbing up to 0.3 m high, densely silky hairy throughout. **Leaves** pinnately trifoliolate. **Leaflets** widely ovate to suborbicular, often with pellucid gland dots on undersurface. **Stipules** conspicuous, widely ovate. **Inflorescence** a few-flowered raceme only slightly longer than leaves. **Flowers** yellow with red veins on standard petal. **Flowering time**. Sept.–Feb.(–Apr.). Grassland, black turf, clay soil, alt. 90–1 525 m; Sub-Escarpment Grassland; Drakensberg Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Albany Thicket (Queenstown S, from Victoria East District to King William's Town, Komga and Dwessa Forest, and to Bushman's River Bridge).

hirsuta Eckl. & Zeyh.

Isikolpati sethafa (X)

Prostrate herb with long, much-branched, spreading or twining stems from a woody rootstock; stems striate, hairy. **Leaves** pinnately trifoliolate. **Leaflets** widely ovate-orbicular, blunt at tip, rigid, hispid-pubescent. **Flowers** yellow. **Petals**: standard red-veined, densely silky-pubescent. **Flowering time** Aug.–Feb. Rootstock used medicinally in Transkei. Burnt grassland, alt. 10–2 285 m; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Albany Thicket (Clydesdale and Mzimkhulu River S, from Queenstown to Mthatha, Komga to Willowvale District and from Grahamstown to East London).

minima (L.) DC.

Perennial climbing or prostrate herb, 0.1–1.5 m high, with glabrous to velvety stems from a woody rootstock. **Leaves** pinnately trifoliolate. **Leaflets** ovate, rhomboid or suborbicular, glabrescent to velvety, acute or obtuse at tip, densely gland-dotted below. **Stipules** small, linear-lanceolate. **Inflorescences** lax, axillary racemes. **Flowers** small, yellow, sometimes with dark red veins or flushed red. **Flowering time** Aug.–Apr. Grassland, alt. 30–2 440 m; Drakensberg Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Amatole Mts to Alice, Fort Hare and to Haga-Haga).

nervosa Benth. & Harv.

Prostrate herb with long trailing stems from a tuberous rhizome. **Leaves** pinnately trifoliolate, shortly petiolate. **Leaflets** rigid, elliptic-oblong to subrhomboid, conspicuously 3-nerved at base, hispid-pubescent. **Stipules** small, narrowly lanceolate or subulate. **Inflorescence** 4–6-flowered, axillary racemes. **Flowers** small, yellow with red striations. **Flowering time** Sept.–Mar. Grassland, open woodland, alt. 15–2 440 m; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna (Clydesdale and UMzimvubu cutting S to Maclear, from Seymour across Amatole Mts to Mount Thomas in Stutterheim District and to Willowvale District).

pentheri Schltr. ex Zahlbr.

Perennial, prostrate herb, up to 0.7 m high; stems thinly pubescent to glabrescent. **Leaves** pinnately trifoliolate. **Leaflets** suborbicular to widely ovate. **Inflorescences** of lax, many-flowered, axillary racemes with peduncles much longer than leaves. **Flowers** yellow, with brownish veins on standard petal. **Flowering time** Dec.–Feb. Grassland, closed shrubland, alt. 36–2 000 m; Albany Thicket, Sub-Escarpment Grassland, Sub-Escarpment Savanna (Matatiele, Clydesdale and Kokstad S, from Wodehouse District to Fort Beaufort and Kowie West to Port Alfred near Riet River).

reptabunda N.E.Br.

Prostrate perennial herb; stems long trailing from a tuberous rhizome, pilose hairs interspersed with orange glands. **Leaves** pinnately trifoliolate. **Leaflets** ovate to widely ovate, pilose especially on main veins, with scattered orange glands. **Stipules** paired, conspicuous, falcate-oblong, subobtuse. **Inflorescence** a lax, 2–6-flowered raceme. **Flowers** small, yellow. **Flowering time** Sept.–Mar., with a peak in Nov. Grassland, recently burnt, alt. 245–2 200 m; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna (Kokstad S, from Queenstown to Engcobo and from Stutterheim to King William's Town, Komga and Kentani).

villosa (Meisn.) Druce

Robust, prostrate, spreading herb with long trailing stems from a thick woody rootstock; stems 3- or 4-angled, densely white-villous. **Leaves** erect, pinnately trifoliolate. **Leaflets** large, widely ovate or suborbicular, densely white-villous. **Inflorescence** an erect, long-pedunculate, axillary, several- to many-flowered raceme. **Flowers** yellow with red veins, especially on standard petal. **Flowering time** Sept.–Jan. **Pod** 2-seeded, compressed, falcate, dark brown, clothed with white-villous hairs mixed with golden-yellow hairs. Grassland among rocks on steep slopes, alt. 800–1 950 m; Sub-Escarpment Grassland (Mount Malowe to Ngele Mtn and -Forest).

Species excluded – insufficiently known: **R. grandifolia** Steud., perennial herb known only from King William's Town vicinity.

SCHOTIA Jacq.

Boerboon (A)

Species ± 4, E Zimbabwe, SW Mozambique, sthn Afr., N, LIM, G, M, S, KZN, NC, WC, EC.

Hybridisation occurs between species in EC.

Stamens free to base

afra (L.) Thunb.

Much-branched shrub or small tree, up to 3–5 m high; crown spreading. **Bark** rough, brown. **Leaflets** 6–18 pairs, opposite, sessile, linear or oblong-elliptic, oblique basally, apex obtuse, mucronate, ± pubescent. **Inflorescence** a many-flowered, congested, subglobose panicle, on short lateral branches. **Flowers** scarlet or pink. **Calyx** coriaceous; tube obconical, lobes usually 4 (sometimes one emarginate or divided to base to give 5 lobes), obovate to oblong. **Flowering time** all year, mostly Sept.–Jan.

afra var. **afra**

Karoo Boer-bean; *Karoo-boerboon* (A); *umqongci* (X)

Leaflets 6–11 pairs per leaf, oblong to ± ovate. Woodland and shrubland, fynbos, grassland, forest; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Lower Karoo, Albany Thicket, Rainshadow Valley Karoo, Indigenous Forests, Eastern Fynbos-Renosterveld (Fort Beaufort E to Stutterheim, southwards to Steytlerville, Humansdorp District, Port Elizabeth, Grahamstown, East London and to Jeffreys Bay).

afra var. **angustifolia** (E.Mey.) Harv.

Small-leaved boer-bean; *fynblaar boerboon* (A); *umqongci* (X)

Leaflets 12–18 pairs per leaf, ± linear-oblong. Kloofs and plains; Sub-Escarpment Grassland, Drakensberg Grassland, Sub-Escarpment Savanna, Rainshadow Valley Karoo, Albany Thicket (Mapassakraal to Queenstown S, from Alice to Kei River and from Steytlerville eastwards to Grahamstown and Keiskamma River).

Stamens united basally

brachypetala Sond.

Tree fuchsia, African walnut, weeping boer-bean; *huilboerboon* (A); *umgxam* (X); *umgxamu* (Z)

Tree, up to 16 m high; crown rounded. **Bark** rough or smooth, greyish to reddish brown. **Branchlets** glabrous to shortly pubescent. **Leaflets** 4–7(8) pairs, opposite to subopposite, sessile or petiolate, base acute, apex rounded to emarginate, upper leaflets largest. **Inflorescence** a dense, congested, subglobose panicle, usually cauliflorous on older branches. **Flowers** deep red or scarlet. **Calyx** coriaceous; tube subcampanulate, sparingly pubescent; lobes 4, subequal, ovate-elliptic. **Petals** reduced to linear filaments. **Flowering time** Aug.–Nov. Savanna, forest, open shrubland, forest; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests, Albany Thicket (Tabankulu S to Mthatha, Mazeppa Bay, Albany District and Grahamstown).

latifolia Jacq.

Forest boer-bean; *bos-boerboon* (A); *umgxam* (X)

Tree, up to 15 m high; crown somewhat rounded. **Bark** smooth, dull grey to reddish brown. **Branchlets** glabrous to shortly pubescent. **Leaflets** 3–5 pairs, opposite, sessile, elliptic-oblong to obovate, base cuneate, apex rounded to acute, oblique, upper leaflets largest. **Inflorescence** a terminal to lateral panicle, relatively open. **Flowers** pink to flesh-coloured. **Calyx** reddish brown, coriaceous; tube very short turbinate, sparingly pubescent; lobes 4, subequal, obovate. **Petals** 5, veined, oblanceolate. **Flowering time** Aug.–Feb. Forest margins in dry scrub or bushveld; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld, Lower

Karoo, Albany Thicket (Queenstown E to Tsitsa River, southwards across Amatole Mts to Seymour, Alice, Stutterheim and Komga, from Steytlerville to Baviaanskloof, Port Elizabeth, Grahamstown and East London, and to Humansdorp).
Hybridisation occurs between *S. latifolia* and *S. afra*:
latifolia Jacq. × **S. afra** (L.) Thunb. **Form A**
Leaflets 3–5 pairs per leaf. **Stamens** free to base. (Steytlerville E to Riebeek East and Grahamstown).

[E]**latifolia** Jacq. × **S. afra** (L.) Thunb. **Form B**
Leaflets 4–10 pairs per leaf. **Stamens** united basally. (Port Alfred to Hamburg in Peddie District and to East London).

SENEGALIA Raf.

(Tribe Mimoseae) (Kyalangalilwa et al. 2013)
(= *ACACIA* Mill. subgen. *Aculeiferum* sect. *Aculeiferum*)

Thorn tree; *doringboom* (A)

Species ± 207, pantropical, New World 100, Asia 36, Australia and Pacific 2, Madagascar and Africa 69, a legacy of Savanna Biome; 19 in sthn Afr., N, B, LIM, NW, G, M, S, FS, KZN, NC, WC, EC.

Macromorphological characters:

- Unarmed or armed with prickles
- Always lack stipular spines
- When armed, prickles are mainly scattered, sometimes grouped in 2's or 3's near nodes
- Leaves bipinnate with sessile or stipitate glands in variable positions on petioles or leaf rachis
- Pollen porate without columellae

1a Prickles scattered irregularly on internodes
2a Flowers arranged in spikes

ataxacantha (DC.) Kyal. & Boatwr.
(= *Acacia ataxacantha* DC.)

Flame thorn; *vlamdoring* (A); *mologa* (NS)

Scandent shrub, climber, 3–15 m high, many stems arising from common base, trunk up to 0.5 m in diam. **Bark** yellowish or grey-brown, rough, slightly fissured, sometimes flaking. **Branches** sparingly to densely pubescent when young, slightly golden; prickles scattered along internodes, strongly recurved, reddish brown, up to 15 mm long. **Leaves** bipinnate, rachis 60–165 mm long, pinnae 8–25 pairs, each with 19–62 pairs leaflets. **Flowers** in spikes, 22–115 mm long, yellowish white. **Flowering time** Jan., Feb. **Pod** reddish or purplish brown, linear-oblong, 200 × 24 mm, straight, acuminate at both ends. River fringes, forest margins, dry river valleys; Sub-Escarpment Savanna, Indigenous Forests, Indian Ocean Coastal Belt (Port Edward SW to Port St Johns).

2b Flowers arranged in globular heads

brevispica (Harms) Seigler & Ebinger subsp. **dregeana** (Benth.) Kyal. & Boatwr.

[= *Acacia brevispica* Harms subsp. *dregeana* (Benth.) Brenan]

Prickly thorn; *dorinkiedoring* (A); *umthathawe* (Z)

Shrub or scandent climber, 1–8 m high. **Bark** young. **Branches** hairy, grey-brown, yellowish green, minute red glands; prickles scattered along internodes, on pale longitudinal ridges, recurved or spreading, up to 4 mm long. **Leaves** bipinnate, rachis 30–100 mm long, pinnae 5–20 pairs, each with 24–62 pairs leaflets. **Flowers** in globular heads, creamy white. **Flowering time** Aug.–Oct. **Pod** brown, oblong to linear-oblong, 60–150 × 20–28 mm, almost straight, subcoriaceous, velvety, small reddish glands, dehiscent. Arid bushveld, dry river valleys; Sub-Escarpment Savanna, Indigenous Forests, Indian Ocean Coastal Belt (Port Edward SW to East London).

1b Prickles near nodes

caffra (Thunb.) P.Hurter & Mabb.

[= *Mimosa caffra* Thunb., *Acacia caffra* (Thunb.) Willd.]

Common hook thorn; *gewone haakdoring* (A); *motholo* (NS)

Shrub or tree, 3–14 m high, trunk up to 0.6 m in diam. **Bark** dark brown, rough, transversely and longitudinally fissured forming squares. **Branches** glabrous to hairy when young, with or without minute red glands. **Leaves** drooping, bipinnate, rachis 50–150 mm long, pinnae 8–26 pairs, each with 21–50 pairs leaflets. **Prickles** 2, recurved, dark brown, up to 9 mm long. **Flowers** in spikes, 26–65 mm long, creamy white. **Flowering time** Sept.–Nov. Arid bushveld, dry river valleys, often amongst rocks; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Albany Thicket (Kokstad SW to Uitenhage, Grahamstown and East London).

SENNA Mill.

Species 295–300, circumtropical, most numerous in the Americas, well represented in Africa and Australia; 5 in sthn Afr., others have become naturalised, N, B, LIM, NW, G, M, S, KZN, WC, EC.

Flowers in narrow, spike-like racemes exserted from foliage

***didymobotrya** (Fresen.) Irwin & Barneby

Chemagro, peanut butter cassia; *grondboontjiebotterkassia* (A)

Coarse shrub, up to 1.5–5.0 m high; stems, leaves, and inflorescences sparsely pubescent with spreading hairs. **Leaves** 100–140 mm long. **Leaflets** 10 to 20 pairs per leaf, oblong-elliptic, mucronate apically, rounded basally, rachis terete. **Stipules** leafy, cordate, ovate with attenuate apex. **Inflorescences** axillary, flowers and fruits co-occurring. **Flowers** bright yellow drying to white, with brown veins. **Flowering time** Mar.? **Pod** stipitate, flattened, 60–120 × 15–25 mm. **Valves** corrugated over seeds, papery, dark brownish black, glabrate. **Seeds** compressed, oblong, grey-brown, bearing elliptic areole on each face. Naturalised in weedy places; origin tropical Africa, declared invader (Category 2); Sub-Escarpment Savanna (Grahamstown).

Flowers in simple, corymbose or subumbellate racemes (never spike-like), mostly immersed in foliage

*multiglandulosa (Jacq.) Irwin & Barneby

Dense, rounded shrub or tree, up to 5 m high; stem, rachises, inflorescences and leaves densely yellow- or white-tomentose. **Leaves** 50–160 mm long. **Leaflets** 5 to 8 pairs, oblong, base asymmetrical, apex rounded to mucronate, increasing in size distally. **Inflorescences** of axillary corymbose racemes, somewhat exserted above foliage. **Flowers** 3–8 per raceme, deep yellow to brown-veined with age. **Flowering time** July–May. **Pod** pendulous, linear to oblong, terete or somewhat laterally compressed, 60–120 × 6–10 mm. **Valves** papery, light brown, finely pubescent, corrugated over seeds, internally septate and pulpy. **Seeds** one row, laterally ovate, brown, glossy, lacking areole. Naturalised; origin Mexico, Central and South America; Drakensberg Grassland, Sub-Escarpment Savanna, Albany Thicket (Fort Cunynghame to Amabele SW to Greater Elephant Addo National Park and Grahamstown).

*occidentalis (L.) Link

Stinking weed

Annual or short-lived perennial up to 2 m high; stems ridged, glabrous with age. **Leaves** 120–200 mm long. **Leaflets** 4 to 5 pairs, increasing in size distally on rachis, ovate-elliptic, base rounded to asymmetric, apex acute to acuminate, surfaces densely glandular when young. **Stipules** asymmetric, ovate to lanceolate, acute, caducous. **Inflorescences** in axils of upper leaves, subumbellate racemes. **Flowers** 2–4-flowered, pale yellow. **Flowering time** Feb., Mar., or all year. **Pod** ascending, flattened, linear-oblong, 80–120 × 5–10 mm. **Valves** dark brown, edges light brown, glabrate, coriaceous, corrugated over seeds, internally septate with papery walls between seeds. **Seeds** single row, ovate, laterally compressed, olivaceous, bearing oblong areole on each face. Pantropical weed, known only under cultivation in Cape (King William's Town).

*pendula (Willd.) Irwin & Barneby var. glabrata (Vogel) Irwin & Barneby

Small tree or scandent shrub, 2–4 m high; crown densely leafy, glabrous. **Leaves** up to 80 mm long, bluish green. **Leaflets** in 4 or 5 pairs, obovate to elliptic, base rounded, asymmetrical, apex rounded to obtuse. **Inflorescences** of axillary racemes, terminal on branches, exserted above foliage. **Flowers** bright yellow. **Flowering time** Apr., May (all year?). **Pod** stipitate, straight to slightly curved, cylindrical, 180–200 × 8–14 mm, internally septate. **Valves** glabrous, papery, dark brown. Cultivated for ornament; origin South America, declared invader (Category 2); Sub-Escarpment Grassland (Fort Beaufort).

septemtrionalis (Viv.) Irwin & Barneby

Arsenic bush, Dooley weed, laburnum

Small tree or shrub, up to 4 m high; glabrous throughout with a few strigose hairs on leaflet stalks. **Leaves** 120–250 mm long. **Leaflets** 3 or 4 pairs per leaf, ovate, base rounded, symmetrical. **Inflorescences** of few-flowered, axillary racemes, immersed in foliage. **Flowers** bright yellow. **Flowering time** Aug.–Mar. (all year?). **Pod** shortly stipitate, cylindric 60–150 × 10–15 mm in diam. **Valves** papery, dark brown, pale along sutures, separating in two layers, internally septate, somewhat pulpy. **Seeds** two parallel rows, ovate, glossy, lacking areole. Origin central America, Mexico, invasive status: special effect weed; Albany Thicket, Indian Ocean Coastal Belt, Sub-Escarpment Savanna (Ntafufu River SW to Port St Johns and Grahamstown, also between Port Elizabeth and Kenton on Sea).

× **floribunda** (Cav.) Irwin & Barneby

Hybrid between *S. septemtrionalis* and *S. multiglandulosa*. **Pubescence** scattered on ovary, leaf base and younger leaves. **Inflorescences** exserted. Albany Thicket (coast between Port Elizabeth and Kenton on Sea, Grahamstown).

SESBANIA Scop.

Sesbania, rattlepod

Species ± 60, cosmopolitan in warm parts, generally in seasonally or permanently wet places; ± 18 in sthn Afr., LIM, NW, G, M, S, FS, KZN, L, NC, WC, EC.

***punicea** (Cav.) Benth.

Red sesbania, Brasilean glory pea; *Brasiliaanse glorie-ertjie*, *rooisesbania* (A)

Deciduous tree or shrub, up to 4 m high. **Branches** slender. **Leaves** dark green, drooping, 1–200 mm long. **Leaflets** oblong, entire, apiculate at apex. **Inflorescences** of drooping racemes. **Flowers** red or orange. **Flowering time** Sept.–Mar. **Pod** longitudinally 4-winged, oblong, tip sharply pointed. **Seeds** 4–10 separated by cross-partitions. High rainfall areas, riverbanks, riverbeds, wetlands, wastelands, roadsides; origin South America, declared weed (Category 1); Albany Thicket, Sub-Escarpment Savanna (Jansenville E to Patensie, Port Elizabeth, Grahamstown and East London).

sesban (L.) Merr. subsp. **sesban** var. **nubica** Chiov.

River bean; *rivierboontjie* (A); *umkhumukhweqe* (Z)

High shrub or small tree. **Branches** pilose or pubescent, usually ribbed. **Leaves** 35–130 mm long, pubescent, rachis flattened or grooved above. **Leaflets** 9–27 pairs, subsessile, narrowly oblong, apex apiculate, narrowing towards base. **Inflorescences** of axillary racemes, 3–8-flowered. **Flowers** with standard petal pure yellow or yellow speckled with purple. **Flowering time** Aug.? **Pod** not winged, 60–140 mm long, 3–4 mm thick, subterete, long-acuminate, glabrous; septa 4–6 mm apart. Cleared scarp forest; Indigenous forests (Transkei, Magwa Store near Port St Johns).

***virgata** (Cav.) Pers.

Wand riverhemp

Shrub. **Branches** glabrous, ribbed. **Leaves** up to 140 mm long, glabrous. **Leaflets** ± 14 pairs, petioled, lanceolate, apex uncinate, narrowing towards base. **Inflorescences** many-flowered axillary racemes. **Flowers** ± 10 mm long. **Flowering time** Feb.? **Pod** stipitate, 60 × 6 mm, rectangular, beaked, glabrous. Cultivated; origin Argentina and Brazil; Albany Thicket (East London).

SMITHIA Aiton

Species ± 20 in Old World tropics, a few in Africa; 1 in sthn Afr., LIM, G, M, S, KZN, EC.

erubescens (E.Mey.) Baker f.

Robust, erect or decumbent herb or dwarf shrub, up to 1.75 m high. **Leaves** pinnate. **Leaflets** ovate, in 6–12 opposite pairs, asymmetric at base; upper surface glaucous green; lower surface paler; fringed with long adnate hairs, stipulate. **Stipules** conspicuous, with 2-auricled appendage at base, one ear rounded and short, the other linear and longer, persistent. **Inflorescences** short, dense, axillary, scorpioid cymes; bracts entire, scarious, brownish, caducous, with persistent bracteoles below calyx. **Flowers** yellow

with maroon on outer part of standard petal. **Flowering time** Nov.–Mar. **Pod** enclosed within accrescent calyx, jointed. Grassland and streambanks, alt. 305–2 100 m; Sub-Escarpment Grassland (Clydesdale to Mtentu Bridge and Bizana).

SOPHORA L.

Species ± 50, cosmopolitan in warm regions; 2 (1 cultivated) in sthn Afr., grown as street trees or garden ornamentals, G, FS, KZN, EC.

***japonica** L.

Japanese pagoda tree

Tree, 2–6 m high. **Leaves** imparipinnate, pale green. **Leaflets** 9–15 per leaf, ovate. **Inflorescences** of panicles borne at branch ends. **Flowers** creamy white. **Calyx** with narrowly campanulate tube, shortly toothed. **Pod** moniliform, fleshy, indehiscent or obscurely 2-valved, often beaked. Cultivated; origin E Asia; Albany Thicket (Graaff-Reinet, Grahamstown).

***SPARTIUM** L.

Species 1, Mediterranean region and SW Europe; now widely cultivated and naturalised, G, M, WC, EC.

junceum L.

Spanish broom, weavers' broom

Unarmed shrub, 1.5–4.0 m high. **Branches** slender, long, ascending, often leafless. **Leaves** rare, unifoliolate, blue-green, silky beneath. **Inflorescences** of many-flowered, terminal racemes. **Flowers** showy, bright yellow. **Flowering time** Aug.–Nov. **Pod** brown, linear-oblong, tomentose, flattened, dehiscent, 2-valved. **Seeds** many. Cultivated for ornament, poisonous, garden rubbish dump; origin Mediterranean region and SW Europe, declared weed (Category 1); Albany Thicket (Grahamstown).

SPHENOSTYLIS E.Mey.

Species 7, Africa and India; 2 in sthn Afr., LIM, G, M, FS, KZN, EC.

marginata E.Mey. subsp. **marginata**

Procumbent, twisting or climbing, 0.5–1.8 m long; sparsely puberulous or glabrate. **Leaves** pinnately trifoliolate, stipulate. **Leaflets** elliptic-oblong, obtuse or retuse, sparsely pubescent or glabrous. **Inflorescences** congested racemes on long peduncles. **Flowers** few, conspicuous. **Calyx** cup-shaped, lobes very short, broad and rounded. **Flowering time** Dec.? **Pod** linear, coriaceous, narrowed at each end, tipped with long persistent style. **Seeds** black, oblong, thick, minutely papillose. Grassland, sandy soil; Indian Ocean Coastal Belt (Mtamvuna River, Port Edward).

TEPHROSIA Pers.

Species ± 350, pantropical, mainly in warm regions, abundant in Africa and Madagascar (± 170 spp.) and Australia (± 90 spp.); ± 53 in sthn Afr., widespread.

A. Leaves simple

acaciifolia Baker

Erect, ascending shrub, 0.4–0.6 m high; stems several, from rootstock, simple or laxly branched, densely grey or ferruginous-downy. **Leaves** linear, 25–175 mm long, mucronate, pinnately parallel-veined with midrib ferruginous; upper surface glabrous; lower

surface grey-downy; subsessile. **Stipules** linear, setaceous. **Inflorescences** of terminal racemes. **Flowers** in pairs, purplish, downy; pedicels short; bracts minute, setaceous. **Calyx** densely silky, lobes narrowly triangular, long-acuminate, shortly and thickly ciliate, unequal. **Petals**: standard suborbicular, densely silky on outside. **Flowering time** Dec.? **Pod** 4–55 × 3 mm, densely grey-silky along middle, dark brown along sutures. Recently burned grassland; Indian Ocean Coastal Belt (Mkambati Nature Reserve).

gracilenta H.M.L.Forbes

Herb, stems slender, ascending, up to 0.3 m long; thinly appressedly pilose becoming glabrous when older. **Leaves** ± linear-lanceolate, 23–39 mm long, mucro small and recurved, pinnately parallel-veined; upper surface glabrous; lower surface appressed pilose; petiolate. **Stipules** setaceous. **Flowers** solitary in axils of leaves, white, drying yellow. **Calyx**: lobes ciliate, shorter than tube. **Petals**: standard silky on outside and long ciliate margin at base of lobe. **Flowering time** Feb.?, Mar.? **Pod** stipitate, linear, glabrous, apex with curved beak. Grassy upper slopes of dolerite hills, marginal thornveld; Sub-Escarpment Grassland (Queenstown District).

marginella H.M.L.Forbes

IsiDala (Z)

Suffrutex, up to 0.33 m high; rootstock woody; stems decumbent, slender, flexuous, thinly appressed-pubescent. **Leaves** linear-lanceolate, 15–100 mm long, mucro recurved, venation conspicuous, pinnately parallel and straw-coloured, margins thickened and straw-coloured, upper surface glabrous, lower surface appressed-pubescent; petiolate. **Stipules** linear. **Inflorescence** laxly racemose, 1- or 2-flowered on long peduncles. **Flowers** pink. **Calyx** with lobes linear-subulate. **Petals**: standard suborbicular, silky on outside. **Flowering time** Dec.–Mar. **Pod** 45 × 3 mm, linear, thinly pubescent. Grassland; Indian Ocean Coastal Belt, Drakensberg Grassland (Mkambati Nature Reserve and Fort Cunynghame).

B. Leaves palmate or digitate

macropoda (E.Mey.) Harv.

Procumbent, ± robust, perennial herb, 0.06–2.00 m long; rootstock tuberous. **Leaves** 1–3-jugate, long-petioled. **Leaflets** narrowly to widely elliptic, up to 65 mm long, pinnately parallel-veined, vein ends looping at margin; upper surface glabrous; lower surface pubescent. **Stipules** widely cordate-ovate. **Inflorescences**: peduncles terminal or leaf-opposed, up to 480 mm long, few-flowered at apex; bracts bilobed, widely ovate. **Flowers** white with purple insect traces or pink to purple. **Calyx**: lobes triangular, apex acute, unequal. **Style** pubescent. **Flowering time** Sept.–Apr. **Pod** up to 60 × 8 mm, linear, flattened, glabrous, hirsute along sutures. Grassland, coastal bush, dolerite outcrops, marshy clay-loam soil; Indian Ocean Coastal Belt, Sub-Escarpment Savanna, Sub-Escarpment Grassland, Albany Thicket, Drakensberg Grassland (Lusikisiki S to Port St Johns and East London, Greater Addo Elephant National Park E to Grahamstown).

C. Leaves pinnate; stipules setaceous, linear to subulate

capensis (Jacq.) Pers.

Suffruticose; stems procumbent, several from woody rootstock, pubescence variable. **Branches** slender. **Leaves** 2–4-jugate, long petiolate (25–90 mm long in var. *longipetiolata* H.M.L.Forbes). **Leaflets** 10–30 × 5–14 mm (very narrow in var. *angustifolia* E.Mey), subcuneate, oblong or lanceolate, obtuse or acute (mucronate in var. *acutifolia*

E.Mey.); upper surface glabrescent; lower surface glabrous or hirsute (densely pubescent or hirsute in var. *hirsuta* Harv.); venation usually dark reddish brown on lower surface. **Stipules** subulate. **Inflorescences**: peduncles leaf-opposed, slender, 70–150 mm long, interruptedly few-flowered. **Flowers** dark pink to magenta. **Calyx** with subulate lobes, equaling tube. **Flowering time** Dec.–Mar. **Pod** 35 × 3 mm, linear, narrow, pubescent, ± 8-seeded. Grassland, riverine thicket, grassy fynbos, closed woodland, mountain bushveld; in all bioregions, except Mesic Highveld Grassland, Upper Karoo, Lower Karoo (Transkei and Queenstown, southwestwards to Mountain Zebra National Park, Steytlerville, Joubertina, Humansdorp, Port Elizabeth, Grahamstown and East London).

kraussiana Meisn.

Suffrutex. **Branches** straight, erect, sulcate or angular, densely leafy. **Leaves** 6–12-jugate, shortly petiolate. **Leaflets** 8–36 × 2–6 mm, linear, usually complicate, very shortly mucronate, mucro-recurved; upper surface glabrous or very thinly pubescent; lower surface more densely pubescent. **Stipules** linear-setaceous, longer than petioles, pubescent. **Inflorescences** terminal and in axils of upper leaves, simple or branching, laxly racemose; flowers 2 or 3 together in axils of setaceous bracts. **Flowers** pedicellate, pinkish brown. **Calyx**: lobes lanceolate, acuminate, unequal. **Petals**: standard pubescent on outside. **Style** glabrous. **Flowering time** Jan.–Mar. **Pod** 30–35 × 4 mm, narrow, linear, thinly canescent. Grassland, moderate slope, undisturbed, rocky loam; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Queenstown eastwards to Port Edward, S to Kei Mouth).

longipes Meisn.

Suffrutex, ± 0.8 m high; stems erect, branching, angular, subcanescent. **Leaves** 2–8-jugate, 5–130 mm long; petioles up to 40 mm long. **Leaflets** 15–110 × 2–7 mm, narrowly linear, complicate, mucronulate, pinnately parallel-veined, secondary veins in fine blackish lines, silver-hairy below. **Stipules** subulate setaceous. **Inflorescences** of leaf-opposed racemes, few-flowered; peduncles up to 0.5 m long. **Flowers** mauve-pink. **Calyx** with lobes deltoid, narrowly acuminate, tawny-pilose. **Petals**: standard subrotund, tawny-pilose on main vein and upper part on outside. **Style** bearded. **Pod** stipitate, 35–75 × 4 mm, linear, flat, beaked, appressed-pubescent. Sub-Escarpment Grassland, Sub-Escarpment Savanna (uMzimkhulu, Clydesdale).

multijuga R.G.N.Young

Suffrutex, up to 1.5 m high; stems ascending. **Branches** slender, flexuous, sulcate, angular, sparsely, patently or appressedly reddish hairy. **Leaves** 3–10-jugate. **Leaflets** 7–20 × 1.5–4.5 mm, narrowly oblong-elliptic, uncinate; upper surface glabrous; lower surface venation reddish brown, thinly pubescent. **Stipules** linear-setaceous. **Inflorescences** of lax racemes, 1–3-flowered; peduncles up to 160 mm long. **Flowers** cream-coloured when dry. **Calyx** with lobes deltoid, acuminate. **Petals**: standard subrotund, canescent on outside. **Style** penicillate. **Pod** stipitate, 35 × 3 mm, linear, valves reticulately veined, appressed-pubescent, beaked. Grassland; Sub-Escarpment Grassland, Sub-Escarpment Savanna (Mzimkhulu River S to Komga).

polystachya E.Mey.

Erect suffrutex, up to 5 m high; stems, slender, angular, ribbed, with yellowish pubescence (roughly rusty pubescent in var. *hirta* Harv.). **Leaves** 3–85 mm long, 3–9-jugate, shortly petioled. **Leaflets** obovate, emarginate to mucronate, flat or complicate; upper surface thinly pubescent, lower surface more densely pubescent (oblong, uncinate in

var. *latifolia* Harv.). **Stipules** subulate. **Inflorescences** terminal and axillary, laxly racemose, many-flowered. **Flowers** white to pink. **Calyx**: lobes ovate-acuminate, ± length of tube (lobes long and narrowly, lanceolate in var. *longidens* H.M.L.Forbes). **Petals**: standard densely hairy on outside. **Flowering time** Sept.–Apr. **Pod** stipitate, narrow, linear or slightly curved, pubescent, beaked with remains of style. Grassland, thicket; Dry Highveld Grassland Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Drakensberg Grassland, Sub-Escarpment Savanna, Albany Thicket (Aliwal North E to Port Edward, SW to Amatole Mts, Stutterheim, Komga and to Baviaanskloof).

[E]**pondoensis** (Codd) Schrire

Pondo poison pea; *Pondo-gifertjie* (A)

Shrub or small tree, up to 5 m high; branchlets sparsely appressed-pubescent. **Leaves** imparipinnate, 25–90 mm long, 5–13-foliolate, petiolate. **Leaflets** opposite, 10–30 × 5–8 mm, narrowly elliptic to oblanceolate, apex rounded to emarginate, upper surface glabrous, lower surface appressed-pubescent. **Stipules** subulate. **Inflorescences** terminal, pseudoracemes, compact with clusters of buds; peduncles 40–50 mm long. **Flowers** large, orange. **Calyx** widely campanulate, lobes unequal, broadly deltate with tapering apex. **Petals**: standard suborbicular, clawed, calloused near base. **Style** glabrous. **Flowering time** Oct.–Dec. **Pod** linear, compressed, 60–80 mm long, sparingly pubescent, dehiscent, thickened along sutures. **Seeds** 4–6, brownish, oblong-reniform. Dry evergreen forest margins, moister slopes, drainage lines, restricted to Table Mountain Sandstone areas of Pondoland; Indigenous Forests, Indian Ocean Coastal Belt (Port St Johns, Msikaba, Ndindini).

semiglabra Sond.

Decumbent, perennial herb, up to 1 m long; stems arising from base, flexuous, clothed with tawny tomentum, angular. **Leaves** 3–6-jugate, 15–60 mm long, shortly petiolate. **Leaflets** oblanceolate, uncinate; upper surface glabrous; lower surface tawny-tomentose. **Stipules** subulate-acuminate. **Inflorescences** of axillary and terminal racemes; flowers in ± 3 or 4 pairs; peduncles up to 60 mm long. **Flowers** magenta. **Calyx** tawny-tomentose, lobes lanceolate-acuminate, unequal. **Flowering time** Dec., Jan. **Pod** stipitate, 35–45 × 3–4 mm, shortly pubescent, beaked. Riverbanks, grassland, fynbos; Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Mzimkhulu River, Greater Addo Elephant National Park, Alexandria and Kenton on Sea).

vogelii Hook.f.

Fish-poison pea, Vogel's tephrosia

Soft, woody, branching herb, up to 2 m high; stem tomentose with both short tawny and long white hairs. **Leaves** imparipinnate, rachis up to 250 mm long. **Leaflets** 13–29, ± 48 × 15 mm, elliptic-oblong or elliptic-oblanceolate; upper surface silky tomentose; lower surface more densely tomentose and nerves silky hairy. **Stipules** caducous, lanceolate, tomentose. **Inflorescences** terminal or axillary, pseudoracemes with flowers densely arranged at apex; peduncles and axes rusty-tomentose, becoming silvery at apex. **Flowers** white or violet, pedicels brown-tomentose. **Calyx** brown-tomentose. **Petals**: standard white silky. **Flowering time** Aug? **Pod** linear, up to 140 × 18 mm, woolly to sericeous. **Seeds** 6–18, ellipsoid to reniform. Native to tropical Africa also in SA, widely cultivated; savanna-like vegetation, forest margins; Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Ntsubane).

D. Leaves pinnate; stipules widely ovate or cordate

albissima H.M.L.Forbes subsp. **albissma**

Perennial, ascending or decumbent herb, ± 0.5 m? long; stems simple, branching from base, covered with long white hairs. **Leaves** 1–6-jugate, 25–110 mm long. **Leaflets** obovate, retuse, mucronate; upper surface glabrous; lower surface pilose. **Stipules** broad, ovate, 5–7 nerved, pilose. **Inflorescences** terminal; flowers almost capitate in short dense racemes; peduncles 70–125 mm long. **Flowers** bright pink. **Calyx** with lobes linear-lanceolate, pilose. **Petals**: standard pilose on outside. **Style** pubescent. **Flowering time** Jan? Rocky grassland, riverbanks; Indian Ocean Coastal Belt (Mtentu Bridge, Mkambati Nature Reserve).

bachmannii Harms

Ascending shrub, 0.5–3.0 m high; branching freely, appressed puberulous. **Leaves** 3–6-jugate, 10–40 mm long, shortly petiolate. **Leaflets** oblanceolate, narrowed towards base, mucronate; upper surface glabrous; lower surface pubescent. **Stipules** ovate, acute, 5-nerved, 4–6 × 2–3 mm. **Inflorescences** terminal, 2–4-flowered; peduncles up to 50 mm long. **Flowers** pink. **Calyx**: upper and lateral lobes ± ovate; lower lobes 2-dentate, densely tawny, silky. **Petals**: standard widely elliptic, silky on outside. **Style** bearded. **Flowering time** Jan., Feb. **Pod** 20–70 × 8 mm, tawny along margins. Riverbanks, between sandstone rocks; Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Paddock District, Izotsha River).

cordata Hutch. & Burtt Davy

Shrub or dwarf shrub, 0.5–3.0 m high; stems ascending, glabrescent. **Leaves** pinnate, 5- or 6-jugate, 3–135 mm long. **Leaflets** obovate; mucro up to 2 mm long; upper surface glabrous; lower surface thinly appressedly pilose. **Stipules** cordate. **Inflorescences** terminal, few-flowered towards apex; peduncles 40–140 mm long. **Flowers** pink. **Calyx** pilose, lobes lanceolate. **Petals**: standard widely elliptic, pilose on outside. **Style** pubescent. **Flowering time** Sept.–Apr. **Pod** 35–50 × 6–8 mm, narrowly oblong, flat, glabrous. Grassland, roadsides; Sub-Escarpment Grassland, Drakensberg Grassland, Eastern Fynbos-Renosterveld (Komga, King William's Town, East London, Kareedouw Pass).

grandiflora (Aiton) Pers.

Pink bush pea; *rooiertjie* (A); *ihlozane* (Z)

Erect shrub, up to 1 m high; subglabrous to densely hairy. **Leaves** 4–8-jugate, up to 75 mm long, shortly petiolate. **Leaflets** ± obcordate, obtuse, 10–38 × 4–18 mm, emarginate or mucronate; upper surface ± glabrous; lower surface canescent. **Stipules** ovate, long-acuminate. **Inflorescences** terminal and leaf-opposed, fasciculate-corymbose at apex; peduncles 30–120 mm long. **Flowers** showy, bright pink, enclosed by broad, ovate; deciduous bracts when young. **Calyx** thinly to densely pubescent, lobes subulate, unequal. **Petals**: standard tawny-hairy on outside. **Style** bearded. **Flowering time** July–Apr. **Pod** linear, 40–75 mm long, compressed, glabrous, thinly hairy along sutures. Coastal forest, grassland, closed woodland, large rocks, moist, sand; Sub-Escarpment Savanna, Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Indigenous Forests, Eastern Fynbos-Renosterveld, Albany Thicket (Bizana southwards, from Queenstown E to Port Edward, Stutterheim to Komga, Humansdorp to Grahamstown and East London).

macropoda (E.Mey.) Harv. (see B above)

TERAMNUS P.Browne

Species ± 8, fairly cosmopolitan in warm regions; 1 in sthn Afr., LIM, NW, G, M, S, KZN, EC.

labialis (L.f.) Spreng.

Perennial herb, climbing, trailing or prostrate, much branched from a woody rootstock, roughly appressed-hairy throughout. **Leaves** pinnately trifoliolate. **Leaflets** ovate to narrowly elliptic, mostly rounded at base, stipulate. **Inflorescences** slender, few-flowered, axillary racemes, or flowers paired or fascicled in leaf axils; bracts small. **Flowers** small, white or yellow, sometimes with a pinkish flush. **Flowering time** Nov.–Apr. **Pod** linear, 2-valved, septate, tipped with persistent and hooked style. Bushveld, grassland, alt. 0–1 550 m; Sub-Escarpment Grassland, Sub-Escarpment Savanna (Haga-Haga, Kei River Mouth).

TRIFOLIUM L.

Wild clover

Species ± 250, cosmopolitan in temperate and subtropical regions of the northern and southern hemispheres; 19 (15 introduced) in sthn Afr., widespread, mainly near areas of cultivation.

According to Zohary & Heller (1984).

1a Calyx inflated and vesiculous in fruit; pod included in calyx (Section Vesicaria*)*

*tomentosum L.

Annual herb, 0.1–0.2 m high; stems erect, ascending or decumbent, glabrous or sparingly hairy. **Leaves** with petioles long, glabrous. **Leaflets** 4–12(–15) mm long, obovate to oblong-cuneate, ± hairy beneath. **Stipules** ovate, green or green-striped. **Inflorescences**: flowering heads 6–7(–8) mm in diam., many-flowered, pedunculate. **Flowers** pink. **Calyx** tubular when flowering; fruiting calyx markedly asymmetric-bilabiate, 10-nerved; teeth of calyx very unequal in fruit, pilose-woolly. **Petals**: standard ovate. **Flowering time** Nov.? **Pod** ovoid to globular, 1- or 2-seeded. Grassland, sandy flats, roadsides; origin Mediterranean countries; Albany Thicket (Port Elizabeth).

1b Calyx not as above

2a Calyx with 2 very short upper teeth and 3 long lower teeth; standard petal persistent, spoon- or boat-shaped, serving as a dispersal apparatus for pod (Section Chronosemium*)*

*dubium Sibth.

Cowhop clover, Irish shamrock, yellow clover; *kleingeelklawer* (A)

Annual herb, 0.2–0.4 m high. stems many, brownish, erect to ascending, poorly branched. **Leaves** very short petioled. **Leaflets** 8–10 × 4–7 mm, obovate, base cuneate, apex slightly notched, dentate around upper part, bluish green. **Stipules** herbaceous, ovate, acute. **Inflorescences**: heads 8–9 × 6–7 mm, 3–20-flowered, hemispherical; peduncles axillary, filiform. **Flowers** yellow, becoming brownish in fruit; conduplicate with funnel-shaped bundle of nerves in each half. **Calyx** with campanulate tube. **Petals**: standard ovate. **Flowering time** Jan.? **Pod** 1-seeded, stipitate, persistent style ± $^1/_3$ length of pod. Sandy places, edges of pastures; origin Europe, western Asia, Russia; Drakensberg Grassland (Jamestown District).

2b Calyx and corolla not as above
3a Heads with 2–15 corollate and fertile flowers and 20–50 sterile non-corollate flowers (Section Trichocephalum*)*

***subterraneum** L.

Annual herb, 0.1–0.3 m high, stems decumbent, sparingly branched, slightly furrowed. **Leaves** long-petioled. **Leaflets** 8–12 mm long, obcordate, base cuneate, apex denticulate, notched. **Stipules** ovate, acute. **Inflorescences**: heads ± 10 mm in diam., obovoid, loose, long-peduncled. **Flowers** white, pinkish striped, ± 10 mm long. **Calyx**: those of sterile flowers with solid tube and linear teeth. **Petals**: standard elliptical. **Flowering time** Mar., Apr. (native countries). **Fruiting heads** with few seed-bearing calyces and many wire-like sterile ones deflexed to cover fertile ones and pushing them into ground, ripening underground. **Pod** somewhat exserted from split calyx, membranous, ± obovoid, 1-seeded. Fallow fields, grassland; origin Northern Africa, Europe, Asia; Sub-Escarpment Savanna (Grahamstown).

3b Heads with all flowers corollate, all fertile or very few or only uppermost ones sterile
4a Flowers sessile, ebracteolate almost without exception (Section Trifolium*)*

[E]stipulaceum Thunb.

Annual herb, 0.08–0.15 m high; stems simple or branching from base, villous. **Leaves** long- and short-petioled. **Leaflets** 12 × 4–8 mm, obovate-oblong, striate, apex denticulate, retuse or emarginate. **Stipules** subulate-acuminate, 8–15 mm long, membranous. **Inflorescences**: heads oblong, subsessile or shortly pedunculate. **Flowers** white or red. **Calyx** ± 6–8 mm long, densely villous, campanulate, 10-nerved; teeth ± equal, subulate, setaceous; throat open, hairy inside. **Pod** membranous. **Seed** reddish brown. Grassy places, sandy soils near sea; Eastern Fynbos-Renosterveld (Saldanha Bay to Port Elizabeth).

Probably only species of Section *Trifolium* occurring outside Eastern Holarctis.

4b Flowers predominantly pedicellate and bracteolate (Section Lotoidea*)*

africanum Ser.

Perennial herb, 0.10–0.25 m high; stems many, ascending, sometimes prostrate, rooting at nodes, glabrescent to pilose. **Leaves** with petioles ± as long as leaflets. **Leaflets** 10–20(–40) × 4–8 mm, oblanceolate to lanceolate, not folded, margins obsoletely spinulose-denticulate. **Stipules**: free portion triangular-lanceolate, shorter than sheathing lower part. **Inflorescences** 10–15(–20) mm in diam., semi-globular, many-flowered; bracts not forming involucre. **Flowers** purple to brick-red. **Calyx** 5–8 mm long; teeth ± as long as tube, subulate. **Petals**: standard obovate. **Flowering time** Oct.–Apr. **Pod** long, broadly elliptical, exserted from calyx tube, 2-seeded. Inland and coastal grassland, slopes, steep hills, Dohne Sourveld; Dry Highveld Grassland, Upper Karoo, Drakensberg Grassland, Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Eastern Fynbos-Renosterveld (Aliwal North and Middelburg E to Port Edward, southwards to Katberg Pass, Stutterheim and Elandsberg Pass).

burchellianum Ser.

Creeping perennial herb, 0.05–0.25 m high; stems procumbent, rooting at nodes. **Leaves** long-petioled. **Leaflets** 8–50 × 5–15 mm, ± obovate, apex emarginate to rounded. **Stipules** up to 20 mm long, triangular, tapering gradually, free portion as long as adnate part; lower ones persistent, covering stems. **Inflorescences** up to 30 mm in diam., many-flowered, globular; peduncles up to 150 mm. **Flowers** 8–13 mm long, purple.

Calyx with teeth subulate from base, twice as long as tube. **Petals**: standard broadly obovate. **Flowering time** Aug.–Apr. **Pod** ± 5 mm long, ovoid, membranous, 1- or 2-seeded. Wetland, moist streambanks, grassland, dolerite, rocky outcrops; in all bioregions, except Lower Karoo, Rainshadow Valley Karoo (Albert District E to Mkambati Nature Reserve, southwards across Amatole Mts to Storms River, Humansdorp, Port Elizabeth, Grahamstown and East London).

*glomeratum L.

Annual herb, 0.1–0.3 m high; stems slender, few, branching, decumbent, glabrous. **Leaves** long-petioled to sessile. **Leaflets** 6–15 × 4–10 mm, obovate, cuneate at base, spinulose-serrulate, apex retuse. **Stipules** ± 10 mm long, white, membranous, longitudinally nerved, lower half adnate to petioles. **Inflorescences** axillary, sessile, up to 10 mm in diam., globular, dense, many-flowered; bracts free, narrowly lanceolate-subulate, conduplicate, greenish, membranous-margined. **Flowers** pink; standard petal oblong-ovate, folded. **Flowering time** Feb.? **Pod** 2–3 mm long, membranous, obovoid, 1- or 2-seeded. Riverbeds; Upper Karoo (Middelburg District, Schoombee).

*hybridum L.

Perennial herb, 0.1–0.7 m long; stems erect or ascending, rarely caespitose but with well-developed branches, glabrous. **Leaves** scattered along stems, long-petioled. **Leaflets** 10–30 × 10–18 mm, obovate, base cuneate, apex emarginate; margin ± serrulate. **Stipules** 10–25 mm long, ± obovate, herbaceous, lower third adnate to petioles, apex cuspidate. **Inflorescences** 10–25 mm in diam., axillary, globular, 10–many-flowered; peduncles slender, longer than petioles of subtending leaves. **Flowers** white to pink; standard petal ovate-oblong. **Flowering time** Sept.? **Pod** slightly exserted from calyx tube, oblong, stipitate, 2–4-seeded. Roadsides, growing in profusion on damp ground, streams; Indigenous Forests (Hogsback).

*repens L.

White clover, white Dutch clover; *witklawer* (A)

Creeping, perennial herb, 0.1–0.3 m long; stems rhizomatous, prostrate, rooting at nodes. **Leaves** long-petioled. **Leaflets** 6–25 × 10–15 mm, broadly obovate to orbicular, apex emarginate; margin sharply serrulate; parallel lateral veins forked towards margins. **Stipules** broad at base, upper part subulate, scarious with reddish or green nerves. **Inflorescences** 15–35 mm in diam., umbellate, 20–many-flowered; peduncles much longer than petioles of subtending leaves. **Flowers** white, yellow or pink, pedicels much longer than calyx; corolla twice as long as calyx. **Petals**: standard ovate-lanceolate, rounded at apex. **Flowering time** Oct.–Dec. **Pod** linear-oblong, 3- or 4-seeded, constricted between seeds. Damp, swampy soils, forest, fynbos, grassland; Indigenous Forests, Eastern Fynbos-Renosterveld, Albany Thicket (Ngeli Forest, Stutterheim, Tsitsikamma Forest, Humansdorp, East London).

TRIGONELLA L.

Species ± 55, Mediterranean region, central Europe, Africa, Asia to Australia; 3 (2 cultivated) in sthn Afr., N, NW, G, FS, NC, WC, EC.

anguina Delile

Wildeklawer (A)

Annual herb, up to 0.1 m high; stems prostrate. **Leaves** pinnately trifoliolate. **Stipules** adnate to petioles. **Flowers** in leaf axils, solitary and sessile; bracts minute. **Calyx** with

campanulate tube; lobes ovate, acuminate, ± as long as tube. **Petals**: standard sessile or clawed; wings oblong, eared, clawed; keel shorter than wings, planoconvex, clawed. **Stamens** diadelphous; anthers uniform. **Ovary** sessile or shortly stalked, few- to many-ovuled; style with terminal stigma. **Flowering time** Oct.? **Pod** a falcate legume with strigose valves, nodiform, dehiscent. Locally abundant, roadsides in moist soil; Upper Karoo (Middelburg, Cradock).

*ULEX L.

Species 10–20, western Europe and northern Africa; 1 widely introduced and naturalised in many montane parts of world, LIM, KZN, EC.

europaeus L.

Gorse, furze, whin

Shrub, 0.5–2.0 m high; branchlets very spiny. **Leaves** alternate, trifoliolate on seedlings, but reduced to scale-like or narrow, usually spine-like phyllodes on mature plants. **Stipules** 0. **Inflorescences** axillary; flowers solitary, in small clusters or aggregated into racemes; bracteoles 2, immediately below flower. **Flowers** yellow. **Calyx** ± yellow, persistent, divided to base into 2 lips. **Petals**: standard ovate; wings and keel obtuse. **Stamens** monadelphous, connate into a closed tube. **Ovary** sessile, many-ovuled; style slightly incurved with terminal, capitate stigma. **Flowering time** Sept.–Apr. **Pod** ovate to oblong, compressed or turgid, 2-valved. **Seeds** 1–6, strophiolate. An escape in forest areas of Drakensberg, alt. 2 000–2 300 m; Indigenous Forests (Cathcart District, Hogsback).

UMTIZA Sim

Species 1, forests of East London, Kentani and King William's Town Districts of the EC.

[E]listeriana Sim

Umtiza, omtisa; *umtiza* (A); *umthiza* (X)

Evergreen tree or shrub; armed with stout spines which are often branched and bear leaves and inflorescences. **Leaves** paripinnate. **Leaflets** in (3)5–9(12) pairs, subopposite or irregularly alternate, sometimes with a lateral leaflet appearing terminal. **Stipules** 0. **Flowers** bisexual, irregular, small, white, in a short panicle, usually terminal on lateral shoots. **Flowering time** Feb.–Apr. **Pod** 1-seeded, compressed, elongate, firmly membranous, dehiscent. Forests, valley bushveld and kloofs, alt. up to 300 m; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Albany Thicket (along Buffalo River between East London and King William's Town).

VACHELLIA Wight & Arn.

(Tribe Mimoseae) (Kyalangalilwa et al. 2013)

(= *ACACIA* Mill. subgen. *Acacia*)

Thorn tree; *doringboom* (A)

Species ± 161, pantropical; New World ± 60, Asia 21, Australia and the Pacific 7, Africa and Madagascar 73, a legacy of Savanna Biome; 32 in sthn Afr., N, B, NW, LIM, G, M, S, FS, KZN, NC, WC, EC.

- Macromorphological characters:
- Armed with paired stipular spines at nodes.
- Stipular spines can be straight, deflexed or weakly falcate; enlarged in some species forming ant domatia.
- Nearly all species with spinescent stipules have capitate inflorescences.
- Flowers pale yellowish to white, sometimes bright golden or orange yellow, rarely pinkish or purplish.
- Pollen colporate with columellae.

[E]**dyeri** (P.P.Swartz) Kyal & Boatwr.
(= *Acacia dyeri* P.P.Swartz)

Shrub, up to 1 m high. **Bark** dark brown. **Leaves** bipinnate, pinnae 3–5 pairs, each with 9–12 pairs leaflets. **Spines** 2, stipular, needle-like, brown to ivory-coloured, up to 14 mm long. **Flowers** in globular heads, yellow. **Flowering time** unknown. **Pod** rusty brown, 81 × 7 mm, constricted between seeds, dehiscent. Grassland; Sub-Escarpment Savanna (East London District).

karroo (Hayne) Banfi & Galasso
(= *Acacia karroo* Hayne)

Sweet thorn; *soetdoring* (A); *mooka* (NS)

Shrub or tree, 3–5(22) m high, trunk up to 0.75 m in diam. **Bark** dark brown to black, coriaceous, fissured. **Branches** dark olive-brown when young, conspicuous whitish lenticels, glabrous. **Leaves** bipinnate, rachis 5–38 mm long, pinnae 2–6 pairs, each with 5–15 leaflet pairs. **Spines** 2, prominent, stipular, straight, white, 25–100 mm long. **Flowers** in globular heads grouped in clusters of 1–7, bright yellow. **Pod** pale brown, linear-oblong, 50–105 × 5–7 mm, slightly curved to sickle-shaped, thinly woody, constricted between seeds, glabrous, dehiscent. **Flowering time** Oct.–Feb. Dark alkaline soils in grassland or savanna areas, riverbanks in drier areas, widespread W and S of Drakensberg; most bioregions (Aliwal North E to Matatiele, S to Joubertina and East London).

natalitia (E.Mey.) Kyal & Boatwr.
(= *Acacia natalitia* E.Mey.)

Pale-bark sweet thorn; *bleekbassoetdoring* (A); *umsana* (Z)

Shrub or tree, 3–7 m high, trunk up to 0.45 m in diam. **Bark** light brown to grey-whitish, smooth with horizontal folds, fissures, corky and flaking in blocks. **Branches** light grey to whitish when young, glabrous, sticky. **Leaves** bipinnate, rachis 13–60 mm long, pinnae 4–12 pairs, each with 12–25 leaflet pairs. **Spines** 2, slender, stipular, straight, whitish, 10–35 mm long. **Flowers** in globular heads grouped in clusters of 1–12, lemon-yellow. **Flowering time** Dec.–Mar. **Pod** light red-brown, linear-oblong, 60–140 × 5–6 mm, slightly curved to sickle-shaped, constricted between seeds, glabrous, sticky, dehiscent. Grassland or savanna areas; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Albany Thicket, Eastern Fynbos-Renosterveld (Kokstad SW to Joubertina).

robusta (Burch.) Kyal. & Boatwr.
(= *Acacia robusta* Burch.)

Robust thorn; *enkeldoring* (A); *mooka* (NS); *umsana* (Z)

Shrub or tree, 4.5–8.0(20.0) m high, trunk up to 0.75 m in diam. **Bark** dark brown to black, rough, deeply fissured. **Branches** grey to reddish brown when young, glabrous

to hairy, smooth. **Leaves** on distinct woody cushions, bipinnate, rachis 22–51 mm long, pinnae 2–5 pairs, each with 10–15 leaflet pairs. **Spines** 2, stipular, straight, whitish, 12–60 mm long. **Flowers** in globular heads, creamy white. **Flowering time** Aug.–Oct. **Pod** greyish brown to reddish brown, linear, 60–150 × 12–31 mm, straight to falcate, glabrous, acute, dehiscent. Savanna areas; Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Port Edward SW to Komga and East London).

*VICIA L.

Species ± 160, mostly northern temperate, Europe and Asia, also from north and east Africa, additional centres in North America and temperate South America; 6 naturalised in sthn Afr., N, LIM, NW, G, M, FS, KZN, L, NC, WC, EC.

1a Stipules bearing nectary patches

sativa L.

Common vetch

Annual, herbaceous vine, 0.2–1.5 m high; glabrescent. **Leaves** with rachis terminating in ramified, prehensile tendril. **Leaflets** 4–18, ± oblong-lanceolate, 10–40 × 2–15 mm, apex emarginate, mucronulate. **Stipules** bearing purplish nectary. **Inflorescences** axillary, 1 or 2(3) flowers. **Flowers** violet purple. **Calyx** ± half as long as standard petal; teeth linear-subulate, lower three bearing yellow-brown nectary; not gibbous at base. **Petals**: standard 18–30 mm long. **Flowering time** Aug.–Jan. **Pod** without stipe, 35–80 × 6–12 mm, yellowish to brown, oblique, acute at both ends. **Seeds** 5–13, ± subspherical, greenish ochre. Planted pasture, cultivated land; Dry Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland, Eastern Fynbos-Renosterveld, Albany Thicket (Burgersdorp E to Barkly East, southwards to Cradock, Hogsback, Stutterheim, Storms River Mouth, Humansdorp, Port Elizabeth, Grahamstown and East London).

1b Stipules without nectary patches
2a Corolla 5 mm or less

cracca L.

Tufted vetch

Annual, scrambling or climbing herb, 0.6–2.0 m high; stems numerously branched, climbing by means of tendrils, fairly hairy. **Leaves** with rachis terminating in slender, ramified filiform, tendrils. **Leaflets** 5–15 mm long. **Inflorescences** of long, slender racemes; flowers drooping, second; peduncles 30 mm long. **Flowers** white, ± 5 mm long. **Pod** 10–15 mm long with nail or claw-like tip. **Seeds** ± 4–8. Watercourses, dams; Albany Thicket, Sub-Escarpment Savanna (Paterson and Grahamstown districts).

hirsuta (L.) Gray

Hairy tare, tiny vetch; *klein perswieke*, *ringelwieke* (A)

Annual, herbaceous vine, up to 1 m long; sparingly pubescent, trichomes white. **Leaves** with rachis terminating in slender, ramified, filiform tendrils. **Leaflets** 4–16, thin, linear to narrowly elliptical, 5–20 × 1–4 mm, base tapering, apex emarginate or mucronulate. **Stipules** inconspicuous, sharply serrate to toothed. **Inflorescences** of elongate racemes with 2–6(8) closely spaced flowers. **Flowers** whitish blue. **Calyx** ± half as long as standard petal; teeth straight, attenuate, not gibbous at base. **Petals**: standard 2–5 mm long. **Flowering time** Sept.–Apr. **Pod** without stipe, 6–11 × 2.5–4.0 mm, oblong, brown to blackish, pubescent, short acuminate at both ends. **Seeds** mostly 2, spherical

to sublenticular. Cultivated land, roadsides; Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (UMzimvubu, Komga, Knysna, Port Elizabeth).

tetrasperma Moench

Lentil vetch, slender vetch

Annual erect or climbing herb, 0.1–0.6 m high; stems slender, profusely branched, dense, glabrous or appressed-hairy. **Leaves** 10–45 mm long, rachis terminating in tendril. **Leaflets** 6–12, linear to narrowly-elliptic, 3–20 × 1–2 mm, apex mucronulate. **Stipules** 1–2 mm long, entire. **Inflorescences** of 1–3-flowered racemes; peduncle as long as leaves. **Flowers** pale blue, ± 5 mm long. **Calyx** 2–3 mm long. **Flowering time** Dec.? **Pod** oblong, 8–16 × 2–5 mm, slightly constricted between seeds, light brown, glabrescent. **Seeds** 3 or 4, globose, ± 2 mm in diam. Common garden weed (East London, Selborne).

2a Corolla more than 6 mm long

benghalensis L.

Purple vetch, reddish tufted vetch; *wiekies*, *wilde-ertjie* (A)

Annual, occasionally perennial herb, climber, 0.2–0.8 m high; stems ridged, growing points tawny-villous. **Leaves** ± 100 mm long, rachis tawny-hairy, ending in simple or branched tendrils. **Leaflets** in 6–11 subopposite pairs, often secund; ± 21 × 7 mm, linear-oblong, sparsely hairy beneath, apex mucronulate. **Stipules** paired, 3-lobed. **Inflorescences** of long racemes; flowers secund; peduncles tawny-hairy, ± 80 mm long. **Flowers** up to 18 mm long, mauve, deep-purple or red-striped with apex of keel and standard petal dark red. **Calyx** ± membranous, lobes subulate, tawny-hairy. **Flowering time** Aug., Sept. Adjacent to lucerne fields, cultivated or abandoned lands, roadsides; Upper Karoo, Drakensberg Grassland, Sub-Escarpment Grassland, Eastern Fynbos-Renosterveld (Albert District to Barkly East, southwards to Jamestown, Fort Beaufort, Willowmore and Keurbooms River Mouth).

villosa Roth

Hairy vetch

Annual or biennial herbaceous vine, up to 1.3 m high; white-villous. **Leaves** with rachis terminating in a ramified, prehensile tendril. **Leaflets** 8–20, entire, oblong-ovate, 8–35 × 1–10 mm, apex mucronulate. **Stipules** inconspicuous, entire. **Inflorescences** of elongate racemes, usually longer than subtending leaf; flowers 5–40, closely spaced. **Flowers** bluish purple to pink or white. **Calyx** ± half as long as standard petal, gibbous at base. **Petals**: standard 12–20 mm long. **Flowering time** Sept.–Apr. **Pod** stipitate, 20–40 mm long, dark to light straw-coloured, oblong, obliquely short acuminate at both ends. **Seeds** 4 or 5, spherical to sublenticular. Widely planted fodder and green manure plant; Drakensberg Grassland, Indigenous Forests (Jamestown District, Alexandria Forest).

VIGNA Savi

Species ± 104, palaeotropics and subtropics (mostly in Africa, 55–60 species), also in neotropics; ± 14 in sthn Afr., widespread, except NC.
Following Pienaar (1992).

Flowers essentially yellow, cream-coloured or white

luteola (Jacq.) Benth.

Perennial climber, 0.3–1.5 m high/long; stems pubescent to glabrescent, hairs soft, silky. **Leaflets** narrowly to widely ovate, base cuneate, apex obtuse to emarginate.

Stipules base cordate, apex acute. **Inflorescences** of elongated racemes, 3–15-flowered. **Flowers** yellow. **Petals**: standard oblate, emarginate. **Style** prolongation thick, obtuse, tongue-shaped. **Flowering time** July–Mar. **Pod** bunched at apex of peduncle, deflexed or spreading, partially compressed, slightly constricted between seeds, pubescent to glabrescent with long, appressed, soft hairs. **Seeds** 6–9. Damp to marshy seepage grassland, riverbanks and -mouths, tolerating salt water; Indian Ocean Coastal Belt, Eastern Fynbos-Renosterveld, Albany Thicket (Umtamvuma Nature Reserve, Port St Johns, Humansdorp Port Alfred, East London).

Flowers essentially magenta, mauve or purple, even when standard petal is yellow on outer surface

frutescens A.Rich.

Perennial, pyrophytic climber, 0.1–1.0 m high/long; rootstock a woody tuber, plants ferruginous with velvety hairs, rarely glabrous. **Leaflet** trilobal to widely hastate, ± 60 × 48 mm, apex and base obtuse, venation trinerved from base, then reticulate; petioles 9–48 mm long. **Stipules** oblong-lanceolate, 4.5–8.0 mm long. **Inflorescences** of contracted racemes with several large flowers. **Flowers** precocious after grass fires. **Calyx**: lobes ± as long as tube. **Petals**: standard large, oblate, up to 30 mm in diam., repand; keel gently incurved, obtuse. **Style** with spathe-like beak, up to 2 mm long. **Pod** erect, 60–90 mm long, shortly beaked, brown, shortly appressed-hairy. **Seeds** 12–16. Open woodland; Sub-Escarpment Savanna (Kokstad District, between Mount Frere and Mount Ayliff).

nervosa Markötter

Perennial herb, climber, 0.12–0.80 m high/long; roots tuberous with abundant nodules; stems delicate. **Leaflets** ovate to linear-oblong, 15–35 × 3–15 mm, base obtuse, apex subacute to rounded, petiolate. **Stipules** ribbed, extended with a spur beyond point of attachment, both ends often rounded. **Inflorescences** of solitary, axillary flowers; peduncles up to 100 mm long, slender; pedicels short. **Flowers** small. **Petals**: standard subrotund, 6–9 × 10 mm, scarcely repand; keel saccate on both sides of claw. **Style** prolongation horizontal, up to 0.2 mm long, hammer-shaped as a whole. Creeping among rocks, twining in grassland, alt. ± 1 630 m; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Baziya Mtn S to Port Edward and Port St Johns).

unguiculata (L.) Walp.

Annual or perennial, herbaceous climber, 0.2–2.0 m high/long; stems variable in thickness and indumentum. **Leaflets** variously shaped, obtusely trilobed, triangular-rhomboid to elongate-hastate. **Stipules** extended with spur beyond point of attachment, variably shaped, margins ciliate. **Inflorescences** axillary, elongated (4–7 flowers) or contracted racemes (2 flowers). **Calyx** campanulate, lobes ± as long as tube. **Style** prolongation horizontal or upturned by 45º, hammer-shaped. **Petals**: standard subrotund; keel straight, without pockets. **Flowering time** Sept.–Apr. **Pod** 200–300 mm in cultivated forms, non-dehiscent; 60–100 mm in wild forms, beaked, twisted spirally. Grassland, woodland; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Albany Thicket (Mount Ayliff E to Mtamvuna River, southwards from Queenstown to Port St Johns and from Alexandria to East London).

Five subspecies of *V. unguiculata* in sthn Afr.:
V. unguiculata subsp. *protracta* (E.Mey.) Pienaar and *V. unguiculata* subsp. *tenuis* (E.Mey.) Maréchal in EC; *V. unguiculata* subsp. *unguiculata* (cowpea) cultivated.

vexillata (L.) A.Rich.

Pantropical perennial, 0.1–1.2 m high/long; ferruginously patent-hairy. **Leaves** trifoliolate. **Leaflets** varying from linear to lanceolate or ovate to round. **Stipules** elongated laterally beyond point of attachment, base cordate. **Inflorescences** axillary, contracted, 2–4-flowered; peduncles 50–350 mm long; extrafloral nectaries 3, in vertical row, between pedicel bases. **Calyx** with lobes ± as long as tube. **Petals**: standard ± rotund; keel twisted through 180º, inverted, conical pocket on left side. **Style** prolongation apparently obtuse; stigma covered by bonnet-shaped flap of tissue. **Flowering time** Oct.–Apr. **Pod** ferruginously hairy, up to 100 mm long. **Seeds** 10–18. Grassland; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Drakensberg Grassland, Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld, Albany Thicket (Matatiele E to Port Edward, southwards from Stockenström to Kentani and from Steytlerville, Humansdorp and Port Elizabeth to East London).

Four varieties of *V. vexillata* in sthn Afr.:

V. vexillata var. *angustifolia* (Schumach. & Thonn.) Baker, *V. vexillata* var. *ovata* (E.Mey.) Pienaar and *V. vexillata* var. *vexillata* in EC.

VIRGILIA Poir.

Keurboom trees; *keurbome* (A)

Species 2, limited to moist sites along the Cape coastal region of SA, from the Cape Peninsula (WC) to Port Elizabeth (EC).

divaricata Adamson

Pink blossom tree; *pienk keurboom* (A)

Small tree, 4–8(–16) m high, with crown narrow or spreading. **Bark** smooth. **Leaves** very variable, imparipinnate. **Leaflets** in (2–)7–9(–16) pairs, subsessile, linear to narrowly ovate, with a short, apical mucro, glabrescent at maturity or pubescent along midrib abaxially. **Stipules** linear, acuminate. **Inflorescence** an often congested and umbel-like raceme with flowers opening ± simultaneously. **Flowers** rose-violet or violet-purple, rarely pale pink, but then with beak dark purple; bracts small, caducous. **Flowering time** Aug.–Jan., with peak in Oct. **Pod** dehiscent, sometimes only along upper suture, coriaceous or sometimes woody, linear to linear-oblong, 2-valved. Riverine scrub forest, forest, often on riverbanks, alt. 0–1 300 m; Albany Thicket, Eastern Fynbos-Renosterveld, Indigenous Forests (George to Port Elizabeth).

ZORNIA J.F.Gmel.

Species ± 80, mainly Brazil; 4 in sthn Afr., widespread, except WC.

capensis Pers.

Caterpillar bean; *umkhondo*, *uncinci* (Z)

Procumbent, branched, perennial herb or subshrub. **Leaves** digitately 4-foliolate. **Leaflets** lanceolate to elliptic, pellucid-dotted especially on lower surface. **Stipules** conspicuous, leafy, peltate, acutely spurred at base. **Flowers** yellow or orange, in interrupted terminal spikes, concealed by large, peltate, 5-veined, pellucid-dotted bracts. **Flowering time** Oct.–Mar. **Fruit** a loment with 4 or 5 articles, articles reticulate, with large glands, without bristles. Whole plant used medicinally. Grassland, alt. 5–2 000 m; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Drakensberg Grassland, Albany Thicket (Clydesdale to Kokstad southwards, from Lady Frere

to Port St Johns, Bedford to Mpofu Game Reserve and Komga, Greater Addo Elephant National Park to Grahamstown and to Kidd's Beach near East London).

linearis E.Mey.

Erect, perennial herb, up to 40 mm high; stems slender, strigose. **Leaves** digitately 4-foliolate. **Leaflets** filiform, pellucid-dotted. **Stipules** leafy, peltate, acutely spurred at base. **Flowers** yellow with reddish centre, in interrupted terminal spikes, concealed by slender, ciliate, lanceolate, acute, 5-veined, pellucid-dotted bracts. **Flowering time** Nov.–Apr. **Fruit** a loment with 4 or 5 articles, articles reticulate, obscured with many hairy bristles. Grassland, alt. 90–1 830 m; Indian Ocean Coastal Belt, Albany Thicket (Lusikisiki District, Mkambati Nature Reserve S to East London).

BALL, P.W. 1968. Leguminosae. *Flora europaea*. Vol. 2. Cambridge University Press.
BARKER, N.P., SCHRIRE, B.D. & KIM, J.-H. 2000. Generic relationships in the tribe Indigofereae (Leguminosae: Papilionoideae) based on sequence data and morphology. In P.S. Herendeen & A. Bruneau, *Advances in Legume Systematics* 9: 311–337. Royal Botanic Gardens, Kew.
BEAUMONT, A.J., BECKETT, R.P., EDWARDS, T.J. & STIRTON, C.H. 1999. Revision of the genus *Calpurnia* (Sophoreae: Leguminosae). *Bothalia* 29: 5–23.
BOS, J.J. 1967. The genus *Liparia* L. (Pap.). *Journal of South African Botany* 33: 269.
BRENAN, J.P.M. 1970. Leguminosae. *Flora zambesiaca* 3,1: 1–138.
BRENAN, J.P.M. 1986. The genus *Adenopodia* (Leguminosae). *Kew Bulletin* 41: 73–90.
BRETELER, F.J. 1960. Revision of *Abrus* Adanson (Pap.) with special reference to Africa. *Blumea* 10: 607–624.
BRUMMITT, R.K. & GILLETT, J.B. 1966. Notes on the genus *Sophora* in Africa, including an Asian species found near Zimbabwe. *Kirkia* 5: 259–270.
BRUMMITT, R.K. & ROSS, J.H. 1974. The African species of *Hoffmannseggia* (Leguminosae-Caesalpinioideae). *Kew Bulletin* 29: 415–424.
BRUMMITT, R.K. & ROSS, J.H. 1976. A reconsideration of the genus *Adenolobus* (Leguminosae-Caesalpinioideae). *Kew Bulletin* 31: 399–406.
BULLOCK, A.A. 1965. Nomenclatural Notes: XVI. *Bolusafra*. *Kew Bulletin* 19: 200.
BURKART, A. 1976. A monograph of the genus *Prosopis* (Leguminosae subfamily Mimosoideae). *Journal of the Arnold Arboretum* 57: 219–249.
CALLMANDER, M.W., LABAT, J.-N. & SCHRIRE, B.D. 2010. Dealing with *Indigofera nivea* (Leguminosae) - a new name for Madagascar and a new combination for Africa. In M.W. Callmander, P.B. Phillipson & L. Gautier, Notes on the flora of Madagascar, 1–5. *Candollea* 65: 363–364.
CAMPBELL, G.J. & VAN WYK, B.-E. 2001. A taxonomic revision of *Rafnia* (Fabaceae, Crotalarieae). *South African Journal of Botany* 67: 90–149.
CODD, L.E. 1955. Notes on certain South African *Erythrina* species. *Bothalia* 6: 507–511.
CODD, L.E. 1956. The *Schotia* species of southern Africa. *Bothalia* 6: 515–533.
CODD, L.E. 1958. The *Albizia* species of South Africa. *Bothalia* 7: 67–82.
COETZER, L.A. & ROSS, J.H. 1977. Subfamily 2. Caesalpinioideae. *Flora of southern Africa* 16,2: 47–64.
COLLETT, D.G. 1941. The South African species of *Erythrina*. *Bothalia* 4: 219–228.
DAHLGREN, R. 1963b. IX. Notes on some related genera. *Lebeckia* Thunberg 1800. *Opera Botanica* 9: 255–263.
DAHLGREN, R. 1969. Comprehensive key to the species of *Aspalathus* (Leguminosae). *Botaniska Notiser* 122: 512–548.
DAHLGREN, R. 1970. Convergent evolution with respect to leaf differentiation in *Lebeckia*. *Botaniska Notiser* 123: 558–561.
DAHLGREN, R. 1972. The genus *Hypocalyptus* Thunb. (Fabaceae). *Botaniska Notiser* 125: 102–125.
DAHLGREN, R. 1988. Fabaceae. Papilionoideae. Crotalarieae (*Aspalathus*). *Flora of southern Africa* 16,3,6: 1–430.

EDWARDS, T.J. 2005. A synopsis of *Argyrolobium* (tribe *Genisteae*, *Papilionoideae*) in South Africa. *South African Journal of Botany* 71: 380–417.
FORBES, H.M.L. 1930. The genus *Psoralea* L. *Bothalia* 3: 116–136.
FORBES, H.M.L. 1948a. The genus *Ophrestia* Forbes *gen. nov. Bothalia* 4: 1003–1006.
FORBES, H.M.L. 1948b. A revision of the South African species of the genus *Tephrosia* Pers. *Bothalia* 4: 951–1001.
GILLETT, J.B. 1958. *Lotus* in Africa south of the Sahara (excluding the Cape Verde islands and Socotra). *Kew Bulletin* 13: 361–381.
GILLETT, J.B. 1960. The genus *Craibia*. *Kew Bulletin* 14: 189–197.
GORDON-GRAY, K.D. 1977a. *Cassia*. *Flora of southern Africa* 16,2: 69–108.
GRANBY, R. 1985. A revision of the genus *Amphithalea* (Liparieae-Fabaceae). *Opera Botanica* 80: 7–34.
GUNN, C.R. 1979. Genus *Vicia* with notes about tribe Vicieae (Fabaceae) in Mexico and Central America. *U.S. Department of Agriculture, Technical Bulletin* No. 1601.
HARMS, H.A.T. & DUNN, S.T. 1911. *Craibia*, a new genus of Leguminosae. *The Journal of Botany* 49: 106–109.
HARVEY, W.H. 1894. Leguminosae. *Flora capensis* 2.
HENNESSY, E.F. 1991. Erythrineae (Fabaceae) in southern Africa. *Bothalia* 21: 1–25.
IRWIN, H.S. & BARNEBY, R.C. 1976. Notes on the generic status of *Chamaecrista* Moench (Leguminosae: Caesalpinioideae). *Brittonia* 28: 28–36.
IRWIN, H.S. & BARNEBY, R.C. 1981. Cassieae. *Advances in Legume Systematics* 1: 97–106.
KIES, P. 1951. Revision of the genus *Cyclopia* and notes on some other sources of bush tea. *Bothalia* 6: 161–176.
KYALANGALILWA, B., BOATWRIGHT, J.S., BARNABAS, H.D., OLIVIER, M. & VAN DER BANK, M. 2013. Phylogenetic position and revised classification of *Acacia s.l.* (Fabaceae: Mimosoideae) in Africa, including new combinations in *Vachellia* and *Senegalia*. *Botanical Journal of the Linnean Society* 172: 500–523.
LE ROUX, M.M. & VAN WYK, B.-E. 2007. A revision of *Lebeckia* section *Lebeckia*: the *L. sepiaria* group. *South African Journal of Botany* 73: 118–130.
LE ROUX, M.M. & VAN WYK, B.-E. 2008. A revision of *Lebeckia* section *Lebeckia*: The *L. plukenetiana* group (Fabaceae, Crotalarieae). *South African Journal of Botany* 74: 660–676.
LESTER-GARLAND, L.V. 1921. A revision of the genus *Baphia*, DC. (Leguminosae). *Journal of the Linnean Society, Botany* 45: 221–243.
LEWIS, G., SCHIRE, B., MACKINDER, B. & LOCK, M. (eds) 2005. *Legumes of the world*. The Royal Botanic Gardens, Kew.
MABBERLEY, D.J. 2008. *Mabberley's plant-book*, 3rd edn. Cambridge University Press, Cambridge.
MANNING, J. & GOLDBLATT, P. 2012. Plants of the Greater Cape Floristic Region 1: the Core Cape flora. *Strelitzia* 29. South African National Biodiversity Institute, Pretoria.
MARTINS, E.S. 2003. *Lotus*. *Flora zambesiaca* 3,7: 1–9.
MEIKLE, R.D. 1972. Proposal to conserve the generic name *Rhynchosia* Lour. (1790) (Leguminosae) against *Cylista* Aiton. 1789. *Taxon* 21: 537, 538.
MILLER, J.S., FUNK, V.A., WAGNER, W.L., BARRIE, F., HOCH, P.C. & HERENDEEN, P. 2011. Outcomes of the 2011 Botanical Nomenclature Section at the XVIII International Botanical Congress. *Phytokeys* 5: 1–3.
MOHLENBROCK, R.H. 1961. A monograph of the Leguminous genus *Zornia*. *Webbia* 16: 1–141.
MOSHE, D., VAN DER BANK, M. & VAN WYK, B.-E. 1998. Lack of genetic differentiation between 19 populations from seven taxa of *Sutherlandia* (Tribe Galegeae, Fabaceae). *Biochemical Systematics and Ecology* 26: 595–609.
MOTEETEE, A. & VAN WYK, B.-E. 2006. A revision of the genus *Bolusafra* (tribe Phaseoleae, Fabaceae). *South African Journal of Botany* 72: 604–608.
PIENAAR, B.J. 1992. *A taxonomic revision of the genus* Vigna *Savi (Fabaceae) in southern Africa*. Unpublished M.Sc. thesis, University of Pretoria.
POLHILL, R.M. 1968. Miscellaneous notes on African species of *Crotalaria* L.: II. *Kew Bulletin* 22: 169–348.
POLHILL, R.M. 1982. Crotalaria *in Africa and Madagascar*. Balkema, Rotterdam.

POLHILL, R.M. 2001. *Canavalia*. *Flora zambesiaca* 3,5: 36–40.
ROSS, J.H. 1974. The genus *Elephantorrhiza*. *Bothalia* 11: 247–257.
ROSS, J.H. 1975a. Fabaceae. Mimosoideae. *Flora of southern Africa* 16,1: 7–150.
ROSS, J.H. 1975b. The naturalised and cultivated exotic *Acacia* species in South Africa. *Bothalia* 11: 463–470.
ROSS, J.H. 1977. Caesalpinioideae. *Flora of southern Africa* 16,2: 33–130.
ROSS, J.H. 1979. A conspectus of the African *Acacia* species. *Memoirs of the Botanical Survey of South Africa* No. 44.
SAlt.ER, T.M. 1939a. Amalgamation of the genus *Hallia* Thunb. with *Psoralea*. *Journal of South African Botany* 5: 45, 46.
SAUER, J. 1964. Revision of *Canavalia*. *Brittonia* 16,2: 106–181.
SCHRIRE, B.D. 1988. A synopsis of the tribe Desmodieae (Fabaceae) in southern Africa. *Bothalia* 18: 11–24.
SCHRIRE, B.D. 1991. *Systematic studies in African Indigofereae (Leguminosae – Papilionoideae)*. PhD thesis. Pp. 368. Department of Botany, University of Natal, Pietermaritzburg, South Africa.
SCHRIRE, B.D. 1992. New combinations and resurrected names in *Microcharis* and *Indigastrum* (Fabaceae-Papilionoideae). *Bothalia* 22: 165–170.
SCHRIRE, B.D. 1995. Cladistic analysis of the tribe Indigofereae (Leguminosae). In M.D. Crisp & J.J. Doyle, *Advances in Legume Systematics, Part 7, Phylogeny*, pp 161–244. Royal Botanic Gardens, Kew.
SCHRIRE, B.D. 1997. *Indigofera jucunda* (Leguminosae - Papilionoideae). *Curtis Botanical Magazine* 14,4: 213–220.
SCHRIRE, B.D. 1998. Notes relating to the genus *Indigofera* (Leguminosae - Papilionoideae) for Flora Zambesiaca: 2. Section *Indigofera*. *Kew Bulletin* 53,3: 651–668.
SCHRIRE, B.D. 2000. *Indigofera*. In P. Goldblatt & J. Manning, Cape Plants: A Conspectus of the Cape Flora of South Africa. *Strelitzia* 9: 486–492. National Botanical Institute and Missouri Botanical Garden.
SCHRIRE, B.D. 2005. Tribe Indigofereae. In G. Lewis, B. Schrire, B. Mackinder & M. Lock, *Legumes of the World*. Kew: Royal Botanic Gardens, Kew. 361–365.
SCHRIRE, B.D., LAVIN, M, BARKER, N.P., CORTES-BURNS, H., VON SENGER, I & KIM, J.-H. 2003. Towards a phylogeny of *Indigofera* (Leguminosae-Papilionoideae): identification of major clades and relative ages. In B.B. Klitgaard & A. Bruneau, *Advances in Legume Systematics, part 10, Higher level systematics*, pp. 269–302. Royal Botanic Gardens, Kew.
SCHRIRE, B.D., LAVIN, M., BARKER, N.P. & FOREST, F. 2009. Phylogeny of the tribe Indigofereae (Leguminosae–Papilionoideae): Geographically structured more in succulent-rich and temperate settings than in grass-rich environments. *American Journal of Botany* 96(4): 816–852.
SCHUTTE, A.L. & VAN WYK, B.-E. 1988. A synopsis of the genus *Dichilus* (Fabaceae–Crotalaria). *South African Journal of Botany* 54: 182–186.
SCHUTTE, A.L. & VAN WYK, B.-E. 1994. A reappraisal of the generic status of *Liparia* and *Priestleya* (Fabaceae). *Taxon* 43: 573–582.
SCHUTTE, A.L. 1995. Five new species of the genus *Liparia* (Fabaceae) from South Africa. *Nordic Journal of Botany* 15,2: 149–156.
SCHUTTE, A.L. 1997. Systematics of the genus *Cyclopia* Vent. (Fabaceae, Podalyrieae). *Edinburgh Journal of Botany* 54,2: 125–170.
SCHUTTE, A.L. 1998. A re-evaluation of the generic status of *Amphithalea* and *Coelidium* (Fabaceae). *Taxon* 47: 55–65.
SIMPSON, B.B. & LEWIS, G.P. 2003. New combinations in *Pomaria* (Caesalpinioideae-Leguminosae). *Kew Bulletin* 58: 175–184.
SOKOLOFF, D.D. 2001. New records of *Lotus* (Leguminosae: Papilionoideae: Loteae) from Africa and southwest Asia. *Kew Bulletin* 56: 715–720.
SOLADOYE, M.O. 1985. A revision of *Baphia* (Leguminosae-Papilionoideae). *Kew Bulletin* 40: 291–386.

STIRTON, C.H. & SCHUTTE, A.L. 2000. *Otholobium*. In P. Goldblatt & J. Manning, Cape Plants. A conspectus of the Cape Flora of South Africa. *Strelitzia* 9: 500–503. National Botanical Institute, Pretoria.
STIRTON, C.H. 1975. *A contribution to knowledge of the genus* Eriosema *(Leguminoseae-Lotoideae) in southern Africa (excluding Mozambique and Rhodesia).* Unpublished M.Sc. thesis, University of Natal.
STIRTON, C.H. 1981. The *Eriosema cordatum* complex. II. The *Eriosema cordatum* and *E. nutans* groups. *Bothalia* 13: 281–306.
STIRTON, C.H. 1981a. The genus *Dipogon* (Leguminosae-Papilionoideae). *Bothalia* 3: 327–330.
STIRTON, C.H. 1981b. Psoraleeae. In R.M. Polhill & P.H. Raven, *Advances in Legume Systematics* 1: 337–343.
STIRTON, C.H. 1982. The genus *Medicago* (Leguminosae) in southern Africa. *Bothalia* 14: 27–35.
STIRTON, C.H. 1983. Notes on the genus *Psoralea* (Fabaceae) in South Africa. *Journal of South African Botany* 49: 329–335.
STIRTON, C.H. 1983. Two new species of *Otholobium* (Fabaceae). *Journal of South African Botany* 49: 337–342.
STIRTON, C.H. 1986a. The *Eriosema squarrosum* complex (Papilionoideae, Fabaceae) in southern Africa. *Bothalia* 16: 11–22.
STIRTON, C.H. 1995. A new species of *Psoralea* (Leguminosae: Papilionoideae) from eastern South Africa. *Kew Bulletin* 50: 619–621.
VAN WYK, B.-E. 1986. A revision of the genus *Virgilia* (Fabaceae). *South African Journal of Botany* 52: 347–353.
VAN WYK, B.-E. 1991. A synopsis of the genus *Lotononis* (Fabaceae: Crotalarieae). *Contributions from the Bolus Herbarium* 14: 1–292.
VAN WYK, B.-E. 1992. The identity of *Argyrolobium obsoletum* and the correct name for species of *Polhillia* (Crotalarieae). *Bothalia* 22: 42, 43.
VERDCOURT, B. 1970a. Studies in the Leguminosae-Papilionoideae: III. *Kew Bulletin* 24: 379–447.
VERDCOURT, B. 1970b. A new genus of Leguminosae-Phaseoleae. *Kew Bulletin* 24: 322.
VERDCOURT, B. 1982. A revision of *Macrotyloma* (Leguminosae). *Hooker's Icones Plantarum* 38,4: 1–138.
VERDOORN, I.C. 1928. A revision of the Crotalarias of South and South-East Tropical Africa. *Bothalia* 2: 371–420.
ZOHARY, M. & HELLER, D. 1984. *The genus* Trifolium. The Israel Academy of Sciences and Humanities, Jerusalem.

FAGACEAE

(Order Fagales)

Compiled by C.L. Bredenkamp

Male flowers in pendent catkins ..... ***Quercus**
Male flowers in stiffly erect catkins ..... ***Castanea**

***CASTANEA** Miller

Chestnut trees; *kastaiingbome* (A)

Species ± 12, rather similar, from temperate regions in northern hemisphere, several cultivated for ornament, as well as for their edible nuts.

sativa Miller

Sweet chestnut; *soetkastaiing* (A)

Perennial, large tree, up to 40 m high. **Leaves** oblong to oblong-lanceolate, base cordate, apex acuminate; toothed or scalloped with bristle-tipped teeth; densely hairy when young, yellow glandular beneath. **Nuts** 2 or 3 in each cupule. Cultivated for street trees.

*QUERCUS L.

Oak trees; *eikebome* (A)

Species ± 350–450, in the northern temperate and subtropical regions with extensions into the tropics in W Malesia and NW South America; at least 5 occur as escapes in sthn Afr., several species have been fairly extensively cultivated.

palustris Münchh.

Pin oak; *moeraseik* (A)

Perennial tree, up to 25 m high. **Leaves** deciduous, elliptic, very deeply lobed, the lobes bristle-tipped, base broadly tapered, apex acute; green and shining above, paler below. **Acorns** almost hemispherical, 12–17 mm in diam., base enclosed in a thin saucer-like cup. Cultivated for street trees.

robur L.

English oak; *steeleik* (A)

Perennial tree, 4–20 m high. **Leaves** deciduous, ovate-oblong 50–140 × 35–60 mm, margins with deep rounded lobes, base auriculate. **Acorn** 15–25 mm long, enclosed for its lower third in the cup which is formed from closely appressed-hairy scales. Potential transformer, invades forest margins, woodland, roadsides and riverbanks. Cultivated for street trees.

suber L.

Cork oak; *kurkeik* (A)

Perennial tree, up to 20 m high, with thick, corky bark. **Leaves** evergreen, ovate-oblong, dark green above, grey-hairy beneath, base tapered, margins with several bristle-tipped teeth. **Acorn** ovoid-oblong, 15–30 mm long, cup with the uppermost scales long and spreading, the lower appressed. Cultivated for street trees.

KUBITZKI, K. 1993. Fagaceae. In K. Kubitzki, J.G. Rohwer & V. Bittrich, *The families and genera of vascular plants — dicotyledons* 2. Springer-Verlag, Berlin.
SCHWARZ, O. 1964. Fagaceae. *Flora europaea* 1: 60–64.
WAlt.ERS, S.M., ALEXANDER, J.C.M., BRADY, A., BRICKEL C.D., CULLEN, J., GREEN, P.S., HEYWOOD, V.H., MATTHEWS, V.A., ROBSON, N.K.B., YEO, P.F. & KNEES, S.G. 1995. *The European garden flora*, vol. 3. Cambridge University Press, Cambridge.

FLACOURTIACEAE

(Order Malpighiales)

Compiled by R.H. Archer & C.L. Bredenkamp

Phylogenetic relationships within the Flacourtiaceae, Salicaceae and Achariaceae have been reassessed with *rbc*L, *trn*L-F and *ndh*F DNA sequences and several groups have been identified. The first group retains the family name Salicaceae, as the name has nomenclatural priority and the second group has the conserved name Achariaceae (Soltis et al. 2000; Chase et al. 2002). *Aphloia* is in its own family, Aphloiaceae, in the order Crossomatales (Matthews & Endress 2005). *Casearia*, with a number of other genera not analysed with *rbc*L belongs together with a resurrected Samydaceae (Alford, pers. com.). *Gerrardina*, previously placed in the Salicaceae (APG II 2003), is now placed in the family Gerrardinaceae (Alford 2005, 2006) and in the order Huerteales, after further research (Stevens 2012).

FRANKENIACEAE

(Order Caryophyllales)

Compiled by C.L. Bredenkamp & M. Struwig

FRANKENIA L.

Species ± 80, Mediterranean, along the Atlantic seaboard, western and southern parts of Africa and Australia (± 45 species) to Asia and the Americas; 3 in sthn Afr., N, NW, FS, NC, WC, EC.

Flowers 5 mm long

pulverulenta L.

European seaheath

Annual herb, 0.02–0.35 m high; internodes glabrous or puberulous with short, curly hair, branchlets contracted. **Leaves** ovate to oblanceolate, upper surface glabrous, punctate, lower glabrous to puberulous, margins recurved to revolute; petioles fused below with sheath. **Flowers** small, many, scattered and solitary, in forks of branches, flanked by side branches. **Calyx** tubular. **Petals** pink, mauve or white. **Stamens** exserted from corolla throat. **Ovary** ± 45 ovules; styles exserted above stamens. **Flowering time** all year. **Fruit** a capsule. **Seeds** 0.5 mm long, ovoid-fusiform, papillate, reticulate. Almost cosmopolitan and weed-like, halophytic; Upper Karoo, Lower Karoo, Albany Thicket, Sub-Escarpment Grassland (Graaff-Reinet SW to Willowmore and E to Zwartkops District).

Flowers 9–11 mm long

repens (P.J.Bergius) Fourc.

Seaheath; *soutrankie* (A)

Perennial, dwarf shrub, 0.05–0.30 m high; prostrate with short, erect branchlets ending in many-flowered dichasia. **Leaves** subsessile, 4–7 mm long, allantoid; dorsally smooth, punctate, ventrally with white papillae or minutely puberulent and punctate. **Calyx** often with long white hairs on ribs and minutely puberulent in grooves. **Petals** obovate, erose, pink to mauvish pink. **Ovary** cylindrical, 3 stigmatic branches exserted 2–3 mm beyond stamens. **Flowering time** summer, from Dec. onwards. **Fruit** a capsule. **Seeds** fusiform, brown, papillate. Sea-facing rock ledges, salt pans, saline flats and lagoons, inland at brackish streambanks, saltpans and calcareous sandveld; Albany Thicket, Eastern Fynbos-Renosterveld, Indigenous Forests (Uitenhage and Port Elizabeth District).

HARVEY, W.H. 1860. Frankeniaceae. *Flora capensis* 1: 113–115.
OBERMEYER, A.A. 1976. Frankeniaceae. *Flora of southern Africa* 22: 32–36.

FUMARIACEAE see PAPAVERACEAE

(Order Ranunculales)

Compiled by C.L. Bredenkamp & M. Struwig

The Fumariaceae is currently placed in the order Ranunculales (APG 1998, 2003; Stevens 2006) and is regarded as synonymous to the Papaveraceae which is divided into the subfamilies Pteridophylloideae (from Japan), Papaveroideae and Fumarioideae.

ANGIOSPERM PHYLOGENY GROUP [APG]. 1998. An ordinal classification for the families of flowering plants. *Annals of the Missouri Botanical Garden* 85: 531–553.
ANGIOSPERM PHYLOGENY GROUP [APG]. 2003. An update of the Angiosperm Phylogeny Group classification for the orders and families of flowering plants: APG II. *Botanical Journal of the Linnean Society* 141: 399–436.
STEVENS, P.F. 2006. Angiosperm Phylogeny Website. Version 7. Internet. http://www.mobot.org/MOBOT/research/APweb/ (accessed Sept. 2006).
STEVENS, P. F. 2012. Angiosperm Phylogeny Website. Version 9. Internet. http://www.mobot.org/MOBOT/research/APweb/. (accessed Mar. 2012).

GENTIANACEAE

(Order Gentianales)

Compiled by C.L. Bredenkamp & M. Struwig

1a Ovary 1-locular, with parietal or sometimes intrusive placentas; anthers usually dehiscing by pores; flowers rose-pink to magenta-pink, rarely white..... **Chironia**
1b Ovary 2-locular through intrusion of locular wall, placentas eventually appearing axile; anthers dehiscing by longitudinal slits; flowers yellow, sometimes cream-coloured or white:
2a Stigma smooth, bilobed; stamens often exserted; style usually with a secondary stigma ..... **Sebaea**
2b Stigma papillose, entire, usually slightly clavate; stamens always inserted in corolla tube; style without secondary swelling..... **Exochaenium**

CHIRONIA L.

Species ± 30, throughout tropical and subtropical Africa; 16 in sthn Afr., widespread, except N.

1a Style simple, apex truncate, rounded, crateriform or peltate; stigmatic surface terminal, sometimes 2-cleft

2a Erect or straggling suffrutices with branches rigid or wiry; anthers straight

baccifera L.

Toothache berry; *ag-dae-geneesbos* (A)

Perennial suffrutex, 0.1–1.0 m high. **Leaves** thin to ± fleshy, sessile, linear to linear-oblong, up to 20.0 × 2.5 mm. **Flowers** solitary, terminal or in 1–3-flowered cyme. **Corolla** pink, 10–15 mm long, gradually decreasing over developing fruit; tube narrowed above ovary, widening at mouth; lobes contorted. **Stamens** 5, arising from throat of corolla; anthers bright green or yellow. **Ovary** globose, 1-locular, placentation parietal, ovules many. **Flowering time** Aug.–Mar. **Fruit** a globose, berry-like capsule, splitting irregularly, red when mature, drying black. **Seeds** many, black, pitted. Dry, sandy soil, alt. up to ± 1 450 m; Indian Ocean Coastal Belt, Indigenous Forests, Albany Thicket, Eastern Fynbos-Renosterveld (Mkambati Nature Reserve SW, from Willowmore District to Port Elizabeth, Grahamstown and East London, and to Humansdorp).

melampyrifolia Lam.

Straggling suffrutex, 0.3–0.8 m long, somewhat viscid, branches ± quadrate. **Leaves** ovate-acuminate, up to 30 × 11 mm, decurrent and cordate at base, apex acute, hooked. **Flowers** terminal, solitary. **Corolla** bright pink to mauve, 24–40 mm long; tube cylindrical, slightly narrowed below rim, strongly ribbed and thickened in throat; lobes oblong-elliptic, broadly acuminate at apex. **Stamens** 5, inserted just below rim. **Ovary** glutinous, acuminate into 10–14 mm long style. **Flowering time** July–May. **Fruit** a glutinous, pointed capsule, splitting at apex. Southern mountain slopes, thick grass, fynbos,

streambanks, forest; Eastern Fynbos-Renosterveld, Indigenous Forests, Sub-Escarpment Savanna, Albany Thicket (Tsitsikamma Mts via Humansdorp to Albany and Bathurst).

tetragona L.f.

Annual or biennial suffrutex, 0.3–0.6 m high, usually virgately branched from base, somewhat viscid, branches ± quadrate, leafy. **Leaves** decurrent at base, narrowly oblong, up to 30 × 11 mm, coriaceous. **Flowers** terminal, usually solitary, ± viscid. **Calyx** 5–10-winged. **Corolla** pink, appearing yellowish in dried specimens; tube cylindrical, 6–10 mm long, thickened; lobes oblong-elliptic, broadly rounded at apex. **Stamens** 5, inserted on rim. **Ovary** narrowing into 11 mm long style. **Flowering time** July–Apr. **Fruit** a black capsule, narrowing into acute apex, splitting from above into 2. **Seeds** many, reticulate. Coastal regions, mountain slopes, limestone hills, grassland, sedge veld, brack vleis, forests; Albany Thicket, Eastern Fynbos-Renosterveld, Indigenous Forests, Sub-Escarpment Savanna (Joubertina S to Humansdorp, through Port Elizabeth to Albany and Bathurst).

2b Radicant (rooting at nodes) or semi-scandent subherbaceous plants; anthers straight or slightly twisted

decumbens Levyns

Sparsely branched, rather weak herb, with some stems decumbent, 0.6–0.7 m long. **Leaves** suberect, narrowly elliptic to narrowly oblong, up to 43.0 × 7.5 mm. **Flowers** terminal, usually solitary. **Corolla** magenta-pink, 22–30 mm long; tube narrowing slightly into long neck, slightly widened at mouth, 13 mm long; lobes elliptic, apex abruptly acuminate to acute. **Stamens** 5, inserted ± 2 mm below rim; anthers straight. **Ovary** narrowing into 12 mm long style. **Fruit** a capsule, with acute apex, splitting into 2 with apex intact. **Seeds** subglobose, small, honey-combed. Flats or sand hills of coast, edges of lakes, vleis or river mouths; Indian Ocean Coastal Belt, Eastern Fynbos-Renosterveld, Albany Thicket (Kei River Mouth, SW to Bathurst and Knysna).

[E]peduncularis Lindl.

Perennial herb, semi-scandent, branches straggling, up to 1 m long, leafy. **Leaves** ovate-lanceolate, up to 70 × 20 mm, base rounded to subcordate, apex acute, 3–5-nerved. **Flowers** in 1–3-flowered cymes, terminal on main and lateral branches. **Corolla** pink, > 30 mm long; tube 16 mm long, with narrow neck, slightly widened at mouth; lobes ovate-oblong, apex acuminate to slender, acute apicule. **Stamens** 5, inserted ± 2.5 mm below rim; anthers straight. **Ovary** narrowing into 13 mm long style. **Flowering time** Nov.–Apr. **Fruit** a pointed, shiny capsule, splitting into 2, enveloped by persistent corolla tube. Stony soil or sand, damp places and along rivers and streams; Albany Thicket, Eastern Fynbos-Renosterveld, Indigenous Forests (Bathurst District to East London and SW to Humansdorp District and Cape St Francis).

1b Style 2-lobed at apex; lobes almost as long as to much longer than wide, sometimes cohering, stigmatose on margins down to point of division
3a Inflorescences thyrsoid (usually narrowly oblong in outline)

krebsii Griseb.

Herbaceous plant, 0.3–1.0 m high; stems simple, erect, base sometimes elongated to creeping rhizome. **Leaves** clustered at base, often with 1–3 cauline pairs, usually much shorter than internodes; basal leaves oblanceolate to linear-spathulate, up to 300 × 17 mm, base linear, apex obtuse. **Flowers** in terminal cymes, usually forming a thyrse, rachis (inflorescence axis) erect, 10–30 mm long, crowded, fastigiate (± parallel to other

members). **Corolla** cerise-pink to magenta, ± 20 mm long; tube 7 mm long; lobes oblong-elliptic, narrowing to acute apex. **Stamens** 5, inserted ± 1.5 mm below rim; anthers twisted. **Ovary** narrowing into 10 mm long style. **Flowering time** Nov.–Jan. **Fruit** an ovoid capsule, with acute apex. Stony soil, black turf or marshy ground, well drained; Eastern Fynbos-Renosterveld, Sub-Escarpment Savanna, Sub-Escarpment Grassland, Indigenous Forests, Indian Ocean Coastal Belt, Albany Thicket (Kokstad SW to Maclear, Alice and Stutterheim Districts).

3b Inflorescences of open 2- or 3-flowered cymes, flowers less often solitary
4a Flowers white

albiflora Hilliard

Perennial herb, up to 0.45 m high; stem simple at base, much branched upwards. **Leaves** decurrent at base of plant, patent, elliptic-acuminate, up to 80 × 70 mm, narrowed at base, apex acute. **Flowers** in lax cymes on terminal branchlets; pedicels 8–15 mm long, filiform. **Corolla** white, 16–18 mm long; tube 7–9 mm long, cylindrical; lobes lanceolate, apex acute. **Stamens** 5, inserted ± 1.5 mm below rim; anthers straight. **Ovary** narrowing into 8–9 mm long style. **Fruit** a capsule, with base of style persisting. **Seeds** with reticulate coat. Sandy soil; Indian Ocean Coastal Belt, Indigenous Forests (Mkambati Nature Reserve).

4b Flowers usually rich pink

laxa Gilg

Diffuse, much-branched, herbaceous plant, 0.2–0.7 m high, with very slender, wiry, subterete, quadrate stems and branches. **Leaves** linear-lanceolate to linear, up to 40 × 6 mm, base slightly cuneate, apex long acute. **Flowers** in terminal, simple, 2- or 3-flowered cymes on branchlets. **Corolla** pink, 20–30 mm long; tube 11 mm long, cylindrical, narrowed into distinct neck, exceeding calyx lobes, few nerved; lobes oblong-elliptic, apex acute. **Stamens** 5, inserted ± 2 mm below rim; anthers straight. **Ovary** narrowing into a 8.5 mm long, 2-lobed style. **Flowering time** all year. River mouths, on riverbanks or in marshy places; Sub-Escarpment Savanna, Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Indigenous Forests, Eastern Fynbos-Renosterveld, Albany Thicket (Mthatha and Port St Johns Districts, SW to Komga).

palustris Burch. subsp. **palustris**

Herbaceous plant, 0.3–0.6 m high. **Leaves** clustered at base into rosette, persistent, oblong-cuneate to obovate, up to 80 × 22 mm, base linear, apex obtuse to acute; cauline leaves much reduced. **Flowers** in terminal, open panicle of 2- or 3-flowered cymes, upper rachises developing dichasially. **Corolla** pink, 18–26 mm long, sometimes glutinous in parts; tube shorter than lobes, tubular campanulate; lobes ovate-oblong, narrowing to acute apex. **Stamens** 5, inserted ± 1.5 mm below rim; anthers strongly twisted. **Ovary** oblong-elliptic, acuminate into a 5–9 mm long style. **Flowering time** Dec.–Mar. **Fruit** an oblong-elliptic capsule, splitting in 2 with style still intact. Stony soil or loam, dolomite, full sun, near water; Sub-Escarpment Grassland, Indigenous Forests, Sub-Escarpment Savanna (Matatiele E to Kokstad District and S to Dordrecht and Komga District).

purpurascens (E.Mey.) Benth. & Hook.f. subsp. **purpurascens**

Erect, biennial or perennial, 0.5–0.8 m high; stems often quadrate. **Leaves**: basal leaves often not persistent; cauline leaves in distant pairs, lanceolate to oblanceolate, up to 90 × 28 mm, often 3- or more nerved from base, apex obtuse to acute. **Flowers** in terminal, open panicle of 2- or 3-flowered cymes, developing dichasially; pedicels of centre

flowers 6–25 mm long. **Corolla** deep magenta-pink, 18–28 mm long; tube short, tubular campanulate; lobes much longer than tube. **Stamens** 5, inserted ± 1.5 mm below rim, occasionally with gland on each side at insertion point; anthers strongly twisted. **Ovary** narrowing into 2-lobed style. **Fruit** a subcylindric capsule, shortly exserted from persistent corolla tube. Coastal areas; Indian Ocean Coastal Belt, Indigenous Forests (Bizana District).

[E]serpyllifolia Lehm.

Much-branched herb, 0.2–0.5 m high, with slender, wiry stems. **Leaves** small, up to 7 × 4 mm, ovate-lanceolate, apex acute. **Flowers** solitary or in terminal 2- or 3-flowered cymes. **Corolla** pink, 15–19 mm long; tube cylindrical, distinctly narrowed at neck; lobes ovate-lanceolate. **Stamens** 5, inserted ± 2 mm below rim; anthers straight. **Ovary** elliptic, acuminate into style. **Fruit** a pointed, subtransparent, shiny capsule, splitting in 2 from apex. **Seeds** small, deeply honey-combed. On flats, riverbanks and mountain slopes; Eastern Fynbos-Renosterveld, Albany Thicket, Indigenous Forests (Port Elizabeth District E through Grahamstown to Port Alfred District).

EXOCHAENIUM Griseb.

Species ± 30, throughout tropical Africa; 1 in sthn Afr., B, LIM, NW, G, M, S, FS, KZN, EC.

grande (E.Mey.) Griseb.
[= *Sebaea grandis* (E.Mey.) Steud.**]**

Liphalana, *mipa*, *petle* (SS); *umalopha omncane* (Z)

Erect, annual herb, 0.02–0.36 m high; simple or branched. **Leaves** up to 40 × 15 mm, lanceolate to ovate-lanceolate; lower reduced and scale-like. **Flowers** solitary and terminal or in few-flowered cymes with long branches, heterostylous. **Calyx**: segments 5, lanceolate; base glandular inside. **Corolla** white, cream-coloured, yellow or salmon; tube up to 23 mm long; lobes up to 15 × 14 mm. **Stamens** inserted below corolla sinuses; anthers with stipitate apical and 2 rounded basal glands. **Ovary** globose or obovoid; stigma claviform-oblong, papillate. **Flowering time** Dec.–Mar. **Fruit** a subglobose capsule. **Seeds** cubical, testa cells star-shaped. Stony soil, sand or loam, moist to well drained; Indian Ocean Coastal Belt, Sub-Escarpment Savanna, Albany Thicket (Mkambati District S through Port St Johns to Kei River Mouth).

SEBAEA Sol. ex R.Br.

Species ± 70, mainly SA, some extending into tropical Africa, 1 in Madagascar, 1 extending to India and China, 2 in Australia and New Zealand; 53 in sthn Afr., widespread in temperate habitats.

1a Flowers tetramerous

aurea (L.f.) Roem. & Schult.

Erect, annual herb, 0.06–0.30 m high; slender, unbranched below. **Leaves** 7–18 × 4–12 mm, ovate-cordate to ovate-lanceolate, obtuse or acute. **Flowers** in 1–many-flowered, compact or lax cymes, bracteate. **Calyx**: segments 4, oblanceolate to linear-oblong, margins entire or ± erose, sides hyaline, keeled or winged. **Corolla** yellow to white; tube 2.50–4.25 mm long, shorter than lobes. **Stamens** inserted in corolla sinuses; anthers with apical glands. **Styles** with swelling at or below middle; stigma 2-lobed. **Fruit** a capsule. Amongst grass, fynbos; Eastern Fynbos-Renosterveld, Albany Thicket (Tsitsikamma National Park E to Humansdorp District).

minutiflora Schinz

Erect, annual herb, 0.05–0.20 m high; simple or branched. **Leaves** 3–15 × 3–15 mm, ovate to ovate-orbicular. **Flowers** in many-flowered, dense, head-like cymes; flowers subsessile, bracteate. **Calyx**: segments 4, erose or erose-dentate in upper part, keeled below or with small, apical wing. **Corolla** white; tube 3.5–4.0 mm long, as long or longer than lobes. **Stamens** inserted in corolla sinuses; anthers with apical glands. **Style** without swelling, sometimes thickened below stigma; stigma clavate or capitate-clavate, bilobed. **Fruit** a capsule. Confined to coastal belt; Albany Thicket, Eastern Fynbos-Renosterveld, Indigenous Forests (Port Elizabeth District E to Bathurst District).

1b Flowers pentamerous
2a Perennial creeping, mat-forming or rosulate herbs
3a Dense inflorescence paniculate or dichasial

procumbens A.W.Hill

Rosulate, perennial herb, 0.08–0.22 m high; flowering stems elongate, procumbent, erect. **Leaves** 35 × 28 mm, distant leaves smaller, suborbicular or ovate. **Flowers** in few- to many-flowered cymes. **Calyx**: segments 5, lanceolate, keeled or with thick keel wing. **Corolla** yellow; tube 4.5–8.0 mm long, clawed. **Stamens** inserted in or just below corolla sinuses; anthers with apical glands and 2 basal glands, or 2 red, basal gland dots. **Style** with or without swelling below middle; stigma clavate or capitate, bilobed. **Fruit** a capsule. Endemic to southern part of Drakensberg Escarpment; Drakensberg Grassland, Sub-Escarpment Grassland (Maclear District).

spathulata (E.Mey.) Steud.

Annual, occasionally perennial herb, 0.15–0.30 m high. **Leaves** up to 140 × 20 mm, spathulate, somewhat fleshy; cauline leaves smaller, obovate. **Flowers** in few-flowered cymes. **Calyx**: segments 5, lanceolate to elliptic, keeled. **Corolla** white; tube 7.5–10.5 mm long, clawed. **Stamens** inserted 0.75–1.50 mm below corolla sinuses; anthers with dark, red-brown apical glands and 2 basal glandular dots. **Style** with swelling confluent with stigma or below middle of style; stigma clavate, bilobed. **Fruit** a capsule. Stony soil, gravel or loam, sandstone or basalt, full sun; Drakensberg Grassland, Sub-Escarpment Grassland (Rhodes District E through Barkly East District to uMzimkhulu District).

thodeana Gilg

Perennial herb, up to 0.15 m high. **Leaves** up to 40 × 15 mm, elongate-obovate or spathulate; cauline leaves smaller, obovate. **Flowers** in 1–several, few-flowered cymes. **Calyx**: segments 5, oblong, keeled or winged. **Corolla** yellow or white; tube 6–7 mm long. **Stamens** inserted just below corolla sinuses; anthers with a dark reddish brown to black apical gland and 2 red basal gland-dots. **Style** with small swelling below middle or near base; stigma capitate, bilobed. **Fruit** a capsule. Moist to well-drained soil, full sun; Drakensberg Grassland, Mesic Highveld Grassland (Barkly East District E to Rhodes District).

3b Solitary flower

repens Schinz

Perennial herb, 0.03–0.06 m high; stems slender, creeping, mat-forming. **Leaves** broader than long, suborbicular, reniform. **Flowers** solitary or in terminal, few-flowered cymes, bracteate. **Calyx**: segments 5, lanceolate to ovate, keeled or with thick wing. **Corolla** yellow; tube 5–8 mm long; clawed. **Stamens** inserted in corolla sinuses; anthers with yellow or orange apical glands. **Style** with swelling below middle; stigma capitate, bilobed. **Fruit**

a capsule. Stony soil; Drakensberg Grassland, Sub-Escarpment Grassland, Eastern Fynbos-Renosterveld, Indigenous Forests, Albany Thicket (Barkly East and Maclear Districts S to Amatole Mts).

thomasii (S.Moore) Schinz

Perennial herb, up to 0.3 m high; procumbent, mat-forming, flowering branches ascending. **Leaves** up to 21 × 14 mm, ovate. **Flowers** in 1–few-flowered, terminal cymes, bracteate. **Calyx**: segments 5, lanceolate, keeled or with thick, narrow wing. **Corolla** bright yellow; tube 13–21 mm long, clawed. **Stamens** inserted 3.5–6.0 mm below corolla sinuses; anthers with apical glands and 2 basal glands. **Stigma** linear-oblong, bilobed. **Flowering time** Aug., Sept. **Fruit** a capsule. Stony soil, gravel or sand; Drakensberg Grassland, Mesic Highveld Grassland, Sub-Escarpment Grassland, Eastern Fynbos-Renosterveld, Albany Thicket, Sub-Escarpment Savanna, Indigenous Forests (Barkly East District SW through Queenstown District to Amatole Mts and Hogsback District).

2b Perennial, biennial or annual herbs, erect, ascending or procumbent
4a Biennial or annual herbs
5a Filaments inserted below corolla sinuses

compacta A.W.Hill

Erect, much-branched, annual herb, 0.04–0.15 m high. **Leaves** 6–14 × 3–4 mm, ovate-lanceolate to narrowly elliptic, lower reduced, scale-like. **Flowers** in many-flowered, dense or subdense cymes, bracteate. **Calyx**: segments 5, lanceolate to ovate; tube 6.5–9.0 mm long, often mucronate, keeled. **Corolla** yellow; tube 4.5–8.0 × 3–5 mm, sometimes apiculate. **Stamens** inserted immediately to 0.75 mm below corolla sinuses; anthers with small, stipitate, apical glands. **Style** with large, stigmatic swelling below middle; stigma with 2 broad lobes. **Flowering time** late summer and winter. **Fruit** a capsule. Grazing camp; Upper Karoo (Middelburg, Grootfontein).

erosa Schinz

Annual herb, 0.05–0.16 m high; erect or ascending, base simple or branched. **Leaves** up to 10 × 10 mm, ovate. **Flowers** in few-flowered cymes; peduncles and pedicels filiform, bracteate. **Calyx**: segments 5, lanceolate to oblong, margins entire or ± erose, joined for 0.75–1.50 mm, keeled or narrowly winged. **Corolla** yellow, entire or erose. **Stamens** inserted 0.5–1.0 mm below corolla sinuses; anthers with large or small apical glands. **Style** with small swelling below or above middle; stigma 2-lobed, capitate or clavate. **Fruit** a capsule. Stony soil or clay; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indigenous Forests (Alfred District, Suurberg).

micrantha (Cham. & Schltdl.) Schinz

Annual herb, 0.03–0.20 m high; stems angled or narrowly winged. **Leaves** 2–12 × 1.5–10.0 mm, ovate to suborbicular-cordate, margins sometimes with minute bristles. **Flowers** in dense or lax, 1–many-flowered corymbs. **Calyx**: segments 5; keel wing reticulately veined, semi-cordate. **Corolla** yellow; tube 4–10 mm long, ± erose near apex. **Stamens** inserted in or 0.30–1.25 mm below corolla sinuses; anthers with stipitate or sessile, thread-like apical glands. **Style** with swelling long and confluent with stigma. **Fruit** a capsule. Along coast; Albany Thicket, Eastern Fynbos-Renosterveld (Port Elizabeth District).

natalensis Schinz

Erect or ascending, biennial herb, 0.05–0.25 m high; base branched, simple or branched above. **Leaves** 13 × 15 mm, cordate, lower sometimes subrosulate. **Flowers** in dense,

few- to many-flowered corymbs, bracteate. **Calyx**: segments 5, lanceolate. **Corolla** yellow; tube 5.5–7.5 mm long, clawed. **Stamens** inserted in or up to 1 mm below corolla sinuses; anthers with round apical glands. **Style** with large swelling below middle; stigma clavate or capitate-clavate, bilobed. **Flowering time** Nov.–Apr. **Fruit** a capsule. Stony soil, gravel or sand, sandstone, moist, shaded to full sun; Drakensberg Grassland, Sub-Escarpment Grassland, Mesic Highveld Grassland, Eastern Fynbos-Renosterveld, Dry Highveld Grassland, Indigenous Forests, Albany Thicket (Rhodes and Maclear Districts SW through Queenstown to Winterberg Mountain Range and Cathcart District).

pentandra E.Mey.

Erect, annual herb, 0.07–0.50 m high. **Leaves** up to 40 × 20 mm, crowded near base, scattered along stem. **Flowers** in few- to many-flowered cymes or corymbs. **Calyx**: segments 5, elliptic-lanceolate to ovate, keeled or winged. **Corolla** yellow; tube 3–10 mm long, clawed. **Stamens** inserted in or up to 0.75 mm below corolla sinuses; anthers with stipitate apical and 2 basal glands. **Style** with or without small to large swelling; stigma clavate to subcapitate, bilobed. **Fruit** a capsule. Loamy soil; Drakensberg Grassland, Upper Karoo (Barkly East District SW to Middelburg District).

rehmannii Schinz

Annual or biennial herb, 0.15–0.65 m high; simple or branched. **Leaves** up to 18 × 18 mm, close-set or far apart, ovate, sessile or petiolate. **Flowers** in many-flowered, corymbose panicles or a few cymes. **Calyx**: segments 5, lanceolate. **Corolla** yellow; tube 5–10 mm long. **Stamens** inserted in or shortly below corolla sinuses; anthers with apical glands, sometimes also 2 basal glands. **Style** with swelling near base or well below middle; stigma capitate or clavate, bilobed. **Fruit** a capsule. Confined to mountainous areas; Drakensberg Grassland, Indigenous Forests, Sub-Escarpment Grassland, Albany Thicket (Maclear District S to Katberg Pass and Seymour).

5b Filaments inserted in corolla sinuses

bojeri Griseb.

Annual herb, 0.05–0.20 m high, slender to filiform; base unbranched or branched, sometimes glandular or glandular-denticulate. **Leaves** up to 10 × 3 mm, linear- to ovate-lanceolate, lower reduced and scale-like. **Flowers** in 1–few-flowered, lax cymes, bracteate. **Calyx**: segments 5, lanceolate, margins hyaline; tube short, with keel wing. **Corolla** yellow; tube 5–6 mm long, clawed. **Stamens** inserted in corolla sinuses; anthers with apical glands or apparently eglandular. **Styles** with or without large swelling below middle; stigma with 2 broad lobes; ovary ovoid. **Fruit** an ovoid capsule. Well-drained, humus-rich soil; Sub-Escarpment Grassland, Drakensberg Grassland (uMzimkhulu District SW to Maclear District).

elongata E.Mey.

Annual or biennial herb, 0.4–0.7 m high; base simple or branched. **Leaves** often in basal rosette, up to 45 × 25 mm, ovate or ovate-elliptic; cauline leaves smaller, further apart. **Flowers** in many-flowered cymes, bracteate. **Calyx**: segments 5, lanceolate to oblanceolate-oblong, sides hyaline or opaque, keeled or with narrow keel wing. **Corolla** yellow; tube 3.25–5.00 mm long, clawed. **Stamens** inserted in corolla sinuses; anthers with or without 3 minute stipitate glands. **Style** with or without small swelling at or below middle; stigma capitate, 2-lobed. **Fruit** a capsule. Habitat?; Albany Thicket, Dry Highveld Grassland, Eastern Fynbos-Renosterveld, Indigenous Forests (Cradock District S to Uniondale District).

filiformis Schinz
Annual herb, 0.03–0.16 m high; slender to filiform, often unbranched. **Leaves** 1–5 mm long, linear-lanceolate to ovate-lanceolate; lower reduced and scale-like. **Flowers** solitary, terminal, sometimes 3–5-flowered, bracteate. **Calyx**: segments 5, narrowly lanceolate, sides hyaline, joined for 0.25–1.00 mm, keeled or narrowly winged. **Corolla** yellow; tube 5–8 mm long, clawed. **Stamens** short, inserted in corolla sinuses; anthers with stipitate, apical gland. **Style** with large swelling below middle; stigma 2-lobed, tongue-shaped. **Fruit** a capsule. In grassland; Drakensberg Grassland, Mesic Highveld Grassland, Indian Ocean Coastal Belt, Albany Thicket (Barkly East District SE to Mkambati Nature Reserve and S to Komga).

grisebachiana Schinz
Annual herb, 0.05–0.15 m high, slender to filiform; base simple or branched. **Leaves** 3–12 × 2–10 mm, ovate-elliptic to cordate. **Flowers** in lax, few-flowered cymes or corymbs, bracteate. **Calyx**: segments 5, free or joined for up to 0.5 mm, keel wing present. **Corolla** yellow; tube 2.5–5.5 mm long. **Stamens** inserted in corolla sinuses; anthers with or without apical glands. **Style** with medium to large swelling near base or below middle; stigma clavate, 2 tongue-shaped lobes. **Fruit** a capsule. Hills, grassland, short fynbos; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Queenstown District S to Grahamstown District).

junodii Schinz
Annual herb, 0.04–0.20 m high, slender to filiform; unbranched or 2- or 3-branched. **Leaves** 2–12 × 2–10 mm, lanceolate to narrowly ovate, lower ones reduced and scale-like. **Flowers** in few-flowered cymes, bracteate. **Calyx**: segments 5, joined for 0.50–0.75 mm, keeled or with wing. **Corolla** yellow; tube 3.75–5.00 mm long. **Stamens** inserted in corolla sinuses; anthers with clavate apical glands. **Ovary** ellipsoid; style without swelling; stigma bilobed, lobes broad. **Fruit** an ellipsoid capsule. **Seeds** cubical or subglobose. Under trees in leaf mould or in humus among rocks; Sub-Escarpment Savanna (Komga District).

[E]ramosissima Gilg
Annual herb, up to 0.25 m high. **Leaves** up to 12 × 10 mm, ovate, crowded near base, upper ones smaller and further apart. **Flowers** in few- to many-flowered cymes, lax; pedicels long, bracteate. **Calyx**: segments 5, lanceolate; keeled or narrowly winged. **Corolla** yellow; tube 3.5–6.0 mm. **Stamens** inserted in corolla sinuses; anthers with 3 stipitate glands. **Style** with swelling near base; stigma clavate, bilobed. **Fruit** a capsule. High mountain grassland, steep slopes; Upper Karoo, Dry Highveld Grassland, Albany Thicket, Sub-Escarpment Savanna, Indigenous Forests, Drakensberg Grassland, Indian Ocean Coastal Belt (Graaff-Reinet District E to Kentani District).

zeyheri Schinz
Annual herb, 0.05–0.25 m high; slender or stout. **Leaves** 2–12 × 2–10 mm, ovate to suborbicular, lower leaves crowded. **Flowers** in a few cymes or corymbs, lax or subdense, bracteate. **Calyx**: segments 5, lanceolate to oblong, winged. **Corolla** yellow; tube 2.50–4.75 mm long. **Stamens** inserted in corolla sinuses; anthers with stipitate apical glands. **Style** with swelling confluent with stigma; stigma ligulate, bilobed. **Fruit** a capsule. Occasional in coastal belt; Eastern Fynbos-Renosterveld, Indigenous Forests, Albany Thicket (Humansdorp District E to Bathurst District).

4b Biennial or perennial herbs
6a Anthers with 2 basal glands only

stricta (E.Mey.) Gilg

Erect, perennial herb, 0.3–0.6 m high. **Leaves** up to 12 × 12 mm, ovate, reflexed, coriaceous or fleshy, pale green. **Flowers** in 1-flowered cymes or corymbose. **Calyx**: segments 5, lanceolate, keeled or with narrow wing. **Corolla** yellow; tube 4.00–7.25 mm long; clawed. **Stamens** inserted in corolla sinuses; anthers with 2 sessile or stipitate basal glands. **Style** with or without very small swelling below middle; stigma capitate or clavate, bilobed. **Fruit** a capsule. Between grasses, wetlands; Mesic Highveld Grassland, Drakensberg Grassland, Albany Thicket, Eastern Fynbos-Renosterveld, Indigenous Forests (Witteberg Mts S to Humansdorp and Kowie Districts).

6b Anthers with 0, 1 or 3 glands, but never with only 2 basal glands

sedoides Gilg

Esikhulu, *isivumelwane*, *umanqwenyana*, *umsolo* (Z)

Annual herb, 0.15–0.65 m high. **Leaves** up to 25 × 25 mm, ovate, reniform, or 15 × 6 mm, ovate, rhomboid. **Flowers** in small or large corymbs, or few-flowered, paniculate corymbs. **Calyx**: segments 5, lanceolate to ovate, keeled or with keel-wing. **Corolla** yellow or white; tube 3–8 mm long. **Stamens** inserted in or 1 mm below corolla sinuses; anthers with apical glands, sometimes 2 minute basal glands. **Style** with swelling below middle; stigma capitate, bilobed. **Flowering time** Dec.–Apr. **Fruit** a capsule. Stony soil, clay, sand, loam, humus-rich soil, well drained; Drakensberg Grassland, Sub-Escarpment Grassland, Albany Thicket, Indigenous Forests (uMzimkhulu District S to Amatole Mts and Stutterheim).

[E]hymenosepala Gilg

Perennial, much-branched herb, up to 0.5 m high; erect or straggling, ascending. **Leaves** 5–12 × 6–15 mm, membranous to slightly coriaceous, upper ones ovate going over into ovate-lanceolate bracts. **Flowers** in lax, many-flowered, paniculate corymbs. **Calyx**: segments 5, lanceolate to ovate, joined for up to 0.5 mm, keeled or winged. **Corolla** yellow; tube 5.0–7.5 mm long, clawed. **Stamens** inserted in corolla sinuses; anther tips recurved with apical glands and sometimes 2 minute basal glands. **Fruit** a capsule. Humus-rich soil; Drakensberg Grassland, Sub-Escarpment Grassland, Albany Thicket, Indigenous Forests, Sub-Escarpment Savanna (Naude's Neck Pass S through Hogsback Forest Reserve and Amatole Mts to Grahamstown and East London Districts).

leiostyla Gilg

Annual or perennial herb, 0.13–1.00 m high; branched from base or simple, stems 4-ridged. **Leaves** 6–25 × 7–30 mm, sessile, ovate to ovate-orbicular, upper leaves smaller. **Flowers** in terminal, many-flowered cymes, bracteate. **Calyx**: segments 5, lanceolate to elliptic; keel shortly winged. **Corolla** yellow; tube 3.25–7.00 mm long. **Stamens** inserted in corolla sinuses; anther tips recurved with apical glands and sometimes 2 basal glands. **Ovary** ellipsoid; style with or without swelling below middle or near base; stigma bilobed. **Fruit** an ellipsoid capsule. **Seeds** ellipsoid. Mountain slopes, grassland, forest; Drakensberg Grassland, Albany Thicket, Sub-Escarpment Savanna, Indigenous Forests, Eastern Fynbos-Renosterveld (Barkly East District SW to Tsitsikamma Forest and S through Pirie Mts to East London District).

longicaulis Schinz
Biennial herb, up to 0.6 m high. **Leaves** up to 18 × 15 mm, elliptic-lanceolate to subcircular-cordate or subcircular-reniform, upper smaller, more distant. **Flowers** in lax or compact, few-flowered cymes. **Calyx**: segments 5, lanceolate to elliptic, keeled or winged. **Corolla** yellow; tube 5.5–9.0 mm long; clawed. **Stamens** inserted in corolla sinuses; anthers with apical glands and sometimes 2 basal glands. **Ovary** ellipsoid; stigmatic swelling absent, stigma small, capitate or stigmatic swelling present near base, stigma large, clavate. **Fruit** an ellipsoid capsule. **Seeds** ellipsoid or cubical. Confined to very wet places in humus-rich soil; Drakensberg Grassland, Sub-Escarpment Grassland, Indigenous Forests, Sub-Escarpment Savanna (uMzimkhulu and Maclear Districts).

macrophylla Gilg
Perennial herb, 0.10–0.75 m high; ascending or procumbent and straggly, erect higher up. **Leaves** 6–21 × 4–22 mm, subreniform to ovate. **Flowers** in 1–many-flowered cymes. **Calyx**: segments 5, sides hyaline to opaque and straw-like. **Corolla** yellow; tube 5–9 mm long, clawed. **Stamens** inserted in corolla sinuses; anthers with apical glands, sometimes 2 basal glands. **Style** with small to large swelling below middle; stigma clavate or capitate, bilobed. **Flowering time** June–Feb. **Fruit** a capsule. Moist situations on mountains; Drakensberg Grassland, Sub-Escarpment Grassland, Albany Thicket, Sub-Escarpment Savanna (Barkly East S to Graaff-Reinet and King William's Town, southwards from Uitenhage to Grahamstown).

FRIEDRICH-HOLZHAMMER, M. 1967. Gentianaceae. *Prodromus einer Flora von Südwestafrika* 110: 1–4.
HILL, A.W. & PRAIN, D. 1909. Gentianeae. *Flora capensis* 4,1: 1056–1121.
HILLIARD, O.M. & BURTT, B.L. 1982. Notes on some plants of southern Africa, chiefly from Natal: IX. *Notes from the Royal Botanic Garden Edinburgh* 40: 247–298.
HILLIARD, O.M. & BURTT, B.L. 1983. Notes on some plants of southern Africa, chiefly from Natal: X. *Notes from the Royal Botanic Garden Edinburgh* 41: 299–319.
KISSLING, J., BUERKI, S. & MANSION, G. 2009. *Klackenbergia* (Gentianaceae – Exaceae): a new endemic genus from Madagascar. *Taxon* 58: 1–6.
KISSLING, J., YUAN, Y-M., KÜPFER, P. & MANSION, G. 2009. The polyphyletic genus *Sebaea* (Gentianaceae): A step forward in understanding the morphological and karyological evolution of the Exaceae. *Molecular Phylogenetics and Evolution* 53: 734–748.
KISSLING, J., ZELTNER, L., KÜPFER, P. & MANSION, G. 2008. Cytogeography of the Gentianaceae-Exaceae in Africa, with a special focus on *Sebaea*: The possible role of dysploidy and polyploidy in the evolution of the tribe. *Botanical Journal of the Linnaean Society* 158: 556–566.
KLACKENBERG, J. 1985. The genus *Exacum* (Gentianaceae). *Opera Botanica* 84: 1–144.
LEEUWENBERG, A.J.M. 1961. The Loganiaceae of Africa, 1. *Anthocleista*. *Acta Botanica Neerlandica* 10: 1–53.
MARAIS, W. & VERDOORN, I.C. 1963. Gentianaceae. *Flora of southern Africa* 26: 171–243.
PAIVA, J.A.R. & NOGUEIRA, I. 1990. Gentianaceae. *Flora zambesiaca* 7,4: 3–51.
VERDOORN, I.C. 1963. Loganiaceae. *Anthocleista*. *Flora of southern Africa* 26: 135–137.

GERANIACEAE

(Order Geraniales)

Compiled by C.L. Bredenkamp, E. Retief & T.T. Masupa

Genera 7 (including *Rhynchotheca* Ruiz & Pav.), species ± 634, from temperate and warm temperate regions world wide. Divided into 2 groups (Stevens 2008):

1. *Hypseocharis* APG II (2003) considered *Hypseocharis* as a family and Takhtajan (1997) placed it in a monotypic order, Hypseocharitales): genus 1, species 1–3, perennial, ± acaulescent herbs from SW Andean, South America.

2. Geranioideae Arnott: genera 5, species ± 634; *Erodium* (60), *Geranium* (260), *Monsonia* (20), *Pelargonium* (280), *Sarcocaulon* (14). Temperate and warm temperate regions worldwide, especially sthn Afr.

1a Flowers zygomorphic; stamens 10, usually only 2–7 with anthers ..... **Pelargonium**
1b Flowers actinomorphic or nearly so; stamens 5–15, all perfect or alternate ones without anthers:
2a Stamens 5 fertile and 5 staminodes ..... ***Erodium**
2b Stamens 10–15 fertile:
3a Stamens 10 ..... **Geranium**
3b Stamens 15:
4a Stems herbaceous or slightly woody, rarely subsucculent, without spines ..... **Monsonia**
4b Stems thick and ± succulent; petioles spinescent ..... **Sarcocaulon**

*ERODIUM L'Hér.

Species 60, Europe, Mediterranean to central Asia, temperate Australia and south tropical South America; 6 in sthn Afr., N, NW, G, FS, KZN, L, NC, WC, EC.

Leaves simple

malacoides (L.) L'Hér.

Annual, occasionally perennial herb, up to 0.5 m high/long. **Stems** erect or decumbent or procumbent. **Leaves** alternate or subopposite, long petiolate; lamina simple, ovate to deltate-ovate, base cordate to truncate. **Inflorescence** 3–7-flowered; peduncles 30–60 mm long; pedicels 10–16 mm long. **Sepals** 3 × 2 mm, with terete, apical mucro. **Petals** white or violet. **Stamens** free, fertile stamens violet, narrowly ovate becoming terete in upper half; staminodes narrowly ovate. **Flowering time** Aug.–Dec. **Mericarps** with head 3–5 mm long, apical pit glandular, tail 20–25 mm long. **Seed** 3 mm long. Coastal dunes, disturbed places, sandy soil; Albany Thicket (Addo, Uitenhage, Port Elizabeth area).

Leaves compound

cicutarium (L.) L'Hér.

Heron's bill; *muskuskruid*, *oorlosies*, *Turkse naels* (A); *leloele* (SS)

Annual, hairy herb, up to 0.5 m long. **Stems** procumbent. **Stipules** 2, ovate, apex acuminate, pinkish to straw-coloured. **Leaves** rosulate or caulescent, subopposite or opposite, petiolate; lamina carrot-like, ovate to elliptic, pinnate, pinnae pinnatifid, divided for more than half-way to midrib. **Inflorescences** up to 10-flowered; peduncles 17–20 mm long; pedicels 5–7 mm long. **Petals** purplish pink to whitish. **Flowering time** all year. **Mericarps** with eglandular apical pits, tail 10–70 mm long. Various habitats, moist to dry conditions, coastal to high altitudes; Upper Karoo, Dry Highveld Grassland, Mesic Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland, Albany Thicket (Venterstad E to Kokstad S, from Lootsberg Pass in Sneeuberg Mts to Engcobo, Cathcart to Cala and from Willowmore to Grahamstown, Alexandria and Port Alfred).

moschatum (L.) L'Hér.

Annual, occasionally perennial, hairy herb. **Stems** up to 0.5 m long. **Stipules** broadly ovate, up to 3 mm long, celery-like. **Leaves** rosulate or caulescent, alternate, subopposite or opposite, petiolate; lamina pinnate, pinnae ovate, base oblique, margins dentate or serrate. **Inflorescences** 5–13-flowered; peduncles 70–200 mm long; pedicels 4–16 mm long. **Petals** violet or pink. **Flowering time** June–Dec. **Mericarps** with wide and deep apical pits, hairs glandular, tail 25–40 mm long. Weed in disturbed places, cultivated fields, gardens, open veld, sandy to clayey soils; Sub-Escarpment Grassland, Drakensberg Grassland, Albany Thicket, Eastern Fynbos-Renosterveld (Matatiele area southwards, from Cala to Nqamakwe, Gamtoos River to Uitenhage, Port Elizabeth, Grahamstown and Alexandria and from Keurboomstrand to Jeffreys Bay).

GERANIUM L.

Species 260, cosmopolitan, mostly north temperate mesophytic herbs, Europe 38; probably 10 species in combined areas of flora of Tropical East Africa; 26 in sthn Afr., G, M, FS, KZN, L, NC, WC, EC.

1a Stipules at least bisect, usually multisect
2a Median primary leaf lobe cut to base of leaf

caffrum Eckl. & Zeyh.

Cranesbill; *khoara*, *makorotsoane* (SS)

Perennial herb, 0.4–0.6 m high. **Leaves** tufted in young plants and at rooting nodes, all soon cauline; lamina up to 70 mm in diam., digitately 3–5-lobed to base; lobes oblong in outline, deeply pinnatifid, these segments > 2 mm wide, oblong , entire, margins usually slightly revolute, glabrous; petioles long. **Inflorescences** 1- or 2-flowered. **Sepals** 4–8 × 2–3 mm. **Petals** 8–15 × 4–10 mm, obovate entire or shallowly notched, white, pale pink. **Flowering time** Sept.–Jan. Damp, grassland, marshes, streambanks; Upper Karoo, Dry Highveld Grassland, Sub-Escarpment Grassland, Drakensberg Grassland, Albany Thicket (Aliwal North and Molteno districts to Queenstown S, from Graaff-Reinet to Stutterheim and from Riebeek East to Grahamstown).

dregei Hilliard & B.L.Burtt

Perennial herb, 0.9–1.2 m high. **Stems** slender, sprawling, rooting at nodes. **Leaves** with lamina up to 35 mm in diam., digitately 3–5-lobed, at least middle lobe to base, segments 2 mm wide, oblong, upper surface with coarse hairs and lower with coarse spreading hairs; petioles 40–180 mm long. **Inflorescences** opposite upper leaves, 1- or 2-flowered; peduncles exceeding upper leaves; pedicels up to 20 mm long, hairy. **Petals** 7.0–8.5 × 3–4 mm long, margins serrate, pale pink. **Flowering time** Nov.–Apr. Streambanks, bushes; Upper Karoo, Sub-Escarpment Grassland (Middelburg and Queenstown Districts to Wodehouse).

incanum Burm.f. var. **multifidum** (Sweet) Hilliard & B.L.Burtt

Perennial herb, up to 1 m high. **Leaves** petiolate; all cauline, lamina up to 50 mm in diam., digitately 3–7-lobed to base, each lobe pinnatisect or lowermost bipinnatisect, segments up to 2 mm wide, linear or narrowly oblong, margins revolute; hairs white, appressed, retrorse. **Inflorescences** 1- or 2-flowered. **Sepals** 5–8 × 2.5–3.0 mm, silvery white appressed-pubescent. **Petals** 11–20 × 5–12 mm, obovate, entire or shallowly notched, light violet, magenta-pink. **Flowering time** Sept.–Jan. Open shrubland, grassland; Drakensberg Grassland, Eastern Fynbos-Renosterveld, Albany Thicket

(Adelaide S, from Assegaaibos to Port Elizabeth, Grahamstown and Port Alfred and from Cape St Francis to Humansdorp).

magniflorum R.Knuth

Perennial herb. **Stems** decumbent, herbaceous, pubescent. **Radical leaves** tufted, lamina < 50 mm wide, digitately cut to base into 5 lobes, lower segments pinnatisect, usually 1–2 mm wide, linear, margins revolute, discolorous, glabrous or sparsely appressed on upper surface, densely white-appressed on lower surface, cauline leaves similar; petioles short. **Inflorescences** 2-flowered; peduncles opposite upper leaves; pedicels > 50 mm long, hairy. **Petals** obovate, 11–20 × 8–14 mm long, pink to blue-purple or white with coloured veins. **Flowering time** Dec.–Feb. Damp grass, drainage lines; Drakensberg Grassland (Drakensberg Mts from Barkly East to Mts surrounding Graaff-Reinet).

multisectum N.E.Br.

Clumped, perennial herb, root stock up to 15 mm in diam. **Radical leaves** in tufts; lamina up to 50 mm in diam., digitally cut into 5 bipinnatisect lobes, ultimate segments 1–2 mm wide, margins revolute; upper surface glabrous to sparsely hairy, lower surface with retrorse hairs, strongly appressed, ± spreading; petioles up to 300 mm long; cauline leaves similar with short petioles. **Inflorescences** opposite upper leaves, usually 2-flowered; peduncles much exceeding upper leaves, gland-tipped hairs present; pedicels up to 40 mm long, hairy. **Sepals** 6–9 × 2.5–3.5 mm, excluding mucro. **Petals** obovate, 15–19 × 10–16 mm long, serrate, shallowly notched, violet, purple or magenta. **Flowering time** Nov.–Jan. Open marshy places; Drakensberg Grassland, Sub-Escarpment Grassland, Dry Highveld Grassland (Rhodes District to Naude's Neck and Maclear S, from Molteno to Barkly East).

robustum Kuntze

Robust, subshrub, 0.2–1.0 m high. **Leaves** all cauline, petiolate, lamina up to 50–100 mm in diam., digitally (3–)5(–7)-lobed, each lobe twice pinnatifid, elliptic-lanceolate in outline, segments narrowly ovate, margins entire with an occasional tooth, upper surface with silvery appressed hairs, lower surface silvery tomentose. **Inflorescences** terminal and opposite to upper leaves; of small, almost leafless, 2-flowered, compound cymes; pedicels up to 60 mm long; hairs fine, appressed-retrorse with few to many spreading, gland-tipped ones. **Petals** 13–20 × 11–15 mm long, light purple; Nov.–Mar. Streamsides, moist, shrub-covered mountain slopes; Drakensberg Grassland, Sub-Escarpment Grassland (Rhodes District S to Barkly East and Elliot districts.

[E]**sparsiflorum** R.Knuth

Perennial herb. **Radical leaves** tufted; petioles up to 300 mm long, stipulate bases congested into a stout, woody oblong mass; lamina 40–90 mm in diam., digitately 5-lobed almost to base, lobes rhomboid in outline, deeply and sharply dissected, segments lanceolate, acute, with long hairs often gland-tipped. **Inflorescences** opposite uppermost leaves, 2-flowered; peduncles exceeding upper leaves; pedicels up to 40 mm long. **Sepals** 6–9 × 2–3 mm, excluding mucro, finely appressed-pubescent. **Petals** 12–16 × 5–10 mm, obovate, entire or shallowly notched, pink. **Flowering time** Aug.–Dec. Damp, grassland; Sub-Escarpment Savanna (Suurberg near Weza, Ixopo and Mount Currie S to Magwa Falls and Mateku in the Lusikisiki District of Pondoland).

[E]**subglabrum** Hilliard & B.L.Burtt

Many-stemmed, clump-forming, perennial herb, up to 0.2 m high. **Leaves** petiolate, sparsely pubescent with appressed retrorse hairs; lamina up to 110 mm in diam., digitately

5-lobed almost to base; lobes elliptic in outline, lobed and toothed, ultimate segment ± narrowly deltoid. **Inflorescence** a large, loosely-branched cyme terminating each stem; peduncles mostly 2-flowered. **Sepals** 4.5–7.5 × 2.0–2.5 mm excluding mucro, gland-tipped hairs spreading. **Petals** 12–15 × 7–11 mm, obovate, entire, pink with darker veins. **Flowering time** Oct.–Feb. Streamside near margins of forest patches; Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Indigenous Forests (Baziya Forest Reserve to Mkambati Nature Reserve).

2b Median primary leaf lobe shallowly to deeply cut, but not to base of leaf
3a Petals deeply notched

wakkerstroomianum R.Knuth

Diffuse, perennial herb, up to 1 m high. **Stems** straggling. **Leaves**: lamina up to 90 mm in diam., digitally 5-lobed to ± $^{2}/_{3}$ of way to base; lobes ± elliptic in outline, shallowly lobed; upper surface thinly appressed-hairy, lower surface sparsely to densely hairy, hairs long, ± spreading, eglandular; petioles up to 300 mm long, diminishing upwards. **Inflorescences** opposite upper leaves, 2-flowered; peduncles 2–65 mm long; pedicels 10–40 mm long, pilose with hairs as for leaves. **Sepals** 6–8 × 2–3 mm, pilose. **Petals** 7–17 × 2.5–5.5 mm, narrow, obovate, deeply notched. **Flowering time** July–Apr. Mountainsides, forest margins, damp sheltered or marshy, grassy places; Drakensberg Grassland, Sub-Escarpment Savanna (Ramatseliso's Gate to Kokstad District S, from Jamestown to Cala, Engcobo and Maclear and from Amatole Mts to Cathcart).

3b Petals either entire or shallowly notched
4a Hairs on lower leaf surface confined to veins or nearly so

caffrum (Eckl. & Zeyh.) Harv. (see 2a above)

natalense Hilliard & B.L.Burtt

Diffuse, perennial herb; pubescence of short, fine ± retrorse or spreading, occasionally gland-tipped hairs. **Leaves** all cauline; lamina ± 60 mm in diam., digitately 5-lobed to within 2–3 mm of base; lobes elliptic in outline, lobed and toothed; sparse, short, fine appressed hairs above; petioles up to 80 mm long. **Inflorescences** opposite upper leaves, 1- or 2-flowered; peduncle not always exceeding upper leaves; pedicels up to 25 mm long; pubescence as for stems. **Sepals** 4.5–5.0 × 1.75–2.50 mm, appressed-pubescent. **Petals** obovate, apex scarcely notched, mauve, 11 × 7 mm. **Flowering time** Dec.–Mar. Damp, marshes, streams; Drakensberg Grassland (Keiskammahoek District).

4b Lower leaf surface hairy all over
5a Primary leaf lobes cut less than halfway to base of leaf

baurianum R.Knuth

Perennial herb, 0.1–0.6 m high; taproot woody and carrot-like, surrounded by root tubers; indumentum of long and short spreading hairs. **Radical leaves** crowded on crown; lamina 20–55 mm in diam., orbicular, shallowly 5–7-lobed; lobes hemispherical, few-toothed, upper surface thinly pilose with coarse spreading hairs; cauline leaves reduced, subsessile; petioles 30–170 mm long. **Inflorescences** opposite upper leaves, of small 2-flowered cymes; peduncles 12–55 mm long; pedicels 12–30 mm long; indumentum as for stems. **Sepals** 6–9 × 2.5–3.7 mm, with long spreading hairs. **Petals** 13–18 × 6.5–10.0 mm, obovate, entire or shallowly notched, deep pink, pale pink to light purple. **Flowering time** Oct.–Apr. Moist mountain slopes and summits; Sub-Escarpment Grassland, Drakensberg Grassland, Sub-Escarpment Savanna (Elliot and Maclear districts E to Baziya Mtn, southwards from Katberg Pass to Amatole Mts, Stutterheim and King William's Town).

5b Primary leaf lobes cut more than halfway to base of leaf
6a Hairs on petioles retrorse, appressed

flanaganii R.Knuth (see 6b below)
Bolila-ba-litsoene, *chechane* (SS)

Many-stemmed, clump-forming perennial herb, 0.2–1.8 m high; rootstock eventually thick and woody; scarcely hairy to densely pilose, hairs reflexed, appressed to spreading, eglandular. **Leaves** with lamina to 90 mm in diam., digitately 5-lobed more than halfway to base, lobes oblong-elliptic; petioles 35–150 mm long. **Inflorescences** opposite upper leaves, of 2-flowered, spreading cymes; peduncles 20–80 mm long; pedicels ± 10–15 mm long; indumentum as for stems or with gland-tipped hairs. **Sepals** 5–8 × 2.5–3.5 mm. **Petals** 9–16 × 5.5–11.0 mm, obovate, light pink, dark pink with darker veins. **Flowering time** Aug.–Feb. Streamsides, open shrubland, grassland, damp forest margins; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Drakensberg Grassland, Indian Ocean Coastal Belt, Eastern Fynbos-Renosterveld (Tabankulu Mts to Bizana, Baziya Mtn to Port St Johns, Katberg Pass to Gonubie Mouth, Humansdorp).

harveyi Briq.

Many-stemmed, clump-forming, perennial herb, up to 0.14 m high; young parts silvery, retrorse, appressed-hairy. **Leaves** all cauline; lamina ± 5–30 mm in diam., digitately 3–5-lobed almost to base, each lobe rhomboid in outline, deeply pinnatifid; segments oblong-lanceolate, entire; petioles much longer than lamina. **Inflorescences** 1- or 2-flowered; peduncles much exceeding upper leaves; pedicels < 50 mm long; indumentum as for stems. **Sepals** 5.5–8.0 × 2.5–3.5 mm, indumentum with additional gland-tipped hairs at base. **Petals** 12–15 × 6.5–9.0 mm, obovate, shallowly notched, magenta or purple-blue. **Flowering time** Aug.–Jan. Mountains of central and eastern parts, in shelter of outcropping rocks; Upper Karoo, Dry Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland, Albany Thicket (Middelburg District E to Molteno, Queenstown and Cala S, from Graaff-Reinet to Mountain Zebra National Park, Boschberg at Somerset East and Amatole Mts).

pulchrum N.E.Br.

Robust subshrub, 0.3–1.2 m high; stems one or several from base. **Leaves** all cauline; lamina up to 120 mm in diam., digitately 5–7-lobed nearly to base, each lobe elliptic in outline, sharply and irregularly lobed and toothed, apex acute, mucronate, upper surface with hairs, lower surface thickly, silvery, silky-tomentose; petiolate. **Inflorescences** opposite uppermost leaves, mostly of large 2-flowered cymes; pedicels up to 60 mm long; indumentum of retrorse white hairs and gland-tipped, spreading ones. **Sepals** 7–9 × 3–5 mm, indumentum as for stems. **Petals** 17–22 × 11–19 mm, obovate, shallowly notched, light purple or deep pink with lighter or white centre. **Flowering time** Dec.–Mar. Drakensberg endemic, in damp marsh and streams; Drakensberg Grassland (Ongeluksnek Nature Reserve, Mount Currie and Mvenyani Mts).

6b Hairs on petioles either spreading, or if somewhat retrorse, then not appressed

[E]amatolicum Hilliard & B.L.Burtt

Bushy, perennial herb, 0.20–0.75 m high; stems many, ascending or erect; glandular pilose. **Leaves** with lamina 20–110 mm in diam., suborbicular in outline, digitately 5–7-lobed, at least $^{2}/_{3}$ to base; lobes ovate; hairs patent; petiolate. **Inflorescences** with peduncles terminal and opposite to uppermost leaves; eventually forming 2-flowered cymes; pedicels up to 70 mm long; indumentum as for stems, including unilateral band

of fine, curly hairs. **Sepals** 7–11 × 2.5–4.0 mm. **Petals** obovate, entire or shallowly notched, 15–20 × 9–13 mm, bright pink, veins reddish or white if base of petals white. **Flowering time** Sept.–Feb. Mountains, streamlets, rocks; Drakensberg Grassland, Sub-Escarpment Grassland (Queenstown to Hogsback S, from Katberg Pass across Amatole Mts to Thomas Mtn in Stutterheim District).

brycei N.E.Br.

Subshrub, 0.3–1.5 m high; upper parts thinly pilose, hairs spreading. **Leaves** crowded at branch tips; lamina 20–150 mm in diam., nearly orbicular, digitately 5–7-lobed to $^{3}/_{4}$ of base; each lobe ± obtuse; upper surface with shaggy, white, spreading hairs, lower surface with closely matted white hairs within veins and long spreading hairs covering veins; petioles up to 300 mm long. **Inflorescences** terminal and opposite upper leaves; forming large, 2-flowered, compound cymes; pedicels 15–55 mm long; pilose, many hairs gland-tipped. **Petals** obovate, 14–20 × 10–13 mm, shallowly notched, pale, purple-blue or light magenta-violet. **Flowering time** Nov.–Apr. Damp and rocky areas, streambanks, drainage lines, open mountainsides; Drakensberg Grassland, Sub-Escarpment Grassland (Ben Macdhui, Ongeluksnek, Thaba Chitja and Naude's Neck S, from Elliot District to Maclear and Bastervoetpad).

[E]contortum Eckl. & Zeyh.

Perennial, decumbent or ascending herb, up to 0.45 m long; subterranean creeping stock; stems glandular-pubescent, eglandular spreading hairs short, fine-curled or retrorse. **Leaves** crowded on crown; lamina 20–50 mm in diam., orbicular, deeply 5–7-lobed to 7 mm of base; lobes rhomboid or ovate, deeply and sharply cut; both surfaces with scattered coarse hairs; petioles 20–130 mm long. **Inflorescences** opposite upper leaves, of 2-flowered cymes; peduncles 30–65 mm long; pedicels 10–40 mm long; indumentum as for stems. **Sepals** 7–10 × 3–4 mm. **Petals** 14–20 × 10–16 mm, obovate, entire or shallowly notched, blue-pink. **Flowering time** Nov.–Jan. Endemic to EC Mts, moist grassland; Sub-Escarpment Grassland, Drakensberg Grassland (between Cala and Engcobo S, from Great Winterberg Mts to Katberg, Windvogelberg, Mount Thomas and to Pirie Mtn).

[E]discolor Hilliard & B.L.Burtt

Perennial herb, up to 0.6 m high; stems weak, decumbent, mat-forming; pilose with fine, white, retrorse hairs. **Leaves** with lamina 20–50 mm in diam., suborbicular, digitately 5–7-lobed to $^{2}/_{3}$ depth of radius; lobes obovate in outline, themselves lobed, firm-textured, glossy green above, white-felted below; petioles up to 150 mm long. **Inflorescences** with peduncles terminal and opposite upper leaves, of mostly 2-flowered, compound cymes; pedicels up to 65 mm long; scarcely glandular pilose. **Flowering time** Nov.–Feb. Moist places, forest margins, among rocks on open mountain slopes; Drakensberg Grassland, Sub-Escarpment Grassland (Juanasberg near Seymour S, from Katberg and Amatole Mts and E to Stutterheim District).

flanaganii R.Knuth (see 6a above)

[E]grandistipulatum Hilliard & B.L.Burtt

Coarse, bushy herb; upper parts of stems leafy, villous with spreading, gland-tipped hairs underlain by a unilateral band of fine, curly hairs. **Leaves** with laminas 30–60 mm in diam., suborbicular in outline, 5–7-lobed, roughly $^{2}/_{3}$ to base; lobes ovate in outline, sharply lobed and toothed; upper surfaces pilose with glandular and eglandular hairs, more densely so below; petioles 30–100 mm long. **Inflorescences** opposite upper leaves,

2-flowered; peduncles 20–70 mm long; pedicels 10–45 mm long; indumentum as for stems. **Sepals** 9–11 × 3.5–4.5, glandular-pilose. **Petals** 15–12 × 12–14 mm, obovate, entire or shallowly notched, pink. **Flowering time** Sept.–Nov. Occasional in forest clearings, among stones; Drakensberg Grassland (Maclear District, Bastervoetpad and S to Dohne).

ornithopodon Eckl. & Zeyh.

Many-stemmed, perennial herb, 0.1–0.9 m high; rootstock thick and woody. **Leaves** with lamina up to 80 mm in diam., digitately 5-lobed more than halfway to base; lobes oblong-elliptic; scarcely pilose above, pilose below with long, spreading hairs covering veins; petioles 25–150 mm long. **Inflorescences** terminal and opposite upper leaves, cymes 2-flowered; peduncles 10–80 mm long; pedicels 10–45 mm long; indumentum including gland-tipped hairs but underlain by unilateral band of fine, curly hairs. **Sepals** 4.0–5.5 × 2–3 mm. **Petals** obovate, entire, pale pink with darker veins or white. **Flowering time** Oct.–Feb. Damp soil, forest or forest margins, grassland, open shrubland; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Drakensberg Grassland, Indian Ocean Coastal Belt, Eastern Fynbos-Renosterveld (Bizana District S, from Queenstown to Dwesa, Suurberg Pass to Grahamstown and East London and to Humansdorp).

schlechteri R.Knuth

Diffuse, perennial herb; stems straggling, up to ± 1 m long. **Leaves** with lamina up to 60 mm in diam., digitately 5-lobed up to 4 mm from base; lobes elliptic in outline, lobed and sparingly toothed; scarcely hairy above, lower surface with long, spreading hairs, often gland-tipped; petioles up to 180 mm long. **Inflorescences** opposite upper leaves, usually 2-flowered; peduncles with a unilateral band of fine retrorse hairs, as well as spreading gland-tipped hairs; pedicels up to 40 mm long. **Petals** obovate, 9–12 × 4–7 mm, entire or shallowly notched, white, fading to pink, rosy pink or white with pink venation. **Flowering time** Dec.–Apr. Moist grassland, sometimes in shelter of rocks; Drakensberg Grassland, Sub-Escarpment Grassland (Qacha's Neck, Naude's Neck and Kokstad S, from Bastervoetpad in Elliot District to Maclear).

1b Stipules entire or very nearly so
7a Petals entire or nearly so

***arabicum** Forssk.

Diffuse, perennial herb; stems stoloniferous, rooting at nodes; scarcely pilose with eglandular hairs. **Leaves** with lamina up to 50 mm in diam., 5-lobed, divided to $^{3}/_{4}$ of length; lobes elliptic, further lobed and toothed; scarcely pilose on both surfaces; petioles 10–150 mm long, indumentum as for stems but underlain by shorter, retrorse hairs. **Inflorescences** axillary, 2-flowered; peduncles 30–70 mm long; pedicels 10–30 mm long; indumentum as for stems. **Sepals** 6 × 10 mm, pilose with spreading hairs. **Petals** obovate, 5 × 2.5 mm, entire or very shallowly notched, white or pink. **Flowering time** Jan.? In grass at edge of bush; Indian Ocean Coastal Belt (solitary SA record at Port St Johns).

7b Petals deeply notched

***dissectum** L.

Annual herb, 0.1–0.6 m long; erect or ascending; scarcely pilose with retrorse, eglandular hairs. **Radical leaves** tufted; lamina up to 50 mm in diam., deeply 5–7-lobed, each lobe cuneate in outline, deeply dissected; glabrous to sparsely hairy above, denser below; petioles up to 150 mm long; cauline leaves similar, petioles rapidly shorter. **Inflorescences** opposite leaves, usually 2-flowered; peduncles shorter than upper leaves;

pilose with spreading or somewhat retrorse hairs; pedicels hairy as for stems, additionally gland-tipped. **Sepals** 4 × 2 mm, glandular-pilose. **Petals** 5 × 2 mm, obovate, notched, purplish pink. **Flowering time** Oct.–Dec. **Carpels** smooth and hairy. Damp, partially shaded places; origin Europe; Eastern Fynbos-Renosterveld [from Cape Peninsula to Port Elizabeth District (Springfield)].

*molle L.

Annual herb, 0.05–0.45 m long; decumbent or ascending. **Radicle leaves** tufted; lamina up to 60 mm in diam.; 5–9-lobed halfway or more to the centre; lobes oblong-obovate, deeply 3-fid, both surfaces scarcely pilose; petioles up to 250 mm long, pilose; cauline leaves similar but petioles shorter and lamina reduced. **Inflorescences** opposite upper reduced leaves, compound cymes large, 2-flowered, pilose with spreading hairs, often gland-tipped; pedicels similar to peduncles. **Sepals** 2.5–4.0 × 1.5–2.5 mm, pilose. **Petals** 3–7 × 2–3 mm, deeply notched, purplish pink. **Flowering time** Dec.? **Carpels** glabrous, transversely ridged. SE-facing slope at eastern end of mountain, damp and partially shaded places; origin Europe, well-established in south-western and southern Cape; Drakensberg Grassland, Eastern Fynbos-Renosterveld (Seymour District, Elandsberg; Port Elizabeth District, Bakens Valley).

MONSONIA L.

Species 20, in sthn Afr., 17 endemic, 3 widespread in Africa; N, B, LIM, G, M, S, FS, KZN, L, EC

M. angustifolia is present in Madagascar and *M. senegalensis* is represented in Asia and India.

angustifolia E.Mey. ex. A.Rich.

Crane's bill; *alsbos*, *teebossie* (A); *malenguana* (SS)

Herb, up to 0.5 m high. **Leaves** petiolate, alternate, upper subopposite or opposite, lamina linear, narrowly elliptic, narrowly ovate, 8–55 × 2–15 mm, emarginate and mucronate at apex, obtuse to cuneate or less often truncate at base, veins prominent beneath, pinnate. **Inflorescences**: 1–3-flowered; peduncle slender, often obsolete, up to 25 mm long. **Sepals** narrowly ovate to ovate or narrowly obovate to obovate, dark brown to purplish, 5–10 × 1.5–3.0 mm. **Petals** narrowly obtriangular to obtriangular, 5–15 × 3–6 mm, white, mauve, pink, blue, purplish or rarely yellow, venation mostly dark blue or greyish. **Flowering time** Jan.–Mar. Semi-arid and hot to moderately moist to mild conditions; Upper Karoo, Sub-Escarpment Grassland (Albert District S to Grootfontein and from Queenstown to Cofimvaba).

brevirostrata R.Knuth

Prostrate or decumbent, many-stemmed, annual, 0.1–0.3 m high; indumentums of curved hairs or glandular-based hairs or stalked glands. **Leaves** rosulate on primary stem, opposite or subopposite on lateral branches; narrowly to broadly ovate 8–30 × 3–20 mm, obtuse to acute or 3-lobed at apex, base truncate, margins serrate to dentate. **Inflorescences** 1- or 2-flowered, 15–40 mm long; peduncles 9–20 mm long; pedicels 4–10 mm long. **Sepals** green, free, linear to narrowly ovate. **Petals** narrowly obtriangular 5–7 × 1.5–2.5 mm, white, mauve, blue or purplish blue. **Flowering time** Dec.–Mar. Common on rocky turf or sandy grassland, bare ground in mountainous habitats; Sub-Escarpment Grassland, Drakensberg Grassland, Eastern Fynbos-Renosterveld (Cala Pass, between Elliot and Maclear S to Stutterheim and Suurberg Mts).

burkeana Planch. Ex. Harv.

Crane's bill; *naaldbossie*, *angelbossie*, *assegaaibossie*, *keitabossie* (A)

Herb, up to 0.3 m high. **Leaves** petiolate, lower alternate, upper subopposite to opposite; lamina narrowly elliptic, elliptic, or narrowly ovate, 10–50 × 4–12 mm, base obtuse or less often cuneate. **Inflorescences**: 1–5-flowered; peduncle slender, 10–50 mm long. **Sepals** narrowly ovate or narrowly obovate, 7–11 × 2–4 mm, 3 parallel veins, green, margins ciliate. **Petals** obtriangular to narrowly obtriangular, 12–22 × 6–16 mm, white, pink, mauve, purplish blue, rarely yellow. Semi-arid to moderately moist savanna, from sandy loam to clay soils, derived from granite, dolomite or quartzite; Sub-Escarpment Savanna (Griqualand East, Clydesdale).

emarginata (L.f.) L'Hér.

Dysentry herb; *geitabossie*, *keitabossie*, *naaldebossie* (A)

Herb, up to 0.4 m high. **Leaves** opposite, lower ones alternate; lamina simple, narrowly ovate, broadly elliptic or triangular, 10–40 × 8–25 mm, obtuse, acute or emarginate, truncate to cordate at base, double-serrate or sinuate-serrate, margins often ciliate. **Inflorescences**: 1-flowered; peduncle slender, 0.2–2.0 mm long; involucral bracts 2–6 per flower. **Sepals**: free, narrowly obovate to narrowly ovate, 8–12 × 2–4 mm, green. **Petals**: obtriangular 15–25 mm, white, creamy, greyish or pink, venation brownish green, greyish blue to greyish maroon or purplish with 5 main veins. **Flowering time** Sept.–Mar. Bushveld, scrubby grassveld, dunes, hills, plains; Drakensberg Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Komga to Gonubie S, from Steytlerville to Suurberg, Port Elizabeth, Grahamstown and East London and to Humansdorp).

[E]galpinii Schltr. ex. R.Knuth

Herb, up to 0.3 m high. **Leaves** petiolate, opposite, lamina simple, ovate, broadly ovate or orbicular; 15–30 × 10–20 mm, emarginate or obtuse at apex, cordate at base, margins crenate to bluntly serrate; petioles 9–15 mm long. **Inflorescences**: 1-flowered; peduncle slender, 0.2–0.5 × 3–15 mm long. **Sepals** green, free, narrowly ovate, 8 × 3 mm. **Petals** obtriangular 15–20 × 4 mm, creamy, venation purplish grey. **Flowering time** Sept.–Feb. Sand dunes; Albany Thicket (East London, West Bank Reserve).

glauca R.Knuth

Herb, up to 0.45 m high. **Leaves** petiolate, alternate at base of stem, opposite towards apex, lamina narrowly ovate, 20–70 × 3–20 mm, attenuate or acute, base cordate truncate, margins red-tinged, ciliate or serrate with globular pockets of powdery granules; petioles 10–50 mm long. **Inflorescences**: 1–3-flowered, 45–150 mm long; peduncle slender, 1–3 × 10–85 mm. **Sepals** green to purplish black, free, narrowly ovate to narrowly ovate, 7–11 × 2–3 mm. **Petals** obtriangular, 15–21 × 8–15 mm, white-creamy, venation greenish to greyish with 5 main veins. **Flowering time** Oct.–May. Semi-arid to moderately moist bushveld, scrubby grassland; Sub-Escarpment Grassland, Drakensberg Grassland, Albany Thicket (Kokstad District, Thornham Farm, Seymour District, Amatole Mts and Juanasberg, further S to Port Elizabeth and Grahamstown).

grandifolia R.Knuth

Herb, 0.1–0.4 m high. **Leaves** subopposite to opposite towards apex and lateral branches, alternate at base of main stem; lamina ovate to narrowly ovate, angular-ovate, elliptic, mostly folded upwards along midrib, 22–75 × 9–35 mm, base truncate, obtuse or cor-

date, margins serrate-crenate often sinuate, sometimes ciliate; petioles mostly reddish, 7–17 mm long. **Inflorescences**: 1- or 2-flowered; peduncle 15–55 mm long, mostly spirally twisted. **Sepals** narrowly ovate to narrowly obovate, green, free or basally fused, 10–15 × 3–5 mm. **Petals** obtriangular, 20–30 × 10–20 mm, white, pale yellow or creamy, venation greyish blue. **Flowering time** Dec.–Mar. Montane sourveld, in sand; Sub-Escarpment Grassland, Sub-Escarpment Savanna (Kokstad, Kei River Bridge).

PELARGONIUM L'Hér.

Species 280, S, E and NE Africa, St Helena, Tristan da Cunha, Madagascar, Australia and New Zealand; 219 in sthn Afr., widespread, but concentrated in WC.

Bakker et al. (2004) derived phylogenetic hypotheses for the genus *Pelargonium* based on DNA sequence data from nuclear, chloroplast and mitochondrial encoded regions. Their results indicate that *Pelargonium* comprises five well-supported main clades, containing subclades that agree overall with the current sectional classification of the genus. A basal divide further exists within the genus, correlating with chromosome size, not supported by evidence from (gross) morphology. Recognising the above mentioned research, the sections as described by Albers et al. (1995), Bakker et al. (2004), Dreyer et al. (1995), Maggs et al. (1995, 1999), Van der Walt et al. (1990) and Van der Walt & Vorster (1988) are basic to this account.

Section *Campylia* (Sweet) DC.

Small with short, erect stems. Leaves entire, linear, lanceolate, ovate or oblong; petioles long with membranous stipules at base. Petals: upper 2 broadly ovate, lower 3 narrower. Fertile stamens 5.

althaeoides (L.) L'Hér.

Straggling herb or subshrub, 0.1–0.2 m high. **Leaves** small, ovate-cordiform, mostly shallowly 3-lobed, upper leaves more deeply sinuate basally, margins crisped and crenate; abaxially prominently ribbed, both surfaces villous. **Inflorescences** of 3–7-flowered pseudo-umbels. **Sepals** white-villous. **Petals** 5, white, pink or deeply pink; posterior 2 deeper pink with delicate purple markings; anterior 3 pale pink with slightly darker band in centre. **Fertile stamens** 5, anthers pink. **Flowering time** Nov.–Mar. Mountain slopes in moist, stony soil, partial shade; Drakensberg Grassland, Dry Highveld Grassland, Sub-Escarpment Grassland (Rhodes District: Maartinshoek, Kloppershoekspruit S, from Renosterberg above Lootsberg Railway Halt to Penhoek Pass and Andriesberg, and from Graaff-Reinet to Elandsberg in Seymour District).

elegans (Andrews) Willd.

Small, erect, tufted subshrub, 0.10–0.25 m high; stems tomentose, covered with remains of old stipules. **Leaves** with lamina flat, ovate to suborbicular, up to 70 × 55 mm, base obtuse to cordate, margins irregularly dentate, ciliate; glabrescent to strigose or pilose; petioles up to 100 mm long. **Stipules** deltoid, brown. **Inflorescences**: flowering branches each give rise to 2–4 peduncles, each bearing a 2–4-flowered pseudo-umbel. **Flowers** large and attractive. **Hypanthium** 10–15 mm long. **Sepals** 5, imbricate, connate at base, apex sometimes reflexed. **Petals** 5, pale pink or lilac; posterior 2 with dark purple veins. **Stamens** 7, 4 long, 1 medium, 2 short; anthers dark purple. **Flowering time** Sept.–Jan. Grassland, grazed, roadsides/railwaysides; Albany Thicket, Eastern Fynbos-Renosterveld (Van Stadens River to Port Elizabeth and Bathurst, and from Cape St Francis to Humansdorp).

ovale (Burm.f.) L'Hér.

Perennial, low-growing subshrub, up to 0.3 m high; often with a cushion habit; stems branched, covered with persistent stipules. **Leaves**: lamina ovate, 25–35 × 15–25 mm, grey-green, villous to tomentose, venation abaxially prominently hairy, margins serrulate-crenulate; petioles twice length of leaf blades. **Stipules** deltoid-acuminate, persistent, sheathing base of petioles. **Inflorescences**: flowering stems branched; peduncles villous, each bearing a pseudo-umbel of 3–5 flowers. **Calyx** glandular, elongating with age, russet-brown. **Petals** pale to dark pink; posterior 2 with darker markings. **Fertile stamens** 5, 2 staminodes recurved; anthers orange-coloured. **Flowering time** all year, peak from spring to summer. Mountain and coastal fynbos, in well-drained, sandy soil; Eastern Fynbos-Renosterveld (Baviaanskloof E to Port Elizabeth, S to Kruisfontein Mtn near Humansdorp).

Section *Ciconium* (Sweet) Harv.

Subshrubs or shrubs with thick and fleshy stems. Leaves obovate or cordate-reniform, palmately veined. Petals 5, all of same colour. Stamens 7, fertile, upper 2 very short. Ancestors of well-known zonal cultivars.

[E]**acetosum** (L.) L'Hér.

Sorrel-leaved pelargonium

Bushy, much-branched shrublet, 0.2–0.6 m high; branches sparsely leaved, slender, smooth, rather succulent. **Leaves** glabrous, lamina obovate, 10–65 × 10–50 mm, base cuneate, glaucous-green, somewhat fleshy, margins red, coarsely crenate. **Stipules** obliquely ovate, at base of relatively short petioles. **Inflorescences** unbranched; peduncles of varying lengths, bearing 2–7-flowered pseudo-umbels; pedicel, hypanthium and calyx covered with long, glandular hairs. **Sepals** 5, imbricate, connate at base, apex sometimes reflexed. **Petals** 5, long and narrow, salmon-pink to white; posterior 2 erect. **Flowering time** all year. Stony hillsides, dry grassland; Dry Highveld Grassland, Eastern Fynbos-Renosterveld, Albany Thicket (Steynsburg S, Kirkwood, Uitenhage and Port Elizabeth).

alchemilloides (L.) L'Hér.

Lady's mantle-leaved pelargonium; *wilde-malva* (A)

Decumbent herb, ± 0.2 m high; stems straggling, coarsely hairy; rootstock woody, stoloniferous to tuberous. **Leaves** silky, lamina palmately deeply lobed, 20–70 mm in diam., margins irregularly toothed, base cordate, zonal marking purple to brown. **Stipules** broadly ovate. **Inflorescences** of 3–6(15)-flowered pseudo-umbels; peduncles of varying lengths. **Hypanthium** 12–35 mm long. **Sepals** 5, imbricate, connate at base, apex sometimes reflexed. **Petals** 5, pale to deep pink, with pink or red markings. **Fertile stamens** 7. **Flowering time** spring, or all year. Forest, fynbos, grassland, grazed, disturbed, recently burned, railwayside/roadside; in all bioregions, except Upper Karoo, Lower Karoo, Rainshadow Valley Karoo (Barkly East to Qacha's Neck S, from Middelburg to Port St Johns, Graaff-Reinet to Kentani, Joubertina to East London and to Humansdorp).

aridum R.A.Dyer

Katbossie, *kliptee* (A)

Small, tuft-like plant, 0.1–0.5 m high; poorly branched, deciduous; petiole bases persistent. **Leaves** with lamina peltate, up to 70 mm in diam., digitate-pinnately compound,

membranous; petioles up to 170 mm long. **Inflorescences** of 2–5-flowered pseudo-umbels. **Sepals** 5, narrowly ovate, margins hyaline. **Petals** 5, cuneate, white or cream-coloured with a few wine-red lines near base; posterior two 15–25 × 1.5–2.5 mm, anterior three 10–22 × 2.5–4.0 mm. **Fertile stamens** 7. **Flowering time** Sept.–Dec. Karroid veld, partial shade, between rocks, hillsides, soils derived from dolerite, shale or limestone, summer rainfall, hot summers, severe winter frost; Upper Karoo, Dry Highveld Grassland, Mesic Highveld Grassland, Sub-Escarpment Grassland, Lower Karoo, Albany Thicket (Bethulie to Aliwal North and Lady Grey S, from Lootsberg Pass to Alice, Mountain Zebra National Park to Katberg and to Grahamstown).

elongatum (Cav.) Salisb.

Table Mountain pelargonium

Diffuse herb, 0.2–0.3 m high; long glandular hairs on stems and leaves. **Leaves** velvety, lamina reniform, 15–25 × 20–40 mm, base angular-cordate, 5–7-palmately-lobed, often with zonal markings, margins irregularly toothed, base cordate; petioles exceptionally long. **Stipules** lanceolate. **Inflorescences** of 1–6-flowered pseudo-umbels. **Petals** 5, white or cream-coloured, posterior 2 broader than anterior 3. **Fertile stamens** 7. **Flowering time** spring or all year. Grassland, rocky outcrops, grazed, roadside/railwayside; Sub-Escarpment Grassland, Drakensberg Grassland (Dordrecht to Queenstown S, Nico Malan Pass, Amatole Mts).

[E]**frutetorum** R.A.Dyer

The boar, salmonia

Sprawling, slender-stemmed shrub, up to 0.6 m high; stem fleshy, pubescent. **Leaves** petiolate, 5-lobed, reniform, base cordate, margins crenate; blades strongly zoned, each with a central dark brown blotch; petioles long. **Inflorescences** of 15-flowered pseudo-umbels. **Petals** obovate, pale salmon-pink flowers. Sandy soil, coastal scrub; Albany Thicket (Bathurst District, between Kowie and Bushman's Rivers).

inquinans (L.) L'Hér.

Scarlet pelargonium; *wilde-malva* (A)

Softly woody shrub, 1–2 m high; velvety tomentose, glandular. **Leaves** petiolate; lamina almost orbicular, 40–80 mm in diam., shallowly 5–7-lobed, base cordate, margins finely toothed or crenulate. **Stipules** broadly ovate on young leaves, caducous. **Inflorescences** of 5–30-flowered pseudo-umbels; buds reflexed. **Hypanthium** ± 40 mm long. **Sepals** 5. **Petals** white, pale pink, mostly intensely scarlet; posterior 2 slightly smaller than anterior 3. **Fertile stamens** 7, staminodes 3, all borne on long staminal column. **Flowering time** all year. Margins of coastal bush and succulent scrub, in soils with shale predominating; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Mthatha S, from Alice to Kentani, and from road between Willowmore and Patensie to Addo Elephant National Park, Port Elizabeth and Fish River Valley near Grahamstown).

peltatum (L.) L'Hér.

Ivy-leaved pelargonium; *kolsuring* (A)

Perennial creeper, 0.1–2.0 m high; stems smooth, tender. **Leaves** fleshy, lamina peltate, 20–70 mm in diam., 5-angled or lobed, sometimes zoned, base cordate, margins entire, surface hairy; petioles shorter than leaf blades. **Stipules** broadly ovate. **Inflorescences** of 2–9-flowered pseudo-umbels; peduncles long. **Flowers** zygomorphic; long-spurred.

Petals 5, mauve, pinkish mauve to pale pink or whitish; posterior petals with darker markings. **Flowering time** all year, mostly spring. Sheltered places with coastal or succulent bush; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Albany Thicket, Drakensberg Grassland, Eastern Fynbos-Renosterveld (Kokstad to Nqabeni S, Alice to Maclear, Graaff-Reinet to Gonubie River Mouth, Baviaanskloof Mts to Grahamstown and Humansdorp to Jeffreys Bay).

ranunculophyllum (Eckl. & Zeyh.) Baker

Subshrub, 0.15–0.30 m high; with short hairs of ± 1 mm long. **Leaves**: lamina fairly small, 20–40 mm in diam., palmately lobed with deep red or purple horseshoe marking, lobes rounded, base cordate, margins toothed. **Inflorescences** of 2- or 3-flowered pseudo-umbels. **Petals** narrow, 12 × 3 mm; white or flesh-coloured; posterior 2 and sometimes anterior 3 with central carmine spot. **Stamens**: anthers light pink; pollen yellow to light orange; flowers protandrous. **Flowering time** Oct.–Jan. In mountainous regions, also below sandstone overhangs and shady cave entrances, alt. > 1 000 m; Mesic Highveld Grassland, Drakensberg Grassland, Upper Karoo, Albany Thicket, Dry Highveld Grassland, Sub-Escarpment Grassland (Aliwal North District, Elandshoek to Ongeluksnek Neck S, from Middelburg District, Sneeuberg, Lootsberg Pass, Naudesberg and Wapadsberg Pass to Queenstown and from Graaff-Reinet across Amatole Mts to Stutterheim).

zonale (L.) L'Hér.

Horseshoe pelargonium; *wilde-malva* (A)

Erect or scrambling, softly woody shrub, 1(–3) m high. **Leaves** almost orbicular, 50–80 mm in diam.; lamina deeply lobed, base cordate, margins irregularly scalloped; often smooth and zoned. **Stipules** broadly ovate. **Inflorescences** of pseudo-umbels, 5–70-flowered; buds reflexed. **Flowers** zygomorphic. **Petals** 5, ± equally sized, white, rose-coloured or red, veins reddish. **Fertile stamens** 7, staminal column relatively short. **Flowering time** all year. Coastal areas, indigenous forest margins, rocky hillsides with scrub vegetation; Sub-Escarpment Grassland, Dry Highveld Grassland, Drakensberg Grassland, Eastern Fynbos-Renosterveld, Albany Thicket (Hogsback to Cintsa West S, from Mountain Zebra National Park to Komga and from Baviaanskloof Mts to Grahamstown and Port Alfred).

Section *Chorisma* DC.

Subshrubs or shrubs, sometimes with root tubers. **Stems** herbaceous to succulent, relatively thin, often sprawling. **Leaves** usually simple without deep incisions, subsucculent; petioles usually longer than laminae, often persistent. **Pseudo-umbels** 1–6-flowered. **Petals** 4 or 5, white, cream-coloured or pink, posterior petals much larger than anterior ones. **Fertile** stamens 5 or 7.

1a Stems angular; petals 4(5); fertile stamens 7

tetragonum (L.f.) L'Hér.

Square-stemmed pelargonium

Scandent, non-aromatic shrub; many-stemmed, stems succulent; internodes relatively long. **Leaves** subsucculent; lamina cordiform or reniform, 5-palmatifid; glabrous to villous, with glandular hairs interspersed; petiole much longer than lamina, sometimes partially persistent. **Stipules** sometimes persistent. **Inflorescences** of 1- or 2-flowered pseudo-umbels; pedicels very short, up to 4 mm long. **Hypanthium** 25–60 mm long. **Petals** 4(5), cream-coloured, pink with deep red markings; posterior 2 relatively large

40–50 mm long, twice as long as anterior ones. **Stamens** fertile, 7. **Flowering time** Sept.–Dec. In a zone parallel to coast and inland; Albany Thicket, Dry Highveld Grassland, Eastern Fynbos-Renosterveld, Rainshadow Valley Karoo (Graaff-Reinet District to Cameron's Glen S, from Baviaanskloof to Uitenhage, Riebeek East and Bushman's River Poort, and to Humansdorp).

1b Stems terete; petals 5; fertile stamens 5
2a Stipules cartilaginous; pseudo-umbels 1–3-flowered

[E]worcesterae R.Knuth

Decumbent to sprawling, aromatic subshrub; many small root tubers; stems becoming woody, internodes relatively long. **Leaves**: lamina reniform to ovate, base cordate, margins crenate to shallowly lobed; petiole much longer than lamina. **Stipules** prominent, white and persistent. **Inflorescences** with pedicels 1–4 mm long, much shorter than hypanthium. **Hypanthium** 6–14 mm long. **Sepals** 5, lanceolate, straight. **Petals** white, narrowly clawed; posterior petals oblanceolate to spathulate with pink, feather-like markings, larger than lanceolate anterior 3. **Flowering time** June–Oct. Small populations in restricted areas of karoo; Lower Karoo, Upper Karoo, Rainshadow Valley Karoo, Albany Thicket (Graaff-Reinet to Cradock S, from Steytlerville and Wolwefontein to Addo Elephant National Park and Grahamstown).

2b Stipules membranous; pseudo-umbels 3–6-flowered
3a Leaves trilobate to ternate, microscopically sparsely sericeous

[E]exhibens Vorster

Scandent, aromatic subshrub, 0.1–0.3 m high; stems herbaceous, covered with remains of persistent petioles. **Leaves** subsucculent, lamina cordiform, base cordate, apex lobed, margins shallowly lobed; petiole often longer than lamina. **Stipules** membranous. **Inflorescences**: pseudo-umbels 3–5-flowered; pedicels very short, 1–4 mm long. **Hypanthium** 10–12 mm long. **Sepals** 5, imbricate, connate at base, apex sometimes reflexed. **Petals** white to cream-coloured; spathulate, posterior 2 with wine-red, feather-like markings, much larger than anterior 3. **Flowering time** Sept.–Apr. Very hot conditions in summer; Upper Karoo, Albany Thicket [two areas in EC: Graaff-Reinet District and Karoo Reserve (annual rainfall 200–400 mm); between Great Fish River and Committees Drift, Breakfast Vlei, Victoria East (annual rainfall twice as much as above)].

3b Leaves 5-palmatilobate to palmatifid, pilose

[E]mollicomum Fourc.

Erect to decumbent, aromatic subshrub with small root tubers; stems herbaceous, petioles and stipules persistent, internodes relatively long. **Leaves** subsucculent; lamina cordiform, 3–5-palmatilobed; petiole ± as long as lamina. **Stipules** membranous, persistent. **Inflorescences** of 3–6-flowered pseudo-umbels; pedicels 1–2 mm long. **Hypanthium** 15–20 mm long. **Petals** white to cream-coloured; posterior 2 sometimes with carmine, feather-like markings and larger than anterior 3. **Sepals** 5, imbricate, connate at base, apex sometimes reflexed. **Petals** 5, white or pale pink, posterior petals with red markings. **Flowering time** all year. Annual rainfall in west May–July, in east Nov.–Mar.; Eastern Fynbos-Renosterveld, Albany Thicket (Joubertina E to Cambria, Hankey, Kommadagga, Helspoort Pass on road from Grahamstown to Cradock).

Section *Glaucophyllum* Harv.

Van der Walt et al. (1990), Bakker et al. (2004)

Green to glaucous vegetative organs and zygomorphic white to pink corolla with 5 narrow petals. Basic chromosome number x = 11. A close relationship between sect. *Glaucophyllum* and sect. *Pelargonium* is indicated by the occurrence of natural hybrids.

fruticosum (Cav.) Willd.

Profusely branched, evergreen subshrub, 0.5–1.0 m high. **Leaves**: lamina up to 20 × 30 mm, obovate in outline, trifoliolate, lateral leaflets 3-cleft, terminal leaflet twice 3-cleft; slightly fleshy or leathery, glabrous, green, base cuneate; petioles 10–15 mm long. **Stipules** triangular, membranous. **Inflorescences** single-flowered; peduncle borne in axils of petioled leaves; articulated, 5–30 mm long. **Petals** 5, white to light pink; posterior 2 spathulate with wide claws and reddish purplish markings near base; anterior 3 narrowly ovate. **Fertile stamens** 5, pollen orange. **Flowering time** all year, mostly in spring. Fynbos or karroid vegetation, moist near coast, dry at higher inland localities; Eastern Fynbos-Renosterveld, Rainshadow Valley Karoo (Ladismith to near Willowmore).

Section *Hoarea* DC.

[= Section *Seymouria* (Sweet) Harv.]

Stemless perennials with 1–3 but usually a single tuber, which is often turnip-shaped. **Flowers** usually with 5 petals and 5 fertile stamens.

aestivale E.M.Marais

Deciduous geophyte, up to 0.2 m high; tuber subterranean, turnip-shaped or elongated. **Leaves** radical, rosulate, hysteranthous, simple or ternate; lamina ovate, apex acute, margins entire to serrate, revolute 25–95 × 14–48 mm; adaxially and abaxially hirsute with stiff hairs interspersed with long, soft hairs and short glandular hairs; petioles 25–90 mm long. **Inflorescence** a scape 10–70 mm long, branched, bearing 2–4 pseudo-umbels with 3–8 flowers each; peduncle 35–85 mm long. **Hypanthium** 33–66 mm long. **Sepals** 5, lanceolate. **Petals** 5, cream-coloured to yellow, posterior 2 with red markings, unguiculate-spathulate; anterior 3 spathulate. **Stamens** 10; perfect stamens 5; staminodes 5; anthers pink; pollen orange. **Flowering time** Sept.–Dec. **Fruit** a schizocarp of 5 mericarps. Karroid vegetation on rocky hillsides and flat areas; Upper Karoo (Graaff-Reinet District, Doornbosch in Koudeveldberge).

auritum (L.) (Willd.) E.M.Marais var. **auritum**

Various-leaved pelargonium

Acaulescent geophyte, 0.08–0.25 m high; subterranean tuber clothed with dead petiole bases. **Radical leaves** polymorphous, simple pinnatifid, bipinnatifid or almost pinnatipartite; lamina 20–130 × 10–50 mm; hirsute with appressed, coarse hairs; petioles longer than blades. **Inflorescences**: scapes branched; pseudo-umbels showy, 4–many-flowered. **Petals** usually 5, dark purple-black, base white; posterior two 11 × 2.5 mm, anterior three 9 × 1.5 mm, margins conspicuously undulate. **Fertile stamens** 5. **Flowering time** Nov., Dec. Mountainous areas; Eastern Fynbos-Renosterveld (Kouga Mts at Joubertskraal, Port Elizabeth, Parsons Vlei).

[E]**auritum** (L.) (Willd.) E.M.Marais var. **carneum** (Harv.) E.M.Marais

Petals white to light pink, veins red to purplish; posterior two 13 × 2.5 mm, anterior three 10 × 1.5 mm, margins slightly undulate to plane. Flowering time Dec.? Occa-

sional; Eastern Fynbos-Renosterveld, Albany Thicket (Kareedouw, Suuranysberge, Humansdorp, Essenbosch, Swartkops near Port Elizabeth).

[E]campestre (Eckl. & Zeyh.) Steud.

Acaulescent geophyte, 0.06–0.14 m high. **Leaves** simple; lamina 15–50 mm long, irregularly pinnatisect, margins irregularly serrate to deeply incised; sparsely hirsute, abaxially with long glandular hairs, margins with long appressed stiff hairs; petioles up to 50 mm long. **Stipules** subulate. **Inflorescence** branched, each pseudo-umbel 5–9-flowered. **Hypanthium** 12–22 mm long. **Sepals** 5, lanceolate. **Petals** 5, white, spathulate; posterior 2 with red markings or without, 23–24 × 4–6 mm; anterior 3 slightly smaller. **Fertile stamens** 5. **Flowering time** Oct.–Dec. Grassy plain towards Swartkops River, otherwise not recorded; Albany Thicket (Port Elizabeth, Swartkops River, Red House, Grahamstown).

carneum Jacq.

Geophyte, 120–380 mm high; tuber turnip-shaped or elongated root. **Leaves** green, petiolate; lamina simple, trifoliolate, pinnate to irregularly bipinnatisect; compound leaves elliptic in outline, 50–70 mm long, pinnae 15–30 mm long, deeply incised, segments laciniate; adaxially glabrous, abaxially hirsute, hairs long, appressed, stiff; petioles 25–30 mm long. **Stipules** subulate. **Inflorescence**: scape 20–120 mm long, branched, bearing 2 or 3 pseudo-umbels, each 4–13-flowered. **Hypanthium** 35–75 mm long. **Sepals** 5, narrowly triangular. **Petals** 5, white or pink to flesh-coloured; posterior 2 with wine-red, feather-like markings, obovate to obcordate, 17–34 × 8–15 mm; anterior 3 widely spathulate, smaller. **Fertile stamens** 5. **Flowering time** Nov.–Mar. Limestone hills, rock crevices, stony, sandy hillsides; Eastern Fynbos-Renosterveld (Baviaanskloof to Steytlerville and Port Elizabeth S, Humansdorp to Cape St Francis and Jeffreys Bay).

gracillimum Fourc.

Stemless perennial, 0.1–0.15 m high; rootstock ovoid, tuberous, 20 × 10 mm with brown, exfoliating tunics. **Leaves** hysteranthous, bi-tripinnatipartite, pinnae 3–5, ultimate laciniate divaricate, linear to spathulate, up to 27 × 3.5 mm; petioles 40–550 mm long. **Inflorescences** of simple or one-branched scapes, bearing 4–6-flowered umbels. **Petals** 5, narrowly spathulate, clawed, 10 × 3 mm; rosy-white with carmine veins from claws. **Stamens** 4. **Flowering time** Jan.–Mar. Rocky sandstone slopes; Eastern Fynbos-Renosterveld (Swartberg to Baviaanskloof Mts).

Section *Jenkinsonia* (Sweet) DC. *ampl.* J.J.A.van der Walt

Perennial subshrubs or annual herbs, sometimes aromatic, sometimes with tubers; stems rather woody or herbaceous. **Leaves** palmately or pinnately divided or trifoliolate; often covered with non-glandular hairs interspersed with spherical or pyriform-headed glandular hairs; petiole longer or shorter than lamina. **Pseudo-umbels** 1–6-flowered; pedicels shorter or longer than hypanthia. **Petals** 4 or 5, posterior 2 the same size or larger than anterior ones; claws of posterior petals sometimes inrolled to form false tubes. **Stamens** 2, 3, 5 or 7, fertile.

1a Leaves palmately divided or trifoliolate

trifidum Jacq.

Much-branched subshrub; stems spreading and trailing. **Leaves** 3-partite to 3-foliolate; lamina cordiform 10–40 × 12–50 mm, pubescent to hispid with pyriform-headed glan-

dular hairs in between. **Stipules** membranous. **Inflorescences** of 2–6-flowered pseudo-umbels; pedicels 1–2 mm long. **Hypanthium** 15–25 mm long. **Petals** 5, cream-coloured; posterior two ± 25 × 8 mm, with reddish stripes; anterior three ± 15 × 4 mm. **Flowering time** Sept.–Jan. Dry, hot, rocky slopes on sandy soil; Eastern Fynbos-Renosterveld, Albany Thicket (Kouga Mts E to Suurberge, Bloukrans, Alicedale, and to Drooge Kloof in Humansdorp District).

1b Leaves pinnately divided
2a Petioles shorter than laminae

tragacanthoides Burch.

Branched, erect, aromatic subshrub; stems woody and smooth. **Leaves** pinnately to bipinnately divided into linear segments; lamina narrowly ovate in outline; sparsely sericeous with pyriform-headed glandular hairs in between; petiole shorter than lamina. **Inflorescences** of 2–4-flowered pseudo-umbels; pedicels shorter than hypanthium. **Sepals** 5, imbricate, connate at base, apex sometimes reflexed. **Petals** 4, white, pronouncedly unguiculate; posterior 2 auriculate, claws inrolled forming false tubes, with wine-red markings at base, twice as long as anterior petals. **Stamens** 7, fertile. **Flowering time** all year. Rainfall conditions of 200–400 mm per annum, on hillsides, often on dolerite, wedged into crevices; Upper Karoo, Dry Highveld Grassland, Sub-Escarpment Grassland (Grootfontein S to Mountain Zebra National Park, Schoombee near Tarkastad and Hanover).

2b Petioles longer than laminae

[E]griseum R.Knuth

Much-branched, erect, aromatic subshrub; stems rather woody and smooth, older stems with remains of leaf bases. **Leaves** pinnate with pinnae irregularly divided into narrow segments; lamina cordiform to narrowly cordiform; pilose with pyriform-headed glandular hairs in between; petiole longer than lamina, long persistent. **Inflorescences** of 2- or 3-flowered pseudo-umbels, pedicels shorter than hypanthium. **Sepals** 5, ovate to elliptic. **Petals** 4, pinkish purple, dark-veined, unguiculate; posterior 2 auriculate, claws inrolled forming false tubes, slightly longer than anterior 3. **Stamens** 7, fertile. **Flowering time** Nov.–Jan. Great Karoo of EC in mountain habitats, receiving annual rainfall of 200–300 mm; Dry Highveld Grassland, Mesic Highveld Grassland, Upper Karoo, Sub-Escarpment Grassland (Burgersdorp E to Joubertspas S, from Kompasberg to Andriesberg and to Sneeuberg and Graaff-Reinet).

Section *Myrrhidium* DC.

Including both perennial subshrubs with diffuse and slender stems and herbaceous annuals. **Leaves** pinnately divided. **Flowers** with 4 or 5 petals, posterior 2 much larger than anterior ones. **Sepals** membranous and prominently veined. **Stamens** 5 or 7, fertile.

candicans Spreng.

Subshrub, scrambler, 0.1–0.3 m high; branches procumbent, villous. **Leaves** cordiform, 30 × 25 mm, 3-lobed, silky, tending to grey, margins crenulate; petioles very long, villous. **Inflorescences** of 1–4-flowered pseudo-umbels. **Petals** 4, white to pale pink; posterior 2 large, veins dark red; anterior 2 small with broad, mauve strips. **Flowering time** all year. Recently burned, in sandy soil. Eastern Fynbos-Renosterveld (Joubertina to W of Humansdorp, Otterford Forest Station, Assegaaibosch).

caucalifolium Jacq. subsp. **caucalifolium**

Low-growing, procumbent, subshrub, 0.5–1.0 m high; stems strigose interspersed with glandular hairs. **Leaves**: lamina cordiform in outline, up to 50 × 35 mm, bipinnatisect, apex of segments acute, margins crenate-dentate; indumentum as for stems; petioles up to 40 mm long. **Stipules** asymmetric triangular. **Inflorescences** of reduced, 1(2)-flowered pseudo-umbels; peduncles up to 70 mm long. **Hypanthium** 15–50 mm long. **Petals** 4 or 5, white, cream-coloured, pink, pinkish purple; posterior 2 asymmetric-obovate, 25 × 12 mm, with dark reddish purple markings; anterior petals spathulate, 15 × 5 mm. **Fertile stamens** 7; pollen yellow to orange. **Flowering time** Oct.–Jan. Mountain slopes, streambanks; Eastern Fynbos-Renosterveld (Humansdorp).

multicaule Jacq. subsp. **multicaule**

Low-growing, much-branched, subshrub, 0.1–0.3 m high; stems herbaceous, angular, trailing. **Leaves** irregularly pinnately to bipinnately incised, lamina narrowly cordate in outline, up to 65 × 40 mm, base cordately incised, apex obtuse, margins entire, surface glabrous; petioles up to 130 mm long. **Stipules** ovate. **Inflorescences** of 3–5-flowered pseudo-umbels; peduncles unbranched. **Petals** 4, dark pinkish purple with light-coloured claws; posterior 2 spathulate 18 × 8 mm, with dark purple markings and white blotch at base; anterior 2 narrowly spathulate, 18 × 4 mm. **Fertile stamens** 7; pollen orange. **Flowering time** Oct.–Apr. Mountainous or rocky habitat in well-drained soil; Drakensberg Grassland, Upper Karoo, Sub-Escarpment Grassland, Eastern Fynbos-Renosterveld, Albany Thicket (Barkly East District S, from Middelburg to road between Indwe and Lady Frere, Moordenaarsrivier to Grahamstown, and to Jeffreys Bay).

myrrhifolium (L.) L'Hér. var. **myrrhifolium**

Myrrh-leaved pelargonium

Small, erect, subshrub, 0.1–0.3 m high; taproot system well developed; branches covered with glandular and non-glandular hairs. **Leaves** petioled; pinnately incised (pinnatifid, bipinnatifid); lamina ovate to cordiform in outline, margins entire; indumentum as for stems. **Stipules** ovate, margins ciliate. **Inflorescences** of 2–6-flowered pseudo-umbels; peduncles of varying lengths. **Petals** 4 or 5, white, pink, lilac to pinkish purple; posterior 2 asymmetric-obovate, 20 × 10 mm, with dark, reddish purple markings; anterior petals spathulate, 15 × 4 mm. **Flowering time** Aug.–Feb. In clayey soil; Lower Karoo, Sub-Escarpment Grassland, Eastern Fynbos-Renosterveld (Seymour, Juanasberg S to Graaff-Reinet, Baviaanskloof and Suurberg Pass).

suburbanum Clifford ex C.Boucher subsp. **suburbanum**

Procumbent, branched, subshrub, 0.1–0.3 m high; stems herbaceous, bases woody; tomentose to villous with glandular hairs interspersed. **Leaves** simple, lamina oblong-cordiform in outline, up to 80 × 60 mm, pinnatisect, base cordate, apex of segments obtuse to acute, margins crenate; petioles up to 100 mm long. **Stipules** ovate. **Inflorescences** of 3–6-flowered pseudo-umbels; peduncles up to 120 mm long. **Petals** 4 or 5, dark, pinkish purple; posterior 2 asymmetric-obovate, 10–30 × 9–14 mm, narrowly clawed, markings dark red; anterior petals narrowly spathulate, 15–17 × 2–6 mm. **Fertile stamens** 7; pollen orange. **Flowering time** June–Dec. Coastal fynbos, in between low scrub and sand dunes; Eastern Fynbos-Renosterveld (Port Elizabeth SW to Humansdorp, Cape St Francis and Jeffreys Bay).

Section *Otidia* (Lindl.) Harv.

Stems thick and succulent, often stout and knobbly. **Leaves** fleshy and pinnately compound. **Flowers** with subequal petals, posterior ones eared at base. **Stamens** 5, fertile.

carnosum (L.) L'Hér.

Fleshy-stalked pelargonium

Succulent and branched shrub, 0.3–1.2 m high; stems thick and fleshy, knobby appearance due to swollen nodes. **Leaves** variable, lamina pinnately divided (bipinnatipartite) 30–170 × 20–50 mm, variably fleshy, channelled along midrib; sparsely to densely puberulous; petioles 10–100 mm long. **Inflorescences** of 2–8-flowered, branched, pseudo-umbels; peduncles 3–5 mm long. **Stipules** small, triangular, membranous. **Petals** 5, spathulate, white to greenish yellow; posterior 2 slightly larger with reddish markings. **Fertile stamens** 5. **Flowering time** Jan.–Mar. Karroid vegetation, xerophytic habitats, sandy soil; Lower Karoo, Eastern Fynbos-Renosterveld (Jansenville, between Sondags and Swartkops rivers).

laxum (Sweet) G.Don subsp. **laxum**

Erect, branched, stem succulent, up to 0.3 m high; stems yellowish grey, bark peeling off in papery strips, glabrous. **Leaves** simple, lamina ovate, up to 120 × 65 mm, deeply pinnatifid almost to rachis, segments decurrent, base cordate, apex acute, margins entire; adaxially glabrous, abaxially shortly hairy, interspersed with short, glandular hairs; petioles up to 80 mm long. **Stipules** deltoid, brown. **Inflorescences** of 2–4(–10)-flowered pseudo-umbels; peduncles slender. **Petals** 5, white or faintly pink; posterior 2 oblong, apex rounded; anterior 3 spathulate, claw short, limb ovate. **Fertile stamens** 5; pollen orange. **Flowering time** July–Jan., peaking in Sept., Oct. with a short period from Mar., Apr. Karroid or Valley Bushveld, often on shale and under bushes; Upper Karoo, Lower Karoo, Albany Thicket (Middelburg District S, from Graaff-Reinet to Jansenville and Fort Beaufort, and from Steytlerville to Port Elizabeth and Fish River Valley).

Section *Pelargonium* (DC.) Harv.

Shrubs or subshrubs with woody and branched or profusely branched stems. **Leaves** rarely entire, frequently lobed or divided. **Petals**: posterior 2 longer and broader than anterior 3. **Fertile stamens** 7. Many species ancestral to garden cultivars with scented leaves.

capitatum (L.) L'Hér.

Rose-scented pelargonium

Subshrub, 0.25–1.00 m high. **Leaves** petiolate, simple, 45 × 60 mm; lamina palmately 3–6-lobed, segments may also be lobed, base cordate, margins crinkled, irregularly toothed; villous with long, soft hairs, sweetly scented when bruised. **Inflorescences** capitate, 8–20-flowered, compact, pedicels very short; peduncles villous. **Petals** 5, cyclamen-purple, pale pink or dark pink-purple; posterior 2 with beetroot-purple stripes, slightly larger than anterior 3. **Flowering time** all year. Coastal, sand dunes and low hills, disturbed areas; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Eastern Fynbos-Renosterveld, Albany Thicket (Lusikisiki, Magwa Waterfall to Port Edward, Kentani to Kei River Mouth, Baviaanskloof to Kidd's Beach S of East London and from Kareedouw to Cape St Francis).

cordifolium (Cav.) Curtis

Heart-leaved pelargonium

Spreading, branched, aromatic shrub, 1.0–1.5 m high; main stem woody, side branches herbaceous, variously hairy, often glandular. **Leaves** petiolate; lamina distinctly cordate, flat or curled, 60 × 50 mm, unlobed or shallowly lobed, margins finely to coarsely toothed; canescent below, indumentum variable. **Inflorescences** branched, of 4–8-flowered pseudo-umbels. **Petals** papilionaceous, pink or purple; posterior 2 with darker purple stripes, much larger than anterior 3, that are lighter in colour. **Flowering time** June–Jan. Mainly coastal, moist places in Fynbos, forests or forest margins; Dry Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld (Cradock to Seymour, Hogsback Forest and Pirie Mtn S, from Formosa State Forest Reserve to Port Elizabeth and from Witte Els Bosch to Humansdorp).

glutinosum (Jacq.) L'Hér.

Erect, much-branched, viscid shrub, up to 1.8 m high; stems herbaceous becoming woody; glabrous to villous, glandular hairs many. **Leaves** simple, lamina cordiform in outline, up to 120 × 130 mm, 3-palmatilobate to pinnatisect, basal segments irregularly incised, apex acute, margins finely to coarsely dentate-serrate, with short sharp-pointed hairs; indumentum as on stems; petioles up to 80 mm long. **Stipules** ± triangular, cuspidate. **Inflorescences** of 1–8-flowered pseudo-umbels; peduncle 15–80 mm long. **Petals** 5, pale pink, dark pink; posterior 2 spathulate, with dark pink-purplish markings; anterior 3 spathulate with long narrow claws. **Flowering time** Sept.–Nov. Correlated to mountain ranges, moist, near running water (also in karoo habitats); Lower Karoo, Dry Highveld Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna (Queenstown, Rockwood S, from Graaff-Reinet to Cradock, Pearston and Kei River).

graveolens L'Hér.

Rose-scented pelargonium

Erect, much-branched, strongly rose-scented shrub, 0.6–1.3 m high; stems herbaceous becoming woody; densely villous, densely interspersed with glandular hairs. **Leaves** simple, lamina cordiform, up to 55 × 100 mm, palmatipartite to pinnatisect, segments at least 3 mm wide, adaxially grooved, apex obtuse or acute, margins irregularly serrate, revolute; adaxially sparsely villous, green, abaxially almost lanate, greyish green; petioles up to 80 mm long. **Inflorescences** of 3–7-flowered pseudo-umbels; peduncles up to 40 mm long. **Petals** 5, white to pinkish; posterior 2 spathulate, up to 30 × 8 mm, apex obtuse to emarginate, markings red; anterior 3 spathulate up to 22 × 5 mm. **Flowering time** Aug.–Jan. Relatively moist habitats in shade, previously probably along Great Escarpment; Sub-Escarpment Grassland, Eastern Fynbos-Renosterveld, Albany Thicket (Cala S, from Uitenhage to Grahamstown and Humansdorp District).

laevigatum (L.f.) Willd. subsp. **laevigatum**

Erect and compact or prostrate and lax subshrub, 0.3–0.5 m high, much branched, evergreen. **Leaves** ± succulent, glaucous to bright green, trifoliolate; pinnae sessile, lanceolate to terete, up to 70 × 10 mm, 3-sect to 3-lobed, base cuneate, apex acute, irregularly incised or dentate; glabrous to hirsute, with sparse glandular hairs; petioles up to 40 mm long. **Stipules** subulate. **Inflorescences** axillary, of 2–5-flowered pseudo-umbels; peduncles up to 100 mm long. **Petals** 5, white, cream-coloured or pink; posterior petals spathulate, 16–30 × 6–9 mm, apex rounded, obtuse or retuse; anterior petals spathulate, narrowly obovate, 11–20 × 3–6 mm. **Flowering time** all year. Sandy patches against

slopes, scree, dry rock beds, direct sunlight; Eastern Fynbos-Renosterveld (Willowmore E to Baviaanskloof, Joubertina and Otterford Forest Reserve near Port Elizabeth).

[E]**panduriforme** Eckl. & Zeyh.

Erect, branched, strongly balm-scented, ± viscid shrub, 1.00–1.75 m high; herbaceous, becoming woody; villous, glandular hairs interspersed. **Leaves** soft, simple, lamina panduriform to cordiform, up to 60 × 75 mm, pinnatilobate to pinnatipartite, segments shallowly lobed, apex obtuse, margins crenate; adaxially villous; abaxially villous to lanate, discolorous; petioles up to 30 mm long. **Inflorescences** on flowering branches, of 2–20-flowered pseudo-umbels; peduncles up to 80 mm long. **Petals** 5, pale pink to pink; posterior petals spathulate, 20–35 × 6–13 mm, apex obtuse to emarginate, markings dark purple; anterior petals spathulate long-clawed, 15–28 × 5–10 mm. **Flowering time** Aug.–Jan. Lower foothills of mountains and ravines, close to streams; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Engcobo to Magwa Waterfall in Lusikisiki District S, Baviaanskloof and Kouga Mts to Suurberg Pass).

[E]**quercifolium** (L.f.) L'Hér.

As *P. panduriforme* but differing in the following: shrub usually viscid, 0.50–1.75 m high. **Leaves** hard textured, almost scabrous; lamina cordiform to triangular, 3-palmatisect to pinnatisect, up to 80 × 70 mm, segments irregularly pinnatifid to pinnatisect, margins irregularly dentate-serrate; strigose interspersed with a few long, soft hairs and glandular hairs (never woolly). **Inflorescences** of 2–6-flowered pseudo-umbels. **Petals** pale pink to pinkish purple; posterior two 18–25 × 5–8 mm; anterior three, ± 20 × 4–6 mm, narrow-clawed. Fynbos, rocky hills, mountain slopes in Renosterveld; Eastern Fynbos-Renosterveld (from Willowmore District and Gwarriepoort Area en route to Jansenville).

radens H.E.Moore

Rasp-leaved/multifid-leaved pelargonium

Erect, densely-branched shrub, < 1 m high; stems basally woody, side branchlets scabrous with stiff bristles. **Leaves** petiolate, scabrid, triangular, up to 50 × 65 mm, palmately bipinnatifid in outline, segments obtusely lobulate; pungent odor when bruised. **Inflorescences** of 2–6-flowered pseudo-umbels; peduncles short. **Petals** 5, pale to pink-purple, posterior 2 with beetroot-purple streaks, entire, tip slightly notched. **Flowering time** Aug.–Dec. Mountainsides, ravines or kloofs near streams; Eastern Fynbos-Renosterveld, Albany Thicket (Joubertina E to Suurberg, Uitenhage, Riebeek East and Grahamstown).

ribifolium Jacq.

Currant-leaved pelargonium

Erect, much-branched, evergreen, shrub, 1–2 m high; stems basally woody, densely glandular-hairy. **Leaves** simple, hard-textured; lamina cordate to reniform, up to 90 × 100 mm, 3(–5)-palmatilobate(-fid), apex of lobes rounded, margins toothed; strigose, aromatic with many glandular hairs; petioles up to 100 mm long. **Inflorescences** branch ramified, bearing many 6–12-flowered pseudo-umbels; peduncles up to 40 mm long. **Hypanthium** conspicuously thickened at base. **Petals** 5, white; posterior 2 obovate to obcordate, 17 × 11 mm, markings wine-red; anterior 3 spathulate, 13 × 3 mm. **Flowering time** all year. Correlated to mountain ranges of EC, in moist ravine vegetation and forest margins, shade tolerant, soil humus rich, well drained, sandy,

acid; Eastern Fynbos-Renosterveld, Albany Thicket (Baviaanskloof E to Suuranysberge, Longmore Forest Reserve, Port Elizabeth, Grahamstown and Cape St Francis).

scabrum (Burm.f.) L'Hér.

Rough-leaved pelargonium, three-pointed pelargonium

Rather woody, erect, much-branched shrub, up to 2 m high; stems scabrid, hairs rigid. **Leaves** with lamina rhomboidal in outline, 43 × 40 mm, angularly 3-lobed, palmately veined, margins finely toothed; indumentum varies from almost glabrous to scabrous, glandular-hairy, lemon-scented; petioles harsh, short. **Inflorescences** of 2–6-flowered pseudo-umbels; peduncles may be branched. **Petals** 5, white, dark pink or mauve; posterior 2 with purple stripes and twice as large as anterior 3. **Flowering time** May–Jan. Sandy soil, dry habitats; Dry Highveld Grassland, Eastern Fynbos-Renosterveld (Mountain Zebra National Park S, Gwarriepoort Area near Willowmore to Van Stadens Wild Flower Reserve).

Section *Peristera* DC.

Mostly diffuse and herbaceous annuals, perennials rare, resembling *Erodium* and *Geranium* in habit. **Leaves** palmately lobed or pinnately divided. **Flowers** relatively small with petals scarcely longer than sepals. **Stamens** 5, fertile.

capituliforme R.Knuth

Probably annual, 0.3 m high; multi-stemmed with stems branching at base, ascending; indumentum puberulous to densely canescent. **Leaves** many, cordiform, 20 mm in diam., 3–5-lobate, margins obtusely dentate. **Inflorescences** of 5–9-flowered pseudo-umbels (flowers sessile, causing subcapitate appearance); peduncles 15–35 mm long. **Petals** purple-pink, size variable, $1^{1}/_{4}\times$ length of sepals, cuneate-obovate to spathulate; posterior 2 basally purple-blotched. **Flowering time** Dec.–Mar.? Between grass; Drakensberg Grassland (Thaba Chitja, Ongeluksnek to Naude's Neck Pass).

P. capituliforme R.Knuth is regarded as an unresolved name by the International Plant Names Index (IPNI). Collection at PRE seems sound, more research needed.

grossularioides (L.) L'Hér.

Gooseberry-leaved pelargonium; *rooistingelhoutbas* (A)

Low-spreading annual, 0.05–0.20 m high; stems up to 0.5 m long, internodes long, angular, furrowed, reddish. **Leaves** with lamina cordate to reniform, 10–40 × 10–60 mm, 3–5-palmately lobed, upper leaves much smaller and deeply incised; almost glabrous to fairly pubescent, hairs short, glands interspersed, aromatic; petioles reddish, 10–30 mm long. **Inflorescences** of compact, 3–50-flowered pseudo-umbels. **Petals** whitish, pink to beetroot-purple. **Flowering time** all year. Coastal, damp, shady places, wetland margins, mountain summits and slopes; Dry Highveld Grassland, Upper Karoo, Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indigenous Forests, Indian Ocean Coastal Belt, Eastern Fynbos-Renosterveld, Albany Thicket (Kraalberg, Barkly Pass S, from Gordonville to Baziya Mtn, Mountain Zebra National Park to Kei River Mouth, Port Elizabeth to Grahamstown and to Tsitsikamma Coastal National Park).

hypoleucum Turcz.

Probably a WC species, for interpretation see Van der Walt and Vorster (1988: 69, 70).

leucophyllum Turcz.

Perennial herb, main stem contracted, annual branches scandent or prostrate, up to 1.2 m in diam.; stems densely covered by soft, erect hairs, interspersed with shorter, glandular hairs; this species more pubescent than *P. hypoleucum*. **Leaves** simple; lamina cordiform, up to 60 × 55 mm, obscurely 5-lobed, apex rounded, margins crenate and dentate, veins prominent, discolorous; lower surface densely hairy. **Hypanthium** 7–10 mm long. **Inflorescences** of 3–8-flowered, lateral pseudo-umbels. **Petals** white to pink; posterior 2 narrowly obovate, 7–8 × 1.5 mm, markings linear, purple; anterior 3 narrowly obovate. **Flowering time** Dec.–Feb. High mountainous country SW of Lesotho, among grasses or plants karroid, alt. 1 500–2 300 m; Dry Highveld Grassland, Mesic Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland, Upper Karoo (Albert District to Maclear S, from Molteno to Bastervoetslaanpad near Ugie and Koueveld Mts near Graaff-Reinet).

minimum (Cav.) Willd.

Prostrate, perennial herb, up to 0.1 m high, up to 0.6 m in diam.; root system deep, tuberous; annual parts dying off in dry season. **Leaves** opposite; lamina ± cordiform, up to 20 mm in diam., pinnately compound, leaflets deeply incised, segments narrow, apex rounded, margins entire; apparently glabrous, microscopically pubescent with glandular hairs; petioles up to 60 mm long. **Inflorescences** of 5(–8)-flowered pseudo-umbels; peduncles short, lateral, up to 15 mm long. **Petals** 5, narrowly obovate, white, pale purple, rarely pink; posterior two 3–5 × 1 mm; anterior three 3–5 × 0.7–1.0 mm. **Flowering time** Sept.–Feb. Areas of low rainfall, long dry periods, sparse plant cover, open sunny places, hard stony ground; Upper Karoo, Dry Highveld Grassland (Bethulie to Aliwal North S, from Compassberg to Burgersdorp and from Mountain Zebra National Park to Cradock).

nanum L'Hér.

Occurring from north-western Cape along coast to Worcester and as far east as George. Records from Middelburg, Somerset East and 'vlei on road to Cradock'. Further research needed.

pseudofumarioides R.Knuth

Closely resembles *P. minimum* but distinguished by following characters: **Inflorescences** appearing capitate due to presence of up to 13 flowers. **Hypanthium** well developed, 3–5 mm long, longer than or equal to pedicel. **Petals** well exceeding sepals. **Flowering time** Jan.? Cool and moist grassy highlands of northern parts of EC, roadside, *Cymbopogon–Themeda* veld; Drakensberg Grassland (Wodehouse, ± 9 km NE of Dordrecht).

Section ***Polyactium*** DC.

Maggs et al. (1995: 54)

Subterranean tuber well-developed, naked; aerial perennial stem poorly developed. **Inflorescence** with an unbranched peduncle carrying a many-flowered pseudo-umbel. **Hypanthium** exceeding the pedicel. **Flowers** 5-petalled, semi-regular, genitalia short. **Petals** dull-coloured, dusk-scented. Chromosome number x = 11.

Subsection *Magnistipulacea* R.Knuth.

For section *Magnistipulacea* see Bakker et al. (2004: 23)

Leaves erect. **Peduncles** usually 400–800 mm long. **Pedicels** up to 15 mm long. **Stipules** subulate. **Flowers** 20–25 mm in diam. **Petals** pale pink, yellow or white, without markings.

Petals fimbriate

bowkeri Harv.

Tuft-like geophyte, 0.2–0.4 m high; subterranean tuber, aerial parts deciduous. **Leaves** erect, lamina narrowly ovate, up to 250 × 50(–70) mm, segments linear, tripinnately compound; pubescent to pilose, sessile glands interspersed; petioles up to 200 mm long. **Stipules** narrowly triangular, membranous. **Inflorescence** an erect, unbranched scape, up to 350 mm long, bearing a 4–12-flowered pseudo-umbel; pedicels 4–16 mm long. **Petals** 5, light yellowish green, fan-shaped, fimbriate for $^{1}/_{2}$–$^{2}/_{3}$ their length; posterior two 29 × 23 mm, veins light purple; anterior three up to 29 × 25 mm, veins dark purple. **Fertile stamens** 7; pollen yellow to orange. **Flowering time** Sept.–Nov. Escarpment, in short grassland, alt. 1 100–2 200 m; Sub-Escarpment Grassland, Drakensberg Grassland, Sub-Escarpment Savanna (Maclear District S, from King William's Town to Kei Road and Butterworth).

caffrum (Eckl. & Zeyh.) Harv.

Tufted geophyte, up to 0.5 m high; stems subterranean, tuberous, aerial parts covered with remains of leaf bases and petioles. **Leaves** erect, simple; lamina cordiform, mature form 2 or 3× finely palmately or indistinctly pinnately dissected, up to 110 × 150 mm, segments linear, apex acute, margins and abaxial venation pilose; petioles up to 230 mm long. **Stipules** narrowly triangular. **Inflorescence** an unbranched, erect, pilose scape up to 500 mm long, terminated by a 7–27-flowered pseudo-umbel. **Petals** 5, light yellowish green to purplish, fan-shaped, fimbriate for $^{1}/_{2}$–$^{2}/_{3}$ their length; posterior two up to 28 × 20 mm, veins light purple; anterior three 25 × 25 mm, veins dark purple. **Fertile stamens** 7. **Flowering time** Oct.–Mar. Near sea level to Katberg in short, temperate grassland; Drakensberg Grassland, Albany Thicket (Winterberge and Mpofu District S to Grahamstown).

schizopetalum Sweet

Divided-petalled, orchid pelargonium; *muishondbossie* (A)

Geophyte, 0.1–0.5 m high; subterranean tuber oblong, often branched; stem very short, succulent. **Leaves** radical, simple; blade oblong-ovate, up to 160 × 110 mm, shallowly to deeply pinnately incised or lobed, base cordate, margins unevenly crenate, slightly fleshy; glandular, variably covered with long hairs; petioles thick, adaxially channelled. **Stipules** lanceolate, fused to bases of petioles. **Inflorescence** of a 0.5 m high, unbranched scape, terminating in a 5–20-flowered pseudo-umbel. **Flowers** with fimbriate petals and long, prominent spur, unpleasantly scented. **Petals** equally sized, yellow to yellowish green to brown-purple, veins red or purple. **Fertile stamens** 7. **Flowering time** Oct.–Feb. Grassy slopes in damp locations; Dry Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Savanna, Albany Thicket (Somerset East to Kentani and S to Port Elizabeth).

Petals not fimbriate

luridum (Andrews) Sweet

Perennial herb, 0.8–1.0 m high; subterranean tuber woody; indumentum of short and long stiff hairs, sessile glandular trichomes. **Leaves** radical; lamina ovate, up to 150 × 140 mm, first leaves shallowly lobed to bipinnatisect, successive leaves larger, progressively more dissected, ultimate segments filiform; petioles up to 200 mm long. **Inflorescence** up to 1 m high, scape unbranched, terminating in a 5–many-flowered pseudo-umbel. **Petals** 5, narrowly obovate, 12–24 × 5–12 mm, white-yellow or salmon-pink. **Fertile stamens** 7. **Flowering time** Oct.–Apr. Grassland in wide range of habitats, up to Tanzania, stony soil; vlei and watercourses, grazed, recently burned, roadsides, disturbed areas; Drakensberg Grassland, Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld (Qacha's Neck to Kokstad S, from Elliot, Ugie and Maclear to Mkambati Nature Reserve, Stutterheim to Kentani and to Joubertina).

schlechteri R.Knuth

Acaulescent geophyte, up to 1 m high; hairs multicellular, unbranched, short or long, stiff, interspersed with curly and sessile glandular hairs. **Leaves** alternate, prominently veined; lamina leathery, broadly ovate, base truncate, apex of lobes dentate, margins distantly toothed; petioles up to 240 mm long. **Inflorescence** with unbranched scape, bearing 2(–4) pseudo-umbels of flowers. **Petals** obovate, up to 12 × 10 mm, bicoloured, mauve, maroon or purple in centre with yellow or white edges. **Fertile stamens** 7. **Flowering time** Oct.–Dec. Steep, rocky grassland of northern Drakensberg and eastern foothills of KZN; Drakensberg Grassland, Sub-Escarpment Grassland (Kokstad S to Maclear District, Bastervoetpad and to Mthatha).

Subsection *Polyactium*

Leaves prostrate to erect. **Peduncles** usually not much longer than 250 mm. **Pedicels** very short. **Stipules** ovate to cordiform. **Flowers** normally ± 15 mm but occasionally up to 20 mm in diam. **Petals** pale yellow, with or without a variably developed blackish centre.

pulverulentum Colv. ex. Sweet

Powdered-leaved pelargonium

Geophyte, 0.1–0.6 m high; deciduous; stems smooth, woody, densely strigose, brown. **Leaves** basal, simple, (3–)5(–7)-pinnatifid; lamina coriaceous, glaucous, ovate to cordiform, 35–120 × 30–130 mm; petioles 200 mm long. **Stipules** cordiform, membranous. **Inflorescence** a 5–10(–18)-flowered pseudo-umbel; peduncle unbranched up to 400 mm long; pedicels 2–20 mm long. **Hypanthium** 20–50 mm long. **Sepals** narrowly ovate, apex acute. **Petals** 5, dull yellow, spathulate; posterior two 10–14 × 3–6 mm, streaked purple-black, anterior petals up to 5 mm wide, purple-black, margins yellow. **Flowering time** Sept.–Mar. Grassland on sandy soils; Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Drakensberg Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Maclear District S, from Queenstown to Mzamba River Mouth, Dohne Hill to Kei River Mouth, Addo National Elephant Park to East London and Humansdorp).

radulifolium (Eckl. & Zeyh.) Steud.

Geophyte, up to 0.3 m high; exposed stems rough due to stipular and petiolar scars, woody, sparsely villous, brown. **Leaves** basal, erect, pinnate to 2-pinnatifid; lamina with base of segments cuneate, apex rounded, margins dentate, 280(–320) × 90(–160) mm; petioles up to 130 mm long. **Stipules** cordiform, membranous. **Inflorescence** a 4–20-flowered pseudo-umbel; peduncle unbranched, up to 200 mm long; pedicels 1.0–2.5 mm long. **Hypanthium** 20–55 mm long. **Sepals** narrowly ovate, apex acute. **Petals** 5, almost equal, 11–18 mm long, dull yellow with maroon and purple-black markings, spathulate; posterior two 4.0–5.5 mm wide, reflexed, anterior three up to 3.5–5.0 mm wide, less reflexed. **Flowering time** Aug.–Apr. Sandstone-derived soils, stony; Eastern Fynbos-Renosterveld, Albany Thicket (Port Elizabeth District, Bethelsdorp and Swartkops River Mouth, and to Slang River near Humansdorp).

Section *Reniformia* (R.Knuth) Dreyer

Dreyer et al. (1992: 94).

Erect to semi-decumbent subshrubs, up to 0.5 m high when in flower; stems herbaceous, rarely subsucculent. **Leaves** simple, reniform, ovate or cordate and pilose, margins lobed, dentate, crenate or crenulate. **Inflorescence** a one-sided spreading pseudo-umbel. **Hypanthium** 2–6× length of sepals; base prominently thickened. **Sepals** green with white or light pink margins; anterior 1 straight, other 4 reflexed through 180°. **Petals** 5, white, pink, mauve or purple (black), with dark markings restricted to posterior 2. **Fertile stamens** 7, posterior 3 anthers smaller than anterior 4.

A close relationship between section *Reniformia* and a group of *Ligularia* species is proposed by Dreyer et al. (1992: 96), whereby *P. abrotanifolium* and *P. ionidiflorum* are placed in section *Reniformia*. Results confirmed by Bakker et al. (2004: 23).

1a Lamina cordiform to round or ovate to elliptic, palmately or pinnately lobed

abrotanifolium (L.f.) Jacq.

Southernwood-leaved pelargonium

Aromatic, much-branched shrublet, 0.4–1.0 m high; branches slender, woody, glandular, covered by remains of petiole bases. **Leaves**: lamina grey-green, 5–17 × 5–19 mm, variable in shape, 3- or 5-segmented, each subdivided into 3 or more linear lobes with upper surfaces channelled along midrib; canescent, interspersed with many glandular hairs, pleasantly fragrant; petioles relatively long. **Inflorescences** unbranched, of 1–5-flowered pseudo-umbels. **Petals** 5, spathulate or obovate, white, pink or mauve, markings red or purple. **Flowering time** all year. Relatively arid habitats, often on rocky outcrops; Upper Karoo, Sub-Escarpment Grassland, Dry Highveld Grassland, Lower Karoo (Middelburg District, Grootfontein to Queenstown S, from Graaff-Reinet E to Cradock, Somerset East and Bedford).

[E]ionidiflorum (Eckl. & Zeyh.) Steud.

Small, rather woody, evergreen, branched shrublet, 0.1–0.5 m high; stems rough with leaf scars, covered with greyish brown cork layer. **Leaves** simple; lamina ovate to elliptic, up to 45 × 35 mm, pinnatilobate or pinnatipartite, base cordate, margins irregularly crenate-serrate; glandular-pubescent with additional long hairs; petioles up to 55 mm long. **Inflorescences** usually of 3–7-flowered pseudo-umbels borne on ramified branches; peduncles 40–50 mm long; pedicels up to 7 mm long. **Petals** 5, light pink,

dark violet-pink with red markings; posterior 2 narrowly spathulate, 14 × 1.5–3.0 mm; anterior 3 spathulate, 13 × 3.5 mm. **Flowering time** all year. Karroid vegetation and Valley Bushveld, between rocks, habitats dry, very hot summers and cold winters; Upper Karoo, Dry Highveld Grassland, Sub-Escarpment Grassland, Albany Thicket (Districts of Cradock, Somerset East, Fort Beaufort, Albany and Grahamstown).

odoratissimum (L.) L'Hér.

Sweet-scented pelargonium

Prostrate, subshrub, 0.1–0.3 m high; main stem short and thick, flowering branches herbaceous, sprawling, up to 0.6 m long; roots slightly tuberous. **Leaves** strongly apple-mint-scented, simple; lamina roundish, ovate-cordate, 30–40 mm in diam., apple-green, shallowly lobed, base cordate, margins obtusely crenate; pubescent with fine, short hairs; petioles very long. **Inflorescences** of 3–10-flowered pseudo-umbels. **Petals** 5, slightly longer than sepals, white or occasionally pale pink; posterior 2 with crimson markings. **Flowering time** Jan.–Nov. Undergrowth in forests or in shady places, protected by bushes or rocky ledges; Sub-Escarpment Grassland, Lower Karoo, Dry Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Rainshadow Valley Karoo, Albany Thicket (Queenstown to Hogsback Forest Reserve, Aberdeen District to Idutywa, Baviaanskloof to Uitenhage, Port Elizabeth, Grahamstown and Keiskamma River).

1a Lamina reniform to ovate-cordiform, seldom lobed
2a Flowers white (light pink); petioles persistent

[E]dichondrifolium DC.

Perennial, evergreen herb, 0.1–0.3 m high; stems covered with leaf remains. **Leaves** simple, lamina reniform, up to 28 × 40 mm, greyish green, membranous, base cordate, margins shallowly lobed, finely toothed; microscopically villous, interspersed with glandular hairs, ± aromatic; petioles up to 120 mm long, persistent. **Inflorescences** of 2–4, 11-flowered pseudo-umbels borne on terminally branched peduncles. **Petals** 5, white; posterior 2 obliquely obdeltoid, 10–11 × 2–3 mm, apex retuse, markings feather-like, wine red; anterior 3 obovate, 9–12 × 3–5 mm, apex rounded. **Flowering time** all year. Karoo-like vegetation, rocky hills of dolerite, granite or sandstone, in rocky crevices or humus-rich soil, very hot and dry conditions, very cold in winter; Upper Karoo, Sub-Escarpment Grassland, Drakensberg Grassland, Albany Thicket (Middelburg District, Grootfontein to Steynsburg and Hofmeyr District S, from Cradock to Great Winterberg and Peddie).

2b Flowers pink-purple, purple or wine-red (almost black); petioles not persistent

reniforme Curtis

Kidney-leaved pelargonium; *rooirabas* (A)

Erect or decumbent subshrub, 0.2–0.4 m high. **Leaves** crowded and rosulate or loosely spaced; lamina reniform or ovate-cordate, shallowly lobed, base cordate or reniform, margins finely toothed; adaxially velutinous, abaxially lanose interspersed with glandular hair; petioles relatively long. **Inflorescences**: branches with many pseudo-umbels, each with 4–12 light pink to purple flowers; peduncles 35–120 mm long. **Hypanthium** red, 15–45 mm long. **Sepals** 5, lanceolate to narrowly triangular. **Petals** 5, pink to magenta; posterior 2 with red markings, spathulate, apically recurved; anterior 3 oblanceolate to obovate. **Stamens** 7 fertile; anthers pink; pollen orange; staminodes 3. **Flowering time** Oct.–May. **Mericarps** 5.

[E]**reniforme** Curtis subsp. **reniforme**

Internodes 5–20 mm long. **Leaves** reniform; petioles 5–50 mm long. Drier coastal plains; Eastern Fynbos-Renosterveld, Albany Thicket (Steytlerville District S to Port Elizabeth, Joubertina and Humansdorp).

[E]**reniforme** Curtis subsp. **velutinum** (Eckl. & Zeyh.) Dreyer

Internodes 1–7 mm long. **Leaves** seldom reniform; petioles 25–130 mm long. Dry plains and grassland; Upper Karoo, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Albany Thicket, Drakensberg Grassland, Eastern Fynbos-Renosterveld (Middelburg to Mthatha southwards, from Graaff-Reinet to Stutterheim District, Willowmore to Port Elizabeth, Grahamstown and Peddie, and to Humansdorp).

sidoides DC.

Kalwerbossie, *rabassam* (A)

Rosette-like, subshrub, up to 0.5 m high; subterranean parts of thickened root-like branches, reddish brown. **Leaves** simple, silvery green, membranous; lamina cordiform, up to 90 mm in diam., apex rounded, margins dentate to crenate, venation prominent on lower surface; shortly, densely villous, interspersed with short glandular hairs; petioles up to 250 mm long, deciduous. **Inflorescences** of 2(–4) pseudo-umbels, each 5–7(–14)-flowered. **Petals** 5, very dark reddish purple, almost black; posterior 2 ribbon-shaped, 12–14 × 2–3 mm; anterior 3 narrowly obovate, 10–14 × 2.0–3.5 mm. **Flowering time** all year. Short grassland, stony sand to clay-loam soil, moderately dry conditions, winter frost; in all bioregions, except Indigenous Forests and Indian Ocean Coastal Belt (Aliwal North to Kokstad S, from Sneeuberg to Libode in Pondoland, Graaff-Reinet to Idutywa and Willowmore to East London).

SARCOCAULON (DC.) Sweet

Species 14, Africa, all in sthn Afr., widespread, but concentrated in N and NC.

Albers et al. (1995) places *Sarcocaulon* under *Monsonia*; for arguments to retain *Sarcocaulon* see Dreyer et al. (1997) and Moffett (1979).

Petals salmon-red or light orange; spines slightly curved

salmoniflorum Moffett

Bushman's candle; *klein-kersbossie*, *maagdoring* (A)

Succulent, spiny, subshrub, 0.1–0.5 m high; stems branching repeatedly, branches up to 4 mm thick. **Leaves** entire, dimorphic. **Long-petiolate leaves** almost decussate, petioles persistent, hardened into spines up to 30 × 4 mm; lamina elliptic, up to 7 × 5 mm, base cuneate, apex emarginate. **Short-petiolate leaves** 1–3 in axils of spines; petioles semi-persistent as blunt stalks up to 2 mm long; lamina conduplicate, glaucous, cuneate to obovate or orbicular, toothed, deciduous. **Stipules** semi-persistent or caducous. **Flowers** with petals salmon-red or light orange, up to 17 × 8 mm. **Stamens** with long and short filaments, fused for 2 mm basally; anthers 3 mm long. **Flowering time** Oct.–Jan. Plains, stony, rocky soil, gravel; Upper Karoo, Rainshadow Valley Karoo (Middelburg District, Grootfontein S, Strydomsvlei on Willowmore, Prins Albert Road).

Petals white, pink or yellow; spines straight

[E]**camdeboense** Moffett

Candle bush; *kersbos* (A)

Succulent, spiny, subshrub, 0.1–0.4 m high; stem branching repeatedly from 20–50 mm above ground level, up to 10 mm thick; roots swollen. **Leaves** dimorphic. **Long-petiolate leaves** almost decussate; petioles persistent, hardened into straight spines up to 29 × 4 mm; lamina narrowly obovate, up to 12 × 6 mm, base cuneate, apex emarginate. **Short-petiolate leaves** 2–5 in axils of spines; petioles semi-persistent; lamina conduplicate, narrowly obovate, up to 13 × 5 mm, glaucous, base cuneate, apex emarginate. **Stipules** scale-like, caducous. **Flowers** with petals yellow fading to white, obovate, up to 15 × 14 mm. **Flowering time** Nov.–Feb. (rain induced). Karoo plains, dolerite ridges, shale, rocky soil; Upper Karoo, Albany Thicket, Lower Karoo, Rainshadow Valley Karoo (Middelburg and Hofmeyr Districts S, from Graaff-Reinet to Pearston and from Willowmore to Steytlerville, Klipplaat and Jansenville).

[E]**vanderietiae** L.Bolus

Succulent, spiny, subshrub, 0.1–0.3 m high; stem branching repeatedly from 10–30 mm above ground level, branches up to 10 mm thick; roots not swollen. **Leaves** dimorphic. **Long-petiolate leaves** almost decussate; petioles persistent, hardened into straight thin spines, up to 20 × 4 mm; blade broadly elliptic, up to 14 × 8 mm. **Short-petiolate leaves** 2–4 in axils of spines; petioles semi-persistent as blunt stalks up to 2 mm long; lamina cordate, up to 10 × 8 mm, base cuneate, apex retuse. **Stipules** scale-like, caducous. **Flowers** with petals pale pink to white, suffused pink, obovate. **Flowering time** Dec.–Feb. Level areas, shallow, shaly soil; Albany Thicket, Lower Karoo, Sub-Escarpment Grassland (Graaff-Reinet E to Somerset East, Alice, Peddie and King William's Town District S, from Fort Brown to Great Fish River Pass in Grahamstown District).

ALBERS, F., VAN DER WAlt., J.J.A., GIBBY, M., MARSCHEWSKI, D.E., PRICE, R.A. & DU PREEZ, G. 1995. A biosystematic study of *Pelargonium* section *Ligularia*: 2. Reappraisal of section *Chorisma*. *South African Journal of Botany* 61: 339–346.

ANGIOSPERM PHYLOGENY GROUP [APG] 2003. An update of the Angiosperm Phylogeny Group classification for the orders and families of flowering plants: APG II. *Botanical Journal of the Linnean Society*. 141: 399–436.

BAKKER, F.T., CULHAM, A., HETTIARACHI, P., TOULOUMENIDOU, T. & GIBBY, M. 2004. Phylogeny of *Pelargonium* (Geraniaceae) based on DNA sequences from three genomes. *Taxon* 53: 17–28.

DREYER, L.L., ALBERS, F., VAN DER WAlt., J.J.A. & MARSCHEWSKI, D.E. 1992. Subdivision of *Pelargonium* sect. *Cortusina* (Geraniaceae). *Plant Systematics and Evolution* 183: 83–97.

DREYER, L.L., LEISTNER, O.A., BURGOYNE, P. & SMITH, G.F. 1997. *Sarcocaulon*: genus or section of *Monsonia* (Geraniaceae)? *South African Journal of Botany* 63: 240.

DREYER, L.L., MARAIS, E.M. & VAN DER WAlt., J.J.A. 1995. A subspecific division of *Pelargonium reniforme* Curt. (Geraniaceae). *South African Journal of Botany* 61: 325–330.

FOURCADE, G.H. 1932. Geraniaceae: *Pelargonium gracillimum*, *sp. nov.* [§ *Hoarea*]. *Transactions of the Royal Society of South Africa* 21: 91.

HARVEY, W.H. 1860. Geraniaceae. *Flora capensis* 1: 254–308.

HILLIARD, O.M. & BURTT, B.L. 1985. A revision of *Geranium* in Africa south of the Limpopo. *Notes from the Royal Botanic Gardens Edinburgh* 42: 171–225.

KNUTH, R. 1912. Geraniaceae. *Das Pflanzenreich* 4, 129 (Heft 53): 1–640.

MAGGS, G.L., VORSTER, P. & VAN DER WAlt., J.J.A. 1995. Taxonomy of the genus *Pelargonium* (Geraniaceae): the section *Polyactium*. 1. Circumscription and intrasectional classification. *South African Journal of Botany* 61: 53–59.

MAGGS, G.L., VORSTER, P., VAN DER WAlt., J.J.A. & GIBBY, M. 1999. Taxonomy of the genus *Pelargonium* (Geraniaceae): the section *Polyactium* 3. The subsection *Polyactium*. *South African Journal of Botany* 65: 115–143.
MARAIS, E.M. 1994. *Taxonomic studies in* Pelargonium, *section* Hoarea *(Geraniaceae)*. Ph.D. thesis, University of Stellenbosch, Stellenbosch. Effectively published in March 2000 by Geraniaceae Group, England.
MARAIS, E.M. 1995. Four species of *Pelargonium*, section *Hoaria* (Geraniaceae) and their possible relationships. *South African Journal of Botany* 61 90–100.
MARSCHEWSKI, D.E., HELLBRUGGE, D., PRICE, R.A. & VAN DER MERWE, A.M. 1997. A biosystematic study of *Pelargonium* section *Ligularia*: 3 Reappraisal of section *Jenkinsonia*. *South African Journal of Botany* 63: 4–21.
MOFFET, R.O. 1979. The genus *Sarcocaulon*. *Bothalia* 12: 581–613.
MÜLLER, T. 1963. Geraniaceae. *Flora zambesiaca* 2: 130–149.
REHM, S. 1935. Die Gattung *Sarcocaulon* (DC.) Sweet. *Botanische Jahrbücher* 67: 264–274.
RETIEF, E., CRAIB, C. & CONDY, G. 2007a. *Pelargonium luridum* (Geraniaceae): Angola, Zambia, Malawi, Mozambique, Zimbabwe and southern Africa. *Flowering Plants of Africa* 60: 78–83.
RETIEF, E., CRAIB, C. & CONDY, G. 2007b. *Pelargonium schlechteri* (Geraniaceae): South Africa. *Flowering Plants of Africa* 60: 84–88.
STEVENS, P.F. 2008. Angiosperm Phylogeny Website. Version 9. Internet. http://www.mobot.org/MOBOT/research/APweb/ (accessed May 2011).
TAKHTAJAN, A. 1997. *Diversity and classification of flowering plants*. Columbia University Press, New York.
VAN DER WAlt., J.J.A. 1977. *Pelargoniums of southern Africa 1*. Purnell, Cape Town, Johannesburg, London.
VAN DER WAlt., J.J.A., ALBERS, F. & GIBBY, M. 1990. Delimitation of Pelargonium sect. *Glaucophyllum* (Geraniaceae). *Plant Systematics and Evolution* 171: 15–26.
VAN DER WAlt., J.J.A. & VORSTER, P.J. 1980. Name changes in *Pelargonium* (Geraniaceae). *Journal of South African Botany* 46: 283–292.
VAN DER WAlt., J.J.A. & VORSTER, P.J. 1981. *Pelargoniums of southern Africa 2*. Juta, Cape Town.
VAN DER WAlt., J.J.A. & VORSTER, P.J. 1988. *Pelargoniums of southern Africa 3*. National Botanic Gardens, Kirstenbosch.
VENTER, H.J.T. 1979. *A monograph of* Monsonia *L. (Geraniaceae)*. Veenman & Zonen, Wageningen.
VENTER, H.J.T. & VERHOEVEN, R.L. 1990. The genus *Erodium* in southern Africa. *South African Journal of Botany* 56: 79–92.

GERRARDINACEAE

(= FLACOURTIACEAE in part)

(Order Huerteales)

Compiled by C.L. Bredenkamp

Gerrardina, previously placed in the Flacourtiaceae and later in the Salicaceae (Soltis et al. 2000; Chase et al. 2002), is now placed in the family Gerrardinaceae (Alford 2005, 2006), order Huerteales, after further research (Stevens 2012).

GERRARDINA Oliv.

Krantz-berry; *kransbessie* (A)

Species 2, Africa, 1 in Zimbabwe, Malawi, Mozambique and Tanzania; 1 in sthn Afr., LIM, M, S, KZN, EC.

foliosa Oliv.

Tree or shrub, 0.8–10.0 m high. **Leaves** alternate, petiolate; blades elliptic; stipules deltoid. **Inflorescence** a few-flowered, axillary cyme on a long peduncle. **Flowers** bisexual. **Calyx**: tube campanulate; lobes 5, imbricate, unequal, 2 outer shorter. **Petals** 5, shorter than calyx and alternating with calyx lobes, inserted on margin of disc, deciduous. **Disc** cup-shaped, lining calyx tube. **Stamens** 5, opposite petals, inserted on margin of disc. **Ovary** superior, 1-locular, 4 pendulous ovules; style simple; stigma capitate or minutely bilobed. **Flowering time** all year. **Fruit** a bright red, dry capsule. Stony soil or rocky, sand or loam, partial shade to full sun, moist, well drained; Sub-Escarpment Savanna, Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Indigenous Forests (Lusikisiki District S to Port St Johns).

ALFORD, M.H. 2005. *Systematic studies in Flacourtiaceae.* Dissertation, Cornell University, Ithaca, New York, 290 pp.
ALFORD, M.H. 2006. Gerrardinaceae: A new family of African flowering plants unresolved among Brassicales, Huerteales, Malvales, and Sapindales. *Taxon* 55: 959–964.
ANGIOSPERM PHYLOGENY GROUP [APG]. 2003. An update of the Angiosperm Phylogeny Group classification for the orders and families of flowering plants: APG II. *Botanical Journal of the Linnean Society* 141: 399–436.
CHASE M.W., ZMARZTY, S., LLEDÓ, M.D., WURDACK, K.J., SWENSEN, S.M. & FAY, M.F. 2002. When in doubt, put it in the Flacourtiaceae: a molecular phylogenetic analysis based on plastid *rbc*L DNA sequences. *Kew Bulletin* 57: 141–181.
MATTHEWS, M.L. & ENDRESS, P.K. 2005. Comparative floral structure and systematics in Crossomatales (Crossomataceae, Stachyuraceae, Staphyleaceae, Aphloiaceae, Geissolomataceae, Ixerbaceae, Strasburgeriaceae). *Botanical Journal of the Linnean Society* 147: 1–46.
SOLTIS, D.E., SOLTIS, P.S., CHASE, M.E., MORT, D.C., DIRK, C.A. ZANIS, M., SAVOLAINEN, V., HAHN, W.H., HOOT, S.B., FAY, M.F., AXTELL, M., SWENSEN, S.M., PRINCE, L.M., KRESS, W.J., NIXON, K.C. & FARRIS, J.S. 2000. Angiosperm phylogeny inferred from 18S rDNA, *rbc*L, and *atp*B sequences. *Botanical Journal of the Linnean Society* 133: 381–461.
STEVENS, P.F. 2012. Angiosperm Phylogeny Website. Version 9. Internet. http://www.mobot.org/MOBOT/research/APweb/ (accessed Mar. 2012).

GESNERIACEAE

(Order Lamiales)

Compiled by C.J. Cilliers

STREPTOCARPUS Lindl.

Wild gloxinia

Species ± 125, Madagascar, tropical and sthn Afr.; ± 45 in sthn Afr., usually in cool, moist habitats, sometimes epiphytic, LIM, NW, G, M, S, FS, KZN, L, EC.

1a Corolla mouth compressed from the sides

baudertii L.L.Britten

Perennial, monocarpic herb, lithophyte or terrestrial, 0.1–0.2 m high. **Leaves** prostrate, in a rosette, decurrent on short petioles, stout axis vertical to rosette, ± 180 × 80 mm, many, prostrate, margins crenate, blade green above and below, thick-textured. **Inflorescences** 1–14-flowered; stalks ± 250 mm. **Bracts** often absent, when present, linear. **Calyx** 4.7 × 1.5 mm. **Corolla** 32–50 mm long, medium violet, white patch at base of lower lip patterned with 3 or 5–7 deep violet lines**. Stamens** arising in upper third of tube, deep violet. **Ovary** ± 9 mm long, appressed-pubescent. **Flowering time** Dec.–Feb.

Fruit a capsule, ± 30–50 × 2.5 mm. **Seed** 0.6–0.7 mm long. Forest; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indigenous Forests (Cedarville S to Idutywa).

haygarthii N.E.Br. ex C.B.Clarke

Monocarpic herb, 0.05–0.54 m high, terrestrial, occasionally epiphyte or lithophyte. **Leaves** pilose, dark green above, purplish red below, margins crenate. **Inflorescences** from base of midrib, up to 36-flowered. **Bracts** elliptic to lanceolate. **Calyx** 3 × 1 mm. **Corolla** up to 45 mm long, glandular-pilose outside, glandular inside around mouth, white to medium violet; tube subcylindric; mouth laterally compressed, 8–20 mm long. **Stamens** arising ± halfway up corolla tube; anther lobes white. **Ovary** 4.5–2.5 mm long, appressed-pubescent. **Flowering time** Sept.–Apr. **Fruit** a capsule, 25–84 × 1.5 mm. **Seed** 0.5–0.7 mm long. Indigenous forests, closed woodlands, moist nooks on krantzes; Indigenous Forests, Indian Ocean Coastal Belt (Oribi Gorge S to Port St Johns).

johannis L.L.Britten

Perennial herb, 0.12–0.24 m high, lithophyte. **Leaves** many, suberect, up to 350 × 100 mm; petiolode up to 20 mm long, base cuneate, margins crenate, both surfaces green, pilose. **Inflorescence** at junction of petiolode and petiole, 1–12-flowered. **Bracts** linear, 3 × 1 mm. **Calyx** 5 × 1 mm. **Corolla** 32–45 mm long, varying from whitish to pale violet, white or yellowish in throat, median vein in all 5 lobes deeper violet, colour fainter in upper lobes, glandular-pilose outside, glandular-pubescence inside confined to limb; tube cylindric, bulbous at base, laterally compressed at mouth; upper lip of 2 oblong to suborbicular lobes. **Stamens** arising halfway up corolla tube, 3 mm long, white. **Ovary** 7–9 mm long, appressed-pubescent. **Flowering time** Oct.–Dec. **Fruit** a capsule 33–60 × 2.5 mm. **Seed** 0.5–0.6 mm long. Stony soil and forest; Indian Ocean Coastal Belt, Indigenous Forests (Weza State Forest S to Port St Johns).

silvaticus Hilliard

Perennial herb, 0.05–0.23 m high, epiphyte or lithophyte. **Leaves** 2–5 in rosette, up to 120 × 70 mm, margins crenate, base cordate, upper surface medium green, lower sometimes suffused red, both surfaces pilose. **Inflorescences** from base of midrib ± 10-flowered. **Calyx** 4 × 1 mm. **Corolla** 32 mm long, pubescent outside; tube greenish. **Stamens** ± halfway up corolla tube; anther lobes 1 mm long, yellow. **Ovary** 3 mm long, minutely pubescent. **Flowering time** Oct.–Jan. **Fruit** a capsule, 17–54 × 1.5 mm. **Seed** 0.8–0.9 mm long. Inland forest; Sub-Escarpment Grassland, Indigenous Forests (Ngeli Forest).

1b Corolla mouth ± cylindric, never compressed from the sides
2a One leaf only

bolusii C.B.Clarke

Perennial herb, terrestrial, 0.05–0.25 m high. **Leaves**: sometimes more than 1 leaf, long narrow, margins coarsely crenate to dentate, dark green above, reddish purple below, 300 × 130 mm. **Inflorescences** flowering from apex of stalk and base of midrib, small; pedicels very long, many open together; flowers white, tinged purple. **Bracts** often reflexed green with prominent red veins below. **Calyx** 4 × 1 mm. **Corolla** 20 mm long, sparsely glandular-pilose outside, glabrous inside, long gland-tipped hairs around mouth, white tinged violet with 2 small, raised, yellow keels in throat; keels and throat spotted violet. **Stamens** white, arising in upper third of corolla tube, curved and swollen below; anthers white. **Ovary** 5 mm long, densely glandular. **Flowering time** Oct.–Feb. **Fruit** a capsule, 13–26 × 2 mm. **Seed** 0.4–0.5 mm long. Kloof forest, cliff faces; Indigenous Forests (Engcobo Mtn).

porphyrostachys Hilliard

Perennial herb, terrestrial, lithophyte, 0.10–0.26 m high. **Leaf** dark green above, purple-red below, margins crenate, base cuneate to rounded, 300 × 180 mm. **Inflorescences** from base of midrib, few-flowered branches, several flowers on each, open together. **Calyx** 3 × 1 mm. **Corolla** 30–43 mm long; tube slightly curved, violet with a white patch below near mouth, with few sparse hairs; lobes with violet-white wedges and deep violet streaks. **Stamens** arising in upper third of corolla, separated, ± 5 mm long, violet; anther lobes pale violet. **Ovary** 12 mm long, pubescent with acute, upward-pointing hair. **Flowering time** Nov.–Jan. **Fruit** a capsule, 40–66 mm long. **Seed** 0.8–1.2 mm long. Stony soil; Indigenous Forests (Port Edward, Bizana District).

trabeculatus Hilliard

Monocarpic herb, lithophyte or terrestrial, 0.10–0.14 m high. **Leaf** thick, veins prominent below, upper surface scabridulous, margins crenate, base obtuse. **Inflorescences** crowded, many flowers open together. **Corolla** ± 25 mm long, pale to medium violet, white streak on floor; lower lip with white base, marked with deep violet streaks. **Stamens** in upper third of tube, suffused violet; anther lobes violet. **Ovary** 5 mm long. **Fruit** a capsule, 16–36 × 3 mm. **Seed** 0.6–8.0 mm long. Cliff faces; Indigenous Forests, Indian Ocean Coastal Belt (Umtentu River in Lusikisiki District).

2b Leaves 2 or more
3a Corolla tube violet, limb white

gardenii Hook.

Perennial herb, epiphyte, lithophyte or terrestrial, 0.06–0.23 m high. **Leaves** oblong or strap-shaped, 300 × 70 mm, green above, can be reddish purple below, margins crenate, base cuneate. **Inflorescences** 1 or 2, up to 6-flowered. **Calyx** 5 × 1 mm. **Corolla** ± 50 mm long, narrow funnel-shaped, greenish white; upper lobes pale violet with violet solid lines extending into tube. **Stamens** $^{2}/_{3}$ up corolla tube; filaments curved apically with a small outgrowth on curve. **Ovary** 20 mm long, white. **Flowering time** Nov.–Apr. **Fruit** a capsule, 62–128 × 1.5 mm. **Seed** 0.7–1.0 mm long. On rocks in forest, shade; Drakensberg Grassland (Maclear, Ngeli Forest, Weza State Forest).

[E]**kentaniensis** L.L.Britten & Story

Perennial herb, lithophyte, 0.11–0.30 m high. **Leaves** thick, midvein prominent, lanceolate, 30–200 × 18 mm, base cuneate, margins crenate, upper surface dark green, lower surface paler. **Inflorescences** from base of midrib, 2–5-flowered. **Corolla** 22–30 mm long; tube almost straight, pale violet with pale yellow, slightly bifurcating stripe, spotted violet on floor of tube; tube streaked darker violet in mouth. **Stamens** in lower third of corolla tube; filaments long, twisted, white or violet. **Ovary** ± 8 mm long. **Flowering time** July–Sept. **Fruit** a capsule, 30–50 × 2 mm. **Seed** 0.6–0.7 mm long. Stony soil, closed woodland; Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Kei River, Kentani District).

[E]**lilliputana** D.U.Bellstedt & T.J.Edwards

Perennial herb. **Leaves** 50–90 × 15–20 mm, sparsely strigose, dark green, glossy above, light green below, midvein light purple, margins crenate, base decurrent; petiolode up to 12.0 × 2.5 mm. **Inflorescences** 1 or 2 at top of petiolode, 1(2)-flowered. **Bracts** spathulate. **Calyx** 5–6 × 1 mm. **Corolla** ± 50 mm long, strigose outside, median line of papillae on floor, pale violet; floor with 7 broad, deep-violet stripes; tube 30–40 mm long, curved downwards, roof strigose; lower lip 15 mm long, with faint transverse lamellae;

lobes pale violet. **Stamens** in distal third of corolla. **Ovary** 15–18 mm long, abruptly recurved at apex. **Flowering time** Nov.–Feb. **Fruit** a capsule, 55–80 × 2.0 mm. Riverine forest, deep shade, mossy vertical rock faces, rock seepages; Indigenous Forests (Lupatana and Mkozi rivers).

meyeri B.L.Burtt

Perennial herb, lithophyte or terrestrial, 0.06–0.30 m high. **Leaves** 3–10, prostrate or slightly raised off ground, broadly elliptic or rhomboid, 200 × 75 mm, base cuneate, apex subacute, margins crenate, grey to grey-green, densely pilose. **Inflorescence** from base of midrib, 2–12-flowered. **Calyx** 4 × 1 mm. **Corolla** 20–30 mm long; tube straight, pale violet outside, deeper violet inside, whitish below, streaked and spotted violet. **Stamens** in lower quarter of tube; filaments 3.5 mm long. **Ovary** ± 4.5 mm long. **Flowering time** Jan.–Apr. **Fruit** a capsule, 17–40 × 2 mm, apiculate. **Seed** 0.6–0.8 mm long. Rock faces, rock crevices; Sub-Escarpment Grassland, Lower Karoo, Albany Thicket, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld (Dordrecht District E to Lady Frere and Komga, southwards to Uitenhage, Grahamstown and Humansdorp).

[E]**modestus** L.L.Britten

Perennial herb, lithophyte or terrestrial, ± 0.1 m high. **Leaves** ± prostrate, ± 200 × 45 mm, base cuneate, margins crenate, light green, both surfaces pilose. **Inflorescences** up to 5-flowered. **Bracts** small, reddish, pilose. **Calyx** 4–5 × 1.0–1.5 mm, green to reddish, pubescent. **Corolla** 28–35 mm long, pubescent outside; tube and limb pale to medium violet; floor white, sometimes striped yellow, with 7 deep violet stripes onto base of lower white lip. **Stamens** in lower third of corolla tube slightly twisted, deep violet; anthers pale violet. **Ovary** 6–10 mm long. **Flowering time** Sept., Oct. **Fruit** a capsule, 35–57 × 2 mm. **Seed** 0.8–1.0 mm long. Rocky cliff faces; Sub-Escarpment Savanna (Lusikisiki, Magwa Falls).

[E]**montigena** L.L.Britten

Perennial herb, lithophyte, ± 0.17 m high. **Leaves** prostrate, 300 × 100 mm, margins crenate, base cuneate, light green and pilose on upper and lower sides. **Inflorescence** 2–12-flowered. **Calyx** 5 × 1 mm. **Corolla** 40–53 mm long, creamy white on lower side, pale violet on upper; base of lower lip with 2 elliptical yellow patches that meet and extend as a yellow stripe. **Stamens** white, arising in upper third of corolla tube, ± 8 mm long. **Ovary** ± 15 mm long, purplish. **Flowering time** Sept., Oct. **Fruit** a capsule, 50–60 × 2 mm, apiculate. **Seed** 0.5–0.6 mm long. Narrow ledges of krantzes; Indigenous Forests, Sub-Escarpment Savanna (Katberg Pass, Grahamstown).

rexii (Bowie ex Hook.) Lindl.

Twin sisters, gloxinia, rexii

Perennial herb, epiphyte, lithophyte or terrestrial, 0.07–0.30 m high. **Leaves** 300 × 65 mm, lamina strap-shaped, margins crenulate, both surfaces shortly pilose, blunt tip. **Inflorescence** 1- or 2(6)-flowered. **Calyx** 5 × 1 mm. **Corolla** 40–75 mm long; tube narrowly funnel-shaped, outside white faintly tinted violet towards top; floor whitish, marked with 7 parallel violet stripes extending to lower lip. **Stamens** arising $^{2}/_{3}$ up tube, white, twisted, curved and slightly thickened above curve. **Ovary** 18 mm long, greenish. **Flowering time** Oct.–Apr. **Fruit** a capsule, up to 130 mm long. **Seed** 0.6–0.8 mm long. Forest, rocky faces; Drakensberg Grassland, Sub-Escarpment Grassland, Indigenous Forests, Sub-Escarpment Savanna; Albany Thicket (Queenstown E to Maclear, southwards across Amatole Mts to Grahamstown).

3b Ground colour of corolla uniformly white or violet
4a Corolla yellow on floor of tube

formosus (Hilliard & B.L.Burtt) T.J.Edwards

Perennial herb, lithophyte, 0.16–0.25 m high. **Leaves** up to 450 × 110 mm, base cuneate, decurrent on petiole. **Inflorescence** 70–105 mm long. **Calyx** segments linear to lanceolate, pilose. **Corolla** 65–105 mm long; tube narrowly funnel-shaped; lobes whitish outside with medium-violet rim; tube floor longitudinally divided by a bright yellow zone widening in throat, extending briefly to lower lip, yellow zone streaked with 5 main veins, minutely spotted violet-purple. **Stamens** arising $^{2}/_{3}$ up tube. **Ovary** 25 mm long, pubescent, passing into long, white style. **Flowering time** Aug.–Feb. **Fruit** a capsule, 111–179 mm long. **Seed** 0.5–0.9 mm. Rocky faces; Indigenous Forests (Umtamvuma Nature Reserve, Port Edward).

4b Corolla without yellow on floor of tube

bolusii C.B.Clarke (see 2a above)

porphyrostachys Hilliard (see 2a above)

primulifolius Gand.

Perennial herb, lithophyte or terrestrial, 0.13–0.37 m high. **Leaves** up to 450 × 110 mm, base cuneate, decurrent on petiole. **Inflorescence** 1–4-flowered; flowers 65–90 mm long. **Calyx** 8.0 × 1.5 mm, pilose. **Corolla** 65–105 mm long; tube narrowly funnel-shaped; tube pale bluish violet outside; floor of tube and base of flower lip deep violet, marked with 5 reddish purple lines running into tube; base of flower lip with reddish flush; lobes pale bluish violet inside, whitish outside. **Stamens** arising $^{2}/_{3}$ up tube, purple to white, ± 10 mm long. **Ovary** 25 mm long. **Flowering time** Dec.–Apr. **Fruit** a capsule, 70–180 × 2.2 mm. **Seed** 0.6–0.9 mm long. Forest, open woodland, rocky faces; Sub-Escarpment Savanna, Indigenous Forests, Albany Thicket (Transkei, Nquduny Forest E to Port St Johns, S to Komga and East London).

pusillus Harv. ex C.B.Clarke

Monocarpic herb, lithophyte or terrestrial, 0.05–0.18 m high. **Leaves** 1(2), up to 220 × 160 mm, serially developing from top of petiolode, margins crenate, base subcordate, both surfaces green. **Inflorescences** from base of midrib, up to 30-flowered, many flowers opening together. **Calyx** 5–8 × 1 mm. **Corolla** ± 18 mm long, white, glandular outside, glabrous inside. **Stamens** arising in lower third of tube; filaments toothed or bearded at junction. **Ovary** 4–5 mm long, pubescent. **Flowering time** Nov.–Feb. **Fruit** a capsule, 15–25 × 2 mm, apiculate. **Seed** 0.5–0.7 mm long. Shady rock faces; Sub-Escarpment Grassland (Maclear).

BELLSTEDT, D.U. & EDWARDS, T.J. 2003. A new species of *Streptocarpus* (Gesneriaceae) from the Pondoland Coast, South Africa. *Edinburgh Journal of Botany* 60: 409–414.
CLARKE, C.B. 1904. Gesneriaceae. *Flora capensis* 4,2: 437–447.
EDWARDS, T.J., KUNHARDT, C. & VENTER, S. 1992. Gesneriaceae. Notes on the genus *Streptocarpus*. *Bothalia* 22: 192–194.
HILLIARD, O.M. 1992. Two new species of *Streptocarpus* from southern Africa. *Edinburgh Journal of Botany* 49: 75.
HILLIARD, O.M. & BURTT, B.L. 1971. Streptocarpus, *an African plant study*. University of Natal Press, Pietermaritzburg.
HILLIARD, O.M. & BURTT, B.L. 1988. Gesneriaceae. *Flora zambesiaca* 8,3: 43–60.
WEIGEND, M. & EDWARDS, T.J. 1994. Notes on *Streptocarpus primulifolius* (Gesneriaceae). *South African Journal of Botany* 60: 168, 169.

GISEKIACEAE

(Order Caryophyllales)

Compiled by C.L. Bredenkamp

The Gisekiaceae includes the single, isolated genus *Gisekia*, which has often been placed in either Aizoaceae (Adamson 1961; Jeffrey 1961), Phytolaccaceae (Walter 1909; Rohwer 1993; APG 1998; Shipunov 2005) or Molluginaceae (Gonçalves 1978). According to Gilbert (1993a) and Stevens (2006) it displays an anomalous set of characters, which complicates positive inclusion in any of these families and is regarded as synonymous to the Sarcobataceae by Stevens. Currently it is regarded as close to the Phytolaccaceae–Rivinioideae (Stevens 2008).

GISEKIA L.

Species 7, tropical and subtropical Africa and Asia; 2 in sthn Afr., widespread, except L and WC.

pharnacioides L. var. pharnacioides

Mulandege (Swahili)

Annual, prostrate herb, with shoots of 0.1–0.8 m long; stems semi-succulent, often tinged red, with many prominent, linear, whitish raphides; containing betalains. **Leaves** opposite, linear to lanceolate, base sometimes attenuate into petiole, margins entire. **Inflorescence** axillary, umbel-like. **Flowers** mostly bisexual, pink to mauve. **Sepals** 5, free. **Petals** (staminodes) absent. **Stamens** arising just below gynoecium; filaments free, lanceolate; anthers 2-thecous, opening by longitudinal slits. **Gynoecium** superior, apocarpous, 3–5(6) free carpels, each with solitary ovule. **Flowering time** Nov.–Mar. **Fruit** a cluster of 3–5(6) mericarps: smooth to spiny-papillose, sutures obscurely toothed; pedicels curved. **Seeds** thickly lens-shaped, black, microscopically pitted. Sandy, rocky soil, riverbeds, disturbed places; Upper Karoo, Sub-Escarpment Savanna (Middelburg District, Grootfontein S to Kabouga, E to East London).

ADAMSON, R.S. 1961. The South African species of Aizoaceae X. *Gisekia*. *Journal of South African Botany* 27: 131–137.
ANGIOSPERM PHYLOGENY GROUP [APG] 1998. An ordinal classification for the families of flowering plants. *Annals of the Missouri Botanical Garden* 85: 531–553.
FRIEDRICH, H.C. 1966. Aizoaceae. *Prodromus einer Flora von Südwestafrika* 26: 1–135.
GILBERT, M.G. 1993a. A review of *Gisekia* (Gisekiaceae). *Kew Bulletin* 48: 343–356.
GILBERT, M.G. 1993b. Gisekiaceae. *Flora of Somalia* 1: 118, 119.
GONÇALVES, M.L. 1970. Aizoaceae. *Conspectus florae Angolensis* 4: 304–307.
GONÇALVES, M.L. 1978. Molluginaceae. *Flora zambesiaca* 4: 522–548.
JEFFREY, C. 1961. Aizoaceae. *Flora of tropical East Africa*. Aizoaceae: 1–37.
NAKAI, T. 1942. Notulae ad plantas Asiae orientalis XVIII. *Journal of Japanese Botany* 18: 91–120.
PAX, F. & HOFFMANN, K. 1934. Aizoaceae. Tribe Gisekieae. *Die natürlichen Pflanzenfamilien*, edn 2, 16c: 192.
PHILLIPS, E.P. 1951. The genera of South African flowering plants. *Memoirs of the Botanical Survey of South Africa* No. 25.
ROHWER, J.G. 1993. Phytolaccaceae. Genus of uncertain affinity. In K. Kubitzki, J.G. Rohwer & V. Bittrich, *The families and genera of vascular plants — dicotyledons* 2. Springer-Verlag, Berlin.
SHIPUNOV, A.B. 2005. Systema Angiospermararum. Internet. http://herba.msu.ru/shipunov/ang (accessed Apr. 2006).

STEVENS, P.F. 2006. Angiosperm Phylogeny Website. Version 7. Internet. http://www.mobot.org/MOBOT/research/APweb/ (accessed Sept. 2006).
STEVENS, P.F. 2008. Angiosperm Phylogeny Website. Version 9. Internet. http://www.mobot.org/MOBOT/research/APweb/ (accessed Mar. 2009).
WAlt.ER, H.P.H. 1909. Phytolaccaceae. *Das Pflanzenreich* 4. 83 (Heft 39): 1–154.

GOODENIACEAE

(Order Asterales)

Compiled by W.G. Welman

SCAEVOLA L.

Species ± 80, mostly Australia, few in Asia, the Pacific islands, Americas and Africa; 2 in sthn Afr., coastal from WC to KZN.

plumieri (L.) Vahl

Sea cotyledon; *see-plakkie* (A)

Much-branched, low, spreading, evergreen shrub, up to 3 m high. **Leaves** clustered at branch tips, simple, sessile or shortly petiolate (petioles winged), obovate, up to 110 mm long, entire, base tapered, glabrous, thickly fleshy. **Inflorescence** a series of short, axillary cymes; bracts linear, up to 15 mm long; flowers 1–7, sessile. **Flowering time** Oct.–Jan. **Calyx** campanulate, ± 2 mm long, shortly 5-lobed. **Corolla** irregular, up to 23 mm long, white or ± green outside, ± yellow inside, 5-lobed, margins crenulate, tube split down to base. **Fruit** a subglobose drupe, blue-black, 10–15 mm in diam., glabrous, fleshy, drying wrinkled. **Seed** discoid, not dispersed from fruit. Coastal dunes, river mouths; Albany Thicket, Eastern Fynbos-Renosterveld, Indian Ocean Coastal Belt, Indigenous Forests (Bizana to Humansdorp).

WELMAN, W.G. & CONDY, G. 2001. *Scaevola plumieri*. *Flowering Plants of Africa* 57: t. 2179, 104–107.

GREYIACEAE

(alternatively under MELIANTHACEAE)

(Order Greyiales)

Compiled by C.L. Bredenkamp

APG (2003) and Stevens (2006) currently place the Greyiaceae in the order Geraniales and regard the family synonymous with the Melianthaceae. Work done by Steyn et al. (1999) and Dahlgren and Van Wyk (1988) indicate that *Greyia* belongs in the monotypic order Greyiales.

GREYIA Hook. & Harv.

Wild bottlebrushes; *baakhout* (A)

Species 3, in sthn Afr., LIM, M, S, FS, KZN, L, EC (mainly Drakensberg and Mpumalanga escarpments).

The current policy of SANBI is to place the Greyiaceae in synonymy under the Melianthaceae, although previous attempts to find relationships between *Greyia* and taxa in the

Melianthaceae were unsatisfactory. Greyiaceae is retained as a separate family in this treatment, based on the following evidence: petiole with decurrent leaf sheath, united along the whole length of the preceding internode, lamina, petiole and sheath shed as a unit during leaf abscission, due to an abscission layer commencing at margins of sheath of preceding internode; stipules occurring rarely; placentas parietal; capsule 5-grooved, septicidal (splits through carpel margins); anther wall with many layers of endothecium; chemistry with distinctive B-ring deoxyflavonoids.

[E]**flanaganii** Bolus

Kei bottlebrush; *Kei-baakhout* (A); *usinya* (X)

Evergreen shrub or small tree, 1–3 m high, with soft wood. **Leaves** subrotund to cordate, irregularly crenate, lobed; venation ± palmate at base. **Flowers** 2–5 in terminal, pedunculate racemes, pendulous, urceolate, showy. **Calyx** 5-partite. **Petals** 5, free, longer than sepals, oblong, glandular-ciliate, imbricate, red, rarely white. **Nectar disc** fleshy, cupular, crowned by 10 bract-like, glandular staminodes not differentiated into two parts; copiously secreting nectar. **Stamens** 5 + 5, in 2 rows, inserted between disc and ovary, longer than petals, crimson; anthers dehiscing longitudinally. **Ovary** oblong, deeply 5-grooved; ovules many. **Flowering time** all year. **Fruit** a 5-grooved, septicidal capsule. **Seeds** many, minute, elongated. Slopes of river valleys; Sub-Escarpment Savanna, Sub-Escarpment Grassland, Drakensberg Grassland (Queenstown District E to Port St. Johns and Komga).

sutherlandii Hook. & Harv.

Natal bottlebrush; *Natal-baakhout* (A), *umberebere* (X), *indulo* (Z)

Shrub or small tree, 2–5 m high, with blackish bark and soft wood. **Leaves** deciduous, broadly ovate, base subcordate, margins 8- or 9-lobulate, coarsely toothed; digitally nerved. **Inflorescence** a raceme, 50–150 × 40–50 mm. **Flowers** red. **Calyx** 5, deltoid. **Petals** 5, longer than sepals, bifid. **Nectar disc** fleshy, cupular, crowned by 10 dark red, gland-like, peltate processes (staminodes), reminiscent of stamens and still differentiated into two parts; copiously secreting nectar. **Stamens** 10, in 2 rows, inserted within disc, alternating with processes; longer than petals; anthers basifixed. **Ovary** ovoid, deeply 5-grooved; ovules many. **Flowering time** Nov.–Mar. **Fruit** a 5-grooved, septicidal capsule. **Seeds** minute, many. Rocky areas, common on lowermost basalt cliffs of Drakensberg; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indigenous Forests (Kokstad District S to Kei River).

ANGIOSPERM PHYLOGENY GROUP [APG]. 2003. An update of the Angiosperm Phylogeny Group classification for the orders and families of flowering plants: APG II. *Botanical Journal of the Linnean Society* 141: 399–436.

DAHLGREN, R. & VAN WYK, A.E. 1988. Structures and relationships of families endemic to or centered in southern Africa. *Monographs in Systematic Botany from the Missouri Botanical Garden* 25: 1–94.

KILLICK, D.J.B. & KIMPTON, J. 1977. *Greyia sutherlandii* South Africa and Swaziland. *The Flowering Plants of Africa* 44: t. 1732.

STEVENS, P.F. 2006. Angiosperm Phylogeny Website. Version 7. Internet. http://www.mobot.org/MOBOT/research/APweb/ (accessed Sept. 2006).

STEYN, E.M.A., SMITH, G.F. & CONDY, G. 1999. *Greyia flanaganii* South Africa. *Flowering Plants of Africa* 56: 86–92, t. 2155.

GRUBBIACEAE

(Order Cornales)

Compiled by C.L. Bredenkamp

GRUBBIA P.J.Bergius

Species 3, southwestern districts of WC to Uitenhage in EC.

rosmarinifolia P.J.Bergius subsp. **rosmarinifolia** var. **rosmarinifolia**

Evergreen, woody shrub, 0.9–3.0 m high; branchlets longitudinally ridged, tomentose. **Leaves** opposite-decussate, ericoid, entire; lamina scabrous, hirsute to glabrous above, pubescent beneath, 5–18 mm long, linear to lanceolate, apex acuminate, slightly or markedly sagittate at base, dull, greyish green; petioles ± 1 mm long. **Inflorescences** axillary, congested. **Flowers** 2–20, bisexual, very small. **Tepals** 4, small, calyx-like, externally densely white-hairy, internally glabrous, shiny, pink to dark red, valvate, adnate to ovary. **Stamens** free, 2 whorls of 4 each; anthers basifixed. **Disc** epigynous, papillate to shortly hairy. **Ovary** inferior, 2-carpellate; style erect. **Flowering time** Aug.–Dec. **Fruit** drupaceous, reddish, each fruit united with adjacent fruits in an inflorescence, forming a syncarp. **Seed** 1, ovoid. Ericaceous fynbos on deep organic soils; Indigenous Forests, Eastern Fynbos-Renosterveld (Tsitsikamma Mts to Uniondale and Uitenhage Districts).

CARLQUIST, S. 1977. A revision of Grubbiaceae. *Journal of South African Botany* 43: 115–128.
CARLQUIST, S. 1978. Vegetative anatomy and systematics of Grubbiaceae. *Botaniska Notiser* 131: 117–126.
DAHLGREN, R. & VAN WYK, A.E. 1988. Structures and relationships of families endemic or centered in southern Africa. *Monographs in Systematic Botany from the Missouri Botanical Garden* 25: 1–94.

GUNNERACEAE

(Order Gunnerales)

Compiled by C.L. Bredenkamp

GUNNERA L.

Species 16, Central and South America, E and sthn Afr., Madagascar, Malaysia, Tasmania, New Zealand (9 species) and Hawaiian Islands (7 species); 1 in sthn Afr., widespread, except in N.

perpensa L.

River pumpkin; *rivierpampoen* (A); *qobo* (SS); *iPhuzi lomlambo* (X); *uGobho* (Z)

Perennial herb, 0.3–1.5 m high; nearly stemless, mainly rhizomatous, usually associated with water. **Leaves** radical, alternate, simple, long-petioled, ovate- to orbicular-cordate, entire, lobed or crenate; stipules adhering to petioles. **Flowers** unisexual or bisexual, small, in compound spikes, sometimes with male flowers above and female below. **Calyx** 2- or 3-lobed, sometimes absent, or imperfect in male flowers. **Petals** (0)2, small, concave. **Stamens** 1 or 2; anthers oblong, basifixed, longer than filaments. **Ovary** inferior, 1-locular, ovule solitary, pendulous; styles 2, papillose. **Flowering time** Oct.–Feb. **Fruit** a fleshy or leathery drupe, compressed, 3-angled or subglobose. Marshes, water-

courses; Drakensberg Grassland, Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Indigenous Forests, Sub-Escarpment Savanna, Albany Thicket (Barkly East District to Baviaanskloof and Grahamstown).

HARVEY, W.H. 1862. Halorageae. *Flora capensis* 2: 571.
MENDES, E.J. 1978. Haloragaceae. *Flora zambesiaca* 4: 79–81.
SCHINDLER, A.K. 1905. Halorrhagaceae. *Das Pflanzenreich* 4,225 (Heft 23).

HALORAGACEAE

(Order Saxifragales)

Compiled by C.L. Bredenkamp

Plants mainly in marshes, rooted in soil; leaves opposite or alternate, entire or toothed..... **Laurembergia**
Plants aquatic, floating; leaves in whorls or 3 or 4, with filiform segments..... ***Myriophyllum**

LAUREMBERGIA P.J.Bergius

Species 4, Africa to East Indies and New Zealand; 1 in sthn Afr.. N, B, LIM, NW, G, M, S, FS, KZN, NC, WC, EC.

repens P.J.Bergius subsp. brachypoda (Hiern) Oberm.

Annual, occasionally perennial herb, 0.10–0.45 m high, creeping, monoecious (dioecism increasing in sthn and eastern parts of the Cape). **Leaves** opposite or alternate, ± linear-oblong, entire or toothed. **Flowers** very small, in axillary fascicles. **Male flowers** long-pedicelled; calyx 4-lobed, tube short; petals 4; stamens 4–8. **Female flowers** sessile or subsessile; calyx 4-lobed, ovoid, 8-ribbed; petals as in male flowers; stamens absent; ovary 1-locular, styles 4, very short, feathery or hairy. **Flowering time** Nov.–May. **Fruit** a fleshy nut, barrel-shaped, reddish brown, 8-ribbed with whitish tubercles. **Seed** 1, cylindric. Marshy places, mud in grassland; Indian Ocean Coastal Belt, Indigenous Forests, Eastern Fynbos-Renosterveld, Albany Thicket (Port Edward S, across Amatole Mts to Storms River, Humansdorp and Grahamstown).

*MYRIOPHYLLUM L.

Species 60, cosmopolitan, especially Australia; 2 in sthn Afr., N, B, LIM, NW, G, M, FS, KZN, NC, WC, EC.

aquaticum (Vell.) Verdc.

Parrot's feather; *waterduisendblaar* (A)

Perennial herb, hydrophyte, rooted, emerging 0.2–0.5 m above water surface. **Roots** arising from nodes of stems, many, long. **Leaves** arranged in whorls of 4–6, pale green, finely divided, feather-like, pectinate-pinnate. **Flowers** unisexual or bisexual, axillary, solitary, cream-coloured, sessile or shortly pedicelled, or in a terminal spike with male flowers above and female below; bracts leafy; bracteoles 2, concave. **Flowering time** May–Dec. **Fruit** none, vegetative propagation. Invades still or slow-moving water, rivers, lakes and dams; origin S America, declared weed (Category 1); Albany Thicket (George and Grahamstown).

spicatum L.

Spiked water-milfoil

Perennial herb, hydrophyte, rooted, usually completely submerged except for leafless, flowering shoots; stems up to 3 m long. **Roots** few and small on lower parts of stem.

Leaves arranged in whorls of 4–6, olive-green, finely divided. **Flowers** male or female, arranged in whorls on emergent spikes 50–100 mm long, cream-coloured. **Flowering time** Mar.–May. **Fruit** a small nut. Invades still or slow-moving water, rivers, lakes and dams; origin N America, declared weed (category 1); Drakensberg Grassland (Hogsback Area).

HARVEY, W.H. 1862. Halorageae. *Flora capensis* 2: 571, 572.
HENDERSON, L. 2001. *Alien weeds and invasive plants*. Plant Protection Research Institute Handbook No. 12. Paarl Printers, Cape Town.
MENDES, E.J. 1978. Haloragaceae. *Flora zambesiaca* 4: 74–81.
OBERMEYER, A.A. 1973. A note on *Laurembergia repens*. *Bothalia* 11: 116, 117.

HAMAMELIDACEAE

(Order Saxifragales)

Compiled by C.L. Bredenkamp

TRICHOCLADUS Pers.

Hazels, haselaars (A)

Species ± 5, confined to eastern, tropical and sthn Afr.; 3 in sthn Afr., LIM, M, S, KZN, WC, EC.

Mature leaves glabrous or nearly so below; inflorescences spicate

grandiflorus Oliv.

Green hazel; *groen-haselaar* (A); *ugabavu* (Z)

Evergreen or deciduous tree or shrub, 3–7 m high; branchlets and young leaves reddish hairy. **Leaves** opposite, simple, 50–100 × 25–50 mm, lanceolate to ovate, entire, glossy green above, paler below, apex and base tapering, apex long acuminate. **Inflorescences** shortly spicate, axillary or terminal. **Flowers** showy, up to 40 mm in diam.; petals crinkly, white, pinkish purple towards base. **Flowering time** Dec., Jan. **Fruit** a capsule, dark brown, dehiscent. Forest margins or wooded ravines; Indian Ocean Coastal Belt, Indigenous Forests (Port Edward, Mtamvuna Gorge).

Mature leaves ± stellate-pubescent or tomentose below; inflorescences capitate

crinitus (Thunb.) Pers.

Black hazel; *swart-haselaar* (A); *ithambo* (X); *ubisana* (Z)

Evergreen or deciduous tree or shrub, 2–5 m high; branchlets and young leaves covered with rather long, dark brown hairs. **Leaves** opposite, simple, peltate, 75–160 × 15–70 mm, ovate or elliptic, entire, dark shiny green above, dark brown hairs on midrib below, base auriculate, apex acute. **Inflorescences** small, axillary heads. **Flowers** male or female, creamy green, yellow or orange; plants monoecious or dioecious. **Flowering time** Apr.–Aug. **Fruit** a capsule, up to 7 mm long; reddish brown. Understory in forests; Indigenous Forests (Port St Johns S through Hogsback and Stutterheim to Tsitsikamma Forest, Uitenhage and Humansdorp).

ellipticus Eckl. & Zeyh. subsp. ellipticus

White hazel; *wit-haselaar* (A); *ugqonci* (X); *umgqonci* (Z)

Evergreen or deciduous tree or shrub, 1.5–12.0 m high; branchlets densely stellate-tomentose, hairs greyish to coppery. **Leaves** alternate, simple, 25–160 × 15–60 mm,

lanceolate or elliptic, entire, base cuneate to rounded, apex acuminate. **Inflorescences** of terminal and axillary heads. **Flowers** bisexual, creamy green. **Calyx**: tube 1 mm deep, campanulate; lobes 5, reflexed. **Flowering time** Sept.–Dec. **Fruit** a subglobose capsule, 2-locular, 2-valved, with ballistic seed ejection by bending, endocarp hard, tomentose. **Seeds** 2, 5 × 3 mm, ellipsoid, ivory-coloured, shining. Understory in forests; Indigenous Forests (Mthatha District S to Komga, through Amatole Mts to Port Elizabeth).

ENDRESS, P.K. 1989. A suprageneric taxonomic classification of the Hamamelidaceae. *Taxon* 38: 371–376.
ENDRESS, P.K. 1993. Hamamelidaceae. In K. Kubitzki, J.G. Rohwer & V. Bittrich, *The families and genera of vascular plants — dicotyledons* 2. Springer-Verlag, Berlin.
HUTCHINSON, J. 1933. The genus *Trichocladus* Pers. (Hamamelidaceae). *Kew Bulletin* 1933: 427–430.
MENDES, E.J. & VIDIGAL, M.P. 1978. Hamamelidaceae. *Flora zambesiaca* 4: 71–73.
SONDER, O.W. 1862. Hamamelidaceae. *Flora capensis* 2: 324.
VERDCOURT, B. 1971. *Flora of tropical East Africa*: Hamamelidaceae: 1–5.

HYDNORACEAE

(Order Piperales)

Compiled by C.L. Bredenkamp

HYDNORA Thunb.

Species 7, in arid regions of Africa, Réunion, Madagascar and Saudi Arabia; 3 in sthn Afr., N, B, LIM, G, S, KZN, NC, WC, EC.

africana Thunb.

Jackal food; *bobbejaankos* (A); *idolo-lenkoyane* (X); *uMavumbuka* (Z)

Holoparasitic; plant consisting of fleshy, rhizome-like underground parts, bearing vermiform outgrowths connecting to roots of host. **Flowers** large, 80–150 mm high, solitary, buds developing underground, emerging at anthesis. **Perianth** of 3 or 4 tepals, united into a fleshy cylindrical tube; lobes valvate, connate at apex to form 3 or 4 round openings; inner surface flesh-coloured with a white bait body, emitting a foetid smell, outer surface cracked, brown. **Stamens** 3 or 4, arising at apex of tube; anthers forming a lobed ring of many, elongate, fused thecae. **Ovary** inferior, 1-locular; style absent; stigma of 3 or 4 ridged lobes. **Flowering time** Oct.–Mar. **Fruit** underground berry, with leathery wall. **Seeds** ± 20 000, in gelatinous pulp. Parasitic on roots of *Euphorbia*, *Acacia* and *Albizia* species; Sub-Escarpment Grassland, Albany Thicket (Queenstown, Jansenville and East London).

HILL, A.W. 1912. Cytinaceae. *Flora capensis* 5,1: 485–487.
MARLOTH, R. 1907. Notes on the morphology and biology of *Hydnora africana* Thunb. *The transactions of the South African Philosophical Society* 16: 465–468.
MEIJER, W. 1993. Hydnoraceae. In K. Kubitzki, J.G. Rohwer & V. Bittrich, *The families and genera of vascular plants — dicotyledons* 2. Springer-Verlag, Berlin.
MUSSELMAN, L.J. 1984. Some parasitic angiosperms of Sudan: Hydnoraceae, Orobanchaceae, and *Cuscuta* (Convolvulaceae). *Notes from the Royal Botanic Garden Edinburgh* 42: 21–38.
VISSER, J.H. 1981. *South African parasitic plants*. Juta, Cape Town.

HYPERICACEAE

(Order Malpighiales)

Compiled by C.L. Bredenkamp & M. Struwig

HYPERICUM L.

Species ± 370, widespread in temperate climates; 10 in sthn Afr., widespread.

1a Styles 3–5, free; herbs
2a Stems terete; sepals usually with dark spots
3a Sepals acute, subequal

aethiopicum Thunb.

St. John's wort; *Johanneskruid*, *seeroogbossie* (A); *Bohoho* (S); *isimayisane* (Z)

Perennial herb, 0.04–0.50 m high; stems arise from underground crown. **Leaves** 8–23 × 4–15 mm, sessile, ovate, with translucent and dark glands. **Flowers** in few- to many-flowered cymes. **Sepals** 5–8 × 1.5–2.0 mm, ovate. **Petals** 10–13 × 2–4 mm; primrose-yellow. **Stamens** ± 50–70; irregularly arranged or in 3 or 4 distinct groups; filaments united at base; anthers with black or orange glands at apex of connective. **Ovary** ovoid; stigmas ± capitate. **Flowering time** Oct.–Feb. **Fruit** a capsule. Stony soil, gravel, clay or sand, well drained, calcrete; Drakensberg Grassland, Sub-Escarpment Grassland, Eastern Fynbos-Renosterveld, Albany Thicket, Sub-Escarpment Savanna (Maclear SE to Flagstaff, S to Grahamstown and to Humansdorp).

3b Sepals obtuse to rounded, unequal
4a Stems erect, 200–450 mm high

natalense Wood & Evans

Perennial herb, up to 0.6 m high; stem from underground rootstock. **Leaves** 9–19 × 5–12 mm; sessile or shortly petiolate; elliptic or obovate; 3–7-nerved, tertiary venation conspicuous; punctate with dark spots. **Flowers** terminal; flowering branches from uppermost pair of nodes. **Sepals** 4.5–8.0 × 1.5–4.0 mm; distinctly veined. **Petals** 6.5–7.0 × 1.7–2.5 mm; yellow. **Stamens** indefinite; anthers with dark gland at end of connective. **Ovary** ovoid; stigmas capitate. **Fruit** a capsule. Damp places in loamy soil; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Albany Thicket, Drakensberg Grassland, Indian Ocean Coastal Belt (Kokstad District S to Seymour and Kentani Districts).

4b Stems procumbent, 60–100 mm high

wilmsii Keller

Perennial herb, 0.06–0.20 m high; stems arising from persistent taproot. **Leaves** 6–10 × 2–6 mm; shortly petiolate; elliptic, ovate or obovate; nerves 3- or 4-paired; translucent-yellow gland dots and submarginal dark dots. **Sepals** 4.5–6.0 × 1–2 mm; distinctly veined. **Petals** 5–8 × 2–3 mm; yellow or orange. **Stamens** 18–30; 3 or 4 groups, cohering at base; anthers with dark gland at end of connective. **Ovary** ovoid. **Fruit** a capsule. Moist areas and on mountain slopes, stony soil; Upper Karoo, Dry Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland, Albany Thicket, Lower Karoo (Aliwal North S through Queenstown to Aberdeen District).

2b Stems quadrangular; sepals and petals without dark spots

lalandii Choisy

Bohlokoana (SS)

Perennial herb, 0.05–0.40 m high; stems from woody, underground rootstock. **Leaves** sessile; variable in size and shape; pellucid-glandular punctate. **Flowers** solitary or up to 50 in a loose dichasial cyme. **Sepals** ± equal; 5.5–7.0 × 1.2–1.5 mm; translucent longitudinal veins and gland dots. **Petals** 1–2× as long as sepals; yellow or orange; distinctly veined. **Stamens** 40–60; irregularly veined. **Ovary** ovoid; stigmas capitate. **Flowering time** Oct.–Apr. **Fruit** a capsule. Stony soil, gravel, loam, sand or clay, well drained, moist and full sun; Upper Karoo, Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Albany Thicket, Eastern Fynbos-Renosterveld (Steynsburg E to uMzimkhulu and S to Uitenhage District).

1b Styles 5, wholly or partially united; shrubs

revolutum Vahl.

Curry bush; *kerriebos* (A)

Perennial shrub, 0.33–3.65 m high; often with scaly bark. **Leaves** 8–25 × 3–6 mm; sessile; elliptic; venation pinnate, tertiary venation sometimes conspicuous; translucent longitudinal gland and few dark submarginal glands. **Flowers** solitary, terminal. **Sepals** unequal; 6–10 × 3–5 mm; with dark marginal glands. **Petals** 20–30 × 8–18 mm; yellow; without submarginal gland dots. **Stamens** in 5 bundles of 20–30 each; anthers with apical gland. **Ovary** ovoid. **Fruit** a capsule. Along streambanks and forest edges; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Albany Thicket, Eastern Fynbos-Renosterveld (Kokstad and Uitenhage Districts).

ADAMS, P. 1962. Studies in the Guttiferae. 2. *Rhodora* 84: 231–242.
FRIEDRICH-HOLZHAMMER, M. 1968. Hypericaceae. *Prodromus einer Flora von Südwestafrika* 44: 1.
GERMISHUIZEN, G. 1997. *Wild flowers of northern South Africa*. Fernwood Press. Vlaeberg.
KILLICK, D.J.B. & ROBSON, N.K.B. 1976. Clusiaceae. *Flora of southern Africa* 22: 14–23.
ROBSON, N.K.B. 1961. Guttiferae (incl. Hypericaceae). *Flora zambesiaca* 1: 378–404.
VAN WYK, B.-E., VAN HEERDEN, F. & VAN OUDTSHOORN, B. 2002. *Poisonous plants of South Africa*. Briza. Pretoria.

ICACINACEAE

[Order Icacinales (Cronquist 1988); currently not placed but near Garryales (Stevens 2008, 2012)]

Compiled by M. Struwig

1a Leaves opposite; inflorescences dichotomous ..... **Cassinopsis**

1b Leaves alternate; inflorescences variously branched:

2a Trees or shrubs; calyx and corolla present; flowers bisexual, in terminal panicles; style filiform **Apodytes**

2b Lianas with twining stems; calyx absent; flowers unisexual; stigma sessile; endocarp spiny on inner face ..... **Pyrenacantha**

APODYTES E.Mey. ex Arn.

Species 5–17 (depending on species concept), Africa, Madagascar, and Australasia; 3 in sthn Afr., LIM, NW, G, M, S, KZN, WC, EC.

abbottii Potgieter & A.E.van Wyk

Pondo white pear; *Pondo-witpeer* (A)

Shrub or tree, 1–4 m high; young stems dark reddish, bark greyish, smooth and old stems irregularly scaled. **Leaves** 40–65 × 25–54 mm, petiolate, alternate, dull blue-green, elliptic to rotund, margins entire, midrib red. **Flowers** in terminal, many-flowered panicles; sweetly-scented. **Calyx** 0.25 × 0.5 mm, 5-fid. **Petals** 3.5 × 1 mm, white. **Stamens** free, surface minutely papillate. **Gynoecium** ± 3 mm long; ovary 1-locular; stigma subcapitate. **Flowering time** Nov.–Jan. **Fruit** a nut, green ripening black; with one seed. Stony soil, loam or sand, well drained, sandstone, full sun to shade; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests (Lusikisiki District E to Mkambati Nature Reserve).

dimidiata E.Mey. ex Arn.

White-pear, bird's eye (fruit); *witpeerhout* (A)

Tree or shrub, 0.5–15.0 m high; young branches purplish green with pale brown hairs, older twigs dark grey with pale lenticels. **Leaves** 20–150 × 12–80 mm, petiolate, ovate elliptic to elliptic. **Flowers** in terminal, many-flowered panicles; sweetly scented. **Calyx** 0.3–0.5 mm; 5-fid. **Petals** 5 × 1 mm, white, linear. **Stamens** 5; anthers linear. **Ovary** ovoid, pubescent. **Flowering time** Nov.–June. **Fruit** berry-like, ovoid-reniform, pubescent, black, with persistent style and fleshy, lateral, red appendage. Stony soil or gravel, loam or sand, well drained, full sun, quartzite or on bare rock; Sub-Escarpment Grassland, Upper Karoo, Dry Highveld Grassland, Indian Ocean Coastal Belt, Indigenous Forests, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (uMzimkhulu District S through Queenstown, from Somerset East to Stutterheim and from Tsitsikamma District to Uitenhage and Grahamstown).

CASSINOPSIS Sond.

Species 6, Africa and Madagascar; 2 in sthn Afr., LIM, M, S, FS, KZN, L, WC, EC.

ilicifolia (Hochst.) Kuntze

Lemon-thorn; *lemoentjiedoring* (A)

Spiny tree or shrub, 1–6 m high; spines straight, ± 25 mm long; glabrous. **Leaves** 40–60 × 20–25 mm, opposite, petiolate, ovate, shiny above, margins spinulose-serrulate or subentire. **Flowers** in subinterpetiolar, dichotomous cymes. **Calyx** 5-fid; pubescent. **Petals** 3× as long as calyx lobes, white, imbricate. **Stamens** 5, inserted at base of corolla; alternating with petals. **Ovary** sessile; 1 or 2 ovules; style short. **Flowering time** Sept.–May. **Fruit** an ovoid drupe, ± 10 mm long, yellow-orange. In wooded kloofs and streambanks; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indigenous Forests, Dry Highveld Grassland, Albany Thicket, Eastern Fynbos-Renosterveld (Bizana District S through Queenstown and to Hogsback).

tinifolia Harv.

False lemon-thorn; *valslemoentjiedoring* (A)

Tree or shrub, 1.5–4.0 m high; unarmed; bark grey, smooth. **Leaves** 30–90 × 20–50 mm, opposite, petiolate, dark green, glossy above, base cuneate, apex acuminate, margins entire, recurved. **Flowers** in much-forked cymes, small, pedunculate. **Calyx** 5-lobed or -segmented, puberulous. **Petals** 5, white, imbricate. **Stamens** 5, inserted at base of corolla; alternating with petals. **Ovary** sessile; 1 or 2 ovules; style short. **Flowering time**

all year. **Fruit** an elongated, longitudinally corrugated drupe, ± 8 × 4.5 mm, black. In margins of mountain forest, riverine vegetation and wooded gullies; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indigenous Forests, Indian Ocean Coastal Belt (Port Edward District S to Lusikisiki and Port St Johns districts).

PYRENACANTHA Wight

Species 25–30, Africa, Madagascar, Indochina and Malesia; 3 in sthn Afr., KZN, WC, EC.

scandens Planch. ex Harv.

Blouboktoutjie (A)

Shrub or climber, 0.1–3.0 m high; young branches twining, with bristles. **Leaves** 50–100 × 25–65 mm, shape varies, those in lower part of branch 3-lobed, others ovate, margins with gland-like hairy teeth; upper surface hispid with hairs pointing to margin, lower hispid with straight hairs; petioles hairy. **Male flowers** in spikes, ± 50 mm long; peduncles hairy; flowers many, loose, sessile, bracteolate. **Female flowers** in short, few-flowered spikes; pedunculate. **Fruit** a drupe, ± 18 mm long, hispid, slightly compressed. Sandy soil, quartzite, full sun; Sub-Escarpment Savanna, Indigenous Forests, Indian Ocean Coastal Belt, Eastern Fynbos-Renosterveld (Kentani District SW to the Storms River).

COATES PALGRAVE, M. 2002. *Keith Coates Palgrave Trees of southern Africa*, edn 3. Struik, Cape Town.
CRONQUIST, A. 1988. *The evolution and classification of flowering plants*, edn 2. New York Botanical Garden, Bronx, New York.
MENDES, E.J. 1963. Icacinaceae. *Flora zambesiaca* 2,1: 340–351.
POTGIETER, M.J. 1994. *Contributions to the systematics of southern African Icacinaceae*. Unpublished M.Sc. thesis, University of Pretoria.
STEVENS, P.F. 2008. Angiosperm Phylogeny Website. Version 9. Internet. http://www.mobot.org/MOBOT/research/APweb (accessed June 2008).
STEVENS, P.F. 2012. Angiosperm Phylogeny Website. Version 9, Internet. http://www.mobot.org/MOBOT/research/APweb (accessed Mar. 2012).
VAN WYK, A.E. & POTGIETER, M.J. 1994. Two new species of *Apodytes* (Icacinaceae) from southern Africa. *Journal of South African Botany* 60: 231–239.

ITEACEAE

(formerly placed in ESCALLONIACEAE)

(Order Saxifragales)

Compiled by C.L. Bredenkamp

ITEA L.

(= *CHORISTYLIS* Harv.)

Species ± 27, SE Asia, 1 in North America and 1 in Africa, restricted to east, central and sthn Afr.; 1 in sthn Afr., LIM, M, S, KZN, EC.

rhamnoides (Harv.) Kubitzki

Mock glossy-leaf; *vals-blinkblaar* (A); *ububu* (Z)

Small tree or scrambling shrub, 3–4 m high; dioecious or polygamous. **Leaves** spirally arranged, simple, elliptic, up to 75 × 50 mm, usually glandular-serrate, penninerved, midrib and lateral veins prominent below, often with domatia in axils; stipules absent

or minute. **Inflorescences** dense, much-branched, axillary panicles, shorter than leaves. **Flowers** bisexual or unisexual, greenish yellow. **Ovary** partly inferior, 2-locular; ovules many on axile placentas. **Flowering time** Aug.–Oct. **Fruit** a small, leathery capsule, dehiscing septicidally through persistent styles, many-seeded. **Seeds** small, obovoid, sculptured, black. Along forest margins in high-altitude mist belt areas; Indigenous Forests (Maclear S to Hogsback and Keiskammahoek District).

AIRY SHAW, H.K. 1973. Iteaceae. In J.C. Willis, *A dictionary of the flowering plants and ferns*, edn 8. University Press, Cambridge.
BRUMMITT, R.K. 1992. Escalloniaceae. *Vascular plant families and genera*. Royal Botanic Gardens, Kew.
HARVEY, W.H. 1842. Descriptions of several new genera of South African plants. *The London Journal of Botany* 1: 18–29.
HARVEY, W.H. 1862. Saxifragaceae. *Flora capensis* 2: 305–309.
KUBITZKI, K. 2007. Iteaceae. In K. Kubitzki, *The families and genera of vascular plants*, vol. IX. Springer, Berlin.
STEVENS, P.F. 2006. Angiosperm Phylogeny Website. Version 7. Internet. http://www.mobot.org/MOBOT/research/APweb/ (accessed Sept. 2006).
STEVENS, P.F. 2012. Angiosperm Phylogeny Website. Version 9. Internet. http://www.mobot.org/MOBOT/research/APweb/ (accessed Mar. 2012).
VERDCOURT, B. 1973. *Flora of tropical East Africa*. Escalloniaceae: 1–3.

LAMIACEAE

(Order Lamiales)

Compiled by C.L. Bredenkamp & N. Ngoepe

A cosmopolitan family of ± 258 genera, with ± 7 000 species mainly in temperate zones, and particularly diverse in the Mediterranean region. Around 35 genera and 300 species are found in the Flora Zambesiaca region.

Classification of Lamiaceae

According to Leistner (2000), Heywood et al. (2007) and Stevens (2011).

I. Subfamily **Ajugoideae** Kosteletzsky: 24 genera, ± 1 075 spp., including *Ajuga*, *Rotheca*, *Teucrium*, *Volkameria* (= *Clerodendrum*)

II. Subfamily **Lamioideae** Harley: 63 genera, ± 1 260 spp., including *Acrotome, Ballota*, **Lamium*, *Leonotis*, **Marrubium*, *Stachys* (see Scheen et al. 2010, for molecular phylogenetics of Lamioideae)

III. Subfamily **Nepetoideae** Kosteletzsky: 105 genera, ± 3 675 spp.

1. Tribe Mentheae: **Cedronella*, *Mentha*, **Prunella*, *Salvia*, *Satureja*, *Tetradenia*

2. Tribe Ocimeae:

a) Subtribe Hyptidinae: **Hyptis* (not in EC)

b) Subtribe Ociminae: *Endostemon*, *Ocimum* (= *Becium*, *Orthosiphon*), *Syncolostemon* (= *Hemizygia*), *Thorncroftia* (not in EC)

c) Subtribe Plectranthinae: *Aeollanthus*, *Hoslundia* (not in EC), *Plectranthus*, *Pycnostachys*, *Rabdosiella*, *Solenostemon*

IV. Subfamily **Prostantheroideae** Luersson: 16 genera, ± 317 spp. from Australia

V. Subfamily **Scutellarioideae** Caruel: 5 genera, ± 380 spp., including **Scutellaria* and *Tinnea*

VI. Subfamily **Symphorematoideae** Briquet: 3 genera, ± 27 spp. from India, Sri Lanka, SE Asia, Malesia

VII. Subfamily **Viticoideae** Briquet: 10 genera, ± 376–526 spp., including *Premna* and *Vitex*

Throughout this manuscript please note:

verticil: a whorl or circular arrangement of similar parts around an axil, at the same level.

verticillate: arranged in one or more whorls.

verticillaster: a false whorl of opposed dense cymes, especially in Lamiaceae

1a Fruit a drupe:

2a Leaves palmately compound with (1–)3–5 leaflets ..... **Vitex**

2b Leaves simple:

3a Fruit an entire drupe containing a single, 4-locular pyrene ..... **Premna**

3b Fruit a 4-lobed or -furrowed drupe with 4 pyrenes ..... **Volkameria** (= *Clerodendrum pro parte*)

1b Fruit composed of 4 (or by abortion fewer) nutlets:

4a Corolla 1-lipped or very unequally 2-lipped, with the upper lip small or absent; ovary shortly 4-lobed or lobed to the middle; nutlets reticulate with oblique or lateral areole occupying $^1/_2$–$^3/_4$ of the length:

5a Calyx 2-lipped, inflated in fruit, lips entire; stamens not or scarcely exserted; nutlets winged ..... **Tinnea**

5b Calyx subequally 5-toothed; stamens exserted, ascending; nutlets not winged:

6a Inflorescence spike-like, racemose or paniculate:

7a Inflorescence a spike-like raceme arising from a basal rosette of leaves; flowers in 2–many-flowered verticillasters, bluish ..... **Ajuga**

7b Inflorescence racemose or paniculate with no basal rosette of leaves; flowers small, white, in 1–several-flowered, pedunculate cymes ..... **Teucrium**

6b Inflorescence cymose ..... **Rotheca**

4b Corolla 2-lipped or nearly regularly lobed; ovary deeply 4-lobed; nutlets smooth with small basal or slightly oblique areole:

8a Stamens ascending or spreading, never all directed downwards upon lower side of tube or lower lip of the corolla (absent in female flowers of *Tetradenia*):

9a Fertile stamens 2, anther thecae separated by a long connective; calyx 2-lipped ..... **Salvia**

9b Fertile stamens 4; calyx 2-lipped or 5–many-toothed:

10a Stamens spreading, filaments straight, with 2 directed upwards and 2 downwards (absent in female flowers of *Tetradenia*); corolla small, 2–5 mm long, subequally 4- or 5-lobed:

11a Perennial rhizomatous herbs, monoecious ..... **Mentha**

11b Semi-succulent or softly woody shrubs, usually flowering after leaves are shed, dioecious ..... **Tetradenia**

10b Stamens all directed to upper side of tube or upper lip of corolla; corolla 5 mm long or longer (sometimes shorter in *Scutellaria*, but then calyx distinctly 2-lipped with upper lip deciduous):

12a Calyx 2-lipped; perennial decumbent herbs:

13a Calyx lips rounded, entire, upper lip deciduous; inflorescence of lax, 2-flowered verticils; corolla 4.5–6.0 mm long ..... ***Scutellaria**

13b Calyx lips toothed, upper broad with 3 short teeth, lower of 2 longer narrow teeth; inflorescence shortly spicate of densely placed 4–6-flowered verticils; corolla 9–10 mm long ..... ***Prunella**

12b Calyx regularly or irregularly 5–many-toothed, mouth sometimes oblique but not distinctly 2-lipped [obscurely 2-lipped in some *Leucas* and *Leonotis* species but calyx (6–)8–10-toothed]:

14a Corolla usually orange or yellow, rarely cream-coloured; upper lobe 12–30 mm long; calyx 8–10-toothed ..... **Leonotis** (= *Leucas*)

14b Corolla not orange or yellow; upper lobe < 10 mm long:

15a Stamens included in corolla tube:

16a Anthers and style held together by intermingling hairs; calyx glabrous within; teeth not hooked at apex ..... **Acrotome**

16b Anthers and style not held together by intermingling hairs; calyx hairy within, teeth hooked at apex ..... ***Marrubium**

15b Stamens reaching mouth of corolla tube or exserted (stamens included in cleistogamous flowers of *Lamium amplexicaule*, but then bracts amplexicaul):

17a Calyx 6–many-toothed (teeth often very unequal in size):

18a Calyx glabrous within, 6–10-toothed, often oblique at mouth but limb not spreading ..... **Leonotis** (= *Leucas*)
18b Calyx hairy within, 10- or more toothed, limb eventually spreading ..... **Ballota**
17b Calyx subequally 5-toothed:
19a Calyx 13(–15)-ribbed; stamens arising near corolla throat with very short upcurved filaments ..... **Satureja**
19b Calyx 5–10-ribbed; stamens arising within corolla and usually well exserted:
20a Bracts large, amplexicaul (in naturalised species); upper corolla lip longer than the lower; lower corolla lip with lateral lobes absent or reduced to small acute teeth ..... ***Lamium**
20b Bracts leaf-like or reduced, not amplexicaul; corolla lips subequal or lower lip the longer and with distinct ± obtuse lateral lobes:
21a Bracts leaf-like; calyx often with additional smaller teeth (5–8-toothed); upper lip of corolla subequal to lower and beset with stiff, brush-like hairs ..... **Leonotis** (= *Leucas*)
21b Bracts usually reduced, occasionally leaf-like; calyx always 5-toothed; upper lip of corolla glabrous or pubescent but not with stiff, brush-like hairs, usually shorter than horizontal lower lip ..... **Stachys**
8b Stamens directed downwards upon the lower side of the corolla tube or lower lip of the corolla:
22a Calyx falling away by a clean break above base in fruit..... **Aeollanthus**
22b Calyx persistent in fruit, 3–5-toothed or bilabiate:
23a Corolla with 4 subequal or slightly unequal lobes, not distinctly 2-lipped; stamens included in corolla tube ..... **Endostemon**
23b Corolla either distinctly 2-lipped or 5-lobed; stamens exserted:
24a Calyx with 5 equal, rigid, spine-like teeth; flowers in a dense, terminal, spike-like inflorescence ..... **Pycnostachys**
24b Calyx not rigidly spinescent:
25a Calyx equally or subequally 5-toothed, uppermost tooth sometimes slightly larger than other 4:
26a Lower pair of stamens united for most of their length, upper pair arising in corolla tube, free ..... **Syncolostemon** (= *Hemizygia*)
26 Lower and upper pairs of stamens arising at corolla throat, free or all shortly united at base:
27a Bracts differentiated from and smaller than leaves..... **Plectranthus**
27b Bracts leaf-like, becoming gradually smaller towards apex of inflorescence or towards ends of flower-bearing stems ..... **Rabdosiella**
25b Calyx bilabiate:
28a Upper pair of filaments with a crested or hairy knee-bend near base ..... **Ocimum** (= *Becium*)
28b Upper pair of filaments glabrous or pubescent but without a crested or hairy knee-bend near base:
29a Lower 2 calyx teeth fused for the greater part forming an oblong bifurcate lip; lateral teeth much shorter and rounded ..... **Solenostemon**
29b Lower 4 calyx teeth subequal, lanceolate-deltoid, lower 2 often longer than lateral 2 and shortly fused at base:
30a Filaments of lower pair of stamens connate for part of their length; upper pair attached to corolla tube and free..... **Syncolostemon** (= *Hemizygia*)
30b Filaments all free or all connate at base..... **Plectranthus**

ACROTOME Benth. ex Endl.

Species ± 8, Africa; 6 in sthn Afr., widespread, but absent from WC.

inflata Benth.

Tumbleweed; *tolbossie* (A)

Erect, annual herb, up to 1 m high; unbranched or branched shortly above base; pubescence on stems appressed-retrorse villous. **Leaves** subsessile to shortly petiolate; ovate to ovate-lanceolate or oblong-lanceolate, base cuneate, apex acute, margins remotely and sparingly crenate-serrate. **Inflorescence** 1 or 2(3) spaced verticils; verticillasters of 15–many-flowered, dense, globose clusters; bracteoles many. **Flowers** white or pale mauve. **Calyx** widest about middle, symmetrical at mouth, subequally 5-toothed; teeth deltoid-subulate, spine-tipped. **Corolla** 2-lipped, often with ring of hair or glands about middle; upper lip slightly arched, lower lip spreading, 3-lobed. **Stamens** 4, didynamous, inserted near middle of corolla tube. **Flowering time** Feb.–Apr.? **Fruit** obovoid triquetrous nutlets. Open woodland, under trees, disturbed places in grassland,

alt. 550–2 200 m; Mesic Highveld Grassland, Upper Karoo, Sub-Escarpment Grassland, Albany Thicket (Lady Grey District, Middelburg, Queenstown, Shiloh and Hilton).

AEOLLANTHUS Mart. ex Spreng.

Species 43, in tropical and warm regions of Africa; 6 in sthn Afr., N, LIM, NW, G, M, FS, KZN, L, EC.

buchnerianus Briq.

Perennial, soft, dwarf shrub or semi-succulent herb, 150–500 mm high; stems erect or spreading, hirsute to canescent. **Leaves** petiolate, ovate to broadly ovate, base truncate, apex obtuse to rounded, margins crenate-dentate. **Inflorescence** fairly dense, terminal panicle; bracts broadly ovate, obtuse, usually imbricate. **Flowers** alternately single or in pairs, pale mauve to rosy pink. **Calyx** 1 mm long, enlarging to 3 mm at flowering, shortly 5-toothed. **Corolla** 4–5 mm long; lower lip with deltoid tooth or projection at base and somewhat hooded at apex. **Style** 2-fid. **Flowering time** Apr.? **Fruit** orbicular or ovoid nutlet. Shallow soil among rocks in semi-shady places, alt. 550–2 200 m; Sub-Escarpment Grassland, Lower Karoo (Kokstad, Graaff-Reinet).

parvifolius Benth.

Semi-succulent, perennial herb or shrub, 0.2–0.5 m high, woody base; stems spreading-ascending, glabrous to puberulous. **Leaves** petiolate, softly fleshy, ovate to subrotund, glabrous to puberulous, base obtuse to truncate, apex obtuse to rounded, margins subentire to sparingly dentate. **Inflorescence** terminal raceme with compact spikes, much branched; bracts lanceolate to ovate-elliptic, acute or acuminate, overlapping except in bud stage. **Flowers** white to pinkish with reddish purple markings. **Calyx** elongate and becoming truncate at maturity. **Corolla** bilabiate; tube curved near base. **Stamens** 4, didynamous, attached in corolla mouth. **Flowering time** July–May. Forests, grassland, stony/rocky, alt. 5–1 525 m; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests, Albany Thicket (Lusikisiki District, Mkambati Nature Reserve, Port St Johns, Grahamstown).

AJUGA L.

Species 50, mainly in temperate areas of the Old World; 1 in sthn Afr., G, M, S, FS, KZN, L, EC.

ophrydis Burch. ex Benth.

Bugle plant

Perennial herb, 60–250 mm high; stems several, decumbent-ascending. **Leaves** form a basal rosette, sessile or shortly petiolate, obovate to obovate-lanceolate, subglabrous to sparingly pilose, base cuneate, apex obtuse to rounded, margins coarsely few-toothed to repand or almost entire. **Inflorescence**: verticils spaced below, crowded at apex; verticillasters 2–many-flowered. **Flowers** blue to mauve; pedicels up to 1 mm long. **Calyx** hispid, teeth deltoid. **Corolla**: upper lip emarginate; lower lip deeply emarginate. **Stamens** 4, curved within upper lip, lower pair slightly longer. **Flowering time** Sept.–May. **Fruit** obovoid nutlets. Grassland, grazed, recently burned, stony/rocky, alt. 160–2 440 m; Mesic Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Sub-Escarpment Savanna, Albany Thicket [Barkly East to Kokstad District S, from Bailey (Andriesberg) to Mkambati Nature Reserve, Katberg to Kentani and from Greater Addo Elephant National Park to Grahamstown].

BALLOTA L.

Horehound; *kattekruie* (A)

Species ± 35, concentrated around the Mediterranean and adjoining Asia Minor; 1 in sthn Afr., N, FS, NC, WC, EC. In arid parts of the winter-rainfall region.

africana (L.) Benth

Catmint; *katkruie* (A)

Perennial herb or small shrub, 0.3–1.2 m high, soft, erect or spreading. **Leaves** petiolate, orbicular to ovate, densely pubescent, soft to rugose, base cordate to rounded, apex rounded to subacute, margins irregularly crenate-dentate; petioles villous. **Inflorescence** simple or branched; few to many verticils, spaced below, crowded above; verticillasters many-flowered, subglobose. **Flowers** purple or pinkish to pale mauve. **Calyx** densely hispid-villous, glandular; limb spreading, 10–20-toothed; teeth ovate-deltoid, subulate or spine-tipped. **Corolla** bilabiate; upper lip erect, flat, bilobed; lower lip 3-lobed, emarginate. **Flowering time** Sept.–May. **Fruit** ovoid-oblong nutlets. Moist upland grassland, along watercourses, open woodland, alt. 3–1 525 m; Upper Karoo, Drakensberg Grassland, Sub-Escarpment Savanna, Dry Highveld Grassland, Eastern Fynbos-Renosterveld, Lower Karoo, Albany Thicket (Burgersdorp and Middelburg Districts to Queenstown S, from Cradock to Somerset East and from Willowmore to Peddie).

ENDOSTEMON N.E.Br.

Species 17, mainly in Africa; 3 in sthn Afr., N, B, LIM, M, S, KZN, EC.

obtusifolius (E.Mey. ex Benth.) N.E.Br.

Soft, straggling to erect herb or shrub, 0.5–1.5 m high, much branched; stems hispid. **Leaves** petiolate, broadly ovate, upper surface thinly pilose, undersurface hispidulous and reticulately veined, apex obtuse to truncate, margins shallowly crenate-serrate. **Inflorescences**: lax racemes of many spaced verticils; verticillasters 2–12-flowered; bracts ovate, acuminate. **Flowers** white. **Calyx** 5-toothed, bilabiate, accrescent, hispidulous. **Corolla** subequally 4-lobed; tube cylindrical, slightly wider at throat. **Stamens** 4, inserted above middle of corolla. **Style** simple or obscurely bifid. **Flowering time** Nov.–May. **Fruit** suborbicular or oblong nutlets. Wooded streambanks and forest margins, alt. 5–1 645 m; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests (Transkei, Mzamba Bridge to Mqanduli and Port St Johns districts).

*LAMIUM L.

Species ± 40, mainly in the North Temperate zone of the Old World; 1 weedy in sthn Afr., G, FS, L, NC, WC, EC.

amplexicaule L.

Dead-nettle, henbit; *turksenael* (A)

Annual or perennial, soft herb, 0.1–0.4 m high, freely branched from base; stems ascending or decumbent. **Leaves** petiolate, subrotund to reniform, base cordate to truncate, apex rounded, margins coarsely and deeply crenate or lobed. **Inflorescences**: 2–6 verticils, spaced below, crowded above; verticillasters 3–10-flowered; bracts clasping. **Flowers**: purple to whitish. **Calyx** villous, 5-toothed; teeth lanceolate-subulate. **Corolla** bilabiate; tube slender, dilated towards mouth; upper lip ascending, concave; lower lip spreading or deflexed. **Style** 2-lobed. **Flowering time** Mar.–Sept. **Fruit** smooth, oblong nutlets. In towns or outskirts of towns, road- or railway sides, alt. 516–1 700 m; origin

Europe, widespread weed; Upper Karoo, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Albany Thicket (Albert District S, from Middelburg District to Queenstown and Mthatha and to Alice and Alexandria districts).

LEONOTIS (Pers.) R.Br.

[*LEUCAS* Burm. ex R.Br. *pro parte* (African species)]

Minaret flower; *wilde dagga* (A)

Species ± 65, Africa and Arabia; enlarged genus in sthn Afr. to 10 spp., N, B, LIM, NW, M, G, S, FS, KZN, NC, WC, EC.

Taxa according to Vos (1995), emended by Manning & Goldblatt (2012).

capensis (Benth.) J.C. Manning & Goldblatt

[= *Lasiocorys capensis* Benth., *Leucas capensis* (Benth) Engl.]

Perennial, dwarf shrub, 0.25–1.50 m high; sparingly or freely branched; stems canescent-tomentulose, eventually glabrescent. **Leaves** shortly petiolate, linear-spathulate to elliptic or lanceolate, base cuneate, apex rounded, occasionally apiculate, margins entire. **Inflorescences** elongate, terminal, or on short, often fascicled, lateral shoots; few to many verticillasters, 2–6-flowered; bracteoles subulate. **Flowers** sessile or shortly pedicellate. **Calyx** canescent, almost symmetrical at mouth, 5–8-toothed; teeth ovate-deltoid, shortly acuminate-spinescent, additional teeth smaller. **Corolla**: tube annular-papillose about middle; upper lip with dense, short, brush-like fringe in upper half; lower lip spreading or deflexed. **Flowering time** all year. Widespread, dryer types of grassland, low woodland, alt. 30–1 465 m; in all bioregions, except Upper Karoo and Mesic Highveld Grassland (Queenstown E to Mqanduli District S, from Klipplaat to Komga and from Steytlerville to Kap Valley near Bathurst).

dubia E.Mey.

Perennial shrub, 1.5–3.0 m high; base woody, stems slender, branched, 4-furrowed; densely covered with minute curled hairs. **Leaves** petiolate, ovate to broadly ovate, 32–57 × 25.4–57.0 mm, base cordate, truncate or cuneate, apex obtuse to shortly acuminate, margins coarsely crenate-serrate; thinly to densely velvety pubescent, especially beneath. **Inflorescence**: verticillasters 1–3, densely flowered; bracteoles subulate or linear, up to 12 mm long, slightly spinescent. **Flowers** deep orange-yellow. **Calyx** 15–17 mm long, shortly pubescent; teeth 8, uppermost deltoid, 3–4 mm long, spinescent, other teeth very small (obsolete), obtuse, pubescent. **Corolla**: tube up to 22.5 mm long; upper lip up to 16 mm long; lower lip 7–8 mm long. **Flowering time** all year. In forests; Indigenous Forests (Malowe Forest in Clydesdale S, from N'qebanya Mountain near Queenstown to Seymour).

glabrata (Vahl) J.C. Manning & Goldblatt

(= *Phlomis glabrata* Vahl)

Perennial herb or soft shrublet, 0.25–0.80 m high; branched from base; stems spreading to suberect, sparingly branched, glabrous to pilose. **Leaves** shortly petiolate, linear to ovate-lanceolate, or ovate, glabrous to pilose, base obtuse to truncate or tapering, apex obtuse to subacute, margins coarsely few toothed, rarely entire. **Inflorescences**: several 2–12-flowered verticillasters, spaced below, crowded towards apex; bracteoles small, setaceous. **Calyx** subglabrous to hispid; teeth 10, ± subequal, lanceolate-deltoid. **Corolla**: tube annular-papillose about middle; upper lip horizontal, with fringe of bristle-hairs on apical part; lower lip 5–7 mm long. **Flowering time** Aug.–Mar. Woodland and among

rocks in grassy places, alt. 30–1 350 m; Sub-Escarpment Grassland, Sub-Escarpment Savanna (Mount Ayliff and Mqanduli districts S to Komga and Dwesa Nature Reserve).

intermedia Lindl.

Subshrub, 1.2 m high; stem erect, densely, shortly appressed-pubescent. **Leaves** petiolate, ovate-lanceolate to ovate, up to 76 × 51 mm, base cordate to cuneate, apex obtuse to acuminate, margins crenate to crenate-serrate; very shortly and ± densely pubescent, gland-dotted beneath. **Inflorescence**: verticillasters solitary and subterminal, sometimes with second smaller one above, densely flowered; bracteoles linear-lanceolate, up to 13 mm long, apex spinose. **Flowers** orange-yellow. **Calyx** 12–20 mm long, densely villous outside in upper half; teeth 8–10, short, uppermost longest, all spinose. **Corolla**: tube 16–19 mm long, upper lip ± 12 mm and lower lip ± 7 mm long. **Flowering time** Jan.–May? Grassland, stony slopes, moist gulleys, scrubby forest margins; Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Sub-Escarpment Savanna, Albany Thicket (Mzimkhulu River, Mkambati Nature Reserve, Port St Johns, Kentani, Keiskammahoek, Mazeppa Bay, Albany District near Collingham, Gulu near East London).

leonurus (L.) R.Br.

umFinafincane (X); *uTshwala-bezinyoni omncane* (Z)

Perennial shrub, 2–5 m high, base woody; densely pubescent, hairs antrorse. **Leaves** petiolate, linear, 50–100 × 10–20 mm, base and apex acute, margins serrate in distal half; upper surface green and rough, lower surface more densely pubescent. **Inflorescence** simple; verticillasters 3–11, compact, subsperical, 25–40 mm in diam. **Flowers** covered by orange-coloured hairs. **Calyx** 12–15 mm long; teeth 10, 0.9–3.0 mm long, subequal, spreading. **Corolla**: tube bent forward, 26–30 mm long, fringed on inside; lobes of lower lip 4.2–7.2 mm long, lateral ones retuse. **Flowering time** all year. Forest margins, riverbanks, rocky hillsides, high grassland; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Drakensberg Grassland, Eastern Fynbos-Renosterveld, Albany Thicket (Aliwal North and Bizana Districts S, Mtata River to Manteku, Fort Hare to Kentani, Baviaanskloof to East London and Clarkson to Tsitsikamma Forest).

martinicensis (Jacq.) J.C.Manning & Goldblatt

[= ***Clinopodium martinicense*** Jacq., ***Leucas martinicensis*** (Jacq.) R.Br.**]**

Bobbin weed; *waaibossie* (A); *amandetshi* (Z)

Erect, annual herb, 0.15–1.20 m high; stems simple or sparingly branched, finely tomentulose. **Leaves** petiolate, ovate to ovate-lanceolate, base cuneate to obtuse, apex long acute, margins coarsely crenate-serrate. **Inflorescences** of few to several, spaced, many-flowered, glomerate verticillasters; bracteoles many. **Calyx** tubular, hispid, abruptly curved near apex, inflated near base, 10-toothed, upper tooth longest, lanceolate-subulate, remaining 9 teeth subequal, deltoid-subulate. **Corolla**: tube exannulate or imperfectly annular-papillose; upper lip lacking fringe of stiff hairs; lower lip 2.0–2.5 mm long. **Flowering time** Oct.–June. Weed of cultivated land and disturbed places, alt. 120–1 705 m; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Albany Thicket (Clydesdale S, from Alice to Kentani District and from Breakfast Vlei to East London, Nahoon River Mouth and Valley).

ocymifolia (Burm.f.) Iwarsson

Perennial shrub, 1–5 m high; base woody, much-branched, nodes and leaf scars prominent. **Leaves** petiolate, ovate, broadly ovate or obovate , 9–170 × 4–85 mm, base cordate

to angustate, apex acute, margins crenate; upper surface green, pubescent to velvety, lower surface silvery velvety; colourless, sessile glands present. **Inflorescence** simple; verticillasters 2–5, subsperical, 28–78 mm in diam. **Flowers** covered by orange-rufous hairs. **Calyx** 14–30 mm long; bilabiate (or not), teeth 8(–11), rigid, deltoid, apex apiculate and white, dorsal one 2–14 mm long, 3 or 5 lower teeth bent downwards. **Corolla**: tube 10–15 mm long, 1 ring of hairs inside; median lobe of lower lip retuse, 2.5–4.5 mm long. **Flowering time** all year. Grassland, afromontane, renosterveld, valley bushveld, dry fynbos, kloof forest; widespread in all bioregions (Burgersdorp to Mount Frere S, Middelburg to Mkambati Nature Reserve, Graaff-Reinet to Kentani, Joubertina to East London and to Humansdorp).

LEUCAS Burm. ex R.Br. see **LEONOTIS** (Pers.) R.Br.

The African species of *Leucas* are not immediately related to the Asian species, accordingly the African species are treated as part of an enlarged *Leonotis* (Manning & Goldblatt 2012).

*MARRUBIUM L.

Species 30, natives of Europe, N Africa and Asia; 1 naturalised in sthn Afr., FS, L, EC.

vulgare L.

Hoarhound; *houdsbene* (A)

Perennial herb, 0.3–0.6 m high; stems few to several; erect, base woody, lanate. **Leaves** petiolate, ovate to subrotund, base cuneate, apex rounded, margins crenate-dentate; tomentose above, densely lanate below. **Inflorescences** simple, of 4–12 spaced verticillasters; bracteoles linear-filiform, villous. **Flowers** white to purplish. **Calyx**: tube stellate-hispid; teeth 10, subulate, spine-tipped, spreading, bent or hooked at apex. **Corolla**: tube included in calyx, glabrous or with ring of hairs within; upper lip erect, flat or concave, entire to deeply 2-fid; lower lip spreading, 3-fid. **Stamens** 4, didynamous, included in corolla tube. **Flowering time** Oct.–May. **Fruit** smooth, ovoid nutlets. Closed woodland, planted pasture, cultivated land, alt. 5–1 830 m; origin Europe; Upper Karoo, Lower Karoo, Drakensberg Grassland, Albany Thicket (Middelburg District, Grootfontein S, from Kendrew to Alice and from Port Elizabeth to Aloes).

MENTHA L.

Mint

Species 20–30, cosmopolitan, mainly in temperate regions; 3 (1 with 3 varieties) in sthn Afr., N, LIM, NW, G, M, S, FS, KZN, L, NC, WC, EC.

Leaves usually petiolate; inflorescences of oblong or globose clusters

aquatica L.

Water mint; *kruisement* (A); *ityaleba* (X); *amayime* (Z)

Perennial herb, up to 0.8 m high; subglabrous or sparingly to densely pubescent. **Leaves** lanceolate to broadly-ovate, glabrous to densely pubescent, freely gland-dotted, base cuneate to rounded, apex acute to acuminate, margins obscurely to distinctly toothed. **Inflorescences** terminal, of 1–4 spaced flower clusters, the uppermost globose to oblong-capitate, subtended by reduced leaves (bracts), the lower clusters distant, globose, subtended by leaves; bracteoles linear. **Flowers** pale to deep mauve, pinkish or purple; rachis and pedicels subglabrous to densely pubescent. **Calyx** tubular, sparsely to densely

pubescent. **Corolla** ± 5 mm long. **Flowering time** Oct.–Apr. In marshes and wet places; Drakensberg Grassland, Sub-Escarpment Savanna (Barkly East to Bizana District S, from Kraalberg to Maclear and from Elandsberg to Komga).

Leaves sessile or subsessile; inflorescences cylindrical, tapering towards apex

longifolia (L.) Huds.

Horsemint; *ballerja* (A); *inzinziniba* (X); *ufuthane lomhlanga* (Z)

Perennial, rhizomatous herb, up to 1.5 m high; retrorse-tomentose. **Leaves** sessile or subsessile, linear-lanceolate to lanceolate, base truncate to obtuse, apex acuminate, margins entire to shortly and distantly toothed; fairly densely to densely pubescent on one or both surfaces; glabrous to variously pubescent. **Inflorescences** usually of many verticils, often lax below, dense above; rachis usually densely retrorse-tomentose; bracteoles linear. **Flowers** white to mauve; pedicels hispid. **Calyx** tubular-campanulate, densely to sparingly glandular-hispid. **Corolla** 3–5 mm long. **Stamens** exserted or occasionally abortive. **Flowering time** Nov.–Apr. Grassland, thickets, stony/rocky, alt. 75–2 590 m; widespread in all bioregions, except in Mesic Highveld Grassland, Lower Karoo, Rainshadow Valley Karoo (Barkly East to Kokstad S, from Middelburg to Tsitsa River, Cradock to Kentani and from Baviaanskloof to Kouga River).

OCIMUM L.

[= *BECIUM* Lindl., *ERYTHROCHLAMYS* Gürke, *NAUTOCHILUS* Bremek., *ORTHOSIPHON* sect. *SERRATI* Ashby, *ORTHOSIPHON* subgen. *NAUTOCHILUS* (Bremek.) Codd]

Species 64 (including *Becium*), tropical and subtropical, especially in Africa (33 spp.); 15 in sthn Afr., widespread, except WC.

Paton et al. (1999) carried out a parsimony analysis suggesting that *Ocimum* is a monophyletic group if segregate genera such as *Becium* and *Erythrochlamys* are included within it.

Many aromatic herbs and shrubs with thymol-containing essential oils used in flavouring, *O. basilicum* L. (sweet basil) grown as a pot-herb for its aromatic foliage and purple-leaved cultivar as an ornamental garden plant.

Calyx with lateral pair of teeth small, subulate, not replaced by a shoulder-like sinus; lowest pair of teeth fused, forming an oblong, emarginate or 2-toothed lip; stamens and corolla not markedly exserted

americanum L. var. **americanum**

Aromatic annual or short-lived, perennial herb, 0.15–0.70 m high; stems woody at base, ± quadrangular, erect or ascending; indumentum of short, appressed, retrorse hairs, long spreading hairs at nodes. **Leaves** petiolate, narrowly ovate to elliptic, 11–55 × 4–25 mm, base cuneate, apex acute, margins entire to shallowly serrate; ± glabrous above, longer, stiff, patent hairs on venation beneath. **Inflorescence** lax; verticils ± 10 mm apart. **Flowers** white or pale mauve. **Calyx** 4–5 mm long when fruiting. **Corolla** 4–6 mm long; tube straight, funnel-shaped. **Stamens** exserted by 1–3 mm. **Anthers** ± 0.5 mm long when dry. **Flowering time** Dec.–May. Cultivated, disturbed ground, grassland prone to flooding; Upper Karoo, Sub-Escarpment Savanna (Hofmeyr District and Mateku Waterfall S, Komga, Kei River).

Calyx with lateral pair of teeth obsolete but replaced by a wide, shoulder-like sinus, often with fimbriate margin; lowest pair of teeth subulate or bristle-like; stamens and corolla markedly exserted

[E]burchellianum Benth.
[= *Becium burchellianum* (Benth.) N.E.Br.**]**

Twiggy, soft shrub, 0.5–1.0 m high; single-stemmed and woody at base. **Leaves** subfasciculate at nodes, subsessile, subspathulate to oblanceolate, 5–14 × 2–5 mm, base attenuate, apex rounded, margins entire; ± coriaceous; grey-green, densely white-puberulous, especially on lower surface, gland-dotted. **Inflorescence** slender, spaced with 4–8 verticils. **Flowers** white, mauve or dull purple. **Calyx** expanding to 7 mm long in fruit. **Corolla** 8–9 mm long. **Stamens** exserted by 7–9 mm. **Flowering time** all year. Frequent constituent of karroid scrub; Upper Karoo, Dry Highveld Grassland, Sub-Escarpment Grassland, Albany Thicket, Sub-Escarpment Savanna (restricted area: from Middelburg, Witkransnek Pass S, Graaff-Reinet to Albany District between Bedford and Grahamstown, and from Somerset East District, Beenleegte to Grahamstown Flats).

obovatum E.Mey. ex Benth. subsp. **obovatum** var. **obovatum**
[= *Becium grandiflorum* (Lam.) Pic.Serm. var. *obovatum* (E.Mey. ex Benth.) Sebald, *Becium obovatum* (E.Mey. ex Benth.) N.E.Br. subsp. *obovatum* var. *obovatum***]**

Several-stemmed perennial, up to 0.3 m high; arising annually from woody rootstock. **Leaves** subsessile, linear-elliptic to obovate, 15–40 × 5–20 mm, base ± cuneate, apex ± acute, margins entire; subglabrous to villous, gland-dotted. **Inflorescence** subcapitate or with 1–3 spaced verticils. **Flowers** white to pale mauve. **Calyx** expanding to 7–10 mm long in fruit. **Corolla** 10–17 mm long; upper lip with longitudinal violet lines. **Stamens** exserted by 14–20 mm. **Flowering time** Sept.–Feb. Dense grassland at higher altitudes; Sub-Escarpment Savanna, Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Albany Thicket (Clydesdale to Bizana District S, from Emgwali River to Ntsubane Forest Station, from East London and Kentani Districts to Kei River Mouth).

obovatum E.Mey. ex Benth. subsp. **obovatum** var. **galpinii** (Gürke) A.J.Paton
[= *Becium grandiflorum* (Lam.) Pic.Serm. var. *galpinii* (Gürke) Sebald, *Becium obovatum* (E.Mey. ex Benth.) N.E.Br. var. *galpinii* (Gürke) N.E.Br.**]**

Differing from var. *obovatum*: **Leaves** large, lanceolate to obovate 25–60 × 10–30 mm, margins distinctly toothed; villous, especially on conspicuous veins below. **Flowering time** July? Along eastern escarpment; Sub-Escarpment Savanna (between Ntsubane and Mboyti).

PLECTRANTHUS L'Hér.

Forest sage; *spoorsalie* (A)

Species ± 350, in Africa, India, Australia and Japan; 55 in sthn Afr., N, B, LIM, NW, G, M, S, FS, KZN, L, WC, EC.

Greatest horticultural potential in EC and KZN.

Subdivision of *Plectranthus* following Codd (1975, 1985) and Van Jaarsveld & Thomas (2006).

1a Mature calyx subequally 5-toothed, often erect or finally circinnate (in P. cylindraceus *the uppermost calyx tooth is slightly larger than the other 4, but difficult to see due to dense covering of hairs)(subgenus* Burnatastrum *Codd)*

cylindraceus Hochst. ex Benth.

Camphor spurflower; *kanfer spoorsalie* (A)

Erect or decumbent, perennial succulent, 0.6–1.5 m long; basal leaves in dense cluster, stems annular. **Leaves** sessile to shortly petiolate, blade fleshy, broadly obovate 25–50 × 15–40 mm, base cuneate, apex obtuse, margins with few irregular teeth; both surfaces tomentulose, lower surface pale to yellow gland-dotted. **Inflorescence** terminal, rachis 80–350 mm long; verticillasters more than 10-flowered. **Flowers** pale mauve and white. **Corolla** 4–5 mm long; tube straight, expanding slightly towards throat; upper lip 1 mm long, lower lip concave, 2 mm long, both lips pubescent. **Stamens** free to base. Rocky outcrops on sandy substrates in dry woodland in summer rainfall regions; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Ethiopia S to Umtamvuna and Mbashe rivers).

spicatus E.Mey. ex Benth.

Spike spurflower; *ritsblom spoorsalie* (A)

Decumbent, succulent, perennial herb, up to 0.6 m high; finely tomentose. **Leaves** subsessile to shortly petiolate, fleshy, thick-textured, obovate, 25–50 × 8–25 mm, finely pubescent, veins indistinct, base cuneate, apex obtuse, margins with few irregular teeth in upper half. **Inflorescence** terminal, rachis 90–300 mm long; verticillasters up to 9-flowered. **Flowers** purple. **Calyx** slightly ventricose, circinnate, mouth erect, subequally 5-toothed. **Corolla** 7–8 mm long; tube initially narrow and ascending then sharply decurved about middle and expanding towards throat; lower lip boat-shaped. **Stamens** free to base. **Flowering time** Mar.–July. Dry woodland, rocky places or brackish flats, alt. 25–1 065 m; Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Komga E to Idutywa District S, from Kouga River in Humansdorp District to Kap River in Bathurst District).

1b Mature calyx with upper tooth distinctly broader than the rest, oblong to ovate or subrotund, remaining 4 teeth deltoid to subulate; calyx finally horizontal, teeth spreading
2a Mature calyx densely villous in the throat; stamens united at base; verticillasters with pedicels erect, appressed to rachis (subgenus Calceolanthus *Codd)*
3a Erect or spreading semi-succulent herbs up to 0.6 m high; leaves ovate-lanceolate to obovate 9–50 × 9–35 mm

neochilus Schltr.

Smelly spurflower, lobster flower; *rotstuinsalie* (A)

Perennial herb, 0.12–0.50 m high; succulent, decumbent to erect; stems sparingly to densely villous; roots sometimes tuberous. **Leaves** petiolate, often viscid, obovate to elliptic-ovate, pubescent, base cuneate to attenuate, apex obtuse, margins obscurely few-toothed. **Inflorescence** terminal, rachis 70–150 mm long; verticillasters 6-flowered; bracts forming a 4-angled apical coma. **Flowers** mauve-purple. **Calyx** 6 mm long, enlarging after flowering. **Corolla** 10–20 mm long; tube slightly geniculate about middle and expanding towards throat; lower lip boat-shaped. **Stamens** united at base. **Flowering time** autumn, Dec.–May. Under trees in open woodland, among rocks in grassland, alt. 15–1 800 m; Sub-Escarpment Savanna, Drakensberg Grassland, Albany Thicket (Lusikisiki S, Alice to Komga and Peddie District to East London).

*ornatus Codd

Related to *P. neochilus* (above), but may be separated as follows: **Inflorescence** shorter, more compact. **Corolla** 20–25 mm long, especially upper lip; lower lip often split longitudinally at apex. **Leaves** unpleasantly scented. **Flowering time** throughout summer, peak in autumn. At relatively high altitudes and semi-naturalised in sthn Afr., occurring in grassland above forest zone; origin Ethiopia and Tanzania.

pentheri (Gürke) Van Jaarsv. & T.J.Edwards

Penther spurflower; *Penther spoorsalie* (A)

Perennial herb, up to ± 0.1 m high; roots tuberous, white; stems succulent, sparsely pilose, punctuate, glands orange. **Leaves** conduplicate, succulent, firm, ovate to subrotund, 9–14 × 9–14 mm, base broadly cuneate, apex obtuse, margins entire to dentate-serrate in upper half, teeth shallow, 4 or 5 pairs. **Inflorescence** terminal, rachis 50–70 mm long; verticillasters 6-flowered; bracts broadly ovate to subrotund, mucronate. **Flowers** white. **Calyx** with upper lip broadly ovate, lower lobes 4, linear. **Corolla** 15 mm long; tube laterally compressed, slightly geniculate; upper lip 2-lobed; lower lip boat-shaped. **Flowering time** Mar.–May. **Fruit** an ovoid nutlet, brown to black. Shallow soil among granite boulders in grassland, alt. ± 530 m; Albany Thicket (KZN to Breakfast Vlei). Closely related to *P. neochilus* Schltr.

3b Erect bushy herbs up to 3 m high; leaves not succulent, ovate to broadly elliptical, 50–90 × 30–50 mm

*barbatus Andrews

Bearded spurflower; *baard spoorsalie* (A)

Perennial, soft shrub or semi-succulent, woody herb, up to 3 m high; stems densely woolly-tomentose. **Leaves** petiolate, ovate to broadly ovate-elliptical, densely woolly-tomentose, undersurface copiously gland-dotted, base obtuse to cuneate, apex obtuse to rounded, margins regularly crenate-dentate. **Inflorescence** terminal, rachis 200–230 mm long; verticillasters 6–8-flowered; bracts large and imbricate in bud stage, elongating and lax with age, ovate, acuminate. **Flowers** pale blue-mauve. **Calyx** glandular-hispid. **Corolla**: tube geniculate about middle and expanding to mouth; lower lip boat-shaped. **Stamens** united at base. **Flowering time** Jan.–Apr. Naturalised, disturbed places, open shrubland, alt. 213–1 075 m; origin India; Sub-Escarpment Savanna, Albany Thicket (Grahamstown, Bathurst).

2b Mature calyx glabrous in throat; stamens free to base; verticillasters with pedicels spreading to ascending (subgenus Plectranthus*)*
4a Floral bracts usually early deciduous; mature calyx distinctly swollen at base, ventrally gibbous; verticillasters up to 30-flowered (section Coleoides *Benth.)*
5a Stems erect or decumbent; flowers mauve to purple (rarely white)

aliciae (Codd) Van Jaarsv. & T.J.Edwards

Kentani spurflower; *kentani spoorsalie* (A)

Perennial, semi-succulent herb, 0.2–0.4 m high; stems erect to decumbent. **Leaves** petiolate, membranous, broadly ovate, 25–40 × 22–40 mm, base truncate to cuneate, apex rounded to acute, margins shallowly crenate with 3 or 4 pairs of rounded teeth; sparingly strigose, upper surface rubro-punctate. **Inflorescences** terminal to main stem and on side branches, rachises 70–130 mm long; verticillasters 6–12-flowered. **Flowers** white to light mauve. **Calyx** 3 mm long, elongating to 5 mm after flowering. **Corolla** small, 5–14 mm long; tube widening at throat. **Flowering time** Mar.–May. **Fruit**

of 1 mm long nutlets, light to dark brown. Shade of subtropical coastal forest, alt. ± 400 m; Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Oribi Gorge S to Kentani and East London).

hadiensis (Forssk.) Schweinf. ex Spreng. var. **tomentosus** (Benth.) Codd

Hairy spurflower; *harige spoorsalie* (A); *ilozane* (Z)

Perennial, semi-succulent herb, 0.5–1.5 m high; erect to decumbent, sparsely to densely tomentose. **Leaves** petiolate, thick-textured, ovate to subrotund, 40–105 × 30–100 mm, base cuneate to subcordate, apex acute to rounded, margins distinctly crenate-dentate; sparingly strigose to densely woolly-tomentose. **Inflorescence** terminal; simple or with 1 or 2 pairs of branches near base; rachis 80–500 mm long; verticillasters 8–25-flowered. **Flowers** mauve to purple, rarely white. **Calyx** glandular-scabrid. **Corolla** finely pubescent and gland-dotted on lips; tube expanding gradually from base and bent about middle; lower lip boat-shaped. **Flowering time** Mar.–June. Forest margins in dry woodland or rocky places in grassland, alt. 30–1 800 m; Sub-Escarpment Savanna, Indigenous Forests, Indian Ocean Coastal Belt (Mqanduli and Port St Johns Districts, Komga, Kentani and Cintsa West).

woodii Gürke

See Van Jaarsveld & Thomas: 164 (2006).

[= *P. hadiensis* (Forssk.) Schweinf. ex Spreng. var. *woodii* (Gürke) Codd]

Perennial herb, up to 0.6 m high; rootstock tuberous, branches spreading. **Leaves** 20–60 × 15–50 mm, ovate to broadly ovate, base cuneate to subcordate, apex acute to round, margins crenate-dentate with 4–7 pairs of teeth; puberulous to tomentose. **Inflorescence** terminal, rachis up to 350 mm long; verticillasters 4–8-flowered. **Flowers** mauve to white. **Calyx** 2–3 mm long, enlarging to 5–6 mm after flowering. **Corolla** 8–12 mm long; tube deflexed, widening towards throat. **Flowering time** Mar.–June. A savanna species, in humus pockets on rocky outcrops; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Albany Thicket (Bizana District S to Mkambati, Fort Beaufort and Coega near Port Elizabeth).

5b Stems procumbent; flowers white, mauve or blue

grandidentatus Gürke

Big-teeth spurflower; *groottand spoorsalie* (A)

Perennial, semi-succulent, procumbent herb, up to 2 m long; fairly densely tomentose. **Leaves** petiolate, ovate to broadly ovate, 20–70 × 18–75 mm, base truncate, apex acute, margins deeply dentate with 4–7 pairs of triangular teeth; densely pubescent, lower surface red to brownish gland-dotted. **Inflorescences** terminal, on short lateral shoots, occasionally with 1 or 2 pairs of branches near base; rachis up to 225 mm long; verticillasters 6–12-flowered. **Flowers** white (rarely purple). **Calyx** glandular-scabrid. **Corolla** finely pubescent and gland-dotted; tube slightly bent about middle and expanding to throat; lower lip boat-shaped. **Flowering time** Mar.–June. Dry, rocky places in open woodland, alt. 335–1 775 m; Sub-Escarpment Grassland, Sub-Escarpment Savanna (Kokstad near Mzimkhulu River S, from Queenstown to Tabankulu District and Seymour to Willowvale District).

madagascariensis (Pers.) Benth.

Thicket spurflower; *ruigte spoorsalie* (A); *ibozane* (Z)

Perennial, semi-succulent herb, procumbent (1 m long) to decumbent (0.2–0.4 m high). **Leaves** petiolate, ovate to subrotund, 15–30 × 10–25 mm, base truncate to cuneate,

apex obtuse to rounded, margins crenate-dentate; upper surface strigose, lower surface tomentose. **Inflorescence** simple or with 1 or 2 pairs of branches near base, rachis 90–250 mm long; verticillasters 6–16-flowered. **Flowers** white. **Calyx** 4–5 mm long when fruiting. **Corolla** 5–18 mm long; tube bent about middle; lower lip boat-shaped. **Flowering time** Feb.–May. Forest margins, dry woodland, sandy soil among rocks, alt. 6–1 830 m; Indian Ocean Coastal Belt, Drakensberg Grassland, Indigenous Forests, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Port St Johns to Mkambati S, from Shiloh to Kei River and Greater Addo Elephant National Park to Grahamstown and Peddie).

4b Floral bracts persisting to beyond flowering stage; calyx not markedly swollen at base or ventrally gibbous; verticillasters up to 6-flowered (section Plectranthus*)*
6a Roots tuberous or bearing root tubers

grallatus Briq.

Drakensberg spurflower; *Drakensberg spoorsalie* (A); *umnyamawempunzi* (Z)

Perennial herb, 0.4–1.5 m high; stems erect, arising annually from tuberous rootstock, pubescent. **Leaves** petiolate, broadly ovate, 50–160 × 35–140 mm, base cuneate, apex acute to abruptly acuminate, margins irregularly crenate-dentate; thinly pilose to fairly densely pubescent. **Inflorescence**: rachis 100–260 mm long; verticillasters 6-flowered. **Flowers** white flushed pink. **Calyx** 7–8 mm long when fruiting. **Corolla**: tube slightly deflexed, expanding and saccate at base, narrowing towards throat; upper lip 4–6 mm long, purple-spotted; lower lip boat-shaped. **Flowering time** Dec.–May. Forest and scrub forest, among rocks in shady places, alt. 565–2 200 m; Drakensberg Grassland, Sub-Escarpment Grassland, Indigenous Forests, Sub-Escarpment Savanna (Ongeluksnek to Tabankulu S, from Queenstown to Baziya Mtn and from Katberg Pass to Mount Kemp in Pirie Forest).

[E]**mzimvubuensis** Van Jaarsv.

Mzimvubu spurflower

Perennial, aromatic shrub, up to 1 m high; roots fibrous, bearing distinct oblong to rounded grey tubers; stems herbaceous, 4-angled. **Leaves** petiolate, broadly ovate-deltoid to subrotund, 25–50 × 28–50 mm, base truncate to subcordate, apex acuminate, margins serrate-dentate with 6–10 pairs of teeth; thin-textured, surfaces translucent gland-dotted. **Inflorescence**: rachis terminal, short, up to 120 mm long, paired side branches sometimes at base; verticillasters 2–6-flowered. **Flowers** pink. **Calyx** accrescent, 2-lipped, lengthening to 11 mm in fruit. **Corolla**: tube straight, 9–10 mm long, laterally compressed, slightly deflexed, forming swollen saccate base; 2-lipped; upper lip reflexed when stigma matures; lower lip boat-shaped. **Flowering time** Mar.–June. **Fruit** a smooth, rounded nutlet. Arid savanna, on a S-facing cliff face in light shade, alt. ± 600 m; Sub-Escarpment Savanna (Mzimvubu River below Ludonga Village).

6b Roots not tuberous or bearing root tubers
7a Fertile stamens 2

zuluensis T.Cooke

Zulu spurflower; *Zoeloe spoorsalie* (A)

Erect, soft shrub, 1–2 m high; freely branched, finely tomentose. **Leaves** petiolate, softly semi-succulent, ovate to broadly ovate, 30–70 × 25–55 mm, base truncate to shortly cuneate, apex acute, margins coarsely crenate; both surfaces shortly pubescent, lower surface gland-dotted. **Inflorescence**: rachis 40–80 mm long; verticillasters 6-flowered. **Flowers**

pale blue-mauve to white. **Calyx** 7 mm long when fruiting, purple-tinged, glandular-pubescent. **Corolla** 10–16 mm long; tube deflexed, base large and saccate narrowing towards throat; upper lip 5–6 mm long with 6 rows of mauve dots; lower lip 5–6 mm long, concave, deflexed. **Stamens** free, upper 2 staminodes. **Flowering time** Oct.–June. Coastal, forests or semi-shady, rocky places; Indian Ocean Coastal Belt, Indigenous Forests (northern part of EC, Port St Johns, Bulolwe River).

7b Fertile stamens 4
8a Corolla abruptly expanding at base (saccate or spurred)
9a Upper lip of corolla 10–16 mm long

saccatus Benth.

Stoep jacaranda; *stoep jakaranda* (A)

Erect or spreading, soft shrub, 0.5–1.2 m high; freely branched; stems semi-succulent to somewhat woody, glandular-puberulous. **Leaves** petiolate, thin-textured, broadly ovate to ovate-deltoid, subglabrous to glandular-puberulous, base truncate to obtuse or shortly cuneate, apex acute, margins dentate, with few fairly large teeth. **Inflorescence**: rachis 50–120 mm long, simple or occasionally branched near base; verticillasters 2–6-flowered. **Flowers** mauve to pale blue, rarely white. **Calyx** up to 8 mm long when fruiting; subglabrous to puberulous. **Corolla** large, 13–30 mm long; tube deflexed, enlarged and markedly saccate at base, narrowing slightly towards throat; lower lip boat-shaped, horizontal or deflexed.

saccatus Benth. subsp. **pondoensis** Van Jaarsv. & Milstein

Trailing habit. **Leaves** succulent, glandular, pubescent. **Inflorescence** less floriferous than subsp. *saccatus*. **Corolla**: tube short, 6–10 mm long. Endemic to quartzitic sandstone gorges; Indigenous Forests, Indian Ocean Coastal Belt (Oribi Gorge S to Pondoland, Lupatana Gorge, Mkambati River).

saccatus Benth. subsp. **saccatus**

Corolla large; upper lip conspicuously long, equally broad. Forest, closed woodland, stony/rocky, alt. 30–1 150 m; Indigenous Forests, Indian Ocean Coastal Belt (Umtamvuna River S, from Mkambati Nature Reserve to Port St Johns and from Dwessa to Kentani District).

9b Upper lip of corolla < 10 mm long
10a Corolla parallel-sided

hilliardiae Codd

Pondo spurflower; *Pondo spoorsalie* (A)

Perennial herb, 0.3–0.4 m high; semi-succulent, stems ascending, shortly pilose, longer hairs at nodes. **Leaves** petiolate, drying membranous, broadly to obovate-elliptical, 55–90 × 40–60 mm, base cuneate, apex acute to obtuse, margins shallowly crenate-dentate above middle, ciliate; sparingly strigose, lower surface gland-dotted. **Inflorescence**: rachis 80–150 mm long, simple or with pair of branches near base; verticillasters 4–6-flowered. **Flowers** pale bluish. **Calyx** 7–8 mm long when fruiting; glandular-hispidulous near base. **Corolla**: tube deflexed, expanding and saccate at base, parallel-sided, laterally compressed and slightly narrowing towards throat; lower lip concave. **Flowering time** Feb.–June. Deeply shaded riverbanks within moist subtropical forest, alt. ± 200 m; Indigenous Forests, Indian Ocean Coastal Belt.

[E]hilliardiae Codd subsp. **australe** Van Jaarsv. & A.E.van Wyk
Fraser Gorge, Mbotyi Forest floor, Port St Johns.

hilliardiae Codd subsp. **hilliardiae**
Umtamvuna River, Magwa Waterfall, Fraser Falls, Lupatana Gorge, Mkambati Nature Reserve, Ngonyama River.

verticillatus (L.f.) Druce
Gossip spurflower; *skindersalie* (A)

Perennial, semi-succulent herb, up to 1.2 m long; stems procumbent to ascending. **Leaves** petiolate, ovate 16–40 × 12–40 mm, base truncate, apex acute to rounded, margins crenate-dentate, teeth 3–6 pairs. **Inflorescence**: rachis 40–220 mm long; verticillasters 2–6-flowered. **Flowers** white to pale mauve. **Calyx** erect, uppermost tooth erect; 4 lower teeth spreading, linear-subulate. **Corolla**: tube deflexed, expanded to slightly saccate base, scarcely narrowing to throat; lower lip shallowly boat-shaped, horizontal. **Stamens** curved in lower lip. **Flowering time** Mar.–July. Moist, stony places, forest margins, scrub forest, dry woodland, alt. 3–1 770 m; Sub-Escarpment Grassland, Indigenous Forests, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Eastern Fynbos-Renosterveld, Albany Thicket (Clydesdale S, Lusikisiki to Port St Johns, Alexander Fountain to Kei River Mouth, Cambria District to Grahamstown).

10b Corolla not parallel-sided
11a Corolla tube 25 mm long

[E]reflexus Van Jaarsv. & T.J.Edwards
Ballerina spurflower; *ballerina spoorsalie* (A)

Soft, erect, sparingly branched, perennial herb, 1.0–1.5 m; stems purplish, becoming terete, basally swollen; strigose-pubescent, with scattered, long multicellular hairs. **Leaves** triangular-ovate, 40–70 × 35–50 mm, base rounded, apex acute, margins dentate; sparingly pubescent, glands colourless. **Inflorescence**: rachis 150–200 mm long; verticillasters 6-flowered. **Flowers** purplish, protandrous. **Calyx** 4 mm long, enlarging to 8 mm after flowering. **Corolla** 28–30 mm long; tube compressed, straight in distal half, narrowing to 1.5 mm wide at throat; upper lip 4-lobed, reflexed; lower lip reflexed, linear, boat-shaped. **Flowering time** Jan.–Mar. **Fruit** a black or dark brown nutlet. Sandstone rocks of Cape Supergroup in coastal forest, alt. ± 700 m; Indigenous Forests (Port St Johns District, Bulolwe River).

11b Corolla tube < 20 mm long
12a Corolla distinctly spurred

fruticosus L'Hér.
Muishondkruie (A)

Soft shrub, 0.6–2.0 m high; roots fibrous; stems ascending; plant sparingly pubescent to glandular-pubescent. **Leaves** petiolate, broadly ovate to ovate-elliptic, base obtuse and abruptly attenuate, apex obtuse to acute, margins regularly crenate-dentate; lower surface suffused with purple with honey-coloured gland dots. **Inflorescence**: rachis 80–250 mm long; verticillasters 2–6-flowered. **Flowers** bluish mauve. **Calyx** 7–8 mm long when fruiting, glandular-hispid with scattered multicellular hairs. **Corolla** 5–13 mm long; tube deflexed, saccate to distinctly spurred at base, narrowing towards throat; upper lip purple-speckled; lower lip boat-shaped, later deflexed. **Flowering time** Mar.–May. Moist subtropical or afromontane forest and forest margins, alt. 2–2 012 m; Sub-Escarpment

Savanna, Indigenous Forests, Indian Ocean Coastal Belt (Kokstad and Mount Ayliff S, Mboyti to Port St Johns, Fort Beaufort to Kentani, Storms River to Port Elizabeth and Tsitsikamma to Humansdorp).

12b Corolla not spurred
13a Corolla tube ± 5 mm long

dolichopodus Briq.

Sky-blue spurflower; *hemelblou spoorsalie* (A)

Erect or straggling, perennial herb, 0.25–1.00 m high; stems glandular-pilose with long multicellular and gland-tipped hairs. **Leaves** petiolate, thin-textured, broadly ovate to ovate-deltoid, 30–100 × 25–80 mm, base broadly truncate and shortly attenuate, apex acute to abruptly acute, margins coarsely crenate-dentate; subglabrous to thinly pubescent. **Inflorescence**: rachis 60–150 mm long; verticillasters 2–6-flowered. **Flowers** sky-blue to deep blue. **Calyx** 6 mm long when fruiting, sparsely glandular-puberulous. **Corolla** 8–10 mm long, sparingly pubescent; tube deflexed and expanding, not markedly saccate at base, enlarging towards throat; lower lip boat-shaped, curved upwards. **Flowering time** Oct.–May. Cool, moist, afromontane forest, alt. 765–1 830 m; Indigenous Forests (disjunct distribution along Drakensberg Escarpment and midlands, uMzimkhulu and Ngeli Pass S, Toise River, Kentani District).

[E]lucidus Van Jaarsv. & T.J.Edwards

Shiny spurflower; *blinkblaar spoorsalie* (A)

Perennial, procumbent, succulent herb, mat-forming; stems rooting at nodes, 4-angled, internodes 5–20 mm long, strigose with white, multicellular hairs; roots fibrous. **Leaves** ovate to broadly ovate, 12–15 × 10–15 mm, base cuneate, apex obtuse to acute, margins serrate to crenate-dentate, with 3 or 4 pairs of teeth; lower surface sparsely strigose, rubro-punctate. **Inflorescence** simple, rachis 30–100 mm long; verticillasters 1- or 2-flowered. **Flowers** white or mauve. **Calyx** 3–4 mm long at flowering, enlarging to 7 mm, densely strigose. **Corolla** 9–11 mm long; tube straight, basally saccate, constricted distally; upper lip 2-lobed; lower lip boat-shaped, margins strongly involute. **Flowering time** Mar.–May. Coastal sand dunes below trees, alt. 60– 133 m; Indigenous Forests, Albany Thicket (Port St Johns SW to Bathurst and Alexandria Forest).

[E]strigosus Benth.

Dwarf spurflower; *dwerg spoorsalie* (A)

Perennial, semi-succulent herb, mat-forming, up to 0.3 m high; stems decumbent; rusty-hispid with multicellular hairs or greyish strigose. **Leaves** petiolate, thick-textured, broadly ovate to subrotund, 13–35 × 8–30 mm, base truncate to abruptly cuneate, apex obtuse to rounded, margins obscurely crenate; strigose, lower surface purple-tinged, numerously red gland-dotted. **Inflorescence** simple, rachis 40–150 mm long; verticillasters 2–6-flowered. **Flowers** whitish to mauve. **Calyx** 6 mm long when fruiting, sparingly strigose. **Corolla** 6–9 mm long; tube distinctly narrowing between middle and throat; upper lip purple-marked; lower lip concave. **Flowering time** Sept.–May. Well-wooded, frost-free, rocky ridges, forested river valleys, humus-rich soil, alt. 15–1 280 m; Sub-Escarpment Savanna, Indigenous Forests, Indian Ocean Coastal Belt, Albany Thicket (Umtamvuna, Mpunzi Drift S, Mqanduli to Port St Johns, Hogsback to Hole-in-the-Wall, Uitenhage to East London).

13b Corolla tube > 5 mm long

ciliatus E.Mey. ex Benth.

Eyelash spurflower; *wimper spoorsalie* (A)

Perennial herb, up to 0.6 m high; decumbent; glandular-pilose, hairs purple. **Leaves** petiolate, ovate to subrotund, 60–200 × 20–65 mm, base attenuate, apex acute to obtuse, margins shallowly crenate-dentate, ciliate; sparingly to freely strigose. **Inflorescence** simple or with pair of branches near base; rachis 200–280 mm long; verticillasters 4–6-flowered. **Flowers** whitish to light purplish pink. **Calyx** enlarging to 9 mm long after flowering; hispid, fringed with multicellular hairs. **Corolla**: tube 8–15 mm long, expanding, saccate and slightly deflexed at base, narrowing towards throat. **Flowering time** Feb.–June. Semi-coastal areas, in glades of afromontane and subtropical forests, moist shady places, alt. 15–1 730 m; Indigenous Forests (Tabankulu to Umtamvuna S, from Baziya Mtn to Port St Johns, Stockenström to Kentani and from Uniondale District to Grahamstown and Peddie).

ernstii Codd

Bonsai mint

Perennial, semi-succulent herb, up to 2 m high; branching from base; stems thickened at base, becoming brown and potato-like with age. **Leaves** petiolate, ovate to broadly ovate, 12–30 × 10–25 mm, base truncate, apex obtuse, margins with few fairly distinct teeth; sparingly pubescent, undersurface glandular-puberulous with pale to reddish brown gland dots. **Inflorescence** simple, rachis 30–120 mm long; verticillasters 2–6-flowered. **Flowers** pale bluish mauve to whitish. **Calyx** 5–6 mm long when fruiting, glandular-hispidulous. **Corolla**: tube up to 8 mm long, expanding abruptly forming a saccate base, narrowing gradually at throat; lower lip concave. **Flowering time** Oct.–May. Exposed to semi-exposed quartzitic sandstone rock faces in humus-rich pockets of soil, river gorges, alt. ± 350 m; Indian Ocean Coastal Belt (Oribi Gorge in KZN to Msikaba Gorge, Mkambati Nature Reserve).

[E]malvinus Van Jaarsv. & T.J.Edwards

Mauve spurflower; *pienk spoorsalie* (A)

Perennial decumbent, mat-forming herb; roots shallow, fibrous; stems 4-angled, purple-green, strigose. **Leaves** fleshy, firm, ovate to obovate, 40–90 × 30–50 mm, base cuneate, apex acute, margins serrate with 8–10 pairs of teeth; strigose. **Inflorescence**: rachis 180–210 mm long; verticillasters 6-flowered; bracts ovate-lanceolate. **Flowers** pink. **Calyx** 4 mm long, enlarging to 10 mm long; upper lobe ovate; lower lobes 4, linear. **Corolla** ± 12 mm long; tube laterally compressed, saccate at base, narrowing at throat; upper lip 2-lobed; lower lip boat-shaped. **Flowering time** Mar.–May. Endemic to upper regions of the quartzitic sandstone mountains indicated below, in forest margins and often cliffs, alt. ± 500–600 m; Indigenous Forests (Port St Johns District, Mount Sullivan and Mount Thesiger).

[E]praetermissus Codd

Port St Johns spurflower; *Port St Johns spoorsalie* (A)

Perennial herb, 0.2–0.5 m high; freely branched; stems decumbent, rooting at lower nodes, shortly pubescent. **Leaves** petiolate, thin-textured, ovate to subrotund, 40–65 × 40–60 mm, base truncate to abruptly attenuate, apex obtuse to rounded, margins obscurely crenate-dentate; sparingly pubescent, lower surface with many brown to reddish

gland dots. **Inflorescence** simple or sparingly branched near base; rachis 80–250 mm long; verticillasters 2–6-flowered. **Flowers** mauve to violet, darker blotches on lips. **Calyx** glandular-hispidulous, up to 10 mm long when fruiting. **Corolla**: tube 12–15 mm long, expanding abruptly and forming saccate base, narrowing gradually at throat; lower lip concave. **Flowering time** Feb.–May. Open glades in moist, semi-coastal, subtropical forest, alt. ± 200 m; Indigenous Forests (Port St Johns).

stylesii T.J.Edwards

Msikaba spurflower; *Msikaba spoorsalie* (A)

Perennial, decumbent, faintly aromatic, semi-succulent herb, up to 120 mm high; roots shallow, fibrous. **Leaves** petiolate, ovate to subrotund, 50–80 × 30–40 mm, base cuneate, apex acute, margins shallowly serrate with 4 or 5 pairs of teeth; lower surface reticulately veined, sparingly strigose, covered with reddish gland dots. **Inflorescence** simple; rachis 100–220 mm long; verticillasters 2–6-flowered. **Flowers** white. **Calyx** 7–8 mm long when fruiting. **Corolla**: tube 7 mm long, lower portion straight, expanding to 4 mm deep (3 mm from base), gradually narrowing to throat; sparingly covered with gland-tipped hairs and red gland dots; upper lip 4-lobed, 2 larger lobes bent backwards; lower lip horizontal, boat-shaped, margins infolded. **Flowering time** Sept.–May. Moist gorges in subtropical forest; Indigenous Forests (from Umtamvuna River S to Msikaba River).

8b Corolla tube not abruptly expanding at base, gradually expanding or parallel-sided
14a Corolla tube straight

ambiguus (Bolus) Codd

Pincushion spurflower; *speldekussing spoorsalie* (A); *iboza elincane* (Z)

Soft shrublet, 0.4–1.2 m high; stems erect or decumbent, shortly pubescent, tufts of longer hair at nodes. **Leaves** petiolate, thin to thickish, texture slightly rugose, ovate to broadly ovate, 25–120 × 20–90 mm, base abruptly cuneate, apex obtuse to acute, somewhat decurrent on petiole, margins shallowly crenate; subglabrous to thinly pubescent, lower surface with honey-coloured gland dots. **Inflorescence** congested, rarely simple, rachis 50–180 mm long; verticillasters (2–)6-flowered. **Flowers** bluish purple to violet. **Calyx** up to 8 mm long when fruiting, glandular-hispidulous. **Corolla** 23–30 mm long; tube straight, almost parallel-sided; lower lip concave. **Flowering time** Mar.–May. Coastal subtropical and afromontane forest, alt. 5–1 645 m; Indigenous Forests (Lupatana Gorge to Port St Johns S, from Amatole Mts to Kentani and Grahamstown to East London).

ecklonii Benth.

Ecklon spurflower; *Ecklon spoorsalie* (A)

Erect, soft shrub, 0.7–2.5 m high; freely branched, woody below; stems ascending, strigose, with longer hair at nodes. **Leaves** petiolate, firm-textured, often slightly rugose, ovate to oblong-elliptic, 74–190 × 35–115 mm, base cuneate to rarely obtuse, apex acute, margins conspicuously crenate-dentate; subglabrous to thinly pubescent. **Inflorescence** bearing 2–4 pairs of branches; rachis 250–370 mm long; verticillasters 6-flowered. **Flowers** bluish purple, rarely pink or white. **Calyx** 10–11 mm long when fruiting, glandular-puberulous towards base. **Corolla** 16–21 mm long; tube straight, increasing gradually towards throat; lower lip concave. **Flowering time** Mar.–May. Moist coastal subtropical and mild afromontane forest and forest margins, alt. 30–1 525 m; Indigenous Forests (Tabankulu District S, from Baziya Mtn to Port St Johns, Somerset East to Kentani District and from Grahamstown to East London).

14b Corolla tube curved (declinate)

laxiflorus Benth.

Citronella spurflower; *sitrinella spoorsalie* (A); *ufuthane* (Z)

Soft shrub, 0.7–1.5 m high; freely branched; glandular-pubescent. **Leaves** petiolate, thin-textured, somewhat rugose, broadly ovate-deltoid, 60–100 × 40–60 mm, pubescent, base cordate, apex acuminate, margins regularly crenate-dentate. **Inflorescence** simple or laxly branched; rachis up to 300 mm long; verticillasters 6-flowered. **Flowers** whitish to pale mauve, upper lip with mauve-brown vertical lines. **Calyx** up to 7 mm long when fruiting, glandular-pubescent. **Corolla** 12–14 mm long; tube ± sigmoid; narrow and ascending, then deflexed and expanding at throat; lower lip shallowly boat-shaped. **Flowering time** Mar.–June. Forest margins, shady streambanks, alt. 15–1 980 m; Sub-Escarpment Grassland, Indigenous Forests, Indian Ocean Coastal Belt, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld (Insizwa to Tonti Forest, S to Port St Johns, from Hogsback to Kentani District, Witte Els Bosch to Grahamstown and to the Slang River near Humansdorp).

petiolaris E.Mey. ex Benth.

Dutch-pipe spurflower; *kromsteelpyp spoorsalie* (A)

Perennial herb, up to 1 m high; stems ascending to spreading; pubescent, tufts of longer hairs at nodes. **Leaves** petiolate, thin-textured, broadly ovate-deltoid 40–140 × 35–110 mm, base subcordate, apex acute, margins coarsely crenate-dentate, often with small secondary teeth; strigose, lower surface colourless gland-dotted. **Inflorescence** simple or 1 or 2-branched near base; rachis up to 250 mm long; verticillasters 4–6-flowered. **Flowers** deep violet-purple to pink, lips bluish. **Calyx** up to 8 mm long when fruiting, glandular-puberulous. **Corolla** 12–15 mm long; tube somewhat sigmoid, narrow and ascending, then deflexed and expanding at throat; lower lip shallowly boat-shaped. **Flowering time** Mar., Apr. Shady places in subtropical coastal forests and bushveld, alt. 50–500 m; Indian Ocean Coastal Belt, Indigenous Forests (Port St Johns District, between Mtata and Mzimvubu rivers, Dwessa Forest Reserve).

PREMNA L.

Species ± 200, mainly warmer regions of the Old World; 2 in sthn Afr., LIM, NW, M, S, KZN, EC.

mooiensis (H.Pearson) W.Piep.

Skunk bush; *muishondbos* (A)

Perennial tree or shrub, 2–5 m high; much branched; indumentum of short, simple hairs; young branches and branchlets puberulous; nodes prominent. **Leaves** soft, thin-textured, ovate or subrhombic, 20–50 × 10–35 mm, base cuneate, apex broadly tapering to rounded, margins entire or subdentate in upper half; glabrous to sparsely puberulous on both surfaces, pungent smell when crushed; petioles slender, 12 mm long. **Inflorescences** terminal, cymes racemose on slender axis. **Flowers** whitish, aromatic. **Calyx** 2–5-toothed; tube cup-shaped. **Corolla** with short tube; lobes asymmetric, upper lip 2-lobed, lower lip 3-lobed. **Fruit** a pear-shaped drupe with a bony endocarp, pyrene 4-locular, loosely held in persistent calyx. **Flowering time** Sept.–Feb. Deciduous bush, stony soil, alt. 30–1 370 m; Indigenous Forests (Mntafufu River).

*PRUNELLA L.

Species 5–7, in temperate regions of both hemispheres; 1 naturalised in sthn Afr., KZN, WC, EC.

vulgaris L.

Self-heal, heal-all

Perennial, straggling herb, up to 0.3 m high; rooting at nodes, glabrous or sparingly pubescent. **Leaves** petiolate, ovate to broadly ovate, 20–30 × 12–20 mm, base obtuse, apex rounded, margins entire; sparingly pilose. **Inflorescence** dense, spike-like or subcapitate, 20–40 mm long; verticils 4–6-flowered; subtended by a pair of leaf-like bracts. **Flowers** dark blue to purple, rarely white. **Calyx** tubular-campanulate, subcompressed, 10-nerved, bilabiate; upper lip broad, shortly 3-toothed; lower lip narrower with 2 long, subulate teeth; enlarging slightly at maturity. **Corolla**: tube shortly exserted from calyx; upper lip erect, somewhat hooded, entire; lower lip slightly shorter, deflexed, 3-lobed. **Stamens** 4, didynamous, ascending beneath upper lip, lower pair longer. **Style** bifid, lobes subulate. **Fruit** an ovoid or oblong nutlet. In wet vleis or moist forest margins, alt. 457–1 850 m; origin Europe; Indigenous Forests (Weza Forest).

PYCNOSTACHYS Hook.

Species 37, in tropical Africa and Madagascar; 3 in sthn Afr., LIM, NW, G, M, S, FS, KZN, L, EC.

reticulata (E.Mey.) Benth.

Uhlalwane (Z)

Perennial, straggling herb, 0.2–2.0 m high, erect; stems solitary or few from base, sparingly branched. **Leaves** sessile or subsessile, linear-lanceolate to linear-elliptic, 40–110 × 8–25 mm, base cuneate, apex acuminate, margins regularly toothed; subglabrous to puberulous. **Inflorescence** solitary or borne on branches produced on upper part of stem; bracts linear, ciliate. **Flowers** pale blue, sky-blue, pale mauve or pinkish to almost white. **Calyx** puberulous, purple; teeth 4–6 mm long. **Corolla** 8–18 mm long, bilabiate; tube cylindric below, enlarging near throat, deflexed; upper lip 4-lobed; lower lip boat-shaped. **Flowering time** Nov.–June. Moist grassy places, alt. 10–2 134 m; Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Indigenous Forests (Mount Frere to Bizana District S, from Lusikisiki District to Mkambati and from Kentani to Gonubie Nature Reserve).

RABDOSIELLA Codd

Species 2, 1 in India; 1 in sthn Afr., LIM, M, S, FS, KZN, EC.

calycina (Benth.) Codd

Upland fly bush; *spoorblom* (A)

Soft shrub, 0.6–1.5 m high; stems 1–several, arising annually from woody rootstock. **Leaves** shortly petiolate, ovate-lanceolate to broadly ovate, 40–100 × 20–45 mm, subcoriaceous, base cuneate, apex acute, margins crenate-dentate; both surfaces subglabrous to strigose, undersurface reticulately veined, orange gland-dotted. **Inflorescence** a terminal panicle up to 300 mm long. **Flowers** white to cream-coloured; lips flushed mauve; in dense scorpioid cymes. **Calyx** erect; teeth subequal, narrowly deltoid. **Corolla**: tube narrowing gradually at throat; upper lip erect; lower lip shallowly boat-shaped.

Stamens attached in mouth of corolla tube. **Flowering time** Nov.–June. Along eastern escarpment, mountain grassland, alt. 60–2 285 m; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Mount Frere to Tonti Forest S, from Engcobo Mtn to Libode and from Hogsback to Kei River Mouth).

ROTHECA Raf.

Species 26–30, 1 in tropical Asia, 1 introduced and naturalised in Madagascar and Indian Ocean Islands; widespread throughout sub-Saharan Africa; 9 in sthn Afr., LIM, NW, G, M, S, FS, KZN, L, EC.

hirsuta (Hochst.) R.Fern.

Butterfly bush, wild violet; *umathanjana*, *uSikisiki* (Z)

Perennial herb, 0.1–0.5 m high; from a woody rootstock; stems several, erect, usually simple, 4-angled. **Leaves** usually in whorls of 3, sessile or nearly so, elliptic, linear-elliptic to oblong or sometimes obovate, base attenuate, apex acute to obtuse or rounded, entire, coriaceous to membranous; profusely gland-dotted on lower surface. **Cymes** 1–3-flowered, solitary, axillary; peduncles slender, ascending; 2-bracteate at base. **Flowers** deep or vivid blue. **Calyx** campanulate, divided to about middle; lobes oblong or ovate to triangular, obtuse or acute. **Corolla**: tube 4–5 mm long; lateral lobes obliquely obovate or elliptic, obtuse; lower lobe obovate or oblong. **Flowering time** July–Mar. **Fruit** deeply lobed, each lobe cylindrical, smooth. Grassland, recently burned, alt. 70–2 150 m; Sub-Escarpment Savanna (Ntsubane Forest Station, Fraser Falls).

pilosa (H.Pearson) P.P.J.Herman & Retief

Perennial undershrub, 0.15–0.40 m high, suffrutex; stems slender, ascending, subangular, from woody underground rootstock. **Leaves** opposite, broadly ovate or triangular-ovate, pilose beneath, base rounded or slightly attenuate, apex obtuse or rounded. **Inflorescence**: 1–3-flowered cymes, in axils of leaves; bracteoles 2, opposite, linear. **Flowers**: pedicels slender, pilose. **Calyx** during flowering campanulate, 5-angled, 5-lobed, pilose without, glandular within; lobes oblong or oblong-lanceolate. **Corolla**: tube straight, villous in throat; posterior lobes oblong or elliptic, rounded at apex. **Flowering time** Oct.–Feb. Grassland, alt. 305–610 m; Indian Ocean Coastal Belt (Stutterheim, Kentani District).

SALVIA L.

Sage; *salie* (A)

Species ± 900, widely distributed in temperate and tropical regions of both hemispheres; 27 (4 naturalised) in sthn Afr., widespread.

Following Codd (1985).

1a Shrubs with campanulate-infundibuliform fruiting calyces, distinctly enlarging from flower to fruit; lips widely diverging

africana-caerulea L.

Shrub, 0.6–1.5(–2.0) m high; often branching at base, stems several, erect, sparingly branched; greyish tomentulose to hispidulous, gland-dotted, glandular hairs occasional. **Leaves** petiolate, blade simple, subcoriaceous, obovate-elliptic to broadly obovate, 8–25(–35) × 4–15(–25) mm, base cuneate, apex subacute to rounded, margins subentire to eroso-denticulate, occasionally auriculate at base; greenish and somewhat rugose above with short eglandular hairs, greyish tomentose and gland-dotted beneath, rarely

almost glabrous. **Inflorescence** often dense or spaced below with 5–12 verticils; verticils 2–6-flowered; bracts ovate, cuspidate, up to 10 × 9 mm, persistent. **Calyx** ± funnel-shaped, glandular-villous, expanding to 14 mm in fruit, purple-tinged. **Corolla** light blue to bluish purple or pinkish, tube 8–10 mm long; upper lip falcate, 8–18 mm long; lower lip as long as upper with broad reflexed median lobe. Albany Thicket [WC eastwards, with a disjunct record from Peddie District in the EC (Codd 1985), no new records have been collected since].

africana-lutea L.

Wild sage; *bloublom salie* (A)

Much-branched shrub, 0.6–2.0 m high; stems densely leafy; sparsely to densely white-tomentose, gland dots orange. **Leaves** petiolate, blade simple, suborbicular to elliptic or narrowly obovate, 15–35 × 6–20 mm, base cuneate to cordate, apex rounded to obtuse, margins subentire to crenate-dentate to eroso-dentate in larger leaves; thickish or thin-textured, grey-tomentose, gland-dotted. **Inflorescence** simple, dense; verticillasters 3–12, spaced, each 2(–4)-flowered; bracts broadly ovate or obovate. **Flowers** golden-brown, reddish brown or khaki to purplish. **Calyx** broadly campanulate, expanding to 30 mm long in fruit. **Corolla**: tube ± 20 mm long; upper lip ± falcate; lower lip ± 12 mm long. **Flowering time** July–Jan. Closed shrubland, fynbos; Eastern Fynbos-Renosterveld, Albany Thicket (Uitenhage to Port Alfred S, from Humansdorp to Skoenmakerskop).

1b Shrubs, subshrubs, perennial or annual herbs with campanulate to tubular calyces, not or little enlarging in fruit; lips not or somewhat diverging
2a Shrubs or subshrubs with woody stems; corolla white, mauve or blue

namaensis Schinz

Bushy shrub, 0.3–1.2 m high; much branched; herbaceous above and woody below; stems shortly and often crisply tomentose and gland-dotted (strongly aromatic, somewhat viscid), eventually glabrescent. **Leaves** shortly petiolate, irregularly lyrate-pinnatifid, 15–40 × 10–20 mm, coriaceous, markedly rugose; upper surface shortly hispid, denser to crisped; lower surface strongly reticulate, freely gland-dotted. **Inflorescence** simple; verticillasters up to 14, spaced below, more crowded above, each 4–6-flowered. **Calyx** glandular-hispidulous, up to 8 mm long in fruit. **Corolla**: tube 5–8 mm long; upper lip straight; lower lip usually longer than the upper. **Flowering time** Mar.–May? On rocky slopes below krantzes, in watercourses and on surface limestone, alt. 366–1 465 m; Eastern Fynbos-Renosterveld (Baviaanskloof Mtn at Dam-se-Kloof and Gert Smitskloof).

2b Perennial or annual herbs with herbaceous or softly woody stems, sometimes with woody rootstock or shrubs with corolla red or pink
3a Upper lip of calyx 2- or 3-toothed
4a Upper lip of corolla ± straight

aurita L.f.

Perennial herb, 1.2 m long; base subwoody, ascending or straggling; pilose with multicellular hairs, gland-dotted. **Leaves** petiolate, upper ones subsessile; simple, lyrate or runcinate, broadly ovate to oblong, 40–80 × 25–50 mm, subcoriaceous, base truncate to auriculate, apex obtuse to rounded, margins dentate or crenate; subglabrous to pilose, gland-dotted. **Inflorescence** simple; verticillasters up to 15, each 6–8(–12)-flowered. **Flowers** pale blue, lilac, white or pinkish. **Calyx** pilose, tubular-campanulate, up to 10 mm long in fruit. **Corolla**: tube 10–15 mm long; lower lip up to 4 mm long. **Flowering time** Oct.–Apr. Grassland, forest margins or understorey, alt. 5–1 675 m;

Sub-Escarpment Grassland, Dry Highveld Grassland, Drakensberg Grassland, Indigenous Forests, Indian Ocean Coastal Belt, Albany Thicket (uMzimkhulu to Tabankulu S, from Queenstown to Glen Grey, Bosberg to Kentani and Greater Addo Elephant National Park to East London).

[E]**obtusata** Thunb.

Perennial herb, up to 0.5 m high; woody at base; stems ascending, glabrous below, glabrous to sparingly pubescent above. **Leaves** petiolate, subentire or lyrate-pinnatifid, broadly elliptic to ovate in outline, 25–50 × 15–30 mm, margins coarsely crenate; upper surface subglabrous, lower surface sparingly pubescent. **Inflorescence** simple; verticillasters up to 10, spaced below, denser above, each 2–8-flowered. **Calyx** sparingly hispid, tubular-campanulate, up to 10 mm long in fruit. **Corolla**: tube 18 mm long; upper lip 3 mm long. **Flowering time** Nov.–Mar. Roadside, alt. ± 200 m; Eastern Fynbos-Renosterveld, Albany Thicket (Port Elizabeth, Coega and Sundays River).

repens Burch. ex Benth.

Kruipsalie (A)

Perennial herb, 0.25–0.80 m high; rhizome creeping; ascending; shortly pilose to tomentose. **Leaves** petiolate, simple, sublyrate or runcinate, oblong to broadly obovate, 30–100 × 8–45 mm, apex obtuse to rounded, base truncate to auriculate, margins irregularly crenate-dentate; subglabrous to pilose, gland-dotted beneath. **Inflorescence** simple; verticillasters several to many, widely spaced below, denser above, each 6(–8)-flowered. **Flowers** pale blue, mauve or purple. **Calyx** shortly hispid, tubular-campanulate, up to 13 mm long in fruit. **Corolla**: tube 7–18 mm long; lower lip up to 7 mm long. **Flowering time** Nov.–Apr. Grassland, grazed, karoo, clay soil, alt. 15–2 440 m; in all bioregions, except Indian Ocean Coastal Belt, Indigenous Forests, Rainshadow Valley Karoo and Lower Karoo (Burgersdorp to Kokstad S, Richmond District to Mtata River, Cradock to Komga, Suurberg to East London and Humansdorp).

[[E]*S. repens* Burch. ex Benth. var. *keiensis* Hedge is restricted to Setabataba, Komga and Butterworth Districts.]

runcinata L.f.

Hardesalie (A)

Perennial herb, 0.15–0.50 m high; stems 1–several from taproot, occasionally from creeping rootstock; hispid or crisped pilose, gland-dotted. **Leaves** shortly petiolate; upper ones sessile, runcinate-pinnatipartite to lyrate, rarely almost entire, oblong-lanceolate to obovate, 30–90 × 15–30 mm; lobes rounded, triangular or oblong and pinnatifid; hispid-scabrid, gland-dotted. **Inflorescence** simple; verticillasters several to many, widely spaced below, denser above, each 4–8-flowered. **Flowers** white or pale blue to mauve or purplish. **Calyx** hispid-scabrid, gland-dotted. **Corolla**: tube 4.5–9.0 mm long; upper lip 3–4 mm long; lower lip slightly longer. **Flowering time** Nov.–May. Heavy soils, sometimes disturbed places or overgrazed veld, alt. 155–2 135 m; Upper Karoo, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Drakensberg Grassland, Albany Thicket (Middelburg and Queenstown Districts S, from Fort Beaufort to Stutterheim and Grahamstown to East London).

[E]**scabra** L.f.

Kruipsalie (A)

Perennial, erect herb, 0.3–1.0 m high; rootstock subwoody; stems several, branched, villous. **Leaves** petiolate, upper ones subsessile; lyrate-pinnatifid, obovate to oblong,

30–50 × 20–50 mm, scabrid-pilose above, hispid-pilose and gland-dotted beneath. **Inflorescence** simple; verticillasters up to 12, spaced below, denser above, each 4–6-flowered. **Flowers** mauve, lilac or purple. **Calyx** shortly villous, tubular-campanulate, up to 14 mm long in fruit. **Corolla**: tube straight, ± 20–35 mm long. **Flowering time** Sept.–Apr. In bush groups, coastal dunes and forest margins, alt. 0–180 m; Eastern Fynbos-Renosterveld, Albany Thicket (Gamtoos River Mouth to East London and to near Humansdorp).

[E]**schlechteri** Briq.

Perennial herb, up to 0.3 m high; usually branched from somewhat woody base; stems subglabrous or with some short stiff hairs and gland dots. **Leaves** sessile or subsessile, finely pinnatifid or pinnatisect, 40–60 mm long, with 4–6 pairs of short narrow irregularly dentate lateral segments and a slightly larger terminal segment; subglabrous. **Inflorescence** simple; verticillasters several to many, spaced below, denser above, each 4–6-flowered. **Flowers** pale blue and white. **Calyx** ± 9 mm long; sparingly hispidulous, gland-dotted. **Corolla**: tube up to 14 mm long, widening at throat; upper lip 7–8 mm long; lower lip somewhat deflexed and longer. **Flowering time** Feb.? Riverbanks and valleys, alt. ± 800 m; Sub-Escarpment Savanna (Idutywa District, Xobo Valley).

stenophylla Burch. ex Benth.

Wild sage; *fynblaarsalie* (A)

Perennial herb, 0.2–0.4 m high; stems erect, taproot woody; almost glabrous, orange-red gland-dotted. **Leaves** shortly petiolate, pinnatifid or pinnatisect, occasionally simple, linear-oblong to oblong-lanceolate, 25–80 × 6–20 mm, margins finely crenate-dentate; sparingly pubescent on nerves below and gland-dotted. **Inflorescence** simple; verticillasters several to many, spaced below, denser above, each 6–8-flowered. **Flowers** pale blue or mauve. **Calyx** 4–5 mm long; hispidulous, gland-dotted. **Corolla**: tube ± 7 mm long; upper lip 4 mm long; lower lip slightly longer than the upper. **Flowering time** Oct.–Apr. Grassland, open woodland, semi-arid shrub, weed of disturbed places, alt. 364–2 150 m; widespread in all bioregions, except Indian Ocean Coastal Belt and Indigenous Forests (Albert District to Naude's Neck S, from Grootfontein to Queenstown, Rietbron to Keiskammahoek, Willowmore District to Grahamstown and to Humansdorp).

[E]**triangularis** Thunb.

Perennial herb, 0.15–0.50 m high; stems branching from scarcely woody base; decumbent-ascending; hispid-villous. **Leaves** petiolate, simple, ovate-triangular, 20–40 × 15–30 mm, base truncate to subcordate, apex obtuse to rounded, margins irregularly crenate; shortly villous. **Inflorescence** simple; verticillasters up to 10, spaced below, denser above, each 2–6-flowered. **Flowers** pale blue, mauve or purple. **Calyx** shortly villous, up to 13 mm long in fruit, campanulate with a wide sinus between the upper and lower lips. **Corolla**: tube 8–11 mm long; upper lip 2.5–3.0 mm long; lower lip slightly longer. **Flowering time** Sept.–Apr. Open grassy places between bushes and at forest margins, alt. 20–1 950 m; Sub-Escarpment Savanna, Drakensberg Grassland, Albany Thicket (Alice to King William's Town S, from Hankey to Humansdorp District and Koonap Height in Albany District).

verbenaca L.

Wild clary; *wildesalie* (A)

Perennial herb, 0.15–0.40 m high; taproot woody; glandular-villous. **Leaves** in dense, basal rosette, subsessile, almost entire to pinnatifid, oblong to ovate-oblong, 40–130 × 10–30 mm,

rugose, margins eroso-dentate; densely pubescent and gland-dotted below. **Inflorescence** branched with many verticillasters, spaced below, denser above, each 6-flowered. **Flowers** light blue to purple. **Calyx** pilose, gland-dotted, villous in throat, up to 8 mm long in fruit. **Corolla**: tube 4–8 mm long; upper lip often slightly falcate, 2–4 mm long; lower lip shorter. **Flowering time** Sept.–Mar. Probably Mediterranean, drier parts in SA, disturbed places, alt. 45–1 670 m; Upper Karoo, Dry Highveld Grassland, Drakensberg Grassland, Eastern Fynbos-Renosterveld, Albany Thicket (Albert District to Oorlogsfontein S, Kompasberg to Middelburg, Mountain Zebra National Park to Amatole Mts and to Willowmore, Uitenhage and Fort Brown).

4b Upper lip of corolla distinctly falcate

disermas L.

Teesalie (A)

Perennial shrub or herb, 0.3–1.0 m high; one or more stems from woody rootstock; glandular-villous. **Leaves** petiolate or upper ones subsessile; broadly ovate to oblong-lanceolate, 40–160 × 15–70 mm, rugose, base cordate to obtuse, apex acute to rounded, margins irregularly crenate to eroso-dentate; scabrid, glandular-pubescent, lower surface markedly reticulate. **Inflorescence** simple; verticillasters 15 or more, spaced below, denser above, each 6-flowered. **Flowers** whitish, pale blue or mauve. **Calyx** glandular-hispid to villous, up to 12 mm long. **Corolla**: tube 8–12 mm long; lower lip often shorter than the upper. Sandy soil in watercourses, limestone formations and rocky hillsides, along roadsides and waste places, alt. 360–1 555 m; Eastern Fynbos-Renosterveld (Willowmore to Uniondale).

verbenaca L. (see 4a above)

3b Upper lip of calyx entire, consisting of a single ovate tooth

***coccinea** Etl.

Red salvia; *rooisalie* (A)

Soft shrub, 0.6–1.5 m high; stems usually branched, herbaceous above, softly woody below, usually hispid. **Leaves** petiolate, ovate-deltoid, 35–50 × 23–35 mm, base truncate to cordate, apex acute, margins finely crenate; dark green and subglabrous above, paler and tomentose beneath. **Inflorescence** simple; verticillasters up to 12, lax below, denser above, each 4–10-flowered. **Flowers** scarlet to pink. **Calyx** hispidulous, ± 10 mm long. **Corolla**: tube 15–20 mm long; upper lip straight, ± 5 mm long; lower lip slightly longer. **Flowering time** Nov.–Feb. Garden escape, semi-naturalised, warm, moist places, alt. 759–1 524 m; Sub-Escarpment Savanna, Albany Thicket (Mthatha, East London).

***reflexa** Hornem.

Mint weed

Annual, erect herb, 0.50–0.75 m high; stems usually solitary, branched above; greyish tomentose, glabrescent. **Leaves** shortly petiolate, lanceolate to linear-lanceolate, 30–60 × 5–8 mm, base attenuate, apex obtuse, margins subentire to remotely and shallowly toothed; subglabrous above, tomentulose and gland-dotted beneath. **Inflorescence** lax, of several to many verticillasters, each 2- or 3-flowered. **Flowers** blue. **Calyx** deeply bilabiate, minutely hispidulous, ribbed, enlarging to 6 mm long in fruit; upper lip entire. **Corolla** 5–6 mm long. **Flowering time** Jan.–Mar.? Weed of waste places, alt. 549–2 100 m; origin USA and Mexico; Sub-Escarpment Grassland, Sub-Escarpment Savanna (Queenstown, Alice).

SATUREJA L.

Species ± 30, cosmopolitan; 4 in sthn Afr., LIM, G, M, KZN, L, EC.

biflora (Buch.-Ham. ex D.Don) Briq.

Perennial herb, 0.2–0.6 m high; stems annual, base woody, wiry, erect to spreading; tomentose, bearded below nodes. **Leaves** ± sessile, elliptic to ovate, 5–12 × 3–8 mm, base truncate, apex acute to obtuse, margins entire, thickened; tomentulose, gland-dotted below (lemon-scented). **Flowers** white or pale mauve. **Inflorescences** of few- to several-flowered pedunculate cymes, in axils of leaves for mainly upper third of stem. **Calyx** 15-ribbed, tubular, ± 4 mm long, subequally 5-toothed; hispidulous. **Corolla** 5–7 mm long; upper lip 1 mm long; lower lip longer. **Stamens** 4, didynamous. **Style** 2-lobed. **Flowering time** Dec.–Apr. Rock slopes, moist places, savannas, alt. 915–1 740 m; Mesic Highveld Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna (Herschel District to Maclear S, Cala Pass to Mthatha, Hogback).

*SCUTELLARIA L.

Species ± 300, cosmopolitan; 1 naturalised in sthn Afr., G, M, KZN, EC.

racemosa Pers.

Skullcap

Perennial herb, 0.15–0.30 m high; rhizomatous; stems slender, quadrangular, freely branched; sparingly pilose. **Leaves** petiolate, lanceolate, 10–30 × 3–6 mm, base obtuse to hastate, apex acute, margins entire, inrolled; glabrous, gland-dotted beneath. **Inflorescence** racemose; flowers solitary in axils of opposite leaves, verticils 2-flowered; pedicels 2–3 mm long. **Flowers** violet to red or white, purple-spotted. **Calyx** puberulous to hispidulous, 3 mm long in fruit. **Corolla** small; tube ascending, 3–4 mm long, widening at throat; lips 2, subequal, upper lip erect, concave or galeate; lower lip spreading. **Stamens** 4, didynamous, reaching apex of upper lip, lower pair attached to base of tube. **Flowering time** Oct.–Jan. **Fruit** an ovoid to subglobose nutlet. Riverbanks and moist places; origin South America; Indigenous Forests, Indian Ocean Coastal Belt [Elliotdale District, Mbashe River Mouth (Hilliard & Burtt 1970)].

SOLENOSTEMON Thonn.

Species ± 60, in Africa, Asia and Malesia; 2 in sthn Afr., LIM, M, S, KZN, EC.

latifolius (Hochst. ex Benth.) J.K.Morton

Semi-erect to procumbent, perennial herb, 0.2–1.5 m high; roots fibrous, pubescent, usually with longish multicellular hairs. **Leaves** petiolate, thin to medium-thick in texture, broadly ovate-deltoid, base truncate, apex acute, margins crenate; sparingly to densely pubescent, lower surface freely dotted with reddish gland dots. **Inflorescence** terminal, racemose or paniculate; few-flowered sessile cymes. **Flowers** violet to purple, sessile or pedunculate. **Calyx** bilabiate, 5-toothed; uppermost tooth the largest, glandular-hispidulous. **Corolla** bilabiate; tube ± sigmoid, gland-dotted; upper lip obscurely 4-lobed; lower lip larger than the upper, boat-shaped. **Stamens** 4, declinate, usually united at base, occasionally free. **Style** lying with the stamens in the lower lip of the corolla. **Flowering time** July–June. **Fruit** an ovoid-triquetrous, glabrous nutlet. Open woodland among rocks, alt. 460–1 570 m; Sub-Escarpment Grassland (Kokstad District, Clydesdale).

STACHYS L.

Woundwort; *teebos* (A)

Species ± 300, mainly in subtropical and temperate regions of both hemispheres; 42 (1 naturalised) in sthn Afr., N, LIM, NW, G, M, S, FS, KZN, L, NC, WC, EC.

1a Pubescence of simple hairs or plants subglabrous without branched hairs on calyx and corolla
2a Corolla tube 12–20 mm long, often twice as long as calyx or longer

thunbergii Benth.

Perennial herb, up to 2 m high; stems stout, 4-angled, erect or ascending, softly woody, sparingly branched, armed with strong retrorse prickles along angles and at nodes, otherwise glabrous. **Leaves** petiolate, thick textured and somewhat rugose, ovate-deltoid to lanceolate-deltoid, apex acute, base cordate, margins regularly and finely crenate; sparingly hispid to glabrous. **Inflorescence** lax to fairly dense; verticillasters 4–6-flowered. **Flowers** red, magenta or purple. **Calyx** puberulous to hispidulous; teeth lanceolate- acuminate, usually spine-tipped. **Corolla** minutely pubescent; tube 16–20 mm long, arcuate; upper lip 4–5 mm long; lower lip 6–7 mm long. Forest margins, closed woodland, alt. 120–950 m; Eastern Fynbos-Renosterveld, Indigenous Forests (Witelsbos, Loerie, Tsitsikamma to Humansdorp).

tubulosa MacOwan

Perennial herb, 0.1–0.2 m high; straggling, stems slender, sparingly branched, internodes long, softly pilose. **Leaves** long petiolate, thin-textured, broadly ovate, 35–65 × 25–55 mm, base deeply cordate, apex acute or subacute, margins regularly crenate; softly pilose especially on nerves. **Inflorescence** of 1–3 verticils, subcapitate or interrupted; verticillasters 4–6-flowered. **Flowers** subsessile; pinkish white-flecked with mauve or deep mauve. **Calyx** softly hispid. **Corolla**: tube 12–18 mm long, arcuate or nearly straight; upper lip ascending; lower lip deflexed. Moist, shady forest and forest margins, alt. 420–1 830 m; Sub-Escarpment Grassland (Griqualand East, Malowe).

2b Corolla tube < 12 mm long
3a Leaves ovate, cordate, large, 35–100 × 25–70 mm

aethiopica L. (see 3b below)

Wild sage; *klein kattekruie* (A)

Decumbent or ascending, perennial herb, ± 0.5 m high; variously pubescent, short hairs antrorse, longish hairs spreading to retrorse, mixed with glandular hairs. **Leaves** petiolate, broadly ovate to ovate-deltoid, 8–35(–60) × 6–25(–35) mm, base ± cordate, apex subacute, margins crenate to crenate-serrate. **Inflorescence** lax below, dense above; verticils few to several; verticillasters (2–)4–6-flowered. **Flowers** white, pink or deep mauve. **Calyx** hispid, often glandular. **Corolla**: tube 7–10 mm long; upper lip ascending; lower lip deflexed, purplish flecked. **Flowering time** Feb.–May. Mountain grassland, dry woodland, coastal dune bush, alt. 5–2 438 m; widespread in all bioregions, except Mesic Highveld Grassland (Barkly East to Bizana southwards, from Richmond District to Port St Johns, Graaff-Reinet to Kentani, Willowmore to East London and Humansdorp to Skoenmakerskop).

graciliflora C.Presl (see 4b below)

Perennial, decumbent or prostrate herb, up to 0.4 m high; sparingly branched, shortly and sparingly retrorse-pubescent. **Leaves** petiolate, thin-textured, ovate to broadly

ovate, 20–65 × 14–50 mm, base deeply cordate, apex subacute to obtuse, margins coarsely crenate; eglandular, sparingly hispidulous or shortly pilose. **Inflorescence** somewhat lax below or often subcapitate; verticils 1–4; verticillasters (2–)4–6-flowered. **Flowers** white. **Calyx** softly pubescent to sparingly hispidulous. **Corolla**: tube arcuate; upper lip ascending; lower lip horizontal, mauve-spotted. **Flowering time** Jan.–Aug. Moist places in forest margins, in grass, fynbos or coastal scrub, alt. 5–2 010 m; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests, Drakensberg Grassland, Eastern Fynbos-Renosterveld, Albany Thicket (Flagstaff to Mngazi River Mouth S, Katberg to Kentani District, Greater Addo Elephant National Park to East London and to Humansdorp).

grandifolia E.Mey. ex Benth.

Straggling, perennial herb, up to 1 m high; stems much branched; densely pubescent, hairs longish, glands absent. **Leaves** petiolate, broadly ovate, 35–80 × 28–65 mm, base deeply cordate, apex acute or subacute, margins regularly and rather finely crenate; thinly to softly pubescent above, grey-velvety beneath. **Inflorescence** simple or with a pair of branches near base; verticils spaced, 3–several; verticillasters 4–6-flowered. **Flowers** white. **Calyx** softly pilose. **Corolla***:* tube straight; upper lip horizontal; lower lip deflexed, mauve-spotted. **Flowering time** Nov.–May. Forest margins and along mountain streams, alt. 371–2 135 m; Sub-Escarpment Grassland, Indigenous Forests, Dry Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Mount Ayliff S, from Mount Thesiger to Misty Mount near Mthatha and from Boschberg to Kentani District).

rudatisii Skan

Perennial, decumbent herb, ± 0.3 m long; stems branched, fairly stout, deeply 4-furrowed; glandular-hispidulous with retrorse, multicellular hairs and copious, short, glandular hairs. **Leaves** petiolate, ovate, 30–45 × 20–50 mm, base cordate, apex obtuse to rounded, margins regularly and shallowly crenulate; densely glandular-hispidulous. **Inflorescence** of few to several verticils in axils of leaf-like bracts; verticillasters 2-flowered; bracts scarcely differentiated or becoming smaller towards apex. **Flowers** white. **Calyx** glandular-hispid. **Corolla**: tube 8–9 mm long; upper lip ascending; lower lip horizontal. In damp grassy places, among rocks and in shady thickets, alt. 1 400–2 000 m; Sub-Escarpment Grassland, Indigenous Forests (Mbolompo Valley, Baziya Forest Reserve S, Amatole Mts, Gaika's Kop).

3b Leaves linear, linear-oblong to oblong-lanceolate, if ovate to ovate-oblong then rarely up to 35 × 25 mm
4a Verticillasters all 2-flowered

aethiopica L. (see 3a above)

cymbalaria Briq.

Perennial, prostrate herb, up to 0.3 m long; stems radiating from central taproot; subglabrous, or pubescence of a few, long, slender, spreading hairs or sparse to fairly densely short-glandular. **Leaves** subsessile or shortly petiolate, broadly ovate-deltoid to suborbicular, 8–15 × 6–12 mm, base broadly cordate, apex obtuse to rounded, margins crenate; subglabrous to thinly appressed-pubescent or glandular-puberulous. **Inflorescence** lax, of 1–5 verticils; verticillasters 2-flowered; bracts elliptical, smaller than calyx. **Flowers** purple, pink or white. **Calyx** puberulous to hispidulous. **Corolla**: tube 5–7 mm long; upper lip horizontal; lower lip deflexed. **Flowering time** Oct.–Mar. Found among rocks in exposed mountain grassland, alt. 900–2 200 m; Drakensberg Grassland, Sub-

Escarpment Grassland, Lower Karoo, Dry Highveld Grassland (Maclear to Weza S, from Graaff-Reinet to Mountain Zebra National Park and Winterberg Mts).

flexuosa Skan (see 4b below)

Perennial herb, 0.15–0.25 m high, branching at base; stems slender, decumbent to ascending, sparingly branched; fairly densely hispid to villous-pilose with long, spreading hairs and some short, glandular hairs. **Leaves** petiolate, ovate, 10–20 × 6–15 mm, base truncate to subcordate, apex obtuse to rounded, margins crenate; somewhat appressed-villous with some bulbous-based hairs above, hispid mainly on nerves beneath. **Inflorescence** fairly dense, of few to several 2(–6)-flowered verticillasters; rachis densely hispid interspersed by some glands. **Flowers** purple. **Calyx** hispid and interspersed by some glands. **Corolla**: tube 6 mm long; upper lip erect; lower lip deflexed. **Flowering time** Nov.–Apr. Among rocks in mountain grassland, alt. 1 400–2 300 m; Indian Ocean Coastal Belt, Drakensberg Grassland (Port St Johns District S, from Katberg Pass to Hogsback).

humifusa Burch. ex Benth. (see 4b below)

Perennial? herb, up to 0.45 m high; stems procumbent to weakly ascending, branched, slender; glabrous or hairs scattered, short scabrid or slender, long and white, occasionally short and glandular. **Leaves** sessile to shortly petiolate, somewhat leathery, ovate- to lanceolate-deltoid, 7–30 × 3–10 mm, often punctate, base cordate, apex obtuse to acute, margins crenate, slightly thickened; thinly strigose to subglabrous. **Inflorescence** lax below, often compact above, of few to several 2(–6)-flowered verticillasters; bracts lanceolate-elliptic, entire. **Flowers** white to pale mauve. **Calyx** glabrous, sparingly hispid or scabrid. **Corolla**: tube 6–7 mm long; upper lip ascending; lower lip deflexed. **Flowering time** Sept.–May. Grassland or low-lying places, alt. 30–1 525 m; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Kokstad District S, from Pefferskop to King William's Town and Hankey to Hopewell).

natalensis Hochst. var. **natalensis**

Perennial, decumbent or straggling herb, up to 0.5 mm high; pubescence on stem, leaves and calyx shortly scabrid or tomentose to villous. **Leaves** petiolate, firm to thick-textured, ovate to ovate-deltoid, 10–40 × 6–24 mm, base deeply cordate to rounded, apex obtuse to rounded, margins regularly and shallowly crenate. **Inflorescence** lax below, fairly dense above; verticils 5–20; verticillasters 2-flowered. **Flowers** white. **Calyx** densely and shortly pubescent to densely villous, glands absent. **Corolla**: tube 7–11 mm long; upper lip ascending; lower lip with lilac markings, deflexed. **Flowering time** Jan., July? Valleys among coarse grasses in sand; Indian Ocean Coastal Belt, Sub-Escarpment Savanna (Makweni River Mouth S, Kentani District).

sessilifolia E.Mey. ex Benth. (see 4b below)

Perennial herb, up to 0.7 m high; stem decumbent or ascending, branched; densely and softly villous. **Leaves** shortly petiolate on plant below, sessile above, narrowly ovate or ovate to ovate-deltoid, 10–22 × 7–11 mm, base rounded to subcordate, apex obtuse, margins finely crenulate; densely appressed-villous above, densely matted-villous beneath. **Inflorescence** lax below, crowded at apex, of few to several verticils; verticillasters 2(–6)-flowered. **Flowers** white. **Calyx** densely shaggy-villous. **Corolla**: tube narrow; upper lip ascending; lower lip white with carmine, horizontal. **Flowering time** Jan.? Dense grassland, alt. 1 518–1 660 m; Sub-Escarpment Grassland (Kokstad, Pondoland near Dorking).

4b Verticillasters (2)3–10-flowered (all types on the same inflorescence)

aethiopica L. (see 3a above)

***arvensis** L.

Annual herb, 0.2–0.4 m high; stems erect or decumbent, simple or branching from base; hispid-pilose with long, spreading hairs. **Leaves** petiolate, broadly ovate, 20–30 × 10–20 mm, base shallowly cordate to truncate, apex rounded, margins crenate to crenate-serrate; appressed-pilose on both surfaces. **Inflorescence** of several verticils, lax below, crowded towards apex; verticillasters 2–6-flowered. **Flowers** very small, up to 7 mm long, mauve. **Calyx** hirsute with long, multicellular hairs and some gland-tipped hairs. **Corolla** scarcely longer than calyx; tube 5 mm; upper lip 1.5 mm and lower lip 2 mm long. Cosmopolitan garden weed, alt. 90–220 m; Albany Thicket (East London District, Amalinda).

flexuosa Skan (see 4a above)

graciliflora C.Presl (see 3a above)

humifusa Burch. ex Benth. (see 4a above)

[E]malacophylla Skan

Perennial herb, up to 0.4 m high; stems decumbent, sparingly branched, fairly densely pilose. **Leaves** petiolate, fairly firm-textured, broadly ovate, 14–30 × 10–22 mm, base broadly and deeply cordate, apex obtuse to rounded, margins crenulate; densely appressed pilose above, matted velvety pilose beneath, glands not evident. **Inflorescence** lax, of 2–8 verticils; verticillasters (2)3–6-flowered. **Flowers** mauve. **Calyx** densely hispid-villous and finely gland-dotted. **Corolla**: tube 8 mm long; upper lip horizontal; lower lip deflexed. **Flowering time** Nov.–Apr. Mountainous areas, slopes and summits, riverine mountain forest, alt. 610–1 950 m; Drakensberg Grassland, Sub-Escarpment Grassland, Indigenous Forests, Sub-Escarpment Savanna (Qacha's Neck S, from Dordrecht to Queenstown and Katberg to King William's Town).

nigricans Benth.

Swartteebossie (A); *umusa* (Z)

Perennial herb, 0.4–1.2 m high; single to few-stemmed, erect with interpetiolar ridges at nodes; villous to hispid; several horizontal, fusiform roots. **Leaves** subsessile or sessile, drying dark brown to blackish, linear- to oblong-lanceolate, 30–60 × 3–10 mm, base truncate to subcordate, apex obtuse, margins crenate, slightly thickened; strigose with usually bulbous-based, appressed hairs. **Inflorescence** lax below, denser above; verticillasters usually 6-flowered. **Flowers** white, occasionally speckled or tinged with pink or mauve. **Calyx** fairly densely appressed-hispid. **Corolla**: tube 6–7 mm long; upper lip ascending, subrotund, concave; lower lip deflexed. **Flowering time** Oct.–Mar. In mountain grassland, alt. 23–1 981 m; Drakensberg Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Bizana District S, from Maclear District to Port St Johns).

[E]obtusifolia MacOwan

Perennial herb, 0.2–0.3 m high; base shortly creeping or decumbent, stems erect, sparingly branched, hairs long, slender and spreading, gland-tipped hairs shorter. **Leaves** shortly petiolate on plants below, subsessile above, broadly ovate to ovate-elliptic, 17–35 × 8–20 mm, base ± cordate, apex rounded, margins crenate, slightly thickened; upper surface appressed pilose-villous, hairs long, slender, multicellular; undersurface reticu-

late, nerves villous. **Inflorescence** fairly compact; verticillasters 4–6-flowered. **Flowers** with corolla as long as calyx, colour unknown. **Calyx** densely pilose, often glandular. **Corolla**: tube 6–7 mm long; upper lip ascending; lower lip deflexed. **Flowering time** Nov.–Mar. Rare to locally frequent, on grassy slopes, alt. 700–1 200 m; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna (Maclear District S, from Baziya in Tembuland to Mthatha and across Amatole Mts to Komga).

scabrida Skan

Perennial herb, 0.3–0.6 m; decumbent to prostrate; stems sparingly branched, subglabrous to scabrid. **Leaves** petiolate, coriaceous, ovate to ovate-deltoid or deltoid, 12–30 × 8–20 mm, base deeply cordate, apex acute, margins regularly crenate to crenate-dentate; eglandular, sparingly hispid, upper surface with bulbous-based hairs. **Inflorescence** slender, lax below; verticils 2–6; verticillasters 2–6-flowered; rachis glabrous to retrorse-scabrid. **Flowers** white. **Calyx** subglabrous to sparingly hispid. **Corolla**: tube slightly arcuate; upper lip ascending; lower lip sometimes mauve-spotted, horizontal. **Flowering time** Aug.–Apr. Grass, fynbos or coastal scrub, alt. 420–945 m; Upper Karoo, Albany Thicket, Drakensberg Grassland, Sub-Escarpment Savanna, Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld (Hofmeyr District S, from Cradock District to Fish River Valley between Double Drift and Alice and from Cambria to Grahamstown and to Humansdorp).

sessilifolia E.Mey. ex Benth. (see 4a above)

sessilis Gürke

Perennial, erect herb, 0.15–1.00 m high; rhizome short and horizontal, bearing clusters of fusiform roots; stems annual, single to few with interpetiolar ridges at nodes; hispid-villous with longish spreading hairs. **Leaves** sessile or lower leaves shortly petiolate, deltoid-lanceolate or oblong-lanceolate to oblong, 20–50 × 6–18 mm, base truncate to rounded, apex rounded to obtuse, margins crenate, slightly thickened or inrolled; upper surface strigose with appressed hairs, usually bulbous-based. **Inflorescence** simple, lax below, denser above; verticillasters 4–8-flowered. **Flowers** white. **Calyx** fairly densely appressed-hispid. **Corolla**: tube 5–6 mm long; upper lip ascending; lower lip purplish-spotted, deflexed. **Flowering time** Nov.–Jan. Dense grassland, frequently burned, alt. 610–2 590 m; Drakensberg Grassland, Sub-Escarpment Grassland, Indian Ocean Coastal Belt (Elands Heights to Kokstad District S, from Mhlahlane Hill to Port St Johns).

tysonii Skan

Perennial herb, 0.15–0.30 m high; few- to several-stemmed, erect often from decumbent base, sparingly branched, glandular-pilose with long slender hairs and short gland-tipped hairs. **Leaves** petiolate, ovate, ovate-lanceolate or ovate-oblong, 15–35 × 8–20 mm, base usually deeply cordate, apex rounded, margins regularly crenate-serrate; upper surface softly to stiffly appressed-pubescent, undersurface usually with copious gland dots. **Inflorescence** lax below, fairly dense above; verticillasters 4–6-flowered. **Flowers** whitish to mauve. **Calyx** shortly glandular-pubescent to glandular-pilose. **Corolla**: upper lip ascending; lower lip with darker flecks, deflexed. **Flowering time** Jan.–Apr. Mountain grassland, alt. 1 000–2 800 m; Drakensberg Grassland, Sub-Escarpment Grassland (Mount Newton near Barkly East to Naude's Neck S, from Saalboom Neck to Otto du Plessis Pass).

1b Pubescence of stellate or branched hairs, tomentum densely velvety, felt-like or ± floccose, rarely subglabrous but then with some branched hairs on calyx and corolla
5a Calyx glabrescent or thinly and minutely stellate-tomentulose

caffra E.Mey. ex Benth.

Soft, perennial shrub, 1–3 m high; erect, freely branched; stems slender, ± stellate-tomentulose, glabrescent with age. **Leaves** petiolate, thin-textured, lanceolate, 30–90 × 10–30 mm, base cuneate to obtuse, apex acute to acuminate, margins minutely serrulate except in lower part; upper surface thinly hispidulous, lower surface paler and stellate-tomentose. **Inflorescence** terminal on branchlets, of several spaced verticils, denser towards apex; verticillasters 4–10-flowered; cymes occasionally pedunculate. **Flowers** white, cream-coloured or greenish yellow. **Corolla**: tube 5–6 mm long, slightly curved. **Flowering time** Dec.–May. Understorey shrub of forest margins and shady streambanks, semi-coastal areas, alt. 1 300–2 000 m; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Drakensberg Grassland, Indigenous Forests (Mount Frere to Nqutu Forest near Fort Donald and Port St Johns S, from Alice to Kentani and to Grahamstown).

hyssopoides Burch. ex Benth.

Pienksalie (A)

Perennial, erect or decumbent herb, 0.2–0.6 m high; rootstock rhizomatous; stems annual, simple or sparingly branched; glabrous to stellate-tomentose. **Leaves** scarcely petiolate, sometimes fascicled, coriaceous, linear to oblong-lanceolate, 20–55 × 2–8 mm, base attenuate or ± clasping, forming an interpetiolar ridge, apex obtuse or apiculate, margins entire; glabrous to thinly stellate-pubescent. **Inflorescence** of few to several spaced verticils; verticillasters (2–)4- or 6-flowered. **Flowers** pink or mauve to purple with darker flecks. **Calyx** thinly to fairly densely grey stellate-tomentulose. **Corolla**: tube 6–7 mm long; upper lip spreading to erect; lower lip ± deflexed. **Flowering time** Nov.–Apr. Black clay or heavy loam soils, in depressions or on riverbanks, alt. 685–1 800 m; Upper Karoo, Dry Highveld Grassland, Sub-Escarpment Grassland, Lower Karoo (Bethulie to Aliwal North District S, from Richmond District, Roelofsfontein to Queenstown and to Graaff-Reinet).

5b Calyx with felt- or wool-like indumentum, markedly stellate-hispid

dregeana Benth.

Perennial herb, 0.1–0.4 m high; stems 1–several, arising from taproot sparingly to densely floccose-tomentose. **Leaves** sessile, thick-textured, oblong-linear to elliptic-ovate, 15–60 × 3–17 mm, apex obtuse to rounded, base obtuse to narrowed, margins entire or shallowly crenate; upper surface fairly densely stellate-pubescent, lower surface denser to floccose. **Inflorescence** of few to several verticils; verticillasters 2–4-flowered. **Flowers** pink to mauve or purple. **Calyx** densely and finely stellate-tomentose to floccose. **Corolla**: tube 6 mm long; upper lip 3–4 mm long; lower lip 6–8 mm long. **Flowering time** Nov.–Mar. In subalpine grassland, alt. 213–2 895 m; Upper Karoo, Mesic Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland, Lower Karoo, Dry Highveld Grassland, Sub-Escarpment Savanna (Burgersdorp District to Naude's Neck S, from Molteno to Bailey and from Koudeveldberge to King William's Town).

linearis Burch. ex Benth.

Bushman tea; *vaaltee*, *boesmantee* (A)

Spreading or erect, branched shrublet, 0.2–0.4 m high; taproot strong, woody. **Leaves** sessile, forming interpetiolar ridges, channelled above, folding along midrib, linear

15–45 × 1.5–2.5 mm, narrowing gradually to apex and base, margins entire. **Inflorescence** of few to several 2 (4)-flowered verticillasters. **Flowers** pink to mauve or purplish. **Calyx** densely and shortly grey stellate-felted. **Corolla***:* tube 6–8 mm long; upper lip ascending; lower lip horizontal. **Flowering time** all year. Common on flats and dolerite hills, alt. 700–1 300 m; Upper Karoo, Dry Highveld Grassland, Sub-Escarpment Grassland (Albert and Burgersdorp districts S, from Middelburg District to Andriesberg and to Cradock District).

rugosa Aiton

Kliptee, *vaaltee* (A)

Perennial shrub, 0.3–1.2 m high; freely branched, branches ascending. **Leaves** subsessile or sessile, linear- to ovate-lanceolate or elliptic, 13–80 × 3–20 mm, conspicuously rugose, base obtuse to cuneate, apex obtuse to acute, margins finely and obscurely crenulate; densely stellate-tomentose to woolly. **Inflorescence**: verticils several to many, well spaced below, denser above; verticillasters 2–8-flowered. **Flowers** yellow or shades of pink, mauve or purple. **Calyx** densely and coarsely stellate-felted. **Corolla**: tube 3–6 mm long; upper lip ascending; lower lip horizontal. **Flowering time** May, Sept.? On rocky slopes in mountain grassland, alt. 180–2 900 m; Upper Karoo (Richmond and Middelburg districts to Cradock).

SYNCOLOSTEMON E.Mey. ex Benth.

[= *HEMIZYGIA* (Benth.) Briq.]

Species 44, including 2 from India, all other in Africa; ± 38 in sthn Afr., M, S, FS, KZN, EC.

Within the Afroalpine and Afromontane archipelago-like Centre of Endemism, *Syncolostemon s.l.* (*Hemizygia* and *Syncolostemon* merged) extends from the Chimanimani-Nyanga Centre in Zimbabwe to the southern Drakensberg of SA, with the adjacent Wolkberg and Barberton Centres including most species. Parsimony analyses of morphological data, as well as DNA analyses show strong support for *Hemizygia* and *Syncolostemon* (both of the tribe Ocimeae) as a monophyletic group. Both genera have fused anterior stamens, a putative synapomorphy, distinguishing them from other genera in the tribe. *Syncolostemon* was the earlier generic name, necessitating many recombinations (Otieno et al. 2006).

1a Perennial herbs or soft shrubs; calyx subequally 5-toothed or the uppermost tooth somewhat larger than the remaining four
2a Corolla tube 6–10 mm long

parviflorus E.Mey. ex Benth.

Perennial, soft shrub or herb, 0.4–1.0 m high. **Leaves** subsessile, greenish, drying blackish, linear-lanceolate to elliptic-obovate, 12–32 × 2–12 mm, base cuneate, apex rounded to acute, hispidulous to fairly densely appressed-pubescent. **Inflorescence** a lax panicle; verticillasters up to 20 mm apart, 2-flowered. **Flowers** white or flushed with pink, rarely reddish pink. **Calyx** 5–6 mm long; tube setose in throat, becoming subrotund; glandular-hispid. **Corolla**: tube 8–9 mm long; lower lip 3–4 mm long. **Flowering time** Nov.–Apr. Mountain grassland, among rocks, alt. 90–2 010 m.

parviflorus E.Mey. ex Benth. var. **lanceolatus** (Gürke) Codd
Sub-Escarpment Savanna (Clydesdale and Malowe).

parviflorus E.Mey. ex Benth. var. **parviflorus**
Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Lusikisiki to Mkambati Nature Reserve).

2b Corolla tube 14–30 mm long

densiflorus Benth.
Pink plume; *isidlekesenqomfi* (Z)
Shrub, 1.0–2.2 m high; stems white-tomentose. **Leaves** petiolate, ovate to rotund, 5–15 × 4–10 mm, base cuneate, apex obtuse to rounded, margins subentire or toothed above middle; scabrid to subglabrous, gland-dotted. **Inflorescence** dense, often a compact, terminal panicle, up to 160 mm long; verticils 2–3 mm apart; verticillasters 4–6-flowered. **Flowers** crimson, pink or rarely whitish. **Calyx** cylindrical, teeth deltoid-subulate. **Corolla**: tube 15–20 mm long; lower lip 3–4 mm long, deflexed at maturity. **Flowering time** Oct.–May. Semi-coastal grassland, forest margins, alt. 15–1 425 m; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indigenous Forests, Indian Ocean Coastal Belt (uMzimkhulu to Weza Village S, Mthatha to Port St Johns, from Keiskammahoek to Kei River Mouth and East London).

ramulosus E.Mey. ex Benth.
Shrub, 0.6–1.2 m high. **Leaf blade** obovate to rotund 5–7 × 3.5–6.0 mm. **Inflorescence** medium-dense; verticillasters (2–)4–6-flowered. **Flowers** lilac to pale pinkish mauve or occasionally white. **Calyx**: teeth lanceolate-subulate, 2.0–2.5 mm long, uppermost tooth slightly shorter and broader than lower 4; glandular-hispidulous. **Corolla** 16–20 mm long, 5 mm wide at mouth; lower lip ± 3 mm long. **Stamens** exserted by 5–6 mm. **Flowering time** May? Grassland, alt. ± 100 m; Indian Ocean Coastal Belt (Mtentu Township).

rotundifolius E.Mey. ex Benth.
Shrub, 0.8–1.8 m high. **Leaf blade** obovate to subrotund, 6–15 × 4–12 mm. **Inflorescence** medium-dense to lax; verticillasters 2-flowered. **Flowers** bright mauve or magenta pink to pink. **Calyx** puberulent to shortly glandular-pubescent; teeth deltoid, subequal, 1.5–2.0 mm long. **Corolla** 20–27 mm long, 15 mm wide at mouth; lower lip 8–10 mm long. **Stamens** exserted by 10–15 mm. **Flowering time** Aug.–May. Grassland, rocky outcrops, ravines or gorges, sandstone, sandy soil, riverbanks, -mouths, waterfalls, alt. 60–610 m; Indian Ocean Coastal Belt, Sub-Escarpment Savanna (Umtamvuna Waterfall S, from Egoso to banks of Mkambati River and to Willowvale District).

1b Annual herbs or perennial soft shrubs; calyx bilabiate, 5-toothed, the uppermost tooth broadly ovate to subrotund, decurrent on the tube

stenophyllus (Gürke) D.F.Otieno
[= *Orthosiphon stenophyllus* Gürke, *Hemizygia stenophylla* (Gürke) M.Ashby]
Soft shrub, 0.3–0.9 m high; several stems from perennial rootstock; shortly stellate-tomentose. **Leaves** subsessile, linear-lanceolate to lanceolate, 12–30 × 3–5 mm, base obtuse, apex acute, margins revolute, entire; upper surface grey to blackish, finely pubescent; lower surface densely grey velvety-stellate. **Inflorescence** simple or with a pair of branches near base; verticillasters 4–6-flowerd. **Flowers** pale mauve to rosy mauve. **Calyx** 7–8 mm long at maturity, glandular-hispidulous. **Corolla**: tube ± 10 mm long;

lower lip ± 3 mm long. **Stamens** well exserted, beyond lower lip. **Flowering time** Jan.–Mar.? Dense grassland, forest margins, among rocks; Sub-Escarpment Grassland, Indigenous Forests (uMzimkhulu and Kokstad districts to Fort Donald).

teucriifolius (Hochst.) D.F.Otieno

[= *Ocimum teucriifolium* Hochst., *Hemizygia teucriifolia* (Hochst.) Briq.**]**

Bushy herb, 150–300 mm high; few to many, erect, slender stems, arising annually from a perennial rootstock; greyish stellate-pubescent. **Leaves** sessile, linear to lanceolate or elliptic, 8–18 × 3–6 mm, base obtuse, apex acute, margins revolute, entire; discolorous, upper surface blackish, stellate-scabrid; lower surface greyish stellate-tomentose. **Inflorescence** simple; verticillasters 4–6-flowered, in axils of persistent leaf-like bracts. **Flowers** mauve. **Calyx** 5–6 mm long at maturity, stellate-pubescent. **Corolla**: tube 9–10 mm long, often slightly narrowed at throat; lower lip ± 2 mm long. **Stamens** shortly exserted. **Flowering time** Nov.–Jan.? In dense grassland, spreading to overgrazed areas, mountain summits, alt. 600–1 500 m; Drakensberg Grassland, Indigenous Forests, Sub-Escarpment Savanna (Katberg Forest E to Stutterheim, Mount Kemp and King William's Town District, Pirie).

TETRADENIA Benth.

Species 5 or 6, in tropical Africa and Madagascar; 3 in sthn Afr., N, B, LIM, G, M, S, KZN, EC.

barberae (N.E.Br.) Codd

Dioecious perennials (also see Phillipson & Steyn 2008), shrubby, 0.6–1.0 m high; stems woody, terete. **Leaves** shortly petiolate, small, ovate, 8–15 × 5–10 mm, base truncate, apex obtuse, margins crenate, thickened below; bullate-rugose and finely glandular-scabrous above, conspicuously veined and densely glandular-tomentellous beneath. **Inflorescence** coetaneous (maturing at same time) with leaves; 1–3 pairs of branches near base; terminal male flower-spikes dense. **Flowers** mauve or whitish; in whorls of 4–10. **Calyx** minute, campanulate; lateral lobes deeply toothed, seemingly 5-toothed. **Corolla** 3 mm long, 4-lobed; upper lobe emarginate, lowest lobe the longest. **Disc** with 1 lobe developed beyond ovary. **Stamens** 4, free. **Flowering time** Dec.–Apr.? Restricted to a few dry, rocky S-facing valley slopes above some of major rivers, no more than 50 km from coast, alt. 320–450 m; Sub-Escarpment Savanna, Albany Thicket [Colleywobbles (cliffs above Mbashe River) S, Andries Vosloo Kudu Reserve to Great Fish River, Peddie].

TEUCRIUM L.

Wood sage

Species 100, widely distributed over the temperate and warmer regions of the world, mainly in the northern hemisphere; 3 in sthn Afr., B, LIM, NW, G, M, S, FS, KZN, L, NC, WC, EC.

1a Peduncles usually 1-flowered and much shorter than internode

africanum Thunb.

Bitterbos, *katjiedriedoring*, *paddaklou* (A)

Greyish, bushy shrublet, 0.1–0.3 m high; stems simple or branched near base, greyish, glandular-tomentulose. **Leaves** sessile, grey-green, 8–30 mm long, 3-lobed to 3-partite; lobes linear to linear-oblong, 5–25 × 1–3 mm, margins entire, revolute; thinly pubescent. **Inflorescence** a terminal, leafy panicle. **Flowers** white. **Calyx** greyish, 3–4 mm long; teeth lanceolate-deltoid. **Corolla** 5–6 mm long; tube 2 mm long; lower lip obovate, slightly

concave, remaining four lobes oblong, 2 mm long. **Stamens** exserted by 6–7 mm. Fairly arid conditions in fynbos, karoo, coastal or thorn scrub, alt. 15–1 465 m; Upper Karoo, Sub-Escarpment Grassland, Lower Karoo, Dry Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Hofmeyr District to Queenstown S, Graaff-Reinet to Keiskammahoek, Baviaanskloof to Alexandria and to Humansdorp).

1b Peduncles usually 3–7-flowered, cymes as long as or longer than internode

kraussii Codd

Isihlungu (Z)

Undershrub, 0.5–1.1 m high; branching from base; softly woody below, 4-angled, tomentose, hairs spreading. **Leaves** subsessile, drying dark brown, narrowly lanceolate to oblong-lanceolate or oblanceolate, 25–60 × 6–12 mm, base narrowly cuneate, apex obtuse to acute, margins entire or few-toothed towards apex; upper surface hispidulous; lower surface hispid and minutely gland-dotted. **Inflorescence** a leafy panicle, diffusely branched; flowers in 2–7-flowered pedunculate cymes, white. **Calyx** pubescent; teeth lanceolate-deltoid. **Corolla**: lower lip oblong-obovate, slightly concave, remaining 4 lobes oblong-rounded. **Stamens** exserted by 5–7 mm. **Flowering time** Nov.–Mar. Open bush and grassland, alt. 50–1 700 m; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Drakensberg Grassland, Albany Thicket (Clydesdale S, Msikaba Drift to Port St Johns, Umlelo River between Queenstown and Cathcart to Kentani District and to Kaba Valley).

trifidum Retz.

Aambeibossie, *akkedispootjie* (A)

Erect, soft undershrub, 0.3–1.1 m high; branching from base; stems virgate, woody below. **Leaves** petiolate, drying greyish green, deeply 3-fid or 3–5-partite, 20–60 mm long; lobes linear-lanceolate 10–35 × 3–8 mm, margins entire, revolute; thinly tomentose above, almost canescent and gland-dotted below. **Inflorescence** a leafy panicle; flowers in 3–7-flowered pedunculate cymes, white. **Calyx** 2.5–4.0 mm long. **Corolla** 5–6 mm long; lower lip obovate; remaining 4 lobes oblong to rounded. **Anthers** exserted by 6–8 mm. **Flowering time** Oct.–Apr. Dry woodland, alt. 15–2 025 m; widespread in all bioregions, except Mesic Highveld Grassland, Lower Karoo, Indian Ocean Coastal Belt and Rainshadow Valley Karoo (Umzimvubu and Kokstad districts S, Graaff-Reinet District to Mthatha, Somerset East to Butterworth, Elands River to East London and to Humansdorp).

TINNEA Kotschy & Peyr.

Species 19, Africa; 4 in sthn Afr., N, B, LIM, M, S, KZN, EC.

galpinii Briq.

Suberect or decumbent shrub, 0.15–0.60 m high; stems few to several from woody rootstock, softly woody, sparingly branched. **Leaves** subsessile to shortly petiolate, subcoriaceous, elliptic-lanceolate to ovate, 15–25 × 6–10 mm, base obtuse, apex subacute to obtuse, margins entire; tomentulose and gland-dotted on both surfaces. **Inflorescence** lax, terminal, unbranched, 80–200 mm long, of many spaced verticils, usually 2-flowered. **Flowers** maroon to chocolate, violet-scented. **Calyx** densely pilose, gland-dotted, becoming ovoid, inflated, 10–14 × 8–10 mm, membranous; lips rounded. **Corolla** finely tomentose; tube 6–9 mm long; lower lip 3-lobed. **Fruit** a nutlet, 5–6 mm long

excluding broadly elliptical wing, subglabrous. **Flowering time** Dec.–Mar. Among rocks in grassland, alt. 180–1 950 m; Indian Ocean Coastal Belt (Mkambati Nature Reserve, banks of Mtentu River).

VITEX L.

Species 250, in tropical to temperate regions of the world; 8 in sthn Afr., LIM, M, S, KZN, EC.

obovata E.Mey.

Kei finger-leaf; *Keivingerblaar* (A); *umLuthu* (Z)

Perennial tree, 3–4 m high; single stemmed; young stems and growing points glabrous or sparsely white-pubescent. **Leaves** palmately compound with 3–5 pinnae; pinnae narrowly ovate or narrowly obovate, apex acute, base acute, shortly acuminate or rounded, margins entire or toothed in upper half; upper surface glabrous, occasionally sparsely pubescent and glandular; lower surface pubescent and glandular, chartaceous; petioles glabrous or sparsely white-pubescent, petiolules sparsely pubescent. **Inflorescence** a compound dichasium. **Flowering time** Nov.–Jan. In dense savanna against steep, rocky slopes, alt. 550–1 370 m; Sub-Escarpment Grassland, Sub-Escarpment Savanna (Queenstown District, Gwatyn to Tsitsa River in Pondoland, from Stutterheim District and Kei River Bridge to hills near Komga).

VOLKAMERIA L.

(= *CLERODENDRUM* L. *pro parte*)

Type *V. aculeata* L. [= *Clerodendrum aculeatum* (L.) Schltdl.]

Approximately 25–30 species, pantropical but with apparently only one species in Asia (*V. inermis* L.); 1 in sthn Afr., N, B, LIM, NW, G, M, S, KZN, EC.

glabra (E.Mey.) Mabb. & Y.W.Yuan
(= *C. glabrum* E.Mey.)

Weeping tree; *stinkboom* (A)

Perennial shrub or small tree, 0.3–9.0 m high; stems erect, cylindrical; branches straight, lenticellate, glabrous or puberulous. **Leaves** opposite or 3-whorled, elliptic to ovate, base cuneate or rounded, apex obtuse or acute or sometimes attenuate, margins entire or slightly revolute. **Inflorescences** terminal, corymbose, subspherical; axes, pedicels and bracts puberulous; bracts and bracteoles linear. **Flowers** white, mauve, pinkish or creamy white. **Calyx** campanulate, glabrescent to densely pubescent, hairs appressed; lobes triangular. **Corolla**: tube sparsely pubescent; lobes oblong. **Style** and **stamens** exserted. **Flowering time** Oct.–Mar. **Fruit** strongly wrinkled, edible. Closed woodland, open shrubland, forest margins, grassland, alt. 0–1 600 m; Sub-Escarpment Grassland, Indigenous Forests, Sub-Escarpment Savanna, Albany Thicket (Mthatha to Port St Johns, Cwencwe to Kentani District and Port Elizabeth to East London).

BALL, P.W. 1972. *Lamium*. *Flora europaea* 3: 147, 148.
BREDENKAMP, C.L. & BOTHA, D.J. 1993. A synopsis of the genus *Vitex* L. (Verbenaceae) in southern Africa. *South African Journal of Botany* 59: 611–622.
BREDENKAMP, C.L. & BOTHA, D.J. 1996. *FSA* contributions 7: Verbenaceae: *Vitex*. *Bothalia* 26: 141–151.
CANTINO, P.D. 1992. Toward a phylogenetic classification of the Labiatae. *Advances in Labiate Science*: 27–37. Royal Botanic Gardens, Kew.
CODD, L.E. 1973. Labiatae. The genus *Rabdosia* in South Africa. *Bothalia* 11: 117.

CODD, L.E. 1975. *Plectranthus* (Labiatae) and allied genera in southern Africa. *Bothalia* 11: 371–442.
CODD, L.E. 1983. The genus *Tetradenia* Benth. (Lamiaceae). 1. African species. *Bothalia* 14: 177–183.
CODD, L.E. 1984. The genus *Isodon* (Schrad. ex Benth.) Spach in Africa and a new genus *Rabdosiella* Codd (Lamiaceae). *Bothalia* 15: 7–10.
CODD, L.E. 1985. Lamiaceae. *Flora of southern Africa* 28: 1–247.
CODD, L.E. 1988. Resuscitation of *Syncolostemon ramulosus* E.Mey. ex Benth. *Bothalia* 18: 92, 93.
CULLEN, J. 1972. *Marrubium*. *Flora europaea* 3: 137, 138.
HARLEY, R.M. 1972. *Mentha*. *Flora europaea* 3: 183–186.
HEYWOOD, V.H., BRUMMIT, R.K., CULHAM, A. & SEBERG, O. 2007. *Flowering plant families of the world*. Kew, Richmond.
HILLIARD, O.M. & BURTT, B.L. 1970. Labiatae, *Scutellaria racemosa* Pers. *Notes from the Royal Botanic Garden, Edinburgh* 30: 127.
HOOKER, J.D. 1867. *Tinnea aethiopica*. *Curtis's Botanical Magazine*: t. 5637.
HOOKER, W.J. 1825. *Pycnostachys*. *Exotic flora* 3. Blackwood, Edinburgh.
IWARSSON, M. 1985. *Leonotis*. *Flora of southern Africa* 28: 31–37.
LEISTNER, O.A. (ed.) 2000. Seed plants of southern Africa: families and genera. *Strelitzia 10*. National Botanical Institute, Pretoria.
MANNING, J. & GOLDBLATT, P. 2012. Plants of Greater Cape Floristic Region 1: the Core Cape flora, *Strelitzia* 29. South African National Biodiversity Institute, Pretoria.
OTIENO, D.F., BALKWILL, K., PATON, A.J. & SAVOLAINEN, V. 2006. A reassessment of *Hemizygia* and *Syncolostemon* (Ocimeae—Lamiaceae). *Taxon* 55: 941–958.
PATON, A. 1992. A synopsis of *Ocimum* L. (Labiatae) in Africa. *Kew Bulletin* 47: 403–435.
PATON, A. 1995. The genus *Becium* (Labiatae) in East Africa. *Kew Bulletin* 50: 199–242.
PATON, A., HARLEY, M.R. & HARLEY, M.M. 1999. *Ocimum*: an overview of classification and relationships. In Y. Holm & R. Hiltunen, *Medicinal and aromatic plants–industrial profiles*. Harwood Academic, Amsterdam.
PATZAK, A. 1972. *Ballota*. *Flora europaea* 3: 149–151.
PHILLIPSON, P.B. & STEYN, C.F. 2008. *Tetradenia* (Lamiaceae) in Africa: new species and new combinations. *Adansonia*, sér. 3, 30: 177–194.
PIEPER, W. 1928. Vorarbeiten zu einer Revision der afrikanischen *Vitex*-Arten mit Berücksichtigung der übrigen. *Botanische Jahrbücher* 62, Beiblatt 142: 1–80.
RICHARDSON, I.B.K. 1972. *Scutellaria*. *Flora europaea* 3: 135–137.
RYDING, O. 1993. A reconsideration of the genus *Rabdosiella* (Lamiaceae, Nepetoideae, Ocimeae). *Plant Systematics and Evolution* 185: 91–97.
SCHEEN, A.C., BENDIKSBY, M., RYDING, O., MATHIESEN, C., VICTOR, A., LINDQVIST, A. & LINDQVIST, C. 2010. Molecular phylogenetics, character evolution, and suprageneric classification of Lamioideae (Lamiaceae). *Annals of the Missouri Botanical Garden* 97: 191–217.
SKAN, S.A. 1910. Labiatae. *Flora capensis* 5,1: 307–387.
SMITH, A.R. 1972. *Prunella*. *Flora europaea* 3: 162.
STEVENS, P.F. 2011. Angiosperm Phylogeny Website. Version 9. Internet. http://www.mobot.org/MOBOT/research/APweb/ (accessed 25 June 2011).
TAYLOR, G. 1931. Labiatae. *Journal of Botany*, London 69, Suppl. Vol. 2: 162.
THONNING, P. 1827. *Solenostemon*. In H.C.F. Schumacher, *Beskrivelse af guineiske planter*. Popp (typ.), Copenhagen.
VAN JAARSVELD, E.J. & EDWARDS, T.J. 1990. *Plectranthus reflexus* (Lamiaceae): Transkei. *The Flowering Plants of Africa* 51: t. 2034.
VAN JAARSVELD, E.J. & EDWARDS, T.J. 1997. Notes on *Plectranthus* (Lamiaceae) from southern Africa. *Bothalia* 27: 1–6.
VAN JAARSVELD, E.J. & THOMAS, V. (Illustrations). 2006. *The southern African* Plectranthus *and the art of turning shade to glade*. Fernwood Press, Simon's Town.
VAN JAARSVELD, E.J. & VAN WYK, A.E. 2004. Lamiaceae: *Plectranthus mzimvubuensis*, a new species from Eastern Cape, South Africa. *Bothalia* 34: 30–32.
VERDCOURT, B. 1992. *Flora of tropical East Africa*. Verbenaceae: 1–155.

VOS, W.T. 1995. *A systematic study of* Leonotis *(Pers.) R.Br. (Lamiaceae) in southern Africa*. Unpublished Ph.D thesis, University of Natal, Pietermaritzburg.
YUAN, Y.W., MABBERLY, D., STEANE, D. & OLMSTEAD, R.G. 2010. Further disintegration and redefinition of *Clerodendrum* (Lamiaceae): Implications for the understanding of the evolution of an intriguing breeding strategy. *Taxon* 59: 125–133.

LAURACEAE

(Order Laurales)

Compiled by C.L. Bredenkamp & A.E. van Wyk

1a Parasitic, twining herbs with yellowish, thread-like stems and scale-like leaves; anthers 2-valved..... ..... **Cassytha**
1b Trees or shrubs with well-developed leaves; anthers 2- or 4-valved:
2a Flowers usually unisexual; anthers 4-valved; fruit seated on or in the enlarged, cupular receptacle .... **Ocotea**
2b Flowers bisexual; anthers 2-valved:
3a Fruit not enclosed in receptacle but by accrescent hypanthium; leaves opposite.....**Dahlgrenodendron**
3b Fruit completely enclosed in the persistent, enlarged receptacle; leaves mostly alternate.....**Cryptocarya**

CASSYTHA L.

False dodder, devil's tresses; *nooienshaar* (A)

Species 17, 14 in Australia and 3 in Africa; 2 or 3? (1 naturalised) in sthn Afr., N, B, LIM, M, S, KZN, WC, EC.

Inflorescence a lax spike of up to 11 flowers; glabrous or puberulous

***filiformis** L.

False dodder; *nooienshaar* (A); *luangalala* (Venda); *umkhunga* (Z)

Parasitic, twining herb, with thread-like, yellowish stems up to 2 m long, 1 mm thick, pubescent to glabrous; covering up to 10–30 m vegetation; adhering to hosts by uniseriate, elliptic haustoria 1–2 mm long. **Leaves** 1.0–2.5 mm long, scale-like. **Flowers** globose-ovoid, 1–2 mm long. **Tepals** in 2 rows of 3, small; outer ones smaller, triangular, glabrescent, ciliate; inner ovate to oblong, glabrous. **Stamens** (6–)9, white, drying brown; staminodes (outer whorl) pyramidal, stalked. **Ovary** ellipsoid, glabrous, with a ring of hairs. **Flowering time** all year. **Fruit** ovoid to subglobose, red. **Seed** globose, blackish. Pantropical, coastal vegetation, margins of riverine forests, montane grasslands; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests, Sub-Escarpment Grassland, Eastern Fynbos-Renosterveld, Albany Thicket (Umtamvuna River S through Queenstown to Humansdorp District and E to Grahamstown).

Inflorescence subcapitate or very shortly spicate, (1)5-flowered; rusty- or fulvous-tomentose

pondoensis Engl. var. **pondoensis**

Parasitic, twining herb, stems filiform, ± glabrous or rusty pubescent; adhering to hosts by uniseriate, elliptic haustoria 1–2 mm long. **Leaves** 0.2–3.0 mm long, scale-like. **Flowers** globose-ovoid, 3 mm long. **Tepals** in 2 rows of 3, small, rounded; outer ones smaller, glabrescent, ciliate; inner obtuse, glabrous outside, puberulous to pubescent inside. **Stamens** 9 fertile ones, 6 outer ± 2 **mm** long, 3 inner ± 1.4 mm long; staminodes ovate-triangular, sessile. **Ovary** obovoid. **Fruit** ellipsoid, fulvous pubescent or eventually quite glabrous. Disturbed shrubland, grassland with shrubs, swampy ground, forest edges; Indian Ocean Coastal Belt, Indigenous Forests (Umtamvuna Nature Reserve).

ciliolata Nees
Difficult to distinguish from other 2 species, possibly synonymous to *C. filiformis*. Occurs from Clanwilliam to EC.

CRYPTOCARYA R.Br.

Species ± 350, pantropical, centred in Indo-Malayan area with few in Australia and Africa; 7 in sthn Afr., LIM, M, S, KZN, WC, EC.

1a Leaves conspicuously 3-veined from near the base

latifolia Sond.
Broad-leaved quince; *breëblaar-kweper* (A); *umthungwa* (X, Z)

Large tree, 2–18 m high. **Leaves** alternate, coriaceous, margins entire, wavy, revolute; basal 3-veined continuing to halfway or almost to rounded or notched apex, nerves raised beneath, upper reticulation strong; lower surface glabrous to ± velvety, ferruginous pubescent. **Inflorescences** axillary or terminal, thyrso-paniculate, densely ferruginous pubescent. **Flowers** ± 3 mm long, pedicels, receptacle and sepals covered by cinnamon-coloured hairs. **Tepals** white. **Stamens** 9, fertile, in 3 whorls; staminodes in whorl four. **Flowering time** Oct.–Dec. **Fruit** spherical, ± 20 mm in diam., enveloped by receptacle, black. Forest, mostly on sandstone; Indigenous Forests (Umtamvuna Nature Reserve S to Port St Johns and Cwebe Forest).

1b Leaves pinnately veined, sometimes obscurely 3-veined from near the base
2a Leaves widely elliptic to suborbicular, apex cuspidate-acuminate and apiculate

woodii Engl.
Cape quince; *Kaapse kweper* (A); *isithungwa* (X); *umngcabe* (Z)

Evergreen shrub, 2–10(20) m high; branches with lenticels becoming verruculose. **Leaves** alternate, chartaceous to subcoriaceous, glabrous; petioles 3–5 mm long. **Inflorescences** axillary cymes, paniculately arranged, few-flowered; peduncle slender. **Flowers** ± 3 mm long, greenish white to yellowish. **Tepals** ovate-elliptic. **Stamens** 9, fertile, in 3 whorls; staminodes of whorl four with pilose filaments and ovate, acute antherodes. **Ovary** ovoid, glabrous; stigma capitate. **Flowering time** Oct.–Mar. **Fruit** subglobose enveloped by receptacle, dark purplish black, pedicel slender. Woodland, evergreen forest margins, riverine forests; Indigenous Forests (Kokstad District to Seymour, Stutterheim and East London).

2b Leaves ovate to elliptic (length:width up to 3:2), acute to acuminate at apex

myrtifolia Stapf
Myrtle quince; *mirte-kweper* (A); *umthungwa* (X); *umngqabe* (Z)

Evergreen tree, 3–20 m high; young growth tawny hairy. **Leaves** chartaceous, elliptic, margins entire, wavy; dark green above, bluish below, glabrous; petioles ± 5 mm long. **Inflorescences** axillary cymes, paniculately arranged, tawny hairy, few-flowered. **Flowers** small, cream-coloured. **Stamens** 9, fertile, in 3 whorls; staminodes in whorl four. **Flowering time** Jan., Feb. **Fruit** globose, ± 12 mm in diam., enveloped by receptacle, reddish purple. Forests, riverbanks; Indigenous Forests (Umtamvuna Nature Reserve S to Keiskammahoek).

wyliei Stapf
Small tree or shrub, 1–12 m high, multistemmed; young growth brownish hairy. **Leaves** chartaceous, ovate or elliptic, margins entire, revolute; dull green above, bluish below;

venation below brownish hairy and distinctly reticulate; petioles short. **Flowers** solitary or in axillary clusters, very small, greenish white. **Stamens** 9, fertile, in 3 whorls. **Flowering time** Dec., Jan. **Fruit** globose, ± 14 mm in diam., enveloped by receptacle, bright red. Forest margins, rocky outcrops in grassland, usually on sandstone; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests (Umtamvuna Nature Reserve S to Lusikisiki District).

DAHLGRENODENDRON J.J.M.van der Merwe & A.E.van Wyk

Monotypic, endemic to sthn Afr., forest in KZN, EC.

natalense (J.H.Ross) J.J.M.van der Merwe & A.E.van Wyk

Sandstone quince; *sandsteen-kweper* (A)

High, evergreen tree, 3–15 m high. **Leaves** opposite, brochidodrome (veins joined together in a series of upward arches). **Inflorescences** 3-flowered cymules, arranged on young growth. **Flowers** bisexual, 3-merous, greenish white. **Perianth**: tube deeply urceolate. **Tepals** 3 + 3, subequal. **Male flowers** with 3 + 3 + 3 fertile stamens; the first and second whorl introrse, the third whorl extrorse, with glands; anthers 2-thecous; staminodes (4th whorl) 3, conspicuous, ovate-triangular. **Ovary** enclosed by hypanthium, 1-locular. **Flowering time** Nov., Dec. **Fruit** a drupe, completely enclosed by accrescent hypanthium; fruit wall with endocarp differentiated from ovary wall. **Seed** with delicate testa. KZN/Pondoland sandstone, forest margins, streambanks; Indigenous Forests (Msikaba River in Pondoland to just N of Umtamvuna River in KZN).

OCOTEA Aubl.

Species ± 350, mostly in tropical and subtropical America, ± 30 in Madagascar, 7 in Africa, and 1 in the Canary Islands; 2 in sthn Afr., LIM, M, KZN, L, WC, EC.

Leaves with conspicuous domatia in axils of lowest 1 or 2 pairs of nerves below

bullata (Burch.) Baill.

Cape stinkwood; *stinkhout* (A); *umnukane* (X, Z)

Evergreen tree, 4–30 m high; plants dioecious or polygamous. **Leaves** oblong, up to 120 × 50 mm, penninerved, coriaceous, glabrous, base ± rounded, apex shortly attenuate, margins wavy. **Flowers** in axillary clusters, small, yellowish green. **Tepals** deciduous. **Bisexual flowers** with stamens in 3 or 4 whorls, outer 3 fertile, inner reduced to staminodes; filaments of innermost whorl with 2 large, glands at base; anthers 4-thecous, introrse in 2 outer whorls, ± extrorse in third whorl; ovary ovoid. **Male flowers** similar but ovary sterile. **Female flowers** as in bisexual flowers but stamens rudimentary. **Flowering time** Dec.–Feb. **Fruit** seated in enlarged, cupular receptacle; baccate, oval, ± 20 mm long, purple when ripe. Montane forest; Indigenous Forests (Insizwa Forest Station S to Kologha Forest in Stutterheim and SW to Humansdorp and Tsitsikamma Forests).

Leaves without domatia in the axils of lowest 1 or 2 pairs of nerves below

kenyensis (Chiov.) Robyns & R.Wilczek

Mock stinkwood; *vals-stinkhout* (A); *umnukane* (X)

Same as *O. bullata* but differing in following characters: height 3–20 m. **Leaves** elliptic, large, up to 220 × 90 mm, base tapering, apex rather attenuate; glossy dark green with yellowish veins above, dull, light green below. **Flowers** clustered at ends of branchlets, small, whitish to yellow. **Flowering time** Nov.–Jan. **Fruit** ellipsoid. Evergreen forest, alt. medium to high (1 700 m); Indigenous Forests (Ntsubane Forest S to Nenga Forest at Port St Johns).

DINIZ, M.A. 1997. Lauraceae. *Flora zambesiaca* 9,2: 45–59.
FRIEDRICH-HOLZHAMMER, M. 1968. Lauraceae. *Prodromus einer Flora von Südwestafrika* 35: 1.
KOSTERMANS, A.J.G.H. 1990. Materials for a revision of Lauraceae VI. *Botanica Helvetica* 100: 33–36.
ROHWER, J.G. 1993. Lauraceae. In K. Kubitzki, J.G. Rohwer & V. Bittrich, *The families and genera of vascular plants — dicotyledons* 2. Springer-Verlag, Berlin.
ROSS, J.H. 1973. Lauraceae: A new generic record for South Africa and a new species. *Bothalia* 11: 118.
STAPF, O. 1909. Laurineae. *Flora of tropical Africa* 6,1: 171–188.
STAPF, O. 1912. Laurineae. *Flora capensis* 5,1: 493–502.
VAN DER MERWE, J.J.M., VAN WYK, A.E. & KOK, P.D.F. 1988. *Dahlgrenodendron*, a remarkable new genus of Lauraceae from Natal and Pondoland. *South African Journal of Botany* 54: 80–88.
VAN DER WERFF, H. 1991. A key to the genera of Lauraceae in the New World. *Annals of the Missouri Botanical Garden* 78: 377–387.
VERDCOURT, B. 1996. *Flora of tropical East Africa*. Lauraceae: 1–18.
WEBER, J.Z. 1981. A taxonomic revision of *Cassytha* (Lauraceae) in Australia. *Journal of the Adelaide Botanic Gardens* 3: 187–262.

LENTIBULARIACEAE

(Order Lamiales)

Compiled by S.J. Smithies

Calyx 5-lobed; traps tubular, with 2 spirally-twisted arms ..... **Genlisea**
Calyx 2-lobed; traps bladder-like, ovoid or globose ..... **Utricularia**

GENLISEA A.St.-Hil.

Corkscrew plant; *kurktrekkerkruid* (A)

Species ± 21, tropical and South America, tropical and sthn Afr. and Madagascar; 1 in sthn Afr., LIM, NW, G, M, S, KZN, EC.

hispidula Stapf

Perennial, carnivorous herb. **Leaves** dimorphic: foliage leaves rosulate, ± spathulate; trap leaves in substrate, Y-shaped, with stalk, flask-like trap and 2 long, spirally twisted arms. **Flowers** in terminal racemes 60–300 mm high; violet or blue to pink. **Calyx** lobes lanceolate, subequal. **Corolla** upper lip ovate, 1- or 2-lobed; lower lip spurred, 3-lobed, palate ± gibbous. **Flowering time** mostly Sept.–Mar. Terrestrial or affixed aquatic, damp grassland, sometimes or always inundated; Indian Ocean Coastal Belt (Port Edward to Port St Johns).

UTRICULARIA L.

Bladderwort; *blaaskruid* (A)

Species ± 219, cosmopolitan, mainly tropical and subtropical; 18 in sthn Afr., widespread.

1a Leaves little to much divided; submerged aquatics, usually suspended; racemes usually emergent; bracteoles absent

gibba L.

Annual or perennial, carnivorous herb. **Leaves** with few segments (up to 8), last ones with apical bristle. **Traps** few, lateral on all but last segments, sometimes replacing a branch.

Flowers in erect racemes, emergent or sometimes submerged and reduced; yellow, often with reddish brown veins. **Calyx**: lobes subequal, apex rounded. **Corolla**: upper lip broadly ovate to ± circular; lower lip spurred to various lengths. **Flowering time** ± all year, mainly Dec. Affixed or suspended aquatic, still or slow-running water; Eastern Fynbos-Renosterveld (Swartkops River in Groendalkloof, Uitenhage).

stellaris L.f.

Perennial or annual?, carnivorous herb. **Leaves** much divided, final segments usually with some bristles; scales clear, ± circular, usually at leaf bases, much divided into densely bristled segments. **Traps** many, lateral on secondary leaf segments. **Flowers** in erect, emergent racemes; peduncles with a whorl of narrowly, ovoid floats; yellow. **Calyx**: lobes subequal, one rounded, one retuse. **Corolla** hairy; spur shorter than lower lip. **Flowering time** all year. Suspended aquatic, still or slow-running water; Indian Ocean Coastal Belt (Kentani and Kei River Mouth).

1b Leaves entire; emergent aquatics fixed in substrate; bracteoles present or absent
2a Scales on peduncles and bracts peltate; bracteoles absent

subulata L.

Annual, carnivorous herb. **Leaves** ± narrowly linear, 1-veined. **Traps** many, mouth lateral. **Flowers** with peduncles 20–50 mm long; yellow (or white to reddish in cleistogamous flowers). **Bracts** peltate. **Calyx**: lobes subequal. **Corolla**: upper lip broadly ovate; lower lip ± rhombic, deeply 3-lobed; spur ± same length as lower lip. **Flowering time** Dec. Damp soil, usually low open vegetation, sometimes shallow water; Indian Ocean Coastal Belt (Mkambati Nature Reserve).

2b Scales on peduncles and bracts basifixed; bracteoles present

bisquamata Schrank

Cape bladderwort

Annual, carnivorous herb. **Leaves**: blade very narrowly obovate to linear, 1-veined. **Traps** ovoid, mouth terminal. **Flowers** in a simple raceme 15–25 mm long; violet to white, rarely yellow, with yellow palate. **Calyx** lobes subequal, broadly ovate, usually pleated along the few veins. **Corolla**: upper lip with 2 ovate parts in tandem; lower lip much larger, ± circular, 3- or 5-crenate; spur ± as long as lower lip. **Flowering time** Aug.–Jan., mainly Sept. Wet soil or wet, mossy rocks; Eastern Fynbos-Renosterveld (Storms River E to Groendal Wilderness, Uitenhage and perhaps to Albany).

livida E.Mey.

Bladderwort; *blaaskruid* (A); *tlamana-sa-metsi* (SS); *intambo* (Z)

Annual or perennial, carnivorous herb. **Leaves**: blade narrowly cuneiform to reniform, several- to many-veined. **Traps** ovoid, mouth terminal. **Flowers** in a branched or simple raceme, 20–80 mm long; shades of violet, sometimes with yellow palate, or wholly yellow or white. **Calyx**: lobes subequal or unequal, ovate, pleated along 5–7 veins. **Corolla**: upper lip narrowed above middle; lower lip ± circular; spur equal to or up to 2× length of lower lip. **Flowering time** Sept.–Apr., mainly Jan. Terrestrial, permanently and seasonally wet areas, shallow soil or moss over rocks; Drakensberg Grassland, Sub-Escarpment Grassland, Indian Ocean Coastal Belt (Alfred District inland SW to Hogsback and along coast to Port St Johns).

prehensilis E.Mey.

Large yellow bladderwort; *blaaskruid* (A); *iphengulula* (Z)

Probably perennial, carnivorous herb. **Leaves**: blade linear, many-veined. **Traps** spherical, mouth basal. **Flowers** in an erect or twining, simple raceme, 30–350 mm long; bright yellow. **Calyx**: lobes subequal to unequal, ± ovate. **Corolla**: upper lip narrow; lower lip much broader, obovate; spur large, equal to or longer than lower lip. **Flowering time** Aug.–Jan. Terrestrial and aquatic, permanently and seasonally wet places, often grassy or shallow water on sandy, peaty soil; Indian Ocean Coastal Belt (Port Edward SW to Fraser Falls).

sandersonii Oliv.

Perennial, carnivorous herb. **Leaves**: blade cuneate, obovate or fan-shaped, many-veined. **Traps** ovoid, mouth terminal. **Flowers** in a simple raceme, 20–70 mm long; white, pale mauve, pale pink or blue with darker markings, palate sometimes yellow. **Calyx**: lobes unequal. **Corolla**: upper lip deeply divided into 2 divergent lobes; lower lip ± circular; spur 2–3× as long as lower lip. **Flowering time** July–Feb. Terrestrial on damp soil or lithophyte on wet rocks or epiphyte, forests; Indian Ocean Coastal Belt (Umtamvuna SW to Port St Johns).

COOK, C.D.K. 1990. *Aquatic plant book*. SPB Academic Publishing, The Hague.
COOK, C.D.K. 2004. *Aquatic and wetland plants of southern Africa*. Backhuys Publishers, Leiden.
FISCHER, E. POREMBSKI, S. & BARTHLOTT, W. 2000. Revision of the genus *Genlisea* (Lentibulariaceae) in Africa and Madagascar with notes on ecology and phytogeography. *Nordic Journal of Botany* 20: 291–318.
POOLEY, E. 1998. *A field guide to wild flowers: KwaZulu-Natal and the eastern region*. Natal Flora Publications Trust, Durban.
RICE, B.A. 2006. *The complete growers guide to carnivorous plants*. Briza, Pretoria.
TAYLOR, P. 1964. The genus *Utricularia* L. (Lentibulariaceae) in Africa (south of the Sahara) and Madagascar. *Kew Bulletin* 18: 1–245.
TAYLOR, P. 1989. The genus *Utricularia*—a taxonomic monograph. *Kew Bulletin* Additional series 14: ix–720.

LIMEACEAE

(Order Caryophyllales)

Compiled by C.L. Bredenkamp

LIMEUM L.

Lizard's foot; *koggelmandervoet*, *klosaarbossie* (A)

Species ± 26, mostly in sthn Afr., with a few species reappearing in the Sudan, Ethiopia and S Asia; 18 in sthn Afr., widespread, N, B, LIM, NW, G, M, FS, L, NC, WC, EC.

1a Mericarps with broad circular wings (section Semonvillea*)*

fenestratum (Fenzl) Heimerl

Erect, procumbent, sometimes spreading annual, 0.3–0.9 m high. **Leaves** deciduous, linear-lanceolate, up to 70 mm long, entire, mucronate. **Inflorescences** laxly branched, terminal, paniculate cymes. **Flowers** distant from one another, internodes longer than tepals; whitish. **Perianth segments** ovate to oblong, green with whitish membranous margins. **Staminodes** equaling perianth segments, evanescent. **Stamens** 7; filaments

ciliate at base. **Mericarps** compressed-orbicular with dorsal tubercles radiating from centre, surrounded by a transparent, radiately nerved, membranous wing (wing sometimes absent). Littoral dunes, sandy roadsides, weed of cultivated land; Upper Karoo (based on the specimen *Zeyher 1857* presumably from 3025DA).

1b Mericarps not winged, surfaces rugose, net-like or pitted, prickly or smooth (section Limeum*)*
2a Plants glabrous or somewhat rough but never glandular or hairy

aethiopicum Burm.

Aarbossie (A)

Dwarf shrub with annual shoots, 0.10–0.45 m high; stems erect or decumbent. **Leaves** linear to obovate-lanceolate, up to 45 mm long. **Inflorescences** in terminal and axillary clusters, crowded, compactly flowered. **Flowers** sessile or with pedicels up to 1.5 mm long, small. **Perianth segments** 5, broadly ovate, membranous, white with green keel. **Stamens** (5)7; filaments broadened and fimbriate below. **Flowering time** Oct.–May. **Mericarps** with outer surface shortly tuberculate. Riverbeds, pans, limestone, dolerite, open grassland near coast; Upper Karoo, Dry Highveld Grassland, Sub-Escarpment Grassland, Lower Karoo, Rainshadow Valley Karoo, Albany Thicket (Oviston Nature Reserve E to Queenstown, southwards from Steytlerville to King William's Town).

argute-carinatum Wawra ex Wawra & Peyr.

Annual herb, ± 0.3 m high. **Leaves** lanceolate to linear-oblong. **Inflorescences** terminal, umbelliform cymes, multiflowered. **Flowers** with pedicels ± 2 mm long; whitish, small. **Perianth segments** 5, broadly ovate, green-keeled with membranous, narrow wing. **Stamens** 7; filaments broadened and fimbriate below. **Staminodes** present. **Flowering time** June? **Mericarps** 1.0–1.5 mm in diam., reniform to hemispherical, much smaller than perianth; dark brown to almost black when mature; surface irregular to net-honeycombed or shortly tuberculate, basal auricles absent. Sandy, dry soils; Upper Karoo (Oviston Nature Reserve).

humifusum Friedrich

Suffrutex, 0.1–0.4 m high; stems decumbent. **Leaves** lanceolate, up to 10 mm long. **Inflorescences** in terminal or pseudolateral clusters, multiflowered. **Flowers** with pedicels up to 3 mm long, small. **Perianth segments** broadly ovate, membranous, white with green keel. **Stamens** with filaments dilated and fimbriate below. **Flowering time** Apr.? **Mericarps** hemispherical to reniform, outer surface reticulate to scrobiculate. Upper Karoo, Eastern Fynbos-Renosterveld (Rhenosterfontein S of Richmond, Tsitsikamma National Park).

sulcatum (Klotzsch) Hutch.

Annual or perennial herb, 0.03–0.60 m high. **Leaves** linear-lanceolate, up to 50 mm long, midrib prominent below, pedicel short with swollen base. **Inflorescences** terminal and axillary, 5–50-flowered, umbelliform. **Flowers** with pedicels up to 2 mm long; greenish white. **Perianth segments** 5, broadly ovate, membranous, white with green keel. **Stamens** 7; filaments broadened and fimbriate below. **Flowering time** Jan.–Mar.? **Mericarps** with 2 large auricles at base, outer surface alveolate-tuberculate to spinescent. Weed of cultivated land, dongas, roadsides, sandy soils; Upper Karoo (Middelburg District, Grootfontein).

telephioides E.Mey. ex Fenzl

Dwarf shrub with annual shoots, 0.10–0.35 m high; stems decumbent, trailing. **Leaves** ovate, obovate-cuneate to almost round, flat, up to 16 mm long. **Inflorescences** in ter-

minal and axillary clusters, densely 15–50-flowered. **Flowers** with pedicels ± 2.5 mm long, small. **Perianth segments** 5, broadly ovate, membranous, white with green keel. **Stamens** (5)7; filaments broadened and fimbriate below. **Flowering time** Nov.–May. **Mericarps** finely rugose to net-like and pitted, base without auricles. Grassland, closed shrubland, roadsides; Sub-Escarpment Savanna, Albany Thicket (Grahamstown District, Ecca River Valley, Fish River).

2b Plants sticky, glandular or hairy, rarely glabrous (young shoots, tepals and pedicels with isolated glands or hairs)

viscosum (J.Gay) Fenzl

Annual or short-lived perennial, 0.1–0.6 m high. **Leaves** variable, lanceolate to ovate or obovate. **Inflorescences** extra-axillary, 5–25-flowered cymes. **Flowers** with pedicels up to 7 mm long; whitish. **Perianth segments** 5, broadly ovate with whitish, membranous margins. **Stamens** 5 or 7; filaments broadened below, inserted on hypogynous disc. **Staminodes** present. **Flowering time** Nov.–Jan. **Mericarps** 2–5 mm in diam., surface with a network of ridges forming a honeycomb pattern, ± elevated into small projections at the angles; 2-auriculate. In grassland; Sub-Escarpment Grassland, Drakensberg Grassland (Queenstown, Engcobo, Stutterheim).

ENDRESS, M.E. & BITTRICH, V. 1993. Molluginaceae. In K. Kubitzki, J.G. Rohwer & V. Bittrich, *The families and genera of vascular plants — dicotyledons* 2. Springer-Verlag, Berlin.
FRIEDRICH, H.C. 1955. Taxa nova Molluginacearum. *Mitteilungen der Botanischen Staatssammlung München* 2: 60–66.
FRIEDRICH, H.C. 1956. Beiträge zur Kenntnis der Molluginaceen. Revision der Gattung *Limeum* L. *Mitteilungen der Botanischen Staatssammlung München* 2: 133–166.
FRIEDRICH, H.C. 1966. Molluginaceae. *Prodromus einer Flora von Südwestafrika* 26: 1–21.
GONÇALVES, M.L. 1978. Molluginaceae. *Flora zambesiaca* 4: 522–548.
JEFFREY, C. 1961. *Flora of tropical East Africa.* Aizoaceae: 1–37.
KEAY, R.W.J. 1954. Molluginaceae. *Flora of west tropical Africa*, edn 2, 1,1: 133–135.
ROSS, J.H. 1972. Molluginaceae. Flora of Natal. *Memoirs of the Botanical Survey of South Africa* No. 39.
SONDER, O.W. 1860. Caryophylleae. *Flora capensis* 1: 120–151.
STEVENS, P.F. 2006. Angiosperm Phylogeny Website. Version 7. Internet. http://www.mobot.org/MOBOT/research/APweb/ (accessed June 2007).

LINACEAE

(Order Malpighiales)

Compiled by C.L. Bredenkamp

LINUM L.

Species ± 230, cosmopolitan in temperate and subtropical regions; 14 in sthn Afr., 13 endemic to WC and EC, *Linum thunbergii* Eckl. & Zeyh. in LIM, NW, G, M, S, FS, KZN, L, WC, EC.

Styles united (at base to almost whole length); plants glabrous, stipular glands throughout

aethiopicum Thunb.

African flax

Perennial dwarf shrub or herb, 0.2–0.3 m high, leafy to summit. **Leaves** ± coriaceous, lanceolate to ovate, 5–15 × 3–6 mm. **Panicles** compact. **Flowers** short-pedicelled. **Calyx**: lobes lanceolate to ovate, outer entire to sparsely and irregularly toothed. **Petals** obovate.

Stamens 5.5–7.0 mm long; staminodes absent. **Styles** united more than halfway, 3–7 mm long. **Flowering time** Aug.–Mar. **Fruit** subspherical, apex obtuse. **Seeds** 1.8–2.0 mm. Woodland, fynbos, grassland, calcrete, sand, salt/brack; Indian Ocean Coastal Belt, Drakensberg Grassland, Indigenous Forests, Eastern Fynbos-Renosterveld, Albany Thicket (Port St Johns SW to Tsitsikamma, E to Port Alfred).

africanum L.

Perennial herb, 0.2–0.5 m high. **Leaves** opposite below, alternate above, linear to narrowly lanceolate, 10–25 × 1–3 mm. **Panicles** varying from moderately compact to open. **Sepals** lanceolate, acute, outer with margins entire or few-toothed. **Petals** obovate. **Stamens** 4–7 mm long; staminodes small, deltoid. **Styles** united ± half or less, 5.0–6.5 mm long. **Flowering time** Oct., Nov. **Fruit** ovate, acute at apex. **Seeds** 2 × 1 mm. Sandy or limestone hills, dry to damp areas, often not far from sea; Eastern Fynbos-Renosterveld (Knysna to Humansdorp).

esterhuyseniae C.M.Rogers

Perennial herb or semi-shrub, 0.15–0.50 m high; branched from base, densely short pubescent below. **Stipular glands** conspicuous throughout. **Leaves**: lower imbricate, upper alternate, lanceolate to ovate, 8–18 × 2–5 mm, acute to obtuse, coriaceous. **Panicles** open. **Flowers** mostly short-pedicelled. **Sepals** lanceolate, conspicuously toothed. **Petals** oblanceolate. **Stamens** 5–7 mm long, staminodia very slender, ± 0.5 mm long. **Styles** 4.0–7.5 mm long, briefly united at base, rarely separate. **Fruit** broadly ovate, acute. **Seeds** 2.5 × 1.3 mm. Rocky slopes, previously burned, alt. 200–1 750 m; Eastern Fynbos-Renosterveld (WC east to Humansdorp District).

Styles separate; plants glabrous, or sometimes puberulent or loosely villous below; stipular glands throughout, none or at bases of lower leaves only

quadrifolium L.

Perennial herb, mostly 0.3 m high; glabrous. **Stipular glands** present throughout. **Leaves** in whorls of 4, uppermost reduced, alternate or opposite, lanceolate to ovate, 8–23 × 3–10 mm. **Panicles** open. **Flowers** mostly short-pedicelled. **Sepals** ovate, acute, margins entire to delicately glandular-toothed. **Petals** obovate. **Stamens** 4.5–6.0 mm long, staminodia small. **Styles** 3.2–5.3 mm long. **Fruit** broadly ovate, acute. **Seeds** 2 mm in diam. Mountain slopes, damp places, valleys; Drakensberg Grassland, Sub-Escarpment Savanna (Hogsback, Kentani).

thunbergii Eckl. & Zeyh.

Wild flax; *wildevlas* (A); *bohlokoana* (SS); *ithalelimpofu* (Z)

Perennial herb (flowering first year), (0.15–)0.40–0.50(–0.90) m high; glabrous or occasionally loosely pilose at base. **Stipular glands** present throughout or absent above. **Leaves** linear to ovate, 10–20 × 1–4 mm. **Panicles** open. **Flowers** mostly short-pedicelled. **Sepals** lanceolate to ovate, outer entire or very sparsely toothed, inner usually with glandular-toothed margins. **Petals** oblanceolate. **Stamens** 3.0–4.5 mm long, staminodia none. **Styles** 2–4 mm long. **Flowering time** Nov.–Apr. **Fruit** broadly ovate to turbinate, apiculate. **Seeds** 1.5 × 1 mm. Riverine bush, S-facing grassy slopes, grassland, open woodland, stony soil/rocky; Upper Karoo, Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Burgersdorp E to Kokstad District southwards, from Middelburg to Queenstown, Cradock to Komga, Joubertina to East London and to Humansdorp).

ROBSON, N.K.B. 1963. Linaceae. *Flora zambesiaca* 2: 91–99.
ROGERS, C.M. 1981. A revision of the genus *Linum* in southern Africa. *Nordic Journal of Botany* 1: 711–722.

LINDERNIACEAE

(Order Lamiales)

Compiled by C.L. Bredenkamp

Nectary absent; stamens 4 fertile ..... **Craterostigma**
Nectary present; stamens usually 2 plus 2 staminodes; rarely 4 fertile ..... **Lindernia**

CRATEROSTIGMA Hochst.

Species ± 9, Yemen, Socotra, India, Madagascar, tropical and sthn Afr.; 3 [4 including *Craterostigma nanum* (E.Mey. ex Benth.) Engl.?] in sthn Afr., N, B, LIM, NW, G, M, FS, KZN, WC?, EC?

plantagineum Hochst.

Resurrection plant

Perennial, succulent, stemless herb, up to 100 mm high. **Leaves** in basal rosette, oval to broadly ovate, entire, thick, strongly ± parallel-veined, petiolate. **Flowers** usually several in dense racemes on ± erect, bracteate scapes with short pedicels. **Corolla** tubular, bilabiate, upper lip hood-like, lobes white with blue or purple marks and 2 orange spots. **Anthers** 4, glabrous. **Flowering time** Oct.–Mar. In seasonally wet soils over rock, dormant in dry season; Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Mthatha E to Port Edward and Port St Johns).

In EC this plant has long been called *C. nanum* (E.Mey. ex Benth.) Engl. This name was sunk under *C. plantagineum* by Fischer (1992) but this may be incorrect, especially as there is a large gap in the distribution.

wilmsii Engl. ex Diels

Mole's spectacles; *molbril* (A)

Perennial, erect, succulent herb, 200(–380) mm high. **Stems** scape-like. **Leaves** mainly in basal rosette, spathulate or obovate, obtuse, fleshy, veins inconspicuous, broadly petiolate. **Flowers** several, up to 15 per scape, racemose. **Corolla** tubular, bilabiate, upper lip hood-like, sometimes upper one white, lower one pink or red, or all lobes pink to dark purplish red with 2 yellow spots. **Anthers** 4, hairy. **Flowering time** Nov.–Feb. In damp or wet soil over rocks; Indian Ocean Coastal Belt (Mkambati River flats).

LINDERNIA All.

Species ± 80, tropical to warm temperate, Europe, mainly Africa; 7 in sthn Afr., mainly permanently moist or wet areas in eastern half of country, N, B, LIM, NW, M, S, FS, KZN, L, WC, EC.

parviflora (Roxb.) Haines

Annual herb, semi-aquatic, up to 0.3 m high; stems simple to much branched, erect to creeping; glabrous. **Leaves** opposite, ± sessile, 10(–30) × 3 mm, shape variable, ± linear to ovate or acute, ± entire. **Flowers** mostly single, axillary. **Pedicels** 10(–15) mm long, often becoming reflexed. **Calyx** deeply divided. **Corolla** bilabiate, ± 7 mm long, upper lip ovate, lower lip longer, 3-lobed; white, pale blue, or mauve

to violet with 2 yellow spots in throat. **Stamens**: 2 fertile, 2 staminodes. **Flowering time** Dec.–Apr. Damp areas: swamps, rivers, pans and ephemeral rock pool edges, or aquatic in such pools; Sub-Escarpment Savanna, Albany Thicket, Eastern Fynbos-Renosterveld (Steynsburg District to road between Mthatha and Port St Johns S, from Pirie to Kentani, Grahamstown to East London and to Humansdorp).

FISCHER, E. 1992. Systematik der afrikanischen Lindernieae (Scrophulariaceae). *Tropische und subtropische Pflanzenwelt* 81: 365.
FISCHER, E. 2004. Scrophulariaceae. In K. Kubitzki, *The families and genera of vascular plants* 7: 333–432. Springer-Verlag, Berlin

LOBELIACEAE see CAMPANULACEAE

LORANTHACEAE

(Order Santalales)

Compiled by G. Germishuizen

1a Flowers radially symmetrical following anthesis (not producing a V-shaped split); corolla bearing conspicuously long (3–5 mm), white, silky, ascending hairs; young leaves generally light to densely stellate-pubescent ..... **Erianthemum**

1b Flowers bilaterally symmetrical following anthesis (bearing a single V-shaped unilateral split which is sometimes obscured in pressed specimens); corolla, leaves and inflorescence essentially glabrous:

2a Corolla lobes distal from point of filament attachment, usually much shorter or occasionally as long as rest of corolla; corolla tube below split (i.e. closed portion) ± 10 mm or longer:

3a Corolla tube without conspicuous basal swelling, if slightly expanded basally, then never abruptly constricted, enlarging laterally to at least 3 mm or more in diam.; corolla lobes much shorter than tube . ..... **Agelanthus**

3b Corolla tube with conspicuous basal swelling, then abruptly and very narrowly constricted (± 0.5 mm) just above swelling, thereafter enlarging laterally to ± 1.5 mm in diam.; corolla lobes much longer than tube ..... **Oncocalyx**

2b Corolla lobes distal from point of filament attachment, at least twice the length of rest of corolla; corolla tube below split (i.e. closed portion) ± 7 mm long or shorter:

4a Corolla reddish orange (mature buds black-tipped), lobes reflexed into coils; anthers typically breaking from filaments at anthesis; inflorescence primarily umbellate, but occasionally an apical crowded raceme ..... **Moquiniella**

4b Corolla greenish yellow, lobes erect to slightly reflexed, never coiled; anthers mostly persistent following anthesis; inflorescence umbellate ..... **Oncocalyx**

AGELANTHUS Tiegh.

Species ± 59, in Africa and Arabian Peninsula, the largest and central genus of African Loranthaceae; ± 11 in sthn Afr., widespread. N, B, LIM, NW, G, M, S, KZN, EC.

Corolla tube conspicuously swollen at base

kraussianus (Meisn.) Polhill & Wiens

Glabrescent, hemiparasitic shrub, 0.8–2.0 m high. **Leaves** subopposite, lanceolate to ovate-elliptic, glossy green, thinly coriaceous. **Flowers** in solitary, 4–8-flowered umbels, axillary on leafy shoots, tubular, with a basal, ovoid-ellipsoid swelling, bright red, dull greenish yellow at apex; lobes erect. **Flowering time** Aug.–Feb. **Fruit** a red, obovoid berry. Parasitic on various trees including species of *Vachellia*, *Senegalia*, *Capparis*, *Celtis*, *Combretum* and *Grewia*. Forests, occasionally in coastal bushland, stony soil; Indigenous Forests, Indian Ocean Coastal Belt, Sub-Escarpment Savanna, Drakensberg Grassland, Sub-Escarpment Grassland (Port Edward, through Pondoland to Katberg Pass, Fort Beaufort).

prunifolius (E.Mey. ex Harv.) Polhill & Wiens

Hemiparasitic shrub, up to 1 m high. **Leaves** subopposite, elliptic-lanceolate to ovate or ovate-elliptic, dark glossy green, thinly coriaceous, with few primary lateral veins. **Flowers** in 4–10-flowered umbels, tubular, with a basal, ovoid-ellipsoid swelling tapering into a narrow constriction above base, orange, puberulous; lobes erect. **Flowering time** Aug.–Feb. Parasitic on species of *Rhoicissus* and *Ficus*. Forests, sometimes riverine, stony soil, alt. up to 900 m; Sub-Escarpment Grassland, Indigenous Forests, Drakensberg Grassland, Sub-Escarpment Savanna, Albany Thicket (Hogsback Forest at Seymour S, from Katberg Pass to Komga and to Kariega River).

Corolla tube not conspicuously swollen at base

natalitius (Meisn.) Polhill & Wiens

Hemiparasitic shrub, 0.3–1.5 m high. **Leaves** opposite to alternate on long-shoots, crowded and smaller at base and tip of short-shoots, linear-elliptic, linear-lanceolate, oblanceolate or obovate-elliptic, acute, grey-green to glaucous, coriaceous, glabrous to densely puberulous, with 3 or 4 pairs of lateral veins, the lower ones strongly ascending. **Flowers** 3–6 at tips of short-shoots, occasionally in shortly pedunculate, axillary umbels, tubular, with a slight basal swelling, grey or white; lobes erect, banded yellow or orange with yellow-green to red apex; stamens red. **Flowering time** Sept.–Jan. **Fruit** a red, globose-obovoid berry. Parasitic primarily on species of *Vachellia* and *Senegalia*. Mixed woodland, bushland and grassland, alt. up to 600 m; Sub-Escarpment Savanna, Indian Ocean Coastal Belt (KZN and lowlands to Port St Johns).

ERIANTHEMUM Tiegh.

Species 16, widely distributed from eastern to sthn Afr.; 2 in sthn Afr., N, B, LIM, NW, G, M, S, KZN, EC.

dregei (Eckl. & Zeyh.) Tiegh.

Aerial, hemiparasitic, moderate-sized to large shrub, 0.4–2.0 m high; younger stems and leaves densely brownish to whitish stellate- or dendritic-pubescent. **Leaves** opposite to alternate, well spaced except at base of new shoots, elliptic-oblong to ovate, with 4–8 pairs of lateral veins. **Inflorescence** in a 2–6-flowered head, 1–several in axils or at nodes. **Flowers** tubular, pale often yellowish green, flushed orange to pink, with conspicuous, whitish, long, ascending, silky hairs. **Flowering time** June–Mar. **Fruit** an ovoid, orange to bright red berry, with long silky hairs; calyx tube persistent. Parasitic on various trees including species of *Vachellia*, *Senegalia*, *Brachylaena*, *Combretum*, *Euclea*, *Grewia*, *Searsia*, *Schotia*, *Strychnos* and *Trichilia*. Forest, open and closed woodland, closed shrubland, sandy soil, alt. up to 900 m; Indigenous Forests, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Albany Thicket (Umtamvuna River S, from Magwa Falls to Mkambati Nature Reserve, Komga to Bonza Bay and Great Fish River in Albany District to Port Alfred and East London).

MOQUINIELLA Balle

Matchsticks

Endemic to sthn Afr., monotypic, N, NC, WC, EC.

rubra (A.Spreng.) Balle

Aerial, hemiparasitic shrub, up to 1 m high, essentially glabrous. **Leaves** alternate, opposite-subopposite, occasionally fascicled, somewhat coriaceous with age, linear-lanceolate

to narrowly elliptic, glabrous, obscurely nerved, lower ones strongly ascending. **Inflorescence** a 4–6-flowered umbel, or occasionally racemose by addition of several flowers lower on rachis, axillary or solitary on older branches. **Flowers** 5-merous, tubular, bilaterally symmetrical (tube bearing a short, V-shaped, unilateral split), bright red to orange basally, yellow towards tip, apical portion blackish, mostly cylindrical but slightly expanded basally; lobes slightly longer than rest of corolla, spirally coiled following anthesis. **Flowering time** Apr.–Aug. **Fruit** an ellipsoid berry, reddish when mature, smooth. Parasitic on species of *Vachellia*, *Senegalia* and *Searsia*. Open woodland, closed shrubland, grassland, gravel, stony soil, alt. 20–1 465 m; Upper Karoo, Drakensberg Grassland, Lower Karoo, Dry Highveld Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Middelburg to Cathcart S, from Graaff-Reinet to Komga and Willowmore to Port Alfred).

ONCOCALYX Tiegh.

Species ± 13, widespread mostly in arid regions of tropical Africa; 3 in sthn Afr., N, LIM, M, KZN, EC.

quinquenervius (Hochst.) Wiens & Polhill

Aerial, hemiparasitic shrub of relatively small size, usually less than 0.5 m high, glabrous. **Leaves** mostly alternate, blades usually elliptic to ovate-suborbicular, leathery, dark green, with 1 or 2 pairs of nerves strongly ascending from near base, but often obscure. **Inflorescence** a 2–6-flowered umbel with short peduncles and pedicels shorter than 2 mm, solitary in axils or fascicled on older swollen nodes. **Flowers** 5-merous, gamopetalous, bilaterally symmetrical by presence of unilateral, V-shaped split ± as long as erect lobes, with conspicuous basal swelling, mostly yellow, sometimes with bands of red, white, pink and pale green in various combinations; filaments coiled or curved at anthesis. **Fruit** a red, usually ovoid berry, occasionally verrucose. Parasitic on species of *Cassine*, *Celtis* and *Berchemia*. Closed woodland, forest, alt. 10–610 m; Sub-Escarpment Savanna, Indigenous Forests, Albany Thicket (central coastal KZN to King William's Town and East London).

GERMISHUIZEN, G. 1989. *Tieghemia quinquenervia*. *The Flowering Plants of Africa* 50: t. 1997.
GERMISHUIZEN, G., LEISTNER, O.A., MARCH, H. & SCOTT, M. 1994. *Erianthemum dregei*. *Flowering Plants of Africa* 53: 16–19.
GERMISHUIZEN, G. & SCOTT, M. 1994. *Moquiniella rubra*. *Flowering Plants of Africa* 53: 10–14.
POLHILL, R. & WIENS, D. 1998. *The mistletoes of Africa*. The Royal Botanic Gardens, Kew.
WIENS, D. & TOELKEN, H. 1979. Loranthaceae. *Flora of southern Africa* 10,1: 1–41.

LYTHRACEAE
(= AMMANIACEAE, LAWSONIACEAE, PUNICACEAE, TRAPACEAE)

(Order Myrtales)

Compiled by C.L. Bredenkamp

1a Herbs, annual or perennial:
2a Calyx cylindrical or tubular, 6-lobed; calyx appendages long, acute and erect ..... ***Lythrum**
2b Calyx campanulate, urceolate or (in fruit) globose, 4–6-lobed; calyx appendages various or absent:
3a Flowers solitary, sessile; fruit opening by 2–4 longitudinal valves ..... **Rotala**

3b Flowers usually in lax or condensed, sessile or pedunculate cymes; fruit opening irregularly or by an apical operculum:
4a Fruit first opening by an apical operculum, later splitting irregularly; flowers sometimes aggregated into dense heads subtended by large bracts, sometimes di- or trimorphic, mostly 5- or 6-partite..... **Nesaea**
4b Fruit splitting irregularly (apical operculum absent); flowers in lax or condensed cymes, never in heads, bracts always small and subulate, always homomorphic, always 4-partite..... **Ammannia**
1b Trees, shrubs or undershrubs:
5a Trees or shrubs, often spiny..... ***Punica**
5b Shrubs or undershrubs, not spiny:
6a Capsule first opening by an apical operculum, later splitting irregularly; petals white, pink or purple... ..... **Nesaea**
6b Capsule vertically 5- or 6-striate, splitting regularly along these lines; petals yellow..... ***Heimia**

AMMANNIA L.

Species ± 25, widespread in tropical, subtropical and temperate regions, 16 in Africa; 4 in sthn Afr., N, B, LIM, NW, G, M, S, FS, KZN, EC.

baccifera L. subsp. baccifera

Annual herb, 0.03–0.45 m high; stem ± 4-angled. **Leaves** opposite-decussate, sessile, linear to elliptic, base attenuate, apex acute. **Inflorescences** ± sessile, condensed, ± spherical, few- to many-flowered cymes; bracts 2 below each flower, small, subulate. **Flowers** ± sessile, 4-merous. **Calyx**: tube broadly to narrowly campanulate, becoming globose in fruit, usually 4-lobed, with 8 longitudinal ribs; lobes with small appendages. **Petals** usually absent. **Stamens** 4, arising from calyx tube, included; filaments red. **Ovary** with upper portion of septa incomplete; style absent. **Capsule** globose or ellipsoid, bright red to purple, dehiscing irregularly. **Seeds** ± 20, bright red. Wet/regularly flooded places, open woodland; Sub-Escarpment Savanna (Victoria East District, Garfield).

*HEIMIA Link

Species 3(4), occurring naturally from Texas to Argentina and in Jamaica; 1 in sthn Afr., KZN, EC.

myrtifolia Cham. & Schltdl.

Perennial, erect shrub, 0.6–1.0 m high. **Leaves** opposite-decussate or alternate, shortly petiolate, ± narrowly elliptic, base cuneate, apex acute. **Flowers** shortly pedicellate, solitary, bracteoles 2. **Calyx** broadly campanulate, 6-lobed, with long cornate appendages. **Petals** 6, shortly clawed, bright yellow, margins ± erose. **Stamens** 6, exserted. **Ovary** sessile; style ± 6 mm long; stigma broadly capitate. **Capsule** subcoriaceous, vertically 5- or 6-striate, splitting regularly along these lines. **Seeds** minute, many. Streambanks and floodplains, planted pasture; Albany Thicket, Sub-Escarpment Savanna (Grahamstown, Dias District, Blaauwkrantz).

*LYTHRUM L.

Species 38, cosmopolitan; 3 in sthn Afr., NW, G, WC, EC.

hyssopifolia L.

Hysoppe, loosestrife

Annual or biennial herb, hydrophyte, 0.1–0.3 m high, glabrous; stems 4-angled, strongly winged, often branched from base. **Leaves** alternate, sessile, narrowly oblong, apex broadly acute, base cuneate to rounded. **Inflorescence** usually of solitary, axillary, nearly sessile flowers. **Flowers** homostylous, with 2 bracteoles. **Calyx** subcylindrical, 6-lobed, with conspicuous calyx appendages. **Petals** 2–6 mm long, pink or light purple.

Stamens 12. **Ovary** subsessile, oblong, incompletely 2-locular; style included; stigma capitate. **Capsule** usually septicidally dehiscent with 2 valves. **Seeds** few to many. Periodically flooded places, often submerged; Drakensberg Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld (Katberg Pass, Komga and Kentani S, Willowmore District, Humansdorp, Uitenhage and Grahamstown).

NESAEA Kunth

Species 50–70, widespread, mostly Africa and Madagascar, a few in tropical Asia, Australia, North and Central America; ± 27 in sthn Afr., N, B, LIM, NW, G, M, S, FS, KZN, EC.

Calyx lobes 6; stamens 12

radicans Guill. & Perr. var. **floribunda** (Sond.) A.Fern.

Stout, erect, perennial herb, 0.30–0.75 m high, with dense, crispate hairs; stem terete. **Leaves** opposite, oblong-lanceolate, sessile or shortly petiolate. **Inflorescence** of pedunculate hemispherical clusters (cymes), subtended by large conduplicate, ovate to reniform bracts ± 8 mm long; base whitish with darker veins. **Calyx** campanulate, 2.0–3.5 mm long; conical calyx appendages, hairy. **Petals** 2–3 mm long, purple-pink. **Stamens** 12, arising on calyx tube; filaments of 2 different lengths, exserted. **Ovary** sessile; style exserted. **Capsule** ellipsoid, opening by an apical operculum. **Seeds** many, small, without inflating wing. Moist ground near dams, vleis and streams, often among boulders or low vegetation; Indian Ocean Coastal Belt, Sub-Escarpment Savanna (Oribi Gorge, Komga, Kentani District).

Calyx lobes 4; stamens 4–8

sagittifolia (Sond.) Koehne

Erect shrublet, up to 0.5 m high, rootstock woody, hairs dense; branches terete. **Leaves** spirally arranged, sessile, ± imbricate, oblong-lanceolate, 7–20 × 1.5–5.0 mm, base clasping, deeply sagittate, apex acute. **Inflorescence** of axillary clusters (cymes), proliferating growth (inflorescence axis growing out and returning to vegetative growth) common; peduncles ± 2 mm long; pedicels ± 1 mm long. **Bracts** lanceolate. **Flowers** trimorphic, heterostylous; thrum flowers (with shortest style), 0.7–3.0 mm long; mid-style flowers, style 3–5 mm long; pin flowers, style 5–7 mm long. **Calyx** 4-lobed, campanulate, hirsute or glabrous, with 8 darker stripes. **Petals** pink or magenta. **Stamens** 8, two lengths in each flower. **Ovary** sessile. Damp, open grassland; Sub-Escarpment Savanna (Willowvale District).

sagittifolia (Sond.) Koehne var. **ericiformis** Koehne forma **ericiformis**

Distinguished by slender, wiry stems. In damp mountainous places; Sub-Escarpment Grassland, Sub-Escarpment Savanna (Griqualand East: Clydesdale, close to uMzimkhulu).

tolypobotrys Koehne

Erect, perennial, robust herb, 0.08–0.60 m high, branches diverging at a wide angle. **Leaves** opposite, sessile, lanceolate, 14–55 × 3–14 mm, base obtuse, apex acute, margins wavy. **Inflorescence** of dense, hemispherical heads, each subtended by a pair of broad bracts. **Bracts** lanceolate to broadly ovate, base pale-coloured with conspicuous dark nerves. **Calyx** 4-lobed, broadly cupular, appendages up to 1.4 mm long and narrow. **Petals** pale mauve. **Stamens** 8, of two different lengths. **Ovary** sessile, style up to 4 mm

long. **Capsule** globose. **Seeds** many. Sandy soil or on rock sheets; Indian Ocean Coastal Belt (KZN Border, Kei River Mouth).

*PUNICA L.

Pomegranate; *granaat* (A)

Species 2, SE Europe to Himalayas. Grown for refreshing edible pulp around seeds.

granatum L.

Tree or shrub, often spiny. **Leaves** simple, ± opposite, stipules rudimentary. **Flowers** regular, bisexual, usually solitary. **Hypanthium** red. **Corolla** imbricate or crumpled in bud. **Stamens** many on hypanthium tube, developing centrifugally, anthers with longitudinal slits. **Ovary** with placentation superposed in 2 or 3 layers, each placenta with many ovules. **Fruit** with leathery pericarp and persistent calyx. **Seeds** in pulpy, enlarged sarcotestas. Cultivated in gardens.

ROTALA L.

Species ± 40, widespread in warm regions; 8 in sthn Afr., N, B, LIM, G, M, FS, KZN, L, EC.

capensis (Harv.) A.Fern. & Diniz

Slender, annual herb, 0.02–0.15 m high; amphibious or aquatic, forming tufts; stems erect from creeping stolons, few-branched. **Leaves** opposite, ± sessile, glabrous, linear, 3–13 × 0.5–1.0 mm, base tapering, apex acute. **Flowers** axillary, solitary, sessile, monomorphic. **Calyx** 4-lobed, 0.6–1.0 mm long. **Petals** absent. **Stamens** 2; filaments ± 0.1 mm long. **Ovary** sessile. **Style** up to 0.25 mm long. **Capsule** septicidally 2-valved, ellipsoid, exserted from sepals. **Seeds** small, concave-convex, with evaginating, mucilaginous hairs. In shallow water or wet mud; Sub-Escarpment Grassland (Alfred District, Suurberg).

COOK, C.D.K. 1979. Revision of the genus *Rotala*. *Boissiera* 29: 9–133.
COOK, C.D.K. 2004. *Aquatic and wetland plants of southern Africa*. Backhuys Publishers, Leiden.
FERNANDES, A. 1978. Lythraceae. *Flora zambesiaca* 4: 276–323.
GRAHAM, S.A., THORNE, R.F. & REVEAL, J.L. 1998. Validation of subfamily names in Lythraceae. *Taxon* 47: 435–436.
IMMELMAN, K.L. 1991. Synopsis of the genera *Nesaea* and *Ammannia* (Lythraceae) in southern Africa. *Bothalia* 21: 35–49.
KOEHNE, E. 1903. *Heimia*. *Das Pflanzenreich* Heft 17: 241–243.
LINK, J.H.F. 1822. In J.H.F. Link & C.F. Otto, *Icones plantarum selectarum horti regni botanici berolinensis*. Reimer, Berlin.
WEBB, D.A. 1968. *Lythrum* L. *Flora europaea* 2: 301.

MAESACEAE

(Order Ericales)

Compiled by M.J. Kotze

MAESA Forssk.

Species ± 200, tropics of Old World; 2 in sthn Afr., LIM, M, S, KZN, EC.

alnifolia Harv.

Perennial shrub, ± 1.5 m high. **Leaves** petiolate, obovate-cuneate, small, 15–40 × 10–25 mm, mainly rounded at apex and crenate-dentate to just below middle, with mid-

rib and lateral veins slightly prominent on lower surface, petioles 5–12 mm long. **Bracts** ovate-lanceolate, shorter than pedicels. **Inflorescence** an axillary raceme, few- to several-flowered, ± equal in length to leaves, pubescent. **Flowers** polygamo-dioecious; sepals broadly ovate, ± 1 mm long. **Flowering time** Aug.–Dec. **Fruit** a globose berry, 5–6 mm in diam., reddish brown, slightly fleshy, crowned by the small persistent sepals. Closed woodland, forest and grassland habitat, alt. 1–890 m; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indigenous Forests, Indian Ocean Coastal Belt, Drakensberg Grassland (Ntlenzi Kloof S, from Baziya Forest Reserve to Port St Johns and from Seymour to King William's Town, Amatole Mts and Willowvale District).

lanceolata Forssk.

False assegai; *basterassegaai*, *valsassegaai* (A); *ligucu*, *umbohlobohlo* (S); *muunguri* (Venda); *intendekwane* (X); *umalunguzalazikhakhona*, *inhlavubele*, *umaguqu*, *isidenda*, *ubhoqobhoqo* (Z)

Perennial shrub or small tree, 2–10 m high, much-branched, with rough grey or reddish brown bark, young branches often with conspicuous lenticels. **Leaves** petioled, elliptic or ovate-elliptic, large, 50–150 × 30–100 mm, thickish, with midrib and lateral veins usually prominent on lower surface, acute, rarely obtuse, usually coarsely serrated on margins, mainly glabrous, occasionally pubescent on lower surfaces. **Inflorescence** a much-branched, many-flowered, axillary panicle, shorter than leaves. **Flowers** pale yellow or whitish, scented; sepals triangular, acute and ciliate. **Flowering time** Sept.–Apr. **Fruit** 3–4 mm in diam., globose, many-seeded berry crowned by persistent calyx segments. **Seeds** many, blackish, angular, embedded in placenta. Stony soil/rocky, grassland, closed woodland, forest, alt. 1–1 400 m; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests [Bizana District, Umtamvuna River S, from Lusikisiki District (Ntsubane Forest) to Port St Johns].

DYER, R. A. 1963. Myrsinaceae. *Flora of southern Africa* 26: 1–9.
HALLIDAY, P. 1984. *Flora of tropical East Africa*. Myrsinaceae: 1–19.
HARVEY, W.H. & WRIGHT, C.H. 1906. *Flora capensis* 4,1: 431–436.
KUPICHA, F.K. 1983. Myrsinaceae. *Flora zambesiaca* 7,1: 198–210.

MALPIGHIACEAE

(Order Malpighiales)

Compiled by C.L. Bredenkamp

ACRIDOCARPUS Guill. & Perr.

Species ± 30, all tropical and subtropical Africa, with one each in Madagascar and New Caledonia; 1 (with 2 varieties) in sthn Afr., LIM, M, S, KZN, EC.

natalitius A.Juss. var. **natalitius**

Moth-fruit; *motvrug* (A); *uMabopha* (X, Z); *umabophe-omkhulu* (Z)

Shrub, woody climber or scrambler, 0.5–7.5 m high; branches rufous-pubescent when young. **Leaves** alternate, oblong to ovate, 30–135(–215) × 4–50(–75) mm, entire or sinuate, glabrous or rufous-pubescent, usually external nectary glands on lower surface of lamina and 2(4) at very base. **Flowers** regular, in dense, terminal racemes. **Calyx** 5-lobed, broadly ovate. **Petals** free, unguiculate, concave margins lacerated, yellow. **Stamens**: filaments short, broadly linear; anthers opening by short pore-like slit at apex.

Ovary 3-locular, 1 locule abortive; styles 2, curved upwards. **Fruit** breaking into 2, dorsally winged samaras. Riverine fringe forest, forest margins, rocky outcrops, wooded hillsides; Indian Ocean Coastal Belt, Sub-Escarpment Savanna, Indigenous Forests (Port St Johns, southwards along coast to Mngazi River, Coffee Bay, Mbashe River Mouth and Cwebe Forest in Elliotdale District).

IMMELMAN, K.L. 1986. Malpighiaceae. *Flora of southern Africa* 18, 3: 63–71.
LAUNERT, E. 1963. Malpighiaceae. *Flora zambesiaca* 2: 109–125.

MALVACEAE *sensu lato*

[including STERCULIACEAE, TILIACEAE, BOMBACACEAE (not in EC). New subfamilies Byttnerioideae, Dombeyoideae, Grewioideae, Malvoideae, Sterculioideae, Tilioideae (not in SA), fide APG (1998, 2003), Stevens (2006), Kubitzki & Bayer (2003)]

(Order Malvales)

Compiled by C.L. Bredenkamp

Key to subfamilies

1a Gynoecium apocarpous (carpels free); petals, staminodes and epicalyx always lacking; androgynophore present; flowers usually unisexual ..... **Sterculioideae** (see p. 1215)

1b Gynoecium usually syncarpous (carpels united) (if apocarpous then petals present); petals usually present; androgynophore, staminodes and epicalyx present or lacking; flowers usually hermaphroditic:

2a Stamens free or connate at base ..... **Grewioideae** (see p. 1197)

2b Stamens usually forming a tube:

3a Anthers usually monothecal (one theca containing two pollen sacs), rarely paired; staminodes always absent; sepals usually fused more than $^1/_3$ ..... **Malvoideae** (see p. 1201)

3b Anthers not monothecal; staminodes usually present; sepals usually fused less than $^1/_3$:

4a Flowers usually in axillary cymes or solitary; epicalyx present; petals often persistent, flat, neither cucullate (hood-like) nor with apical appendage; cotyledons usually bifid; pollen usually spheroidal and spinose ..... **Dombeyoideae** (see p. 1196)

4b Flowers variously arranged, often in sympodia; epicalyx usually absent (the corresponding bracts usually subtending flowers); petals usually caducous, sometimes cucullate and/or with apical appendage; cotyledons exceptionally only bifid; pollen usually not spinose ..... **Byttnerioideae** (see below)

Subfamily Byttnerioideae

(= Byttneriaceae R.Br., *nom. cons.*)

HERMANNIA L.

Species ± 180, 11 in tropical Africa, with ± 30 sthn Afr. species extending into that region, 3 American, 1 or more in Australia; ± 162 in sthn Afr., the subgenera *Hermannia* with ± 94 and *Mahernia* with ± 68 species, widespread.

1a Filaments obovate, obtrullate, linear or narrowly oblong, with the anther base overlapping the expanded portion of the filaments (subgenus Hermannia*)*
2a Capsules fringed on angles with tentacle-like or filiform processes

cristata Bolus

Many-stemmed suffrutex, 0.1–0.3 m high; fairly laxly pubescent, with minute glands or gland-tipped hairs, stellate, and simple, white hairs. **Leaves** shortly petiolate, lanceolate to elliptic-oblong, crenate-dentate. **Stipules** linear-filiform. **Inflorescences** axillary and

terminal; peduncles up to 50 mm long; pedicels glandular with simple and stalked glands, also with scattered simple and stellate hairs. **Flowers** solitary, ± 18 mm long, crimson or red. **Calyx** lobed to midway, mostly with white, simple hairs intermingled with stalked glands and stellate hairs. **Petals** upper $^1/_3$ suborbicular, narrowing into a claw. **Flowering time** Nov., Dec. **Fruit** a deeply 5-angled capsule, crest of angles furnished with 2 or 3 series of long hairs. Grassland, rocky slopes, gorges, along rivers; Sub-Escarpment Grassland (Kokstad and Mount Currie districts).

2b Capsules not fringed as above
3a Inflorescence of simple 1-flowered cymes, solitary in the axils of leaves on branches of indeterminate growth; petals not strongly contorted, open flowers, bell-shaped

boraginiflora Hook.

Gombossie (A)

Bushy suffrutex, 0.2–0.4 m long; fairly densely hairy with stalked glands intermingled with bulbous-based, stellate hairs and a few, simple, patent hairs. **Leaves** elliptic, oblong or obovate-oblong; acute or broad at apex, 3-toothed. **Stipules** subulate. **Inflorescences** axillary, 1-flowered; peduncles 6–22 mm long; pedicels pubescent as above. **Flowers** ± 10 mm long, pink or off-white. **Calyx** lobed to beyond middle; stellate hairs basally, fairly densely hairy with stalked glands intermingled with bulbous-based, stellate hairs, margins outlined by simple, white hairs. **Petals** shorter than calyx, oblong-cuneate. **Flowering time** June? **Fruit**: apex of capsule with 5 pairs of horns up to 2 mm long. Donga, sandy soil, eastern aspect, grazed, dolerite; Upper Karoo (Schoombee, between Middelburg and Steynsburg).

linearifolia Harv.

Rooipleisterbos (A)

Bushy suffrutex, 0.15–1.00 m long; stems grey scaly, gland-dotted, often glutinous. **Leaves** clustered, shortly petiolate or sessile, very narrowly obovate, cymbiform (boat-shaped, appearing linear); white gland-dotted. **Stipules** subulate, deciduous. **Inflorescences** axillary, 1-flowered; peduncles aborted or 1–3 mm long; pedicels white gland-dotted. **Flowers** ± 9 mm long, crimson, mauve when dry. **Calyx** lobed to middle or beyond, sinuses rounded, lobes deltoid-acuminate; white gland-dotted, glutinous, margins ciliate. **Petals** longer than calyx, oblong-obovate in upper $^2/_3$, clawed. **Flowering time** Sept.–May. **Fruit**: capsule with 5 pairs of spreading, glabrous horns. Dolerite rocks, hill slopes in calcareous, sandy areas, near pans; Dry Highveld Grassland, Upper Karoo, Lower Karoo, Eastern Fynbos-Renosterveld (Oviston and Aliwal North S, from Middelburg to road between Burgersdorp and Molteno, Graaff-Reinet to Cradock and Somerset East to Uitenhage).

3b Inflorescence of simple or compound, 1–several-flowered cymes on same plant, arranged in axils of upper leaves and at apices of branchlets forming racemose or paniculate cymes; petals strongly contorted (doll's roses), open flowers not bell-shaped
4a Leaves and stipules imbricate

decipiens E.Mey. ex Harv.

Erect suffrutex, virgately branched, 0.3–1.3 m high; branches pubescent with stellate hairs from a scaly base, hairs whitish and long. **Leaves** subsessile, longer than internodes, elliptic to oblong-elliptic, apex ± acute; densely, yellowish stellate-tomentose on both surfaces. **Stipules** lanceolate-acuminate. **Inflorescences** short, few-flowered cymes, terminal or axillary; peduncles reduced; pedicels short, yellowish stellate-tomentose. **Flowers**

± 10 mm long, yellow. **Calyx** not inflated, campanulate, lobed in upper half; coarsely stellate-pubescent, hairs golden-yellow. **Petals** oblong in upper half, narrowed abruptly into claw. **Flowering time** July, Sept., after burning. **Fruit** a capsule, shortly exserted from calyx. S-facing slopes of mountain peaks in fynbos; Eastern Fynbos-Renosterveld (Willowmore District, Witteberg and Swanepoelspoort Mts).

4b Leaves and stipules not imbricate as above
5a Leaves generally broadest in lower half or oblong-elliptic to broadly oblong
6a Pubescence mainly rough, especially on branchlets, mostly of dense or sparse, stiffly stellate or bulbous-based hairs

althaeifolia L.

Bokkiesblom, *klokkiesbos*, *lanternbos*, *pokkiesblom* (A)

Suffrutex, 0.1–0.9 m high, branchlets ascending; hirsute with long-rayed, stellate hairs, intermixed with stipitate glands and patent, pointed hairs. **Leaves** petiolate, ovate to ovate-oblong; lateral veins ± 3, venation of upper surface sunken and glabrous, prominent and stellate-hairy on lower surface. **Stipules** whorled, leaf-like. **Inflorescences** terminal and axillary, usually of three 2-flowered cymes developing successively; peduncles ± 25 mm long; pedicels pubescent as on other parts. **Flowers** ± 10 mm long, cadmium-yellow. **Calyx** subinflated, campanulate, thin-textured, ivory-coloured, 5-lobed to above middle; pubescent with same 3 types of hairs as on branchlets. **Petals** twisted, oblong blade of upper $^1/_3$ narrowing into a claw. **Flowering time** Mar., Sept.? **Fruit** a capsule, enclosed in persistent calyx. Gravelly soil, roadsides; Eastern Fynbos-Renosterveld (Willowmore, Uitenhage).

althaeoides Link

Suffrutex, 0.3–0.6 m high, bark dark brown; plant with sessile, short-rayed and tubercle-based, long-rayed, stellate hairs, intermixed with stipitate glands. **Leaves** petiolate, ovate-oblong; upper surface, venation sunken, stellate-pubescent between veins; lower surface, venation prominent, softly whitish tomentose. **Stipules** ± subulate. **Inflorescences** of one or few, 1–several-flowered cymes in axils of upper leaves; peduncles up to 10 mm long; pedicels densely pubescent. **Flowers** up to 11 mm long, yellow, red. **Calyx** campanulate, thin-textured, 5-lobed in upper $^1/_3$, sinuses wide; ± densely stellate-pubescent. **Petals** upper $^1/_3$ suborbicular, narrowing into a claw. **Flowering time** Aug.–May. **Fruit** a capsule, as long as petals. Hillside scrub, grassy valleys, along rivers, sandy soil, coastal; Sub-Escarpment Grassland, Lower Karoo, Albany Thicket, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld (road between Queenstown and Cofimvaba SW, from Graaff-Reinet to Cathcart, Baviaanskloof to Port Elizabeth, Grahamstown and the Fish River Mouth, and to Humansdorp).

bryoniifolia Burch.

Suffrutex, bushy, up to 0.5 m high; leafy parts with rather coarse, tubercle-based, stellate hairs, rays longer than 0.5 mm; indumentum on lower parts less dense, tubercle-based hairs with shorter rays. **Leaves** petiolate, varying in size, mostly small 5(30) × 3(20), ovate to ovate-oblong, margins crenate-dentate; both surfaces stellate-pubescent. **Stipules** variable, from narrowly lanceolate to amplexicaul at base. **Inflorescences** axillary on simple, dichotomous, ultimate branchlets, 1–3-flowered cymes; peduncles 2.5–8.0 mm long; pedicels coarsely stellate-pubescent. **Flowers** up to 5 mm long, yellow. **Calyx** thin in texture, 5-lobed ± to middle; coarsely stellate-pubescent. **Petals** ± oblong, margins infolded in lower half. **Fruit** a shallowly 5-lobed capsule, lobes obscurely keeled. In gravel; Upper Karoo (Graaff-Reinet).

comosa Burch. ex DC.

Kapokkie, *swaelbossie* (A)

Erect suffrutex, with woody taproot, several stemmed, branching from base, 0.1–1.1 m high; pubescent to tomentose with fine, short, appressed stellate hairs, intermixed with stipitate, stellate hairs. **Leaves** basally arranged, long petiolate, ovate to oblong-ovate; cauline leaves smaller; tomentose as above. **Stipules** ± linear-lanceolate. **Inflorescences** terminal or axillary, 2-flowered cymes; peduncles 5–20 mm long; pedicels tomentose. **Flowers** ± 12 mm long, yellow-orange. **Calyx** inflated, globose, narrowed at mouth, ivory-coloured, 5-lobed almost to middle; pubescence of short, stellate hairs intermixed with stipitate, tufted hairs. **Petals** upper $^1/_3$ oblong-orbicular, narrowed into claw. **Flowering time** all year. **Fruit** a capsule enclosed in persistent calyx. Moderate hill slopes, dolerite, sand, grazed; Upper Karoo, Eastern Fynbos-Renosterveld, Albany Thicket (outliers in EC, Middelburg S to Baviaanskloof, E to Uitenhage, Port Elizabeth and Grahamstown).

6b Pubescence mainly tomentose, especially on branchlets which are tomentose to smoothly canescent-tomentose or silvery with fringed, pitted scales

althaeifolia L. (see 6a above)

althaeoides Link (see 6a above)

comosa Burch. ex DC. (see 6a above)

incana Cav.

Suffrutex, 0.1–1.8 m high, usually erect; whitish grey-tomentose with flattened, densely fringed scales, minute gland-tipped hairs scattered in tomentum. **Leaves** petiolate, ± ovate-oblong, base cuneate, apex rounded, margins crenate in upper half; softly stellate-tomentose on both surfaces. **Stipules** subulate, tomentose. **Inflorescences** of 1- or 2-flowered cymes in axils of upper leaves or forming paniculate cymes; peduncles 2.5–20.0 mm long; pedicels tomentose. **Flowers** 10 mm long, yellow. **Calyx** campanulate, 5-lobed in upper half, sinuses wide; stellate-tomentose. **Petals** broadly rounded to truncate at apex, claw broad. **Fruit** a capsule hidden by persistent petals. Karroid scrub on gentle slope; Rainshadow Valley Karoo (Willowmore District).

pulverata Andrews

Suffrutex, spreading-ascending, ± 0.3 m long; silvery canescent with fringed, pitted scales, minute gland-tipped hairs often present. **Leaves** petiolate, shape and lobing variable, ± ovate-oblong, coarsely lobed to bipinnatipartite; upper surface with scattered, pitted scales, lower surface silvery canescent. **Stipules** subfleshy, ± 10 mm long. **Inflorescences** of 1- or 2-flowered cymes often forming racemose cymes; peduncles 50–300 mm long; pedicels with pitted scales and gland-tipped hairs. **Flowers** up to 10 mm long, dirty yellow turning golden-brown. **Calyx** campanulate, thin-textured, 5-lobed to almost halfway, sinuses wide; silvery stellate with scattered, reddish, gland-tipped hairs. **Petals** suborbicular narrowing into a claw, contorted. **Flowering time** July–Mar. **Fruit** ± 8 mm long capsule, appressed stellate-pubescent. Karroid scrub, vleis, shaly river valleys, rocky kloofs; Mesic Highveld Grassland, Upper Karoo, Albany Thicket, Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld (between Gariep and Caledon Rivers S to Middelburg, Graaff-Reinet, Uniondale, Willowmore and Alexandria).

vestita Thunb.

Swaelbossie (A)

Erect suffrutex, bushy, 0.10–0.75 m high; densely tomentose with short- and long-rayed stellate hairs radiating from central scale, minute black-headed, gland-tipped hairs

scattered in tomentum. **Leaves** petiolate, ± suborbicular, base broadly cuneate, apex rounded, margins crisped as well as crenate, nerves prominent beneath; stellate-tomentose on both surfaces. **Stipules** ovate-lanceolate in upper parts of plant. **Inflorescences** of 1–3-flowered cymes in axils of upper leaves or forming racemose cymes; peduncles up to 5 mm long; pedicels tomentose. **Flowers** 10 mm long, orange–lemon-coloured. **Calyx** subinflated, campanulate, 5-lobed almost to middle, sinuses wide; stellate-tomentose mostly with short hairs. **Petals** oblong in upper $^1/_3$, produced into claw. **Flowering time** Nov.? **Fruit** a capsule hidden by persistent petals. Steep slopes, stony karroid scrub; Upper Karoo, Rainshadow Valley Karoo (Middelburg, Cradock, Willowmore, Steytlerville).

5b Leaves broadest at apex or generally broadest in upper half but varying in shape from filiform, narrowly oblong, oblanceolate and broadly oblong-rectangular to subglobose
7a Calyx inflated, narrowly urceolate to subglobose, narrowed at mouth

hyssopifolia L.

Pokkiesblom (A)

Virgate suffrutex, 0.3–3.0 m high; new growth densely stellate-pubescent, intermingled with tufted hairs on raised bases. **Leaves** petiolate, cuneate, toothed in upper half; stellate-pubescent, interspersed with tufted hairs. **Stipules** smaller in lower parts of plant, increasing in size to upper parts of plant. **Inflorescences** of crowded bracteate cymes at apices of branchlets; bracts large, 3- or more-nerved from base; peduncles 4–9 mm long; indumentum of pedicels as above. **Flowers** 10 mm long, ± lemon-yellow. **Calyx** lemon-yellow, inflated, oblong-globose, narrowed at mouth, 5-lobed almost to halfway; stellate-pubescent. **Petals** narrowly oblong, narrowed into claw. **Flowering time** Aug.–Apr. **Fruit** a capsule enclosed in persistent calyx. Mountain slopes and sandy plains; Indigenous Forests, Eastern Fynbos-Renosterveld, Albany Thicket, Sub-Escarpment Savanna (WC east to Tsitsikamma, Humansdorp, Port Elizabeth and Grahamstown).

[E]**mucronulata** Turcz.

Erect suffrutex, 0.45–1.25 m high; branches dark brown, semi-glabrous with scaly patches. **Leaves** petiolate, obovate-oblong, base cuneate, apex mucronulate, margins entire; velvety pubescent on both surfaces. **Stipules** leaf-like. **Inflorescences** of few-flowered cymes in axils of upper leaves; peduncles ± 5 mm long; pedicels shortly tomentose. **Flowers** 10 mm long, yellow. **Calyx** inflated, subglobose, ± 9 mm long, narrowed at mouth, 5-lobed at apex; stellate-pubescent. **Petals** shortly exserted from calyx, lobes recurved, narrowed into claw. **Flowering time** Aug.–Feb. **Fruit** a capsule enclosed in persistent perianth. Mountain slopes and gorges; Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld, Albany Thicket (Willowmore E to Steytlerville, Port Elizabeth and Grahamstown and to Humansdorp).

salviifolia L.f.

Straggling or erect suffrutex, 0.3–1.2 m high; branches dark brown; vegetative parts subdensely pubescent with stellate hairs from a scaly, glandular or raised tubercular base, hairs whitish, straw- or gold-coloured. **Leaves** petiolate, variable, obovate to oblong, apex rounded and mucronate, base rounded; roughly stellate-pubescent. **Stipules** varying from subulate to leaf-like. **Inflorescences** of 1- or 2-flowered cymes clustered at apices of branchlets; indumentum of pedicels as above. **Flowers** 10 mm long, yellow to orange. **Calyx** inflated, urceolate, 5-lobed at apex, laxly stellate-pubescent. **Petals** longer than calyx, with apical portion reflexed. **Flowering time** all year. **Fruit** a capsule as

long as calyx or shorter. Slopes, coastal bush and passes north of coast; Albany Thicket, Eastern Fynbos-Renosterveld (Graaff-Reinet to Somerset East S, from Willowmore to Tsitsikamma Mts, Uitenhage, Port Elizabeth and to Humansdorp).

suavis C.Presl ex Harv.

Low, much-branched suffrutex, up to 0.3 m high; branches dark brown, semi-glabrous with scaly patches. **Leaves** crowded towards apices of branches, petiolate, obovate, often folded, base cuneate, apex rounded, margins entire; velvety pubescent on both surfaces, interspersed with villous, long-rayed, stellate hairs radiating from central scale (tubercle). **Stipules** leaf-like. **Inflorescences** of crowded short cymes at apices of branchlets and in axils of upper leaves; pedicels short, up to 3 mm long, villous. **Flowers** 10 mm long, yellow. **Calyx** inflated, urn-shaped (urceolate), ± 6 mm long, narrowed at mouth, 5-lobed at apex; villous. **Petals** narrowly oblong, apex reflexed, narrowed into claw. **Flowering time** Aug.–Dec. Dune hills and grassy plains; Albany Thicket, Eastern Fynbos-Renosterveld (Graaff-Reinet S to Suurberg and Cape Recife, Uitenhage E to Grahamstown District).

7b Calyx not inflated

8a Leaves velvety tomentose on both surfaces, entire or very shallowly crenate in upper half

diversistipula C.Presl ex Harv.

Erect to spreading suffrutex, 0.1–0.9 m high; branches dark brown; clothed with fringed scales. **Leaves** subsessile, short petioles hidden by broad, sessile stipules, oblanceolate- or oblong-cuneate, often folded, base cuneate, apex rounded or truncate, mucronate, margins entire; scaly-tomentose on both surfaces. **Stipules** leaf-like. **Inflorescences** of short 2-flowered axillary cymes; peduncles and pedicels short and scaly-tomentose. **Flowers** ± 9 mm long, secund, nodding, garnet-red tinged cream-coloured or chrome-yellow. **Calyx** broadly campanulate, 5-lobed almost to middle, lobes oblong, apex truncate, incurved; scaly-tomentose. **Petals** exceeding calyx, contorted, upper $^1/_3$ broadly oblong, narrowing into a waist with lower $^1/_3$ clawed. **Flowering time** May? **Fruit** a capsule, 5-umbonate at apex. Stony soil in fynbos; Eastern Fynbos-Renosterveld, Albany Thicket (Baviaanskloof).

gracilis Eckl. & Zeyh.

Slender, erect suffrutex, 0.5–1.2 m high; vegetative parts thinly tomentose with fringed scales. **Leaves** with short, visible petioles, oblong-cuneate, often folded, apex acute, margins entire; velvety tomentose on both surfaces. **Stipules** leaf-like. **Inflorescences** of 1- or 2-flowered racemose cymes, on terminal, leafless branches; peduncles and pedicels very short, velvety tomentose. **Flowers** ± 10 mm long, brownish yellow. **Calyx** tubular, campanulate, 5-lobed almost to middle, lobes subulate; subglabrescent with short, stellate hairs, minute gland-tipped hairs and fringed scales. **Petals** exceeding calyx, contorted, upper half broadly oblong, centre part with pubescent margins, narrowing into a long claw. **Flowering time** July–May. **Fruit** a capsule exserted from calyx remains. Rocky slopes, river valleys; Lower Karoo, Albany Thicket, Dry Highveld Grassland, Drakensberg Grassland, Rainshadow Valley Karoo, (Graaff-Reinet and Steytlerville Districts, E to the Fish and Kat River Valleys).

holosericea Jacq.

Laxly, but copiously branched suffrutex, 0.3–1.2 m high; branches, grey-brown; new growth and vegetative parts velvety grey-tomentose. **Leaves** petiolate, oblong-cuneate to suborbicular, apex truncate or rounded, margins crenate in upper $^1/_2$ or at apex only,

base cuneate or rounded; velvety tomentose on both surfaces. **Stipules** subulate, never leaf-like. **Inflorescences** of compound cymes, terminal on upper branchlets; peduncles and pedicels velvety tomentose. **Flowers** secund, often crowded, small, 3.0–4.5 mm long, yellow. **Calyx** obconical, 5–10-ribbed, 5-toothed in upper $^1/_3$, sinuses wide; stellate-tomentose. **Petals** oblong, lower $^1/_3$ narrowed into a claw. **Flowering time** Aug.–May. **Fruit** a subglobose capsule, surrounded by persistent calyx. Grassland, marginal forests, valley scrub, lime flats, hills and mountain slopes; Albany Thicket, Eastern Fynbos-Renosterveld (Graaff-Reinet, Baviaanskloof, E to Albany and Grahamstown).

odorata Aiton

Virgate shrub, 0.3–1.5 m high; branches, suberect, dark brown; vegetative parts densely clothed with fringed scales. **Leaves** cuneate into a short petiole, oblanceolate to narrowly oblong-cuneate, usually folded along midrib, which is prominent below, apex acute, margins entire; velvety tomentose on both surfaces. **Stipules** subulate. **Inflorescences** of few-flowered, pseudoracemose cymes on terminal or ultimate branchlets; peduncles short and stiff; pedicels velvety tomentose. **Flowers** secund, 8–10 mm long, yellow. **Calyx** obconical, strongly 5–10-ribbed, 5-lobed in upper $^1/_2$; densely stellate-tomentose, with conspicuous, reddish brown hair. **Petals** oblong, twisted, narrowed into densely ciliate waist and produced into a claw. **Flowering time** July–Jan.? **Fruit** a 5-umbonate capsule, cupped by persistent calyx. Hills and slopes of mountainous Renosterveld; Eastern Fynbos-Renosterveld (Uniondale, Willowmore, Baviaanskloof).

sulcata Harv.

Much-branched, slender suffrutex, 0.3–0.6 m high; branches dark brown; vegetative parts tomentose with fringed scales. **Leaves** cuneate into a short, visible petiole, narrowly obovate, often folded, apex mucronate, margins entire; velvety tomentose on both surfaces. **Stipules** leaf-like. **Inflorescences** of leafy, racemose cymes, terminal on branchlets; peduncles ± 3 mm long, slender; pedicels velvety tomentose. **Flowers** narrow waisted, ± 8 mm long, yellow. **Calyx** narrowly obconic, strongly 5–10-ribbed, 5-lobed in upper half; densely stellate-tomentose, hairs long on margins of lobes. **Petals** oblong-orbicular, twisted, narrowed into long waist and in lower $^1/_4$ into a spur. **Flowering time** July–Mar. **Fruit** a 5-umbonate capsule. Slopes, river valleys, in clay ground; Lower Karoo, Eastern Fynbos-Renosterveld, Albany Thicket (Graaff-Reinet S, from Steytlerville to Port Elizabeth and Grahamstown).

velutina DC.

Slender, erect shrub, 0.7–3.0 m high; branches dark brown or orange; vegetative parts velvety tomentose with fringed scales and stellate hairs. **Leaves** glaucous, petioles visible, narrowly oblanceolate-elliptic, often folded, apex mucronate, margins entire; velvety tomentose on both surfaces. **Stipules** leaf-like. **Inflorescences** of short, leafy, paniculate cymes, terminal on branchlets; peduncles ± 5 mm long, slender; pedicels velvety tomentose. **Flowers** ± 8 mm long, yellow. **Calyx** broadly campanulate, thin-textured, 5–10-ribbed, 5-lobed to beyond middle, lobes deltate; pubescent with scale- or tubercle-based hairs. **Petals** ± oblong, narrowed to ciliate waist, produced into a claw. **Flowering time** all year. **Fruit** a capsule enclosed in persistent perianth. Rocky slopes at forest margins, along rivers, open grassland, sand dunes; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Albany Thicket, Eastern Fynbos-Renosterveld (Transkei S through Somerset East to Humansdorp and to East London).

8b Leaves not velvety tomentose on both surfaces, pubescence rough, or smooth and white only on lower surface, if appearing silvery pubescent on both surfaces, then calyx and leaves covered by pitted, fringed scales
9a Leaves, on both surfaces, and calyx covered by pitted, fringed scales giving plants a silvery grey appearance

cuneifolia Jacq.

Geneesbossie (A)

Rigid suffrutex, 0.3–0.9 m high; covered by pitted, fringed scales, giving plant a silvery appearance. **Leaves** appearing fascicled, shortly petiolate; cuneate, often folded, apex rounded or truncate, coarsely crenate; sparsely to densely tomentose with fringed, pitted scales on both surfaces. **Stipules** subulate to broadly ovate. **Inflorescences**: racemes of secund 1- or 2-flowered cymes on ultimate branchlets or 3–5 congested cymes terminal on short, lateral branchlets; peduncles and pedicels short. **Flowers** 5–10 mm long, yellow to orange-red. **Calyx** campanulate, 5-lobed in upper $^1/_3$; sparingly to densely covered by fringed, pitted scales. **Petals** ± twice as long as calyx, contorted, narrowing into a claw. **Flowering time** all year. **Fruit** a lepidote-stellate capsule. Heavily grazed areas; Upper Karoo, Lower Karoo, Albany Thicket, Rainshadow Valley Karoo (Aliwal North S through Middelburg to Willowmore, eastwards to the Great Fish River).

9b Leaves and calyx not silvery grey from the covering of fringed, pitted scales
10a Leaves with a white, stellate or cobwebby, appressed tomentum on lower surface only

muricata Eckl. & Zeyh.

Klokkiesbos (A)

Suffrutex, branched from base, 0.3–0.6 m high; branches arcuate-ascending; sparsely pubescent with tubercle-based bristles and short, gland-tipped hairs. **Leaves** petiolate, narrowly oblong, broadest near apex, sinuate-crenate, slightly recurved; upper surface sparsely hairy as branches, lower surface whitish stellate-tomentose. **Stipules** ± ovate. **Inflorescences** of long terminal, leafless, paniculate cymes; peduncles 10–30 mm long; pedicels with gland-tipped hairs more prominent. **Flowers** ± 8 mm long, bright orange-yellow/red. **Calyx** flask-shaped, 5-lobed to ± $^1/_3$ the length; sparingly covered by gland-tipped hairs, fringed by bristles. **Petals** 1.5× as long as calyx, suborbicular in upper half, narrowing into a claw. **Flowering time** Sept.–Dec. **Fruit** a shallowly 5-lobed capsule. Hills and mountain slopes, river valleys; Lower Karoo, Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld (Graaff-Reinet S to Baviaanskloof and Kareedouw).

repetenda I.Verd.

Virgate shrub, 0.5–1.5 m high; sparsely pubescent with minute or tubercle-based, stellate hairs having 1 or more long, patent bristles, interspersed with short, gland-tipped hairs. **Leaves** petiolate, narrowly oblong, broadest near apex, crenate except at cuneate base; 3-nerved at base, nerves impressed above, prominent beneath; upper surface pilose as mentioned, lower surface whitish stellate-tomentose. **Stipules** broad-based, apex acuminate. **Inflorescences** of lax, paniculate cymes; on ultimate branchlets, usually turning aside while a lower branch develops and overtops it; peduncles 10–30 mm long; pedicels with gland-tipped hairs more prominent. **Flowers** ± 9 mm long, yellow. **Calyx** thin-textured, 5-lobed to above middle, sinuses broad; minutely stellate-pubescent. **Petals** just longer than calyx, suborbicular in upper half, narrowing into a claw.

Flowering time Nov.? Extensively cultivated, rare in the wild; Albany Thicket, Upper Karoo (Graaff-Reinet District).

10b Leaves variously pubescent but not with a white, stellate or cobwebby tomentum on lower surface only
11a Leaves suborbicular

conglomerata Eckl. & Zeyh.

Suberect suffrutex, 0.1–0.6 m high, branches ascending, rough with scattered tubercles of deciduous hairs; vegetative parts with long, few-rayed, tubercle-based stellate hairs. **Leaves** petiolate, suborbicular; upper surface sparsely pubescent with long, 1- or 2-rayed stellate hairs, glandular papillate, lower surface hirsute with several-rayed, stellate hairs. **Stipules** ± ovate-acuminate, hirsute. **Inflorescences** with sessile cymes, terminal on branchlets; flowers crowded in dense heads, interspersed with leaves, bracts and bracteoles; densely hirsute with long, tubercle-based, stellate hairs. **Flowers** ± 6 mm long, yellow. **Calyx** 5-lobed to above middle, apices attenuate; densely hispid with long, tubercle-based hairs. **Petals** as long as calyx, obovate, narrowed at waist and into a claw. **Flowering time** July–May. **Fruit** a 5-lobed, hirsute capsule. Among karroid scrub on hillsides and dry river valleys; Albany Thicket, Eastern Fynbos-Renosterveld (Uitenhage, Alexandria, Grahamstown).

11b Leaves distinctly longer than broad
12a Pubescence on calyx dense, golden-brown-coloured

involucrata Cav.

Suberect suffrutex, 0.3–1.5 m high; plant with shiny, tufted hairs from a sessile, scaly base or slightly raised tubercle, rays long or short. **Leaves** shortly petiolate, variable in shape, usually oblong-obovate, over 15 mm long; roughly and densely, golden-brown stellate-pubescent. **Stipules** ± subulate, upper portion incurved. **Inflorescences** of short, few-flowered, branched cymes in axils of upper leaves; peduncles up to 5 mm long; pedicels roughly stellate-pubescent. **Flowers** ± 10 mm long, yellow. **Calyx** cup-shaped, 5-lobed in upper $^1/_3$, subcoriaceous, strong-ribbed, lobes cuspidate; pubescence golden-brown. **Petals** longer than calyx, contorted, upper half oblong, narrowed into a claw. **Flowering time** all year. **Fruit** a capsule half exserted from persistent calyx. Gorges, kloofs, mountain slopes; Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld, Albany Thicket (Uniondale, Willowmore, Baviaanskloof E to Uitenhage).

stipulacea Lehm. ex Eckl. & Zeyh.

Suffrutex, 0.2–0.6 m high, branches ascending; vegetative parts subdensely stellate-pubescent, hairs shiny, long and scaly-based. **Leaves** sessile, sometimes imbricate, mostly oblong-cuneate, apex truncate, often lobed; long stellate hairs on both surfaces, upper surface often with 1-rayed hairs. **Stipules** leaf-like, ovate-acuminate. **Inflorescences** of 1- or 2-flowered cymes in axils of upper leaves or terminal; peduncles 3–20 mm long; pedicels stellate-pubescent. **Flowers** ± 10 mm long, yellow. **Calyx** obconic, 5-lobed almost to middle, lobes cuspidate, sinuses wide; densely yellow scaly-tomentose and stellate-hispid. **Petals** twice as long as calyx, contorted in upper $^1/_3$, margins of waist ciliate, narrowed into a claw. **Flowering time** Aug.–Nov. **Fruit** a capsule, shortly exserted from persistent calyx. Coastal Renosterveld, on stony mountain slopes; Eastern Fynbos-Renosterveld, Albany Thicket (Ladismith E to Tsitsikamma, Port Elizabeth and Grahamstown, and to Cape St Francis).

12b Pubescence on calyx various, not dense and golden-brown

filifolia L.f.

Suffrutex, straggling with slender branchlets or erect and robust, 0.3–1.0 m high; glabrous, young parts finely or roughly stellate-pubescent, with minute scales or tubercles. **Leaves** sessile, filiform, ericoid, acute, glabrous and clustered; 4–15 mm long (var. *filifolia*, var. *grandicalyx*), ± 20 mm long (var. [E]*robusta*). **Stipules** leaf-like. **Inflorescence** 1- or 2-flowered cymes in axils of upper leaves or terminally racemose; peduncles 2–6 mm long; pedicels finely stellate-pubescent. **Flowers** ± 9 mm long, dark red on outside, inside yellow. **Calyx** 10 mm long (4–6 mm long in var. *filifolia*), markedly pale cream-coloured, 5-lobed to beyond middle, lobes long-acuminate (var. *grandicalyx*), shorter than petals, not markedly pale, rough with minute scales (var. *robusta*). **Petals** strongly contorted, oblong in upper half, abruptly narrowed into a claw with ciliate margins. **Flowering time** all year. **Fruit** a capsule, up to 12 mm long. Sandstone ridges; Upper Karoo, Lower Karoo (Graaff-Reinet, Cradock and Aberdeen) (var. *filifolia*); shaly slopes; Eastern Fynbos-Renosterveld, Rainshadow Valley Karoo (Steytlerville District to George) (var. *grandicalyx*); disturbed areas, Eastern Fynbos-Renosterveld (Uitenhage and Port Elizabeth Districts) (var. *robusta*).

flammea Jacq.

Poprosie (A)

Suffrutex, 0.07–0.65 m high; sparsely to densely pubescent with minute, fringed scales or coarse, stellate hairs. **Leaves** fascicled, subsessile, often flat, base cuneate, up to 12 mm wide at toothed apex; glabrescent on upper surface. **Stipules** linear-oblong. **Inflorescences** 1- or 2-flowered cymes, terminally clustered or racemose; peduncles 2–4 mm long; pedicels densely stellate-pubescent. **Flowers** ± 9 mm long, orange to dark red. **Calyx** 5-lobed to middle, sinuses v-shaped, lobes oblong-deltoid, apex often incurved; laxly stellate-hairy. **Petals** strongly contorted, apex broadly rounded, narrowed into a claw with ciliate margins. **Flowering time** Aug.–Dec. **Fruit** a capsule, apex 5-umbonate, stellate; exserted from persistent calyx. Mountain slopes, stony hills, valley bushveld; Lower Karoo, Albany Thicket, Upper Karoo, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld (Graaff-Reinet E to Kentani SW, from Joubertina to Port Elizabeth, Grahamstown and East London, and from Humansdorp to Skoenmakerskop).

flammula Harv.

Suffrutex, slenderly branched, erect, virgate, 0.25–0.60 m high; branchlets, leaves, pedicels and calyx pubescent with tubercle-based, stellate hairs or fringed scales, intermixed with single, thin-walled, glandular hairs. **Leaves** subsessile, narrowly oblong-cuneate, usually folded, apex mucronate; both sides coarsely pubescent with short, stellate hairs or tomentose with long, thin-walled hairs. **Stipules** linear-oblong. **Inflorescences** 1- or 2-flowered, terminal cymes; peduncles 1–4 mm long, length of pedicels unequal. **Flowers** ± 8 mm long, deep, port wine-red, cream-coloured in lower half. **Calyx** 5-lobed to beyond middle, sinuses v-shaped; pubescence as above. **Petals** strongly contorted, oblong in upper $^1/_3$, narrowed into a claw with stellate-haired margins. **Flowering time** all year. **Fruit** a capsule, apex 5-umbonate, sutures thickened with tubercle-based, stellate hairs. Mountain slopes, hillsides of Coastal Renosterveld; Upper Karoo, Albany Thicket, Eastern Fynbos-Renosterveld (Somerset East, Joubertina and Baviaanskloof).

1b Filaments abruptly dilated in upper half or at apex (± cruciform), rarely linear or narrowly obovate-oblong, but then anther base not overlapping the expanded portion of filaments (subgenus Mahernia*)*
13a Woody shrublets or suffrutices; upright, ± virgately branched or decumbent, with a woody taproot and stems branching from base; leaves often basal
14a Woody shrublets or suffrutices upright or ± virgately branched

coccocarpa (Eckl. & Zeyh.) Kuntze

Erect or diffuse suffrutex, 0.1–0.3 m high, much branched, glandular. **Leaves** petiolate, strap-shaped, inciso-dentate or subpinnatifid, with obtuse lobes. **Stipules** amplexicaul, small. **Inflorescences** 2-flowered; peduncles ± 20 mm long; pedicels filiform, sparsely hairy with glandular and longish, white, simple hairs. **Flowers** 8 mm long, pink. **Calyx** campanulate, cleft ± halfway, sparsely glandular, margins with white stellate and simple hairs. **Petals** twice as long as calyx, spreading, obovate. **Flowering time** Sept.–May. **Fruit** a capsule thrice as long as calyx, ± oblong, with shapes of seeds clearly outlined, stellate-hairy at sutures. Grassland, well-drained rocky sand/loam soil, stream- and river-banks in karoo; Upper Karoo, Dry Highveld Grassland, Mesic Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Albany Thicket (Aliwal North E to Clydesdale, southwards from Middelburg to Cala, and Cradock E to Grahamstown).

grandiflora Aiton

Klokkiebos, *ouma-se-kappie* (A)

Dwarf shrub, 0.15–2.00 m high; ± virgately branched; glandular or glabrous. **Leaves** cuneate-obovate, inciso-dentate or subpinnatifid, with obtuse lobes. **Stipules** small. **Inflorescences** in panicles with each peduncle 2-flowered and ± 14 mm long; pedicels sparsely hairy with glandular and longish, white, simple hairs. **Flowers** 15 mm long, orange-red. **Calyx** obconic, deeply cleft, sparsely glandular with lobe margins of white stellate and simple hairs. **Petals** 4–5× as long as calyx, spreading, obovate. **Flowering time** Sept.–May. Karoo, stony rocky soil, roadsides; Upper Karoo, Lower Karoo (Middelburg District SW to Beaufort West District).

pulchella L.f.

Bergpleisterbos (A)

Erect suffrutex, 0.15–0.50 m high; copiously glandular, glutinous. **Leaves** petiolate, narrow-oblong, inciso-pinnatifid, with obtuse lobes. **Stipules** small. **Inflorescences** with 2-flowered peduncles, 4 mm long; pedicels glandular. **Flowers** 9 mm long, greenish to yellow. **Calyx** semi 5-fid, glandular, margins sparsely hairy. **Petals** twice as long as calyx, obovate. **Flowering time** all year. Karoo, well-drained soil, W-facing sandstone slopes; Upper Karoo, Dry Highveld Grassland, Lower Karoo, Albany Thicket (Oviston SW to Middelburg, Jansenville, Pearston and Sundays River).

14b Suffrutices with a woody taproot, decumbent stems branching from base, with larger leaves often crowded at base

cernua Thunb.

Low, semi-spreading suffrutex, up to 0.3 m high; glandular, glutinous. **Leaves** dark green, ovate-oblong, inciso-dentate or subpinnatifid, with obtuse lobes. **Stipules** small. **Inflorescences** 2-flowered; peduncles up to 45 mm long; pedicels glandular-hairy. **Flowers** 10 mm long, white to yellow. **Calyx** campanulate, 5-lobed to middle; stellate and glandular-hairy, margins with simple, white hairs. **Petals** twice as long as calyx, spread-

ing. **Flowering time** Sept.? **Fruit** a glandular-hairy capsule. Karoo, thicket, Ecca shales, stony, loamy soil; Sub-Escarpment Grassland, Rainshadow Valley Karoo, Albany Thicket (Naude's Neck SW to Willowmore, E to Grahamstown).

coccocarpa (Eckl. & Zeyh.) Kuntze (see 14a above)

erodioides (Burch. ex DC.) Kuntze

Suffruticose, decumbent and many stemmed, ± 0.15 m high. **Leaves** petiolate, ovate-oblong, inciso-crenate or subpinnatifid, with obtuse lobes. **Stipules** amplexicaul, small. **Inflorescences** 2-flowered; peduncles 35 mm long; pedicels filiform, densely glandular-hairy intermixed with coarse stellate hairs. **Flowers** 6.5 mm long, blue. **Calyx** campanulate, 5-lobed to beyond middle; sparsely glandular-hairy, margins with stellate and simple, white hairs. **Petals** white to yellow, twice as long as calyx, spreading. **Flowering time** Nov.–Jan. **Fruit** a glandular-hairy capsule. Grassland and karoo, hills and ridges, stony soil; Dry Highveld Grassland, Mesic Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland, Upper Karoo, Lower Karoo (Aliwal North to Thaba Chitja S, from Middelburg to Rietbron and Graaff-Reinet districts, and to Cradock).

jacobeifolia (Turcz.) R.A.Dyer

Suffruticose, decumbent shrublet, ± 0.15 m high; glandular. **Leaves** petiolate, ± ovate in outline, pinnatipartite to pinnatisect. **Stipules** small. **Inflorescences** 2-flowered; peduncles 10 mm long; pedicels filiform, densely glandular and stellate-hairy. **Flowers** 8 mm long, white, red-striped and -fringed. **Calyx** campanulate, 5-lobed to beyond middle, main vein and margins reddish brown; sparsely glandular-hairy, main vein and margins with white, stellate hairs. **Petals** twice as long as calyx, spreading. **Flowering time** Sept.? **Fruit** a densely glandular and stellate-hairy capsule, shapes of seeds clearly outlined. Mountainous areas, roadsides; Dry Highveld Grassland, Upper Karoo (Albert District, SW to Sneeuberg in Graaff-Reinet District).

13b Suffrutices, often with a woody rootstock; stems procumbent or decumbent, often elongate with nodes and internodes clearly defined; leaves mostly cauline
15a Leaf margins deeply incised to lacerate

glabrata L.f.

Decumbent, suffruticose dwarf shrub, branches 0.15–0.20 m long; glabrous with few scattered glandular hairs. **Leaves** petiolate, cuneate at base, ovate-oblong to strap-shaped, pinnatifid, lobes obtuse. **Stipules** small, ovate. **Inflorescences** 2-flowered; peduncles ± 35 mm long; pedicels filiform, glabrous. **Flowers** 10 mm long, white to pink, sweet scented. **Calyx** campanulate, 5-lobed to beyond middle, main vein and margins reddish brown; glabrous. **Petals** twice as long as calyx, spreading. **Flowering time** July–Apr. Mountain passes, rocky southern slopes, grassy, karroid scrub, red soil; Upper Karoo, Albany Thicket, Lower Karoo, Dry Highveld Grassland, Sub-Escarpment Savanna (Hofmeyr District SW to Graaff-Reinet, E through Cradock to Komga).

lacera (E.Mey. ex Harv.) Fourc.

Decumbent, suffruticose dwarf shrub, branches 0.2–0.6 m long; glabrous to finely glandular-hairy. **Leaves** petiolate, cuneate at base, ovate-oblong in outline, pinnatisect, lobes pinnatifid obtuse. **Stipules** amplexicaul, relatively small, leaf-like. **Inflorescences** 2-flowered; peduncles ± 45 mm long; pedicels filiform, glandular-hairy intermixed with white, stellate and simple hairs. **Flowers** 10 mm long, red-pink. **Calyx** shallowly campanulate, 5-lobed to less than middle, lobes ± rounded, apices acute. **Petals** more than twice as long as calyx. **Flowering time** Aug.–Oct.? Coastal vegetation, 250 m inland,

Addo bush, valleys; Eastern Fynbos-Renosterveld, Albany Thicket, Indigenous Forests (Uitenhage eastwards to Port Elizabeth, Alexandria District, Grahamstown).

15b Leaf margins entire, serrate or crenate
16a Leaf margins finely to coarsely serrate

grandistipula (Buchinger ex Hochst.) K.Schum.
Ishongwe (Z)

Decumbent to suberect suffrutex, stems 0.1–0.3 m long; yellowish green; densely hairy with white, silky, bulbous-based, stellate hairs. **Leaves** petiolate, obovate to oblong-obovate, ± 32 mm long, apically crenate, stellate hairs mostly on venation and margins. **Stipules** whorled, up to 10, leaf-like, lanceolate, indumentum as for leaves. **Inflorescences** axillary, 2-flowered; peduncles up to 20 mm long; pedicels filiform, densely stellate-hairy. **Flowers** 11 mm long, nodding, yellow. **Calyx** inflated, globose, narrowed at mouth, lobes almost reduced to teeth; densely stellate-hairy. **Petals** slightly longer than calyx. **Flowering time** Nov.–Feb.? Grassland, hills, roadsides; Sub-Escarpment Grassland, Sub-Escarpment Savanna (Kokstad S to Idutywa).

parviflora Eckl. & Zeyh.

Decumbent, straggling, suffruticose dwarf shrub, branches 0.20–0.25 m long, filiform; densely, coarsely stellate-hairy, intermixed with glandular hairs. **Leaves** petiolate, cuneate at base, oblanceolate to narrowly obtrullate, serrate in upper half. **Stipules** small. **Inflorescences** 2-flowered; peduncles 10–15 mm long; pedicels filiform, densely white stellate-hairy. **Flowers** 3 mm long, yellow-brown. **Calyx** campanulate, 5-lobed to middle. **Petals** slightly longer than calyx. **Flowering time** Sept.–Mar. Mountain grassland, lower slopes, rock faces, rocky/sandy/loamy soil; Mesic Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Lady Grey E to Harding southwards, from Jamestown to Port St Johns and from Somerset East District to Kei River Mouth).

saccifera (Turcz.) K.Schum.

Decumbent, suffruticose dwarf shrub, branches 0.25–0.30 m long; glabrous, gland-dotted, often glutinous. **Leaves** petiolate, base cuneate; blade ovate-oblong, serrate, gland-dotted. **Stipules** persistent, regularly spaced basally at nodes of branchlets or on older branchlets. **Inflorescences** 2-flowered; peduncles ± 25 mm long; pedicels filiform, glabrous with scattered glands. **Flowers** 11 mm long, yellow. **Calyx** broadly campanulate, 5-lobed to middle. **Petals** twice as long as calyx. **Flowering time** Aug.–Oct. Roadsides, renosterbos, shaly, clay ground; Eastern Fynbos-Renosterveld, Albany Thicket (Baviaanskloof E to Great Winterhoek Mts at Coega).

schlechteriana Schinz ex K.Schum.

Decumbent to bushy shrub, branches 0.4–0.7 m long; densely, coarsely stellate-hairy. **Leaves** petiolate, cuneate at base, ovate-oblong, serrate. **Stipules** leaf-like. **Inflorescences** 1- or 2-flowered; peduncles ± 20 mm long; pedicels filiform, densely coarsely stellate-tomentose. **Flowers** 8 mm long, mauve-streaked. **Calyx** widely campanulate, 5-lobed to beyond middle, lobes attenuate. **Petals** 1.5× as long as calyx. **Flowering time** Feb.? Rocky mountain slopes, rock slabs in partial shade, common; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld (uMzimkhulu District, Mtentu Bridge, Suurberg).

stellulata (Harv.) K.Schum.

Decumbent suffrutex, branches ± 0.3 m long; glandular-hairy and glutinous, interspersed with coarse, white, stellate hairs. **Leaves** petiolate, cuneate at base, lanceolate to oblong-lanceolate, serrate. **Stipules** leaf-like, clasping, ovate. **Inflorescences** 1- or 2-flowered; peduncles ± 18 mm long; pedicels filiform, coarsely hairy with glandular and stellate hairs (often stipitate). **Flowers** 9 mm long, claret-coloured. **Calyx** campanulate, 5-lobed to middle, lobes attenuate; gland-dotted, also with stellate and simple hairs. **Petals** 1.5× as long as calyx. **Flowering time** Oct.–Feb. Common, SW-facing slopes below cliffs, red sand; Sub-Escarpment Grassland, Drakensberg Grassland, Albany Thicket (Hogsback, Fish River Flats, Grahamstown).

veronicifolia (Eckl. & Zeyh.) Hochr.

Rooi-opslag (A)

Decumbent suffrutex, branches up to 0.45 m long; gland-dotted, coarsely hairy with white, stipitate, stellate hairs, cobwebby at growing points. **Leaves** petiolate, oblong, finely serrate with marginal, stipitate, stellate hairs. **Stipules** leaf-like, clasping, ovate. **Inflorescences** 2-flowered; peduncles ± 30 mm long; pedicels filiform, gland-dotted, coarsely hairy with sessile, stellate hairs. **Flowers** 13 mm long, yellow, becoming orange. **Calyx** campanulate, 5-lobed to less than middle, lobes attenuate; gland-dotted interspersed with white, sessile, stellate hairs, stipitate stellate hairs on venation, simple hairs on margins. **Petals** twice as long as calyx. **Flowering time** July–May. Fairly common, stony N-aspect above valley bushveld, banks of Bushman's River; Eastern Fynbos-Renosterveld, Albany Thicket (Uitenhage E to Alexandria and Hopewell).

[E]violacea (Burch. ex DC.) K.Schum.

Procumbent dwarf shrub, branches ± 0.4 m long; densely appressed, glandular and stellate-hairy. **Leaves** petiolate, ovate to cordate, serrate. **Stipules** persistent on older branchlets. **Inflorescences** 1- or 2-flowered; peduncles ± 16 mm long, filiform; pedicels filiform, glandular. **Flowers** 5 mm long, purple. **Calyx** campanulate, 5-lobed in upper half, lobes attenuate; gland-dotted, simple hairs scattered on margins. **Petals** thrice as long as calyx. **Flowering time** unknown. Mountain slopes, garden; Albany Thicket, Drakensberg Grassland (Bruintjieshoogteberg, Amatole Mts, Kubusi River).

16b Leaf margins entire or crenate
17a Leaves lanceolate to widely ovate or oblanceolate
18a Leaves up to 60 mm long

burkei Burtt Davy

Decumbent dwarf shrub, 0.15–0.60 m long; yellow-green, densely white silky hairy, with stalked glands, sessile and stipitate stellate hairs and long, white, simple hairs. **Leaves** petiolate (up to 15 mm), ovate, ± 37 mm long, margins crenate except at base. **Stipules** parted into 2 or 3 leaf-like segments. **Inflorescences** in terminal panicles; peduncles 2-flowered, ± 5 mm long; pedicels filiform ± 9 mm long, with stalked glands, stellate and simple hairs. **Flowers** 10 mm long, yellow. **Calyx** campanulate, 5-lobed to beyond middle, with stalked glands and stellate hairs, simple hairs along margins. **Petals** as long as calyx or shorter. **Flowering time** July–May. Grassland and shrubland, hills and slopes; Upper Karoo, Albany Thicket, Lower Karoo, Sub-Escarpment Grassland, Eastern Fynbos-Renosterveld (Oviston to Middelburg District S, from Graaff-Reinet to Jansenville, Cradock and to Willowmore).

depressa N.E.Br.

Rooiopslag (A); *moleko*, *seletjana* (SS); *itshesizwe* (Z)

Decumbent dwarf shrub, 0.03–0.40 m long; mainly stalked glands (stalks white, uniseriate, ± 6-celled, 'worm-like') intermixed with appressed, stellate hairs. **Leaves** petiolate, ovate to cordate, ± 40 mm long, margins crenate, purplish or bronzy above. **Stipules** persistent, small. **Inflorescences** axillary and terminal, 2-flowered; peduncles ± 40 mm long; pedicels filiform, sparsely hairy with stalked glands. **Flowers** 9 mm long, orange. **Calyx** campanulate, 5-lobed to middle, lobes attenuate; fairly densely covered by stalked glands, simple long hairs along margins. **Petals** spreading, more than twice as long as calyx. **Flowering time** July–May. Grassland, well-drained soils, clays, slopes, W-aspect, roadsides; Dry Highveld Grassland, Mesic Highveld Grassland, Sub-Escarpment Grassland, Drakensberg Grassland, Albany Thicket (Aliwal North E to Kokstad, southwards from Queenstown to Cala and from Albany District to East London).

grandistipula (Buchinger ex Hochst.) K.Schum. (see 16a above)

18b Leaves up to 120 mm long

cordata (E.Mey. ex E.Phillips) De Winter

Decumbent, sprawling shrub, branches 0.15–0.60 m long; stems densely coarsely hairy, with rough bulbous-based/stipitate stellate hairs. **Leaves** long-petiolate (± 15 mm), cordate, ± 72 mm long, margins crenate; terminal venation reticulate, upper surface rugose, lower surface canescent, venation brownish hairy. **Stipules** small. **Inflorescences** in axillary or terminal panicles; peduncles 2-flowered, 20–25 mm long; pedicels filiform, indumentum as for stems. **Flowers** 12 mm long, yellow. **Calyx** globose, chartaceous, pinkish when mature, inflated, not narrowed at mouth, 5-lobed in upper half; indumentum as for stems but less dense. **Petals** longer than calyx, densely appressed stellate-hairy outside. **Flowering time** Nov.–Mar. Common, unploughed grassland in rocky loam soil; Sub-Escarpment Grassland, Drakensberg Grassland (UMzimvubu S, from Stormberg E to Elliot, southwards to Queenstown and Stutterheim).

geniculata Eckl. & Zeyh.

Decumbent, sprawling shrub, branches 0.15–0.60 m long; densely tomentose with greyish, sessile, bulbous-based and stipitate stellate hairs. **Leaves** petiolate (± 20 mm), dark green, coriaceous, ovate, ± 70 mm long, margins crenate. **Stipules** parted at base into 2 or 3 leaf-like segments. **Inflorescences** axillary, 2-flowered; peduncles ± 25 mm long; pedicels filiform, indumentum less dense. **Flowers** 16 mm long, white, drying orange-brown. **Calyx** campanulate, 5-lobed in upper half; densely tomentose. **Petals** 1.5× longer than calyx. **Flowering time** all year. Sandstone plates; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Albany Thicket (Ongeluksnek Nature Reserve S through Queenstown to Mthatha, Cathcart to Fort Beaufort and Suurberg to Kei River).

gerrardii Harv.

Bitterblaar (A)

Decumbent, sprawling shrub, branches 0.15–0.60 m long; densely coarsely hairy, with rough sessile and bulbous-based/stipitate stellate hairs. **Leaves** long-petiolate (± 20 mm), ovate to cordate, ± 80 mm long, margins crenate; terminal venation reticulate, upper surface velutinous with sessile, stellate hairs, rugose with age, lower surface coarsely stellate-hairy. **Stipules** parted at base into 2 or 3 leaf-like segments. **Inflorescences**

in axillary or terminal panicles, with 2-flowered peduncles of ± 5 mm long; pedicels filiform, indumentum less dense. **Flowers** 10 mm long, yellow. **Calyx** campanulate, 5-lobed beyond middle, lobes attenuate, velutinous with sessile, stellate hairs. **Petals** twice as long as calyx. **Flowering time** Mar.? Rocky N-facing slopes, hillsides; Drakensberg Grassland (Maclear District).

17b Leaves narrowly oblong to oblong-elliptic

oblongifolia (Harv.) Hochr.

Decumbent suffrutex, branches ± 0.15 m long; densely greyish, woolly stellate-hairy. **Leaves** petiolate (± 5 mm), narrowly oblong, ± 50 mm long, margins entire or crenate. **Stipules** parted at base into 2 or 3 leaf-like segments. **Inflorescences** 2- to 3-flowered; peduncles ± 18 mm long; pedicels filiform. **Flowers** 6 mm long, dull pink, claret or red. **Calyx** campanulate, 5-lobed in upper half. **Petals** 1.5× longer than calyx. **Flowering time** Oct.? In grass at foot of mountain, between river tributaries; Dry Highveld Grassland, Drakensberg Grassland (Rouxville S to Albert District).

woodii Schinz

Small, decumbent suffrutex, branches 0.09–0.15 m long; coarsely stellate-hairy, with sessile, bulbous-based and stipitate hairs. **Leaves** petiolate (± 2 mm), oblong-elliptic, 35 mm long, margins crenate; venation conspicuously brownish, terminally reticulate, scattered with bulbous-based, stellate hairs. **Stipules** parted into 2 leaf-like segments, ovate. **Inflorescences** terminal, 2- or 3-flowered; peduncles filiform, 55 mm long; pedicels filiform. **Flowers** 9 mm long, white to pale pink. **Calyx** campanulate, 5-lobed to middle. **Petals** 1.5× as long as calyx. **Flowering time** Oct.–Mar. Occasional, *Themeda triandra* grassland below forest, mountain slopes; Drakensberg Grassland, Sub-Escarpment Grassland (Maclear District S to Mjika and Mhlahlane Forest Reserve).

Subfamily Dombeyoideae
(= Dombeyaceae Desf.)

Fibrous herbs or undershrubs; petals becoming detached, persisting like a cap on the ovary; 5 fertile stamens ..... **Melhania**

Shrubs or small trees; petals becoming papery, persistent; 10–15 fertile stamens ..... **Dombeya**

DOMBEYA Cav.

Wild pear trees; *drolpeerbome* (A)

Species > 200, 19 in Africa, also present in Arabian Peninsula, Madagascar, Comores and Mascarenes; 8 in sthn Afr., LIM, G, M, S, KZN, EC.

Petals under 10 mm long; ovary usually 3-celled, style branches usually 3

cymosa Harv.

Smooth wild pear; *gladde-drolpeer* (A); *umsengathi* (X); *ibunda* (Z)

Small tree or shrub, 1.2–7.6 m high. **Stipules** early deciduous. **Leaves** thin-textured, ovate, acuminate, rounded or shallowly cordate at base, margins crenate; sparsely and coarsely stellate-pubescent on both surfaces. **Inflorescences** cymose, 3–12-flowered, axillary in upper leaves of main and short lateral branches; peduncles slender, 10–30 mm long; pedicels coarsely stellate-tomentose. **Flowers** 6–8 mm long, white, aging rusty brown. **Sepals** with lobes 4–5 mm long, stellate-pubescent on outside. **Petals** persistent. **Flowering time** Aug.–May. **Fruit** a capsule, ± 4 mm long, stellate-tomentose. **Seed** solitary, filling capsule. River- and streambanks, forest margins, stony slopes; Sub-

Escarpment Grassland, Sub-Escarpment Savanna, Drakensberg Grassland, Albany Thicket, Indigenous Forests (Queenstown E to Port St Johns and S from Stutterheim to East London).

Petals over 10 mm long; ovary usually 5-celled, style branches usually 5

tiliacea (Endl.) Planch.

Forest wild pear, little dog rose; *bos-drolpeer* (A); *ityibo* (X); *ibunda* (Z)

Straggling shrub or tree, 2.0–9.1 m high. **Stipules** early deciduous. **Leaves** thin-textured, ovate, gradually acuminate, sometimes 3-lobed, shallowly cordate at base, margins crenate-dentate, 3–7-nerved from base; thinly stellate-pubescent on both surfaces. **Inflorescences** cymose, appearing in autumn, 2–9-flowered, in axils of upper leaves; peduncles straight 15–80 mm long; pedicels stellate-pubescent. **Flowers** 12–17 mm long, white, aging rusty brown. **Sepals** with lobes 9–15 mm long, pubescent on outside. **Petals** persistent. **Flowering time** Aug.–May. **Fruit** a capsule, ± 7 mm long, stellate-tomentose. **Seed** solitary, 3-sided, rough. In bush, mixed scrub, coastal short forest; Drakensberg Grassland, Sub-Escarpment Savanna, Indigenous Forests, Albany Thicket (Port St Johns S to Port Alfred).

MELHANIA Forssk.

Species ± 60, Africa to India; 13 in sthn Afr., N, B, LIM, NW, G, M, S, FS, KZN, EC.

didyma Eckl. & Zeyh.

Dwarf shrub, 0.2–0.6 m high. **Stipules** subulate. **Leaves** shallowly dentate, lateral veins excurrent into teeth, ovate-oblong or ovate-lanceolate, lamina up to 40 mm broad. **Inflorescences** axillary, 2-flowered; peduncles rigid, up to 50 mm long. **Epicalyx bracts** broadly ovate, cuspidate at apex, cordate at base, longer than calyx and petals, villose-tomentose on both surfaces. **Flowers** ± 15 mm long, pale yellow, aging brownish yellow. **Sepals** lobed almost to base, 15 mm long, hirsute on outside. **Petals** as long as calyx. **Flowering time** Dec.–May. **Fruit** a capsule, hispid with tufted hairs. Grassy slopes, thornveld, forest margins, near rivers; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Drakensberg Grassland, Albany Thicket, Eastern Fynbos-Renosterveld (Kokstad District S, from Queenstown to Mqanduli District, Fort Fordyce to Nahoon River Valley and Greater Addo Elephant National Park to East London).

Subfamily Grewioideae

[= Grewiaceae (Dippel) Doweld & Reveal, Sparmanniaceae J.Agardh, *nom. cons.*]

1a Fruit a somewhat fleshy to dry, (1)2–4-lobed drupe ..... **Grewia**

1b Fruit a glabrous, hairy or densely bristly capsule:

2a Flowers white, pinkish or mauve, 4-merous; some stamens sterile with no anthers or, if sterile, stamens very few or apparently absent, the filaments nodose ..... **Sparrmannia**

2b Flowers yellow, 5-merous, sometimes 4-merous, but then capsule pod-like; all the stamens fertile, filaments never nodose:

3a Fruits globose, bristly, spiny or with conical, spine-tipped tubercles; ovules 2 per locule ..... **Triumfetta**

3b Fruits usually long and pod-like, rarely ellipsoid or ovoid; ovules more than 2 per locule or, if only 2, then capsule smooth; leaves often tailed at base ..... **Corchorus**

CORCHORUS L.

Species ± 100, widely distributed through tropics and subtropics; 15 in sthn Afr., widespread, except L and WC.

Perennial herbs with annual, often prostrate stems from a woody rootstock, or a bushy perennial

confusus Wild

unGibonisele (Z)

Dwarf shrub, 0.2–0.6 m high, rootstock woody. **Stipules** setaceous, up to 6 mm long. **Leaves** narrowly lanceolate to ovate, apex acute, base rounded, sometimes with a pair of basal, setaceous lobes, margins crenate-serrate. **Inflorescences** of small (1)2- or 3-flowered cymes opposite upper leaves; peduncles 4–25 mm long, patent pubescent. **Flowers** ± 10 mm long, yellow. **Sepals** linear-lanceolate, ± 10 mm long. **Petals** shorter than sepals. **Androgynophore** ± 0.5 mm long. **Flowering time** midsummer. **Fruit** a capsule on straight, fruiting pedicel, 25–50 mm long, trigonous, apex undivided. **Seeds** many. Sandy or basaltic soils, on koppies or lowveld bush; Sub-Escarpment Grassland, Sub-Escarpment Savanna (Kokstad District, uMzimkhulu, Clydesdale).

Annual herbs

***trilocularis** L.

Annual herb, 0.30–1.05 m high. **Stipules** setaceous, up to 10 mm long. **Leaves** lanceolate-oblong, apex subacute, base rounded, usually with a pair of basal, setaceous lobes, margins crenate-serrate. **Inflorescences** of 1–3-flowered cymes opposite upper leaves; peduncles ± 1 mm long, setose-pubescent. **Flowers** ± 5 mm long, yellow. **Sepals** narrowly lanceolate, 6–10 mm long. **Petals** as long as sepals. **Androgynophore** ± 0.5 mm long. **Flowering time** Dec.–May. **Fruit** a capsule, 25–70 mm long, 3- or 4-angled and -valved. **Seeds** many. Widespread introduced weed, river valleys; Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Transkei, Mqanduli District, Mngazi River, Kentani).

GREWIA L.

Raisin bushes; *rosyntjiebosse*

Species ± 290, widely distributed in Africa, Asia and Australia; 27 in sthn Afr., widespread.

1a Leaves discolorous, whitish tomentose below

robusta Burch.

Karoo cross-berry; *Karoo-kruisbessie* (A); *umnqabaza* (X)

Small shrub, up to 3 m high; bark greyish purple. **Leaves** clustered on abbreviated side shoots; broadly elliptic to rotund, up to 20 × 16 mm, apex obtuse, base rounded, margins finely crenate. **Inflorescences** reduced to a single flower opposite leaves; peduncles 2–3 mm long, tomentellous. **Flowers** ± 15 mm long, pink or mauve. **Sepals** linear-lanceolate, up to 15 mm long. **Petals** shorter than sepals. **Androgynophore** with a basal glabrous portion of ± 1 mm long, tomentose at apex. **Flowering time** Aug.–May. **Fruit** purplish, ± 14 mm in diam., deeply 4-lobed, somewhat fleshy. Cape endemic, in dense scrub; Upper Karoo, Sub-Escarpment Grassland, Lower Karoo, Albany Thicket, Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld (Hofmeyr District to Queenstown southwards, from Graaff-Reinet to Fort Beaufort and from Steytlerville to Grahamstown).

1b Leaves not discolorous, glabrous to fairly densely pubescent
2a Inflorescences 1(–3)-flowered; leaves glabrous or slightly pubescent

occidentalis L.

Cross-berry, four corners; *kruisbessie* (A); *motshwarabadikana* (NS); *mokukutu* (T); *umnqabaza* (X); *ilalanyathi* (Z)

Tree or shrub, up to 3 m high; branches slender, glabrescent. **Leaves** thin-textured, lanceolate to ovate- or rhomboid-lanceolate, base subcuneate to rounded, apex acute,

margins crenate-dentate. **Inflorescences** leaf-opposed; peduncles up to 15 mm long, slender, glabrescent. **Flowers** ± 14 mm long, purple, mauve, pinkish or white. **Sepals** linear-oblong, up to 17.5 mm long, greenish outside, pink inside. **Petals** shorter than sepals. **Androgynophore** with basal glabrous portion ± 1 mm long, prolonged into densely pubescent portion up to 3 mm long. **Flowering time** Dec.–May. **Fruit** reddish purple, ± 25 mm in diam., 4-lobed, somewhat fleshy. Widespread in wetter parts of Cape, forest margins, coastal bush; in all bioregions, except Lower Karoo and Rain-shadow Valley Karoo (Bethulie to Kokstad District S, from Queenstown to Port St Johns, Cradock to Gonubie Nature Reserve, Tsitsikamma to East London).

pondoensis Burret

Pondo cross-berry; *Pondo-kruisbessie* (A)

Small tree or scrambler, up to 5 m high; branches glabrous. **Leaves** coriaceous, glabrous, shiny above, ovate, elliptic-lanceolate, ovate-lanceolate, rhomboid-lanceolate, base obtuse to rounded, apex acute, margins subentire. **Inflorescences** leaf-opposed; peduncles up to 10 mm long, glabrous. **Flowers** ± 15 mm long, pink. **Sepals** linear-oblong, up to 15 mm long, greenish outside, pink inside. **Petals** shorter than sepals. **Androgynophore** with basal glabrous portion of ± 1 mm long, prolonged into densely pubescent portion up to 1.5 mm long. **Flowering time** Dec.–May. **Fruit** brown to blackish, shining, ± 15 mm in diam., 4-lobed, somewhat fleshy. Coastal bush in Pondoland; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests (Umtamvuna Nature Reserve to Port St Johns).

2b Inflorescences 2–several-flowered; if flowers occasionally single, then leaves coarsely hispid

lasiocarpa E.Mey. ex Harv.

Elephant's ear, forest raisin; *bos-rosyntjie* (A)

Small tree or scandent shrub, up to 5 m high. **Leaves** broadly ovate to suborbicular up to 150 × 140 mm, strongly 3-nerved from base, apex rounded, base rounded, margins coarsely crenate-dentate. **Inflorescences** leaf-opposed, 2–4-flowered; peduncles up to 20 mm long, densely ferruginously hirsute. **Flowers** ± 17 mm long, pinkish lilac. **Sepals** narrowly oblong, up to 17 mm long, ferruginously tomentose outside, pink inside. **Petals** $^{3}/_{4}$ the length of sepals. **Androgynophore** with basal portion glabrous ± 3 mm long, tomentose portion up to 1.5 mm long. **Flowering time** Nov.–Feb. **Fruit** brown to blackish, ± 25 mm in diam., 4-lobed, thin fleshy layer. Forest margins, scrub forest, alt. 0–1 000 m; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests (Tabankulu to Bizana District S, Lusikisiki Forest to Port St Johns and Kentani District to Kei River Mouth).

SPARRMANNIA L.f.

African hemp bushes; *wilde stokrose* (A)

Species ± 7, confined to Africa and Madagascar; 2 in sthn Afr., LIM, G, M, S, FS, KZN, L, WC, EC.

Leaves up to 270 × 210 mm, not lobed or with acute or acuminate lobes; sepals ± 17 mm long; many outer stamens sterile

africana L.f.

African hemp; *Kaapse stokroos* (A)

Shrub, 2–7 m high; young branchlets hispid with long, patent hairs. **Leaves** ovate to orbicular, apex acuminate, base cordate, margins irregularly crenate. **Inflorescences**

at ends of branches, of ± 20-flowered extra-axillary umbels; peduncles patently hispid. **Flowers** ± 25 mm long, white. **Sepals** white, membranous, lanceolate. **Petals** obovate. **Flowering time** Nov.–Feb. **Fruit** a subglobose capsule, with bristles ± 17 mm long. Forest margins, rocky hillsides, often cultivated; Eastern Fynbos-Renosterveld, Indigenous Forests, Albany Thicket (Tsitsikamma E to Humansdorp and Grahamstown).

Leaves up to 130 × 100 mm, lobes long acuminate; sepals ± 10 mm long; outer sterile stamens few or absent

ricinocarpa (Eckl. & Zeyh.) Kuntze

Climbing African hemp; *rank-stokroos* (A); *isibundane* (Z)

Slender shrub, 0.5–3.0 m high; stems with spreading simple or stellate hairs. **Leaves** lobed ± halfway, base cordate or cordate-sagittate, margins crenate-dentate. **Inflorescences** of 6–20-flowered extra-axillary or leaf-opposed umbels; peduncles pubescent. **Flowers** ± 10 mm long, white. **Sepals** lorate, green on outside, white or purplish inside. **Petals** oblanceolate. **Flowering time** Dec.–Mar. **Fruit** an ellipsoid 4- or 5-valved capsule, with rigid bristles ± 10 mm long. Higher rainfall areas of Cape; Indigenous Forests, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Drakensberg Grassland, Indian Ocean Coastal Belt (Clydesdale District to Insizwa S, from Maclear District to Port St Johns and Stutterheim to Kentani District).

TRIUMFETTA L.

Species ± 150, widely distributed in the tropics and subtropics but particularly common in Africa; 10 in sthn Afr., N, B, LIM, NW, G, M, S, KZN, L, EC.

Many species are weeds of cultivation and waste places and early colonisers of fallows or abandoned cultivation; others are frequent in forest clearings and forest margins; many are used for the production of native fibres.

1a Fruit 10 mm in diam. or more, including prickles
2a Leaves membranous with simple hairs

annua L.

Annual, 0.2–0.6 m high. **Leaves** ovate, apex acutely acuminate, base rounded, margins coarsely serrate or crenate. **Inflorescences** of small 1–5-flowered cymes clustered together at nodes; peduncles up to 2 mm long. **Flowers** 2.5–5.0 mm long, yellow. **Sepals** linear, with subapical, setulose horn. **Petals** shorter than sepals, linear-oblanceolate. **Androgynophore** ± 0.2 mm long, annulus with reflexed, ciliate margins. **Flowering time** summer, up to Apr. **Fruit** a capsule, ± 15 mm in diam.; prickles ± 60, 3–5 mm long, uncinate. Forest edges and bushy, shady places; Sub-Escarpment Grassland, Sub-Escarpment Savanna (uMzimkhulu District).

2b Leaves not membranous, chartaceous to coriaceous, coarsely stellate-pubescent to densely stellately hairy or tomentose

pilosa Roth

Bur; *klitsbossie* (A); *uvemvane* (Z)

Small shrub, 0.4–2.1 m high. **Leaves** ovate to oblong-lanceolate, apex acutely acuminate, base rounded to cordate, margins coarsely serrate. **Inflorescences** of small cymes crowded at nodes; peduncles and pedicels up to 5 mm long; bracts linear to linear-lanceolate, 2–4 mm long, setulose. **Flowers** 7–10 mm long, yellow. **Sepals** linear, subapical horn very short. **Petals** slightly shorter than sepals, linear to linear-oblanceolate. **Androgy-**

nophore ± 0.75 mm long, annulus densely hirsute above. **Flowering time** late summer to Apr. **Fruit** a capsule, 15–27 mm in diam.; prickles 5–10 mm long, uncinate. Open woodland, roadsides and waste places; Indigenous Forests, Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Port Shepstone District to Port St Johns and Kei River Mouth).

1b Fruit ± 4–5 mm in diam., including prickles

rhomboidea Jacq.

Chinese bur, burrweed; *klitsbossie* (A); *tshimbvumbvu* (SS); *inDolencane* (Z)

Polymorphic, annual herb or occasional perennial shrub, 0.01–2.00 m high. **Leaves** lanceolate, ovate or rhombic, often 3-lobed, apex acute, base cuneate to cordate, 3–7-nerved from base, margins irregularly serrate. **Inflorescences** foliolate, cymes crowded at nodes; peduncles and pedicels up to 3 mm long; bracts linear, ± 3 mm long, pubescent. **Flowers** 4–5 mm long, yellow. **Sepals** linear, hooded towards apex. **Petals** slightly shorter than sepals, linear-oblanceolate. **Androgynophore** ± 0.25 mm long, annulus villous on upper margin. **Flowering time** Sept.–Apr. **Fruit** a globose capsule, body densely tomentose, prickles uncinate. Open grassland or woodland, or commonly as weed of cultivation; Indigenous Forests, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Drakensberg Grassland (Alfred District S to Port St Johns and to Dohne Agricultural College).

Subfamily Malvoideae
(= Hibiscaceae J.Agardh)

1a Style branches and stigmas twice as many as carpels (style branches mostly 10, carpels 5) (tribe **Malvavisceae**) ..... **Pavonia**
1b Style branches and stigmas as many as carpels (5–many) or style undivided and stigma ± entire:
2a Fruit a capsule or indehiscent and woody to ± fleshy; staminal tube toothed at apex to truncate, bearing anthers on most or much of its surface (tribe **Hibisceae**):
3a Style simple (rarely very slightly divided at the tip), apex 5-lobed or clavate with ± coherent stigmas ..... **Radyera**
3b Style divided apically into distinct branches; stigmas capitate to club-shaped ..... **Hibiscus**
2b Fruit a schizocarp with mericarps eventually separating from a persistent axis; staminal tube split at apex into many filaments (tribe **Malveae**):
4a Epicalyx absent:
5a Ovules 2 or more per locule; seeds mostly 2 or more per mericarp or sometimes 1 by abortion ..... **Abutilon**
5b Ovules 1 per locule; 1 seed per mericarp ..... **Sida**
4b Epicalyx present:
6a Stigmas ± apical, usually with distinctly greater diameter than rest of style branches:
7a Ovules 1 per locule:
8a Petals yellow; mericarps with 1 apical and 2 dorsal awns pointing outward ..... ***Malvastrum**
8b Petals pink, mauve, purple or white; mericarps rounded or mucronate at apex ..... **Anisodontea**
7b Ovules or seeds 2 or more per locule:
9a Mericarps ± divided into 2 compartments by a transverse partition:
10a Plants prostrate, biennial to annual ..... ***Modiola**
10b Plants erect to decumbent, perennial ..... **Anisodontea**
9b Mericarps not divided into 2 compartments:
11a Lateral walls of mericarps with a clearly demarcated reticulate-fenestrate area in lower third ..... ***Sphaeralcea**
11b Lateral walls of mericarps smooth or variously ridged to obscurely reticulate-fenestrate ..... **Anisodontea**
6b Stigmas decurrent on adaxial side of filiform to narrowly clavate style branches:
12a Epicalyx bracts fused at base, broad and leaf-like ..... ***Lavatera**
12b Epicalyx bracts free to base, mostly linear to lanceolate ..... ***Malva**

ABUTILON Mill.

Species 100 or more, cosmopolitan in tropics and subtropics; 22 in sthn Afr., widespread, but only 1 in winter-rainfall area, mostly in sunny, relatively dry, open situations; some pantropical weeds; some forms cultivated for their decorative flowers.

1a Mericarps 1-seeded

[E]**flanaganii** A.Meeuse

Dwarf shrub, 0.25–0.40 m high; vegetative parts velvety-tomentose. **Leaves** broadly ovate-cordate, sometimes faintly 3-lobed, irregularly crenate; petioles with tufts of hair apically. **Flowers** axillary, solitary. **Calyx** deeply dissected. **Petals** yellow. **Staminal tube** divided at apex into many filaments, stellately hairy at apex of conical, dilated, basal portion. **Flowering time** midsummer. **Fruit** a discoid schizocarp. **Mericarps** 9–13 small, subquadrate, 3–4 × 5 mm, horizontally truncate at upper edge, forming an acute or somewhat mucronate angle of ± 90° with dorsal side, ventral tooth subterminal. **Seeds** reniform, finely punctate-verruculose. Very local and rare species in closed woodland; Sub-Escarpment Savanna (near Komga).

1b Mericarps 2–8-seeded
2a Stems, petioles, pedicels and sometimes calyx tube ± densely covered with simple, patent hairs longer than 2 mm

grandifolium (Willd.) Sweet

Bushy shrub, 1.5–3.0 m high. **Leaves** cordate, apex attenuate, margins crenate-dentate, dark olive-green. **Flowers** 1–3 in axillary or apical cymes; pedicels slender, up to 90 mm long, articulated. **Calyx** deeply 5-lobed, lobes ovate, attenuate, exceeding ripe fruit in length. **Petals** deep yellow. **Flowering time** Sept.–June. **Fruit** semi-globose, truncate. **Mericarps** less than 17, dark greyish brown, with apical awn up to 2 mm long, ventral tooth ± upcurved at apex. Cultivated land and roadsides; Sub-Escarpment Savanna, Drakensberg Grassland, Albany Thicket (Mthatha District S to Fort Beaufort and to Grahamstown).

2b Stems, petioles, pedicels without conspicuous patent hairs or, if present, shorter than 2 mm
3a Young stems without many patent simple hairs

grantii A.Meeuse

Perennial (biennial) shrublet, 1.0–1.5 m high; stems slender, purplish brown. **Leaves** comparatively small, triangular-cordate, apex abruptly acuminate, margins ± crenate; dark greyish green and shortly velutinous above, ash-grey or white and velutinous below; petioles slender, densely stellate-pubescent, apex pilose. **Flowers** axillary, solitary; pedicels slender, often longer than leaves, articulated. **Calyx** cupuliform, lobes ovate. **Petals** yellow. **Staminal tube** stellate-hirsute. **Flowering time** Sept.–Mar. **Fruit** hemispherical. **Mericarps** 10–20, blackish, much-compressed, papery, 10–11 × 8–9 mm, somewhat convex at slanting apical side, forming sharp point or subulate awn up to 3 mm long, ventral tooth not upcurved. **Seeds** finely verrucose-papillose. Forest margins, scrub, coastal bush, alt. below 300 m; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests, Albany Thicket, Eastern Fynbos-Renosterveld (Izingolweni District S along coast to Nahoon River Valley, from Hankey to Humansdorp Pass and to East London).

sonneratianum (Cav.) Sweet

Shrubby perennial, 0.18–2.00 m high; one or few main stems, olive-drab to purplish brown. **Leaves** comparatively small, ovate-cordate, ± 3-lobed, apex acuminate, margins

± crenate; dark olive-green above, light glaucous-green below; petioles slender, apex pilose. **Flowers** axillary, solitary; pedicels slender, up to 60 mm long, articulated. **Calyx** cupuliform, lobes ovate-lanceolate. **Petals** bright yellow. **Staminal tube** glabrous. **Flowering time** Sept.–Apr. **Fruit** semi-globose, truncate. **Mericarps** 8–15, dark straw-coloured to purplish, much-compressed, papery, subrectangular with apical angle 90° or more, ventral tooth ± upcurved at apex. **Seeds** finely verrucose-rugulose. Coastal bush to sea level, light shade; widespread in all bioregions, except Drakensberg Grassland, Mesic Highveld Grassland (Steynsburg District to Port St Johns southwards, from Graaff-Reinet to Kentani, Steytlerville to East London, and to Humansdorp).

3b Young stems with very dense and very short stellate-pubescence mixed with many, patent, simple hairs 1–2 mm long

piloso-cinereum A.Meeuse

Soft shrub (annual?), 0.2–1.5 m high; scantily branched. **Leaves** ovate-cordate, faintly 3-lobed, apex attenuate, margins crenate-dentate; dark green above, canescent below; petioles ± as long as blades. **Flowers** axillary, solitary; pedicels up to 70 mm long, articulated. **Calyx** cupuliform, lobes oblong-lanceolate. **Petals** yellow. **Staminal tube** stellate-pubescent. **Flowering time** Apr.? **Fruit** semi-globose. **Mericarps** 10–18, 3-seeded, apical edge ± convex with awn up to 2 mm long, ventral tooth small. **Seeds** verrucose-punctate. Areas with fairly low annual rainfall, rocky slopes; Upper Karoo, Dry Highveld Grassland (Aliwal North).

ANISODONTEA C.Presl

Species 19, most endemic to SA, FS, KZN, L, NC, WC, EC, principally in karoo and fynbos.

1a Mericarps 2-ovuled, asymmetrically ovate-reniform; petals generally not spotted

julii (Burch. ex DC.) Bates

Shrub, 0.80–2.75 m high; stellate-pubescent. **Leaves** simple to 3-, 5- or 7-lobed, terminal lobe longest; upper surface dark yellow-green, paler below. **Flowers** solitary or several in cymes. **Epicalyx bracts** 3, connate below, enclosing calyx in bud. **Calyx** campanulate, 5-lobed. **Petals** pinkish to rose-magenta, veins darker at base. **Staminal tube** included; filaments in upper $^{2}/_{3}$ of column, 2 mm long, anthers 117–140 in clusters. **Style branches** as many as carpels. **Flowering time** Dec.–Apr. **Fruit** a schizocarp, broadly ovoid, acutely concave apically. **Mericarps** 14–19, woody, dehiscent in upper half. **Seeds** brownish black, puberulent. Sporadic, wet places, riverbeds, locally common, alt. > 1 333 m; Upper Karoo, Dry Highveld Grassland, Mesic Highveld Grassland, Drakensberg Grassland (Aliwal North, Lady Grey, Herschel, Molteno, Wodehouse, Barkly East).

malvastroides (Baker f.) Bates

Wilde stokroos (A)

Shrub, 0.5–1.5 m high; densely stellate-pubescent, hairs with more than 10 rays. **Leaves** moderately to deeply 3- or 5-lobed; yellowish green, lower surface rugose. **Flowers** solitary or 2 in upper leaf axils. **Epicalyx bracts** 3, filiform, distinct to base. **Calyx** open-campanulate, lobes twice as long as tube. **Petals** pale to deep reddish mauve, veins darker. **Staminal tube** included, stellate-hairy from above base to filaments; filaments 2 mm long, anthers 77–102 in an ellipsoid cluster. **Style branches** sparsely hirsute. **Flowering time** Aug.–Apr. **Fruit** broadly ovoid, shallowly concave apically. **Mericarps**

10–14, cartilaginous, obscurely to strongly reticulate-veined, upper cell loculicidally dehiscent. **Seeds** reddish black, puberulent. Mountain tops; Upper Karoo, Dry Highveld Grassland, Albany Thicket, Lower Karoo (Middelburg and Graaff-Reinet districts).

1b Mericarps 1-ovuled, nearly orbicular to transversely oblong-elliptic; petals usually conspicuously spotted
2a Mericarps fenestrate, with raised veins and open translucent areolae on lateral walls

capensis (L.) Bates
Wilde stokroos (A)

Subshrub, 0.75–1.20 m high; stellate-pubescent, hairs sessile to short stalked, arms 4–10. **Leaves** simple to 3- or 5-lobed, terminal lobe longest; upper surface yellowish green, margins deeply crenate-dentate, apex trifid. **Racemes** 1- or 2(3)-flowered in upper axils. **Epicalyx bracts** 3, filiform, margins ciliate. **Calyx** campanulate, 5-lobed. **Petals** spreading in a flat whorl, pale to deep magenta, puberulent above bearded auricles. **Staminal tube** exserted; filaments in upper 2 mm of column, 2 mm long, anthers 52–64, magenta. **Style branches** as many as carpels. **Flowering time** Nov.–Apr. **Fruit** a schizocarp, discoid, truncate. **Mericarps** 9–12, reddish brown. **Seeds** reddish brown, papillate, ventrally puberulent. Near rivers, karroid mountain veld, karroid false macchia; Upper Karoo (Middelburg, Graaff-Reinet, Uniondale).

2b Mericarps without open or translucent areolae on lateral walls

reflexa (J.C.Wendl.) Bates

Virgate shrub, 0.9–3.0 m high; coarsely stellate-pubescent. **Leaves** thin, 3- or 5-lobed, lobes of equal length. **Flowers** solitary or in 2–5(–9)-flowered cymes, often clustered terminally. **Epicalyx bracts** 3, equaling calyx in length, linear, harshly pubescent. **Calyx** with lobes deltoid-ovate, densely yellowish pubescent. **Petals** spreading in a flat whorl, narrowly obovate, strongly involute, white or flushed pink, deep magenta at base. **Staminal tube** exserted, a few hairs at base; filaments in upper fifth of column, 3 mm long, anthers 70–110, deep magenta. **Style branches** as many as carpels. **Flowering time** Apr.? **Fruit** discoid, reddish brown. **Mericarps** 12–16, ± orbicular in lateral view, dehiscent ventro-apically. **Seeds** purplish brown, papillate. Base of sheer cliffs, moist conditions; Rainshadow Valley Karoo (Toorwater Pass, Willowmore District).

scabrosa (L.) Bates
Pink mallow; *harige malva* (A)

Erect, often viscid, fragrant shrub, 0.2–3.7 m high; pubescence variable. **Leaves** thin, rugulose, ovate to rhombic, 3- or 5-lobed. **Flowers** axillary, solitary or in 4- or 5-flowered cymes. **Epicalyx bracts** 3, linear to oblong-ovate. **Calyx** campanulate, lobes long, ± deltoid-ovate. **Corolla** campanulate, rose-purple to deep rose-magenta at base. **Staminal tube** slightly deflexed, centrally densely pubescent; filaments 3 mm long, anthers 56–87, magenta. **Flowering time** Sept.–Apr. **Fruit** discoid, densely pubescent apically, black. **Mericarps** 9–15, ± orbicular in lateral view, upper (seedless) cell dehiscent. **Seed** single in lower cell, reddish brown. Cape coastal regions, sandstone, limestone, quartz, transitional areas within climax vegetation, alt. 0–1 667 m; in all bioregions, except Mesic Highveld Grassland, Rainshadow Valley Karoo (Middelburg E to Port St Johns, southwards from Graaff-Reinet to Kei River Mouth, Joubertina to Port Alfred and from Tsitsikamma to Humansdorp).

HIBISCUS L.

Rose-mallows; *vuurblomme* (A)

Species ± 300, cosmopolitan in tropics and subtropics, rare in temperate zone; > 50 in sthn Afr., widespread, but poorly represented in WC.

1a Capsule neither winged nor with prominent angles
2a Epicalyx cupuliform with 10 short teeth (series Azanza*)*

tiliaceus L.

Lagoon hibiscus; *kus-vuurblom* (A); *umlolwa* (X); *ulola* (Z)

Tree or shrub, 0.3–5.0 m high; young branches stellate-tomentose. **Leaves** suborbicular, upper surface glabrescent, lower densely and finely stellate-tomentose, apex abruptly acuminate, margins entire, base deeply cordate, 5–9-nerved. **Flowers** in axillary or terminal panicles, up to 80 mm in diam. **Calyx** up to 30 mm long, 5-lobed to middle, lobes lanceolate, tomentellous. **Petals** obovate, contorted, yellow, dark centred. **Staminal tube** ± 250 mm long; filaments 0.5–1.0 mm long. **Style branches** as many as carpels, densely glandular. **Flowering time** Dec.–Apr. **Fruit** a subglobose capsule, acute at apex, tomentose. **Seeds** subreniform, glabrous. River- or streambanks along coast; Indian Ocean Coastal Belt, Indigenous Forests, Albany Thicket (Lusikisiki District, Mbotyi to Mnyameni Estuary S, Nahoon, Mbashe, Kobole and Cintsa River Mouths).

2b Epicalyx with bracts free or joined only towards base or obsolete or absent
3a Calyx with 10 principal nerves, a median one to each calyx lobe and a commissural one to each sinus, the latter nerve bifurcating with a branch to the margin of each of the adjacent calyx lobes (series Furcaria*)*

diversifolius Jacq.

Prickly hibiscus; *stekel-vuurblom* (A); *lwasemanzini* (Z)

Shrub, 0.75–3.00 m high; stems with many stout conical prickles and with one or more lines of pubescence. **Leaves** ± ovate in outline, lower leaves deep palmately 3–7-lobed, lobes ± lanceolate, apex obtuse to acute, margins serrate, base cuneate to shallowly cordate with nectary. **Flowers** axillary, 1–3 at each node; peduncles articulating at base. **Epicalyx bracts** ± linear, bristly. **Calyx** 5-lobed, lobes lanceolate with conspicuous central nectary, densely covered with stiff bristles; becoming coriaceous at maturity. **Petals** obovate, cream-coloured to light yellow, purple-centred. **Staminal tube** 15–32 mm long; filaments 1–2 **mm** long. **Flowering time** all year. **Fruit** a densely appressed, pubescent capsule. **Seeds** subreniform, dark brown. Moist habitats, riverbeds, riverbanks, ruderal; Indian Ocean Coastal Belt, Indigenous Forests, Albany Thicket, Eastern Fynbos-Renosterveld (along coast from Mkambati Nature Reserve to Kei River Mouth and to Tsitsikamma River).

nigricaulis Baker f.

Annual (sometimes biennial), 1.0–1.5 m high; stems aculeate and stellate-pubescent. **Leaves** suborbicular in outline, lower leaves deep palmately 3–7(–9)-lobed, lobes ± oblanceolate, apex obtuse to acute, margins serrate, base cuneate to shallowly cordate with slit-like nectary. **Flowers** axillary, solitary or clustered on flowering branches; peduncles articulating at base. **Epicalyx bracts** with apex obscurely bifurcate, outer fork 2 mm long, margins coarsely, bulbous-based bristled. **Calyx** 5-lobed, lobes lanceolate with conspicuous central nectary, finely stellate-pubescent interspersed with coarse, bulbous-based bristles; becoming coriaceous at maturity. **Petals** obovate, cream-coloured to

light yellow, purple-centred. **Staminal tube** 10–14 mm long; filaments 0.5 mm long. **Flowering time** summer. **Fruit** an ovoid capsule. **Seeds** subreniform, dark brown. Ruderal and wild, disturbed vegetation, cultivated lands, waste places; Albany Thicket (East London, between Jeffreys Bay and Humansdorp).

3b Calyx variously nerved but not as above
4a Calyx inflated or lobes much enlarged, especially in fruit (series Trionum*)*

*__trionum__ L.

Bladder hibiscus; *terblansbossie* (A); *lefefane* (SS); *iyeza lentshulube* (X); *olukhulu* (Z)

Annual herb, 0.1–1.5 m high; stems stellate-pubescent. **Leaves** ± suborbicular in outline, deep palmately 3–5-lobed (sometimes palmatisect), lobes ± obcuneate, apex rounded, margins pinnately incised, base truncate to shallowly cordate. **Flowers** axillary; peduncles up to 55 mm long. **Epicalyx bracts** 12, filiform. **Calyx** 5-lobed, lobes united almost to apex, scarious with purplish, longitudinal veins, becoming inflated. **Petals** obovate, white, cream-coloured or yellow, purple-centred. **Staminal tube** 3–4 mm long. **Flowering time** Oct.–Apr. **Fruit** a capsule, completely surrounded by inflated calyx. **Seeds** subreniform, tuberculate. Native of Europe, common, cosmopolitan weed of cultivation; in all bioregions, except Rainshadow Valley Karoo (Oviston E to Alfred District, southwards from East London to Humansdorp).

4b Calyx neither inflated nor with much enlarged lobes in fruit
5a Seeds with silky or cottony floss at maturity (series Bombycella*)*
6a Flowers concolorous yellow or with a crimson or purplish centre

[E]__aridus__ R.A.Dyer

Shrublet, up to 0.15–0.30 m high; stems terete, stellate-hispid. **Leaves** ± suborbicular in outline (sometimes obscurely 3-lobed), apex rounded, margins toothed, base obtuse, 3–5-nerved, densely stellate-hispid. **Flowers** axillary, solitary; peduncles up to 85 mm long, articulated ± 7 mm below apex. **Epicalyx** of 6 or 7 linear-oblanceolate bracts. **Calyx** with lobes lanceolate, acute, joined at base. **Petals** obovate, yellow. **Staminal tube** up to 9 mm long; filaments ± 2 mm long. **Flowering time** Nov.–May. **Fruit** a subglobose capsule, minutely papillose. **Seeds** subreniform, almost glabrous or with white silky floss. In dry scrub; Sub-Escarpment Grassland, Albany Thicket, Sub-Escarpment Savanna (Queenstown S, from Jansenville to Ecca River Valley and Komga, southwards to Grahamstown and Port Alfred).

__pusillus__ Thunb.

Bladderweed; *Terblansbossie* (A); *uvuma* (Z)

Perennial herb, 0.05–0.50 m high; rootstock woody. **Leaves** ± suborbicular in outline, not lobed to deeply 3–5-palmatisect, lobes narrowly elliptic, sharply toothed or pinnatifid. **Flowers** axillary, solitary; peduncles up to 120 mm long, inconspicuously articulated near apex. **Epicalyx** of 8–11 acicular bracts. **Calyx** with lobes narrowly lanceolate-triangular, acute. **Petals** obovate, yellow, crimson-centred (rarely purplish). **Staminal tube** 4–8 mm long; filaments up to 8 mm long. **Flowering time** Oct.–May. **Fruit** a capsule, hispid on margins of valves. **Seeds** with reddish brown silky floss. Stony rocky soil, grazed, grassland, woodland, fynbos, thicket; in all bioregions, except Indigenous Forests (Oviston E to Izingolweni, southwards from Middelburg to Mqanduli District, Graaff-Reinet to Kei River Mouth and from Willowmore to Port Elizabeth, Grahamstown and Alexandria).

6b Flowers white, pink or lilac

fuscus Garcke

Shrub, 0.8–2.4 m high; stems densely fuscous stellate-hispid, underlying tomentum of shorter stellate hairs. **Leaves** narrowly ovate to suborbicular, apex rounded, margins serrate, base obtuse, 5-nerved, brownish or tawny tomentose. **Flowers** in leafy, corymbose panicles, congested towards tips of branches; peduncles up to 60 mm long, articulated near apex. **Epicalyx** of 10–12 filiform bracts. **Calyx** with lobes narrowly lanceolate, fuscous-hispid. **Petals** narrowly obovate, white (very rarely slightly yellowish). **Staminal tube** 8–12 mm long; filaments ± 0.5 mm long, anthers orange. **Flowering time** early spring. **Fruit** a subglobose capsule. **Seeds** with white or brownish silky floss. Outskirts of coastal forest or bush; Indian Ocean Coastal Belt, Indigenous Forests (Uvongo S to Port St Johns).

marlothianus K.Schum.

Perennial herb, 0.10–0.25 m high; rootstock woody. **Leaves** ± suborbicular in outline, finely palmatisect, setose-pilose. **Flowers** axillary; peduncles up to 80 mm long, articulated shortly below apex. **Epicalyx** of 6 or 7 linear, pilose bracts. **Calyx** with ovate-triangular lobes, united at base. **Petals** obovate, white to pale pink, purple-centred. **Staminal tube** 4–10 mm long; filaments up to 3 mm long. **Flowering time** Oct.–Apr. **Fruit** a subglobose capsule, pointed at apex. **Seeds** with white to brownish silky floss. Sandy soil, roadsides; Upper Karoo, Dry Highveld Grassland, Albany Thicket (Oviston E to Bethulie, southwards from Middelburg to Bedford District).

meyeri Harv.

Perennial herb or shrublet, 0.01–2.00 m high; appressed stellate-hispid. **Leaves** relatively small, broadly ovate to suborbicular, often 3-lobed, apex rounded, margins serrate, base obtusely cuneate, 3–5-nerved, stellate-hispid. **Flowers** axillary, solitary; peduncles up to 35 mm long, articulated ± 10 mm below apex. **Epicalyx** of 7 filiform bracts. **Calyx** with lobes elliptic-triangular, joined at base, pubescent. **Petals** reflexed, obovate, stellate-pilose outside, white turning pinkish to purplish. **Staminal tube** 6–8 mm long; filaments ± 0.5 mm long. **Flowering time** summer. **Fruit** a subglobose capsule. **Seeds** with white or brownish silky floss. Grassland, riverbank; Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Izingolweni S to Kei River at Komga).

micranthus L.f.

Virgate shrub, up to 2.5 m high; stems roughly stellate-setulose. **Leaves** relatively small, lanceolate-elliptic or suborbicular, apex rounded, margins serrate, base obtuse to rounded, stellate-hispid. **Flowers** axillary, solitary or forming racemes or panicles at apices of stems; peduncles up to 20 mm long, articulated near middle. **Epicalyx** of 5–7 filiform bracts. **Calyx** with lobes lanceolate, acute, setulose. **Petals** obovate, pubescent outside, white or pinkish. **Staminal tube** 2.0–2.5 mm long; filaments ± 0.5 mm long. **Flowering time** summer. **Fruit** a depressed-globose capsule. **Seeds** with white silky floss. Habitat not recorded; Indian Ocean Coastal Belt (Mngazi River between Mthatha and Port St Johns).

pedunculatus L.f.

Edola ebomvu (Z)

Shrublet, 0.3–2.4 m high; stems pilose. **Leaves** ovate in outline, 3-lobed with broad sinuses, base obtuse, apex rounded, margins toothed, 5–7-nerved, indumentum of stiffish, simple or branched hairs. **Flowers** axillary, solitary; peduncles up to 120 mm long,

articulated ± 10 mm below apex. **Epicalyx** of 7 or 8 linear-elliptic bracts. **Calyx** with lobes lanceolate. **Petals** obovate, pale lilac or pink. **Staminal tube** 20–30 mm long; filaments ± 1 mm long. **Flowering time** Aug.–May. **Fruit** a subglobose capsule, acuminate at apex, hispid. **Seeds** with white or brownish fuzz. Low shrub, forest margins, open glades; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests, Albany Thicket, Sub-Escarpment Grassland, Eastern Fynbos-Renosterveld (Umtamvuna Nature Reserve to Port St Johns southwards, from Stutterheim to Kentani District and Keurbooms River to East London).

pusillus Thunb.

Flowers rarely purplish (see 6a above).

5b Seeds glabrous, pubescent or tomentose (series Calyphylli, Ketmia pro parte *and* Trichospermum pro parte*)*
7a Epicalyx bracts 5

calyphyllus Cav.

Pondoland hibiscus; *wilde stokroos* (A)

Dwarf shrub, 0.02–3.00 m high; stems pubescent when young. **Leaves** suborbicular in outline, usually 3-lobed, apex acute, margins serrate, base cordate, stellate-pilose; stipules up to 15 mm long. **Flowers** axillary, solitary; peduncles up to 10 mm long, lengthening in fruit, articulated near base. **Epicalyx bracts** varying in shape, mostly obtrullate with caudate apex (prolonged main vein). **Calyx** with elliptic lobes. **Petals** obovate, yellow with brownish or red centre. **Staminal tube** up to 15 mm long; filaments ± 1.5–3.0 mm long. **Flowering time** Dec.–Mar. **Fruit** an ellipsoid capsule, valves aristate. **Seeds** subreniform, tomentellous. Common in most parts of SA, usually in shade; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests, Drakensberg Grassland, Albany Thicket (Mpunzi Drift southwards through Fish River Valley, E to East London).

ludwigii Eckl. & Zeyh.

Roostou (A)

Shrub, 1.65–2.75 m high; stems ± setose. **Leaves** suborbicular in outline, obscurely 3–5-lobed, apex acute, margins crenate-serrate, base cordate, ± setose on both surfaces. **Flowers** solitary in axils of upper leaves, forming racemes at apices of stems; peduncles up to 15 mm long, articulated near base. **Epicalyx bracts** ovate-lanceolate, shortly joined at base. **Calyx** with ovate-lanceolate lobes, equaling length of epicalyx, joined nearly halfway. **Petals** obovate, pubescent, yellow with purple centre. **Staminal tube** up to 30 mm long; filaments 2–3 mm long. **Flowering time** Dec.–Feb. **Fruit** an ellipsoid capsule, densely stellate-setose. **Seeds** subreniform, glabrous. Forest, closed woodland, valleys, river mouths, roadsides; Indian Ocean Coastal Belt, Indigenous Forests, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Port St Johns S, from Komga to Kentani, Kraggakamma to Port Alfred and to Tsitsikamma Forest and Humansdorp).

7b Epicalyx bracts more than 5

aethiopicus L.

Dwarf yellow hibiscus; *lereletsane* (SS)

Perennial herb, 0.05–0.45 high; stems upright or prostrate-ascending; stellate-hispid. **Leaves** narrowly elliptic (var. *angustifolius*), lanceolate (var. *ovatus*), ovate, obovate or subcircular (var. *aethiopicus*); entire or toothed near apex; from nearly glabrous to densely stellate-hispid. **Flowers** axillary, solitary; peduncles up to 45 mm long, articulated

± 5 mm below apex. **Epicalyx** of 7–9 bracts, up to 16 mm long, linear-oblong. **Calyx lobes** lanceolate, joined at base, hispid along margins. **Petals** obovate, bright yellow (var. *aethiopicus*), pale yellow, cream-coloured, white or purple (var. *ovatus*). **Staminal tube** 8–12 mm long; filaments 0.5–1.0 mm long. **Flowering time** Nov.–May. **Fruit** a subglobose capsule, sparsely hispid. **Seeds** subreniform, tomentellous. Open heathlands (var. *angustifolius*), western parts of EC (var. *aethiopicus*), in grassland; Dry Highveld Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Drakensberg Grassland, Eastern Fynbos-Renosterveld, Albany Thicket (Aliwal North to Kokstad District S, from Queenstown to Mkambati Nature Reserve, Mpofu Nature Reserve to Kei River Mouth, Port Elizabeth to Alexandria and from Humansdorp to Jeffreys Bay).

microcarpus Garcke

Perennial herb, 0.07–0.35 m high; with woody rootstock; stems stellate-setose. **Leaves** narrowly oblong, entire, margins and nerves appressed stellate-setulose, apex acute, base narrowly cuneate, 3–5-nerved. **Flowers** axillary, solitary, up to 80 mm in diam.; peduncles up to 60 mm long, articulated ± 5 mm below apex. **Epicalyx** of 7 or 8 bracts, up to 18 mm long, linear, acute. **Calyx** exceeding epicalyx in length; lobes ovate-lanceolate, slightly joined at base, ± stellate-setose. **Petals** obovate, purple. **Staminal tube** 10–12 mm long; filaments 1–2 mm long. **Flowering time** Dec.–Mar. **Fruit** a subglobose, setose capsule. **Seeds** subreniform, tomentellous. Grassland, rocky, moist, loam soil, full sun, grazed; Upper Karoo, Sub-Escarpment Grassland, Albany Thicket (Aliwal North southwards, from Queenstown to Engcobo and from Stutterheim to Greater Addo Elephant National Park).

1b Capsule winged or with very prominent angles (series Pterocarpus*)*

vitifolius L.

Wildestokroos (A)

Perennial herb, shrub 0.05–3.05 m high, sometimes scandent; indumentum variable, glandular, stellate-hispid or aculeate. **Leaves** suborbicular in outline, 3–5(7)-palmatilobed, margins serrate, apex of lobes acute, base truncate to cordate, 5–9-nerved. **Flowers** solitary or in terminal racemes by reduction of upper leaves, up to 90 mm in diam.; peduncles 10–15(50) mm long, articulated above middle. **Epicalyx** of 10 filiform bracts. **Calyx** accrescent, somewhat scarious, lobes broadly elliptic, joined ± halfway. **Petals** yellow, purple-centred. **Staminal tube** up to 15 mm long; filaments up to 5 mm long. **Flowering time** Oct.–Jan. **Fruit** a winged capsule, scarious, usually hispid; valves aristate. **Seeds** irregularly reniform, glabrous. Forest; Indian Ocean Coastal Belt, Indigenous Forests (Port St Johns to Kei River Mouth and Gonubie Forest).

***LAVATERA** L.

Species 21–23, in Old and New World (Ray 1995), closely related to *Malva* and still generally partly confused with it; 4 naturalised in sthn Afr., N, FS, NC, WC, EC.

Flowers in clusters

arborea L.

Tree mallow; *mak kiesieblaar* (A)

Soft-wooded, biennial shrub, 0.5–2.0 m high; stems greyish white. **Leaves** light green, palmately 5–7-lobed. **Stipules** narrow. **Flowers** bright pink or lilac, with dark veins in throat. **Epicalyx** of 3 bracts, longer than sepals, connate at base. **Sepals** triangular,

acute. **Flowering time** Sept.–Dec. (or all year). **Fruit** a discoid to pumpkin-shaped schizocarp, crowned in centre by persistent conical style base. **Mericarps** 6–8, 1-seeded, dorsal and lateral faces ridged, angles sharp. **Seeds** reniform. Cultivated for ornament, fodder, honey-source; invades roadsides, sand dunes, coastal areas; origin Europe and Britain, invasive status: ruderal and special effect weed (competitive); Lower Karoo, Albany Thicket (Willowmore and Swartkops districts E to Grahamstown and Port Alfred).

Flowers solitary (rarely in pairs) in leaf axils

trimestris L.

Annual, up to 1.2 m high; erect or ascending. **Leaves** suborbicular-cordate, 3–7-lobed. **Stipules** narrow. **Flowers** bright pink. **Epicalyx** shorter than sepals, united for most of length, lobes broadly ovate-cuspidate. **Sepals** oblong-lanceolate, acute. **Flowering time** summer. **Fruit** a discoid to pumpkin-shaped schizocarp, crowned in centre by persistent conical style base. **Mericarps** ± 12, glabrous, ridged, dorsal face and angles rounded; covered by disc-like extension of central axis. **Seeds** reniform. Cultivated in gardens, locally naturalised; origin Mediterranean region, Portugal; Sub-Escarpment Savanna (Salem).

*MALVA L.

Species ± 30, temperate and subtropical Old World and New World (Ray 1995), several cosmopolitan weeds, some cultivated ornamentals; 7 in sthn Afr., widespread. In Africa the genus is perhaps only truly native in the Mediterranean region.

Mature mericarps dorsally smooth or with ± distinct transverse ridges on smooth background

neglecta Wallr.

Perennial herb, often decumbent, rosettes up to 1 m in diam. **Leaves** simple, orbicular-reniform with deep, triangular, basal sinus, undivided to very shallowly palmately lobed, crenate-denticulate. **Flowers** axillary, solitary or in fascicles of up to 4, white, mauve towards apex with purplish veins. **Epicalyx** of 3 linear-lanceolate bracts fused at base of calyx, shorter than calyx. **Flowering time** Nov.–Apr. **Fruit** a discoid schizocarp with a depressed centre, enclosed by accrescently lobed calyx. **Mericarps** (12–) 14–16, shortly stellate-pilose, lateral angles rounded. **Seeds** reniform. Semi-ruderal species of the Old World, naturalised as cultivated weed; Mesic Highveld Grassland, Upper Karoo, Dry Highveld Grassland (Witteberg Mts in Lady Grey District, Middelburg, Mountain Zebra National Park).

Mature mericarps distinctly reticulately ridged

parviflora L.

Small mallow; *kiesieblaar* (A); *mosalasupe* (SS); *unomolwana* (X)

Prostrate or decumbent, perennial herb, stems 0.15–0.40 m long; taproots deep, strong. **Leaves** reniform, distinctly (3)5(7)-lobed, margins dentate. **Flowers** in small, axillary clusters, white or pale lilac. **Epicalyx** of 3 free bracts, free to base, linear-lanceolate. **Flowering time** Oct.–Jan. **Fruit** flattened, discoid schizocarps, surrounded by enlarged calyces. **Mericarps** 9–11, 1-seeded, glabrous, rugose; edges of mature mericarps slightly raised, often toothed and somewhat overlapping adjoining mericarps. **Seeds** reniform, dark brown, minutely tuberculate. Native of Europe, cosmopolitan, gardens, waste places, poisonous to fatigued livestock, no harm caused to children after eating fruits; Upper

Karoo, Sub-Escarpment Grassland, Lower Karoo, Sub-Escarpment Savanna, Albany Thicket (Albert E to Rhodes District S, from Middelburg to Indwe, Graaff-Reinet to Willowvale District and Willowmore District to Grahamstown).

pusilla Sm.

Annual, occasionally perennial herb, stems ± 0.25 m long; taproots deep, strong. **Leaves** relatively small, reniform, undivided to shallowly lobed. **Flowers** axillary, solitary or in few-flowered clusters, white. **Epicalyx** of 3 free, linear-lanceolate bracts. **Flowering time** Oct.–Feb. **Fruit** flattened, discoid schizocarps, surrounded by enlarged calyces. **Mericarps** 9 or 10, 1-seeded, glabrous, rugose; edges of mature mericarps slightly raised but neither toothed nor overlapping adjoining mericarps. **Seeds** reniform, dark brown, minutely tuberculate. Stony, rocky soil, in grassland, gentle slopes, full sun, grazed, roadsides, gardens; Mesic Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland, Upper Karoo (Zastron E to Rhodes District, Middelburg).

*MALVASTRUM A.Gray

Species ± 12, warm-temperate to tropical Americas, 2 naturalised worldwide; 1 in sthn Afr., N, B, LIM, G, M, S, KZN, EC.

coromandelianum (L.) Garcke

Prickly malvastrum

Erect to spreading, annual or biennial suffrutex, 0.6–1.0 m high; young parts densely covered with simple and 4-rayed, white stellate-strigose hairs. **Leaves** simple, lanceolate to ovate, dentate; veins of lower surfaces white-strigose. **Flowers** axillary, solitary or in few-flowered clusters. **Epicalyx** of 3 linear-lanceolate bracts. **Calyx** campanulate, foliaceous in fruit. **Petals** scarcely longer than calyx, pale yellow or yellow-orange. **Staminal tube** shorter than petals; filaments divided at apex into ± 20–40 anthers. **Flowering time** Oct.–Feb. **Fruit** a discoid schizocarp. **Mericarps** 10–15, 1-seeded, indehiscent, reniform, hispid, with 1 apical and 2 dorsal awns pointing outward. **Seeds** reniform, glabrous. Introduced weed, roadsides, rubbish heaps, old cultivation; Upper Karoo, Indian Ocean Coastal Belt, Sub-Escarpment Savanna, Albany Thicket (Middelburg, Port St Johns, King William's Town, Grahamstown District).

*MODIOLA Moench

Species 1, tropical America, naturalised in sthn Afr., G, M, FS, WC, EC.

caroliniana (L.) G.Don

Red-flowered mallow

Low, diffuse annual or biennial herb, up to 0.07 m high. **Leaves** simple, rounded, coarsely crenate to deep palmately lobed; stipules persistent. **Flowers** axillary, solitary, small. **Epicalyx** of 3 free, ± persistent bracts. **Calyx** ± deeply 5-fid; somewhat accrescent. **Petals** longer than calyx, red, rose or salmon-pink. **Staminal tube** divided at apex into many filaments, dilated towards base. **Style branches** as many as carpels, filiform; stigmas capitate. **Flowering time** Oct.–Feb. **Fruit** a schizocarp. **Mericarps** 15–20, usually 2-seeded, 2-awned, partly loculicidal, transversally septate between seeds. **Seeds** reniform. Disturbed areas; Sub-Escarpment Savanna, Albany Thicket (Alice, Grahamstown).

PAVONIA Cav.

Species ± 150, widespread in tropics and subtropics, especially in the New World; 11 in sthn Afr., widespread, but rare in WC.

Epicalyx lobes (3)5(8), generally unequally developed; mericarps shorter than 5 mm

burchellii (DC.) R.A.Dyer

Indola empofu (Z)

Erect suffrutex, 0.06–2.00 m high. **Leaves** ovate to cordate, apex acute, margins serrate-crenate; palmately veined; upper surface dark green, lower surface whitish stellate-pubescent. **Flowers** axillary, solitary, towards tips of branches; pedicels articulate ± 7 mm from apex. **Epicalyx** of 5 ovate-trullate bracts, fused at base, lobes wider than 2 mm, margins entire, ciliate (appearing star-shaped). **Calyx**: lobes ovate, alternating with and $^1/_3$ length of epicalyx. **Petals** longer than calyx, yellow, rarely white. **Flowering time** Sept.–Apr. **Fruit** enclosed by cup-shaped, enlarged epicalyx and calyx (epicalyx lobes spreading). **Mericarps** 5, 1-seeded; with 3 transverse ridges, lateral sides convex, glabrous, dorsally reticulate. **Seeds** ovoid-triquetrous, sparsely pubescent. Karoo, open woodland, grassland, roadsides; Upper Karoo, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Albany Thicket (Oviston E to Oribi Gorge, S through Engcobo to Grahamstown).

columella Cav.

Indola ebomvu (Z)

Biennial or perennial, soft-stemmed suffrutex, 0.2–2.4 m high. **Leaves** suborbicular in outline, cordate, palmately veined, petiolate. **Flowers** axillary, solitary or in terminal pseudo-racemes; pedicels articulate ± 8 mm from apex. **Epicalyx** of 5 linear-lanceolate bracts, lobes less than 1.5 mm broad. **Calyx** cupuliform-campanulate, lobed to beyond middle, lobes triangular, conspicuously 3-nerved. **Petals** much longer than calyx, white or pink to mauve. **Flowering time** Aug.–May. **Fruit** enclosed in enlarged calyx. **Mericarps** 5, 1-seeded, lateral sides flat, muticous, glabrous, dorsally reticulate, ridges slightly raised. **Seeds** reniform, glabrous. Moist, frost-free, forest edges, clearings, soil rich in humus; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests, Albany Thicket (Weza State Forest S, from Cala to Port St Johns, Seymour across Amatole Mts to Kentani and to Grahamstown).

Epicalyx lobes 6–15, rarely 5, but then mericarps strongly muricate on dorsal side; mericarps 5–12 mm long

[E]**praemorsa** (L.f.) Cav.

Shrub, 0.03–2.05 m high; mostly densely pubescent. **Leaves** widely obovate, base cuneate to rounded, apex truncate, denticulate (praemorse), palmately veined; upper surface dark green, pubescent, lower surface densely greyish pubescent; petiolate. **Flowers** solitary, axillary or terminal; pedicels articulate ± 4 mm from apex. **Epicalyx** of 9–15 narrowly linear bracts, 4–7 mm long. **Calyx** 5-lobed to beyond middle, lobes ovate, greyish pubescent. **Petals** much longer than calyx, lower surface pubescent, salmon-pink or yellow, veined red. **Flowering time** Sept.–May. **Fruit** enclosed in calyx. **Mericarps** 5, 1-seeded, 5–6 mm long, apiculate, dorsally ridged, faintly muricate or foveolate-rugose on dorsal surface, tomentellous. Closed woodland, thicket, grassland, alt. 15–765 m; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Indigenous Forests, Albany Thicket (Queenstown S to Humansdorp, E to East London).

RADYERA Bullock

Species 2, Australia and sthn Afr.; 1 in sthn Afr., B, NW, G, FS, NC, WC, EC.

urens (L.f.) Bullock

Wild pumpkin; *wilde pampoen*, *sandpampoentjie*, *jeukblom* (A)

Perennial, prostrate herb, 0.15–0.90 m long; densely stellate-tomentose, hairs irritant; disagreeable odour when dry. **Leaves** ovate or suborbicular, cordate, prominently veined on undersurface, rugose above. **Flowers** axillary, 2–4-nate. **Epicalyx** of 12 linear, tomentose bracts connate at base. **Calyx** campanulate; lobes shorter than tube, accrescent. **Petals** ± as long as calyx, flame-red to crimson. **Staminal tube** shorter than petals, truncate at apex, with horseshoe-shaped anthers in upper half. **Gynoecium** 5-locular, with several ovules per locule; style undivided, terete, capitate, with stigma 5-grooved. **Fruit** a loculicidally dehiscent capsule. **Seeds** glabrous. Confined to dry semi-karoo area; Upper Karoo, Sub-Escarpment Grassland, Lower Karoo, Albany Thicket (Middelburg E to Cala S, from road between Aberdeen and Willowmore to Graaff-Reinet and Cradock districts).

SIDA L.

Species ± 150, cosmopolitan in tropics and subtropics, especially the Americas; several pantropical weeds; 11 in sthn Afr., widespread; mostly in open, sunny situations from semi-desert to forest margins; some introduced.

1a Plants glabrous to sparsely pubescent; mericarps 5–8
2a Leaf-blade simple, ± lanceolate, margins sharply serrate

dregei Burtt Davy

Spider-leg, Sutherland's curse; *umdiza wethafa* (Z)

Erect, ± virgate, annual or biennial suffrutex, 0.2–1.0 m high. **Flowers** axillary, solitary; pedicels over 20 mm long, articulated in upper 9 mm. **Epicalyx** 0. **Calyx** angular owing to raised commissural lines of lobes, papyraceous, green, triangularly lobed to middle. **Petals** yellow to orange. **Flowering time** all year. **Fruit** a schizocarp. **Mericarps** (6)7(8), ± 3-angled, truncate at apex, smooth (wrinkled only through drying), muticous, pericarp thin and papery, stellate-pubescent; with a short shallow groove at ventral apical angle. **Seeds** ± ovoid-reniform, black. Widespread in moist habitats, forest margins in light shade, along streams, closed woodland, alt. 0–1 500 m; Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Indigenous Forests, Drakensberg Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Queenstown E to Port St Johns S, from Fort Beaufort to Kentani District and from Port Elizabeth to Alexandria).

2b Leaf-blade distinctly 3-lobed (5-lobed when deeply incised in lower half), margins crenate-dentate

ternata L.f.

Annual, straggling herb, 0.10–0.75 m high. **Flowers** axillary on terminal branchlets, solitary, small, 10 mm in diam.; pedicels long and slender. **Epicalyx** 0. **Calyx** mostly shallowly campanulate, tube conspicuously nerved, lobes 3× length of tube, ovate. **Petals** white. **Flowering time** all year. **Fruit** a schizocarp, mericarps eventually falling away from slender columella. **Mericarps** 5, ± 3-angled, awnless at apex, dorsal wall rugose, lateral walls reticulate and persistent, glabrous. **Seeds** ± 3-angled. Widespread in moist habitats, grassland, closed woodland, forest, sandy, rocky soil; Sub-Escarpment

Grassland, Indian Ocean Coastal Belt, Indigenous Forests, Albany Thicket, Drakensberg Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld (Queenstown to Port St Johns, from Graaff-Reinet E to Kentani District and from Suurberg Pass to Port Elizabeth and East London).

1b Plants ± tomentose; mericarps 7–12

chrysantha Ulbr.

Low suffrutex, 0.05–0.60 m high; stems terete, much branched at base, greyish. **Leaves** (lanceolate) ovate-oblong, apex subacute, base cuneate, margins coarsely serrate; upper surface dark green, lower surface greyish green, densely velutinous-tomentose. **Flowers** axillary, solitary; pedicels 3–6 mm long, articulated near apex. **Epicalyx** 0. **Calyx** obconical-campanulate, tomentose outside, triangularly lobed to middle, lobes acuminate with pinnately branched median vein. **Petals** deep yellow to orange. **Flowering time** summer. **Fruit** a schizocarp. **Mericarps** 7–9, truncate or subacute and stellate-hairy at apex, reticulate-veined on flat lateral sides. **Seeds** brown, glabrous. On acid rocky slopes and derived soils, grassland, woodland, in light shade; Sub-Escarpment Grassland, Drakensberg Grassland (Maclear SW through Queenstown and SE to Stutterheim).

rhombifolia L.

Arrowleaf sida, Pretoria sida, Queensland hemp; *taaiman* (A); *ivivane* (Swati)

Annual, biennial suffrutex, 0.1–1.5 m high; erect, ± virgate. **Leaves** oblong to rhomboid, apex obtuse, base cuneate or rounded, margins finely crenate-serrate; upper surface dark green, lower surface paler, shortly stellate-pubescent to velutinous. **Flowers** axillary, solitary; pedicels up to 20 mm long in flower, 35 mm in fruit. **Epicalyx** 0. **Calyx** saucer- or cup-shaped, triangularly lobed to ± $^1/_3$ length, 10-nerved. **Petals** pale yellow to cream-coloured. **Flowering time** all year. **Fruit** a schizocarp. **Mericarps** 8–12, distinctly birostrate with suberect, often connivent awns, nearly glabrous. **Seeds** smooth, glabrous. Pantropical, ruderal, grassland, closed woodland, roadsides, waste places; Indian Ocean Coastal Belt, Indigenous Forests, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Albany Thicket (Oribi Gorge S to Port St Johns, from road between Engcobo and Cofimvaba to Kei River Mouth and to Grahamstown).

*SPHAERALCEA A.St.-Hil.

Species ± 60, arid America, several cultivated herbs or subshrubs; 1 introduced in sthn Afr., apparently introduced after 1900 and now fairly widespread, mainly in warm central regions.

bonariensis (Cav.) Griseb.

Suffruticose perennial, 0.01–1.06 m high. **Leaves** shallowly to deeply 3- or 5-lobed or -partite; stipules subulate. **Flowers** axillary, in dense to open cymes. **Epicalyx** of 3 free, filiform to lanceolate bracts, usually shorter than calyx. **Calyx** ± campanulate. **Petals** slightly longer than calyx, reddish orange, pinkish, apricot to white. **Staminal tube** mostly shorter than petals; filaments ± terminal; anthers mostly 50–100. **Gynoecium** of (7–)10–16(–22) free or slightly coherent, 1–3-ovuled carpels; style branches as many as carpels. **Fruit** a discoid to hemispherical schizocarp. **Mericarps** ± 10–16, 1–3-seeded, not divided into two compartments, partially dehiscent, apically beaked, lateral walls clearly demarcated reticulate-fenestrate in lower $^1/_3$. **Seeds** reniform, pubescent. Banks of Orange River; Upper Karoo (Aliwal North, Bethulie and banks of Orange River near Burgersdorp road).

Subfamily Sterculioideae

(= Sterculiaceae Vent. *nom. cons.*)

Stamens many, with anthers capitate on apex of staminal column..... **Sterculia**
Stamens 10(12), with anthers in a regular or wavy whorl around apex of staminal column ..... **Cola**

COLA Schott & Endl.

Species ± 125, all African; 2 in sthn Afr., M, S, KZN, EC.

natalensis Oliv.

Smooth cola; *gladde kola* (A); *umthenenenda* (X); *umthenenende* (Z)

Tree, 3–15 m high; dioecious or monoecious; bark flaking. **Leaves** entire, obovate-elliptic, glabrous; petioles with swollen apical portion (pulvinus), glabrescent. **Flowers** in axillary clusters, cymes, small panicles or solitary, sometimes on old wood. **Calyx** 5-lobed almost to base. **Petals** absent. **Male flowers** with staminal tube; anthers 8 in 1 row at apex; ovary rudimentary. **Female flowers**: carpels 4 or 5, with a ring of rudimentary stamens at base; styles as many as carpels. **Fruit** splitting into 4 or 5 carpels; obovate, up to 40 mm long, orange to salmony yellow, rind hard and thick. **Seeds** 2 or 3. Dense coastal forest; Indian Ocean Coastal Belt, Indigenous Forests (Umtamvuna Nature Reserve S to Port St Johns).

STERCULIA L.

Star-chestnuts; *sterkastaiings* (A)

Species ± 150, cosmopolitan in tropics; 5 in sthn Afr., N, B, LIM, M, S, KZN, EC.

[E]alexandri Harv.

Cape star-chestnut; *Kaapse sterkastaiing* (A)

Tree, 3.0–6.1 m high; suckers and coppicing common. **Leaves** alternate, stipulate, digitate; leaflets 3–7, oblong, pulvinus and midrib prominent, yellow. **Inflorescences** axillary, compound cymes; male flowers predominant; bisexual flowers on younger parts. **Calyx** 5-lobed, petaloid, broadly campanulate, yellow with claret-coloured throat. **Petals** absent. **Androgynophore** 9–12 mm long, curved in open flower, bearing cupule at tip. **Bisexual cupule** spherical ± 2 mm in diam.; base cup-shaped, gynoecium 5-carpelled, joined above into style and 5-lobed stigma; upper part formed of 10 filaments. **Male cupule** similar, but gynoecium apocarpous, style and stigma absent. **Flowering time** first flowers male, later ones bisexual, May–Aug. **Fruit** of 1–5 free follicles, radiating star-like. **Seeds** 4–8 per follicle. Valley bushveld, on quartzite sandstone, low temperate forest; Eastern Fynbos-Renosterveld, Albany Thicket, Indigenous Forests (Uitenhage District, Winterhoek Mts, Van Stadens River, Port Elizabeth).

ANGIOSPERM PHYLOGENY GROUP [APG]. 1998. An ordinal classification for the families of flowering plants. *Annals of the Missouri Botanical Garden* 85: 531–553.
ANGIOSPERM PHYLOGENY GROUP [APG II]. 2003. An update of the Angiosperm Phylogeny Group classification for the orders and families of flowering plants: APG II. *Botanical Journal of the Linnean Society* 141: 399–436.
BATES, D.M. 1969. Systematics of *Anisodontea*. *Gentes Herbarum* 10: 215–383.
BAYER, C., FAY, M.F., DE BRUIJN, A.Y., SAVOLAINEN, V., MORTON, C.M., KUBITZKI, K., ALVERSON, W.S., CHASE, M.W. 1999. Support for an expanded family concept of Malvaceae within a recircumscribed order Malvales: a combined analysis of plastid *atp*B and *rbc*L DNA sequences. *Botanical Journal of the Linnean Society* 129: 267–303.
BULLOCK, A.A. 1957. *Radyera* nom. nov. *Kew Bulletin* 1956: 454.

CORRELL, D.S.C. & JOHNSTON, M.C. 1970. Malvaceae (Mallow family). *Manual of the vascular plants of Texas*. Texas Research Foundation, Renner, Texas.
DE WINTER, B. 1974. The identity of some species of *Hermannia* represented in the Thunberg, Bergius and Cavanilles Herbaria. *Bothalia* 11: 263, 264.
EDMONDS, J.M. 1990. Herbarium survey of African *Corchorus* L. species. International Board for Plant Genetic Resources, Rome. *Systematic and Ecogeographic Studies on Crop Genepools* 4.
EXELL, A.W. 1960. Malvaceae. *Flora zambesiaca* 1: 420–511.
FERNANDES, R. 1968. *Lavatera*. *Flora europaea* 2: 251, 252.
GRAY, A. 1849. *Malvastrum* A.Gray. *Memoirs of the American Academy of Arts and Science*, new series 2,4: 21.
HARVEY, W.H. 1860a. Malvaceae Juss. *Flora capensis* 1: 157–177.
HARVEY, W.H. 1860b. Sterculiaceae Vent. & Byttneriaceae R.Br. *Flora capensis* 1: 178–222.
HARVEY, W.H. 1860c. Tiliaceae Juss. *Flora capensis* 1: 223–229.
JUDD, W.S. & MANCHESTER, S.R. 1997. Circumscription of Malvaceae (Malvales) as determined by a preliminary cladistic analysis of morphological, anatomical, palynological, and chemical characters. *Brittonia* 49: 384–405.
KUBITZKI, K. & BAYER, C. 2003. *The families and genera of vascular plants*, vol. 5. Springer, Heidelberg.
LEBRUN, J.-P. & STORK, A.L. 1991. Tiliaceae, Sterculiaceae & Malvaceae. *Énumération des plantes à fleurs d'Afrique tropicale* 1: 173–195.
MEEUSE, A.D.J. & LEISTNER, O.A. 2007. *Malvaceae*. South African National Biodiversity Institute, Pretoria. Unpublished manuscript.
MOENCH, C. 1794. *Modiola*. *Methodus*. Nova libraria academiae, Marburg.
RAY, M.F. 1995. Systematics of *Lavatera* and *Malva* (Malvaceae, Malveae) — a new perspective. *Plant Systematics and Evolution* 198: 29–53.
ROESSLER, H. 1969a. Malvaceae (in part). *Prodromus einer Flora von Südwestafrika* 82: 1–32.
SEYANI, J.H. 1991. The genus *Dombeya* (Sterculiaceae) in continental Africa. *Opera Botanica Belgica* 2: 1–186.
STEVENS, P.F. 2006. Angiosperm Phylogeny Website. Version 7. Internet. http://www.mobot.org/MOBOT/research/APweb/ (accessed Sept. 2006).
VERDOORN, I.C. 1980. Revision of *Hermannia* subgenus *Hermannia* in southern Africa. *Bothalia* 13: 1–63.
VERDOORN, I.C. 1981a. Revision of *Melhania* in southern Africa. *Bothalia* 13: 263–273.
VERDOORN, I.C. 1981b. The genus *Waltheria* in southern Africa. *Bothalia* 13: 275, 276.
VERDOORN, I.C. 1981c. The genus *Cola* in southern Africa. *Bothalia* 13: 277–279.
VERDOORN, I.C. & HERMAN, P. 1986. Revision of *Dombeya* in southern Africa. *Bothalia* 16: 1–9.
VOLLESEN, K. 1987. *Gossypium* in Africa, Arabia & Pakistan. *Kew Bulletin* 42: 337–349.
WILD, H. 1961. Sterculiaceae. *Flora zambesiaca* 1: 517–564.
WILD, H. 1963. Tiliaceae. *Flora zambesiaca* 2: 63–91.
WILD, H. 1984. Tiliaceae. *Flora of southern Africa* 21,1: 1–44.
WILSON, F.D. 1999. Revision of *Hibiscus* section *Furcaria* (Malvaceae) in Africa and Asia. *Bulletin of the Natural History Museum London, Botany* 29: 47–79.

MARTYNIACEAE

(Order Lamiales)

Compiled by C.L. Bredenkamp & S.J. Smithies

Sepals united into a spathe-like calyx; flowers in a loose, open inflorescence.....***Proboscidea**
Sepals separate; flowers congested into a dense raceme.....***Ibicella**

***IBICELLA** Van Eselt.

Species 3, warm and tropical South America; 1 introduced in sthn Afr., from Brazil, garden escape or weed of cultivation, LIM, NW, G, KZN, WC, EC.

lutea (Lindl.) Van Eselt.

Yellow devil's claw; *duiwelsklou* (A)

Robust, ± prostrate, annual herb, carnivorous, 0.45–1.00 m high; stems terete, striate; plant densely viscid, glandular-pubescent. **Leaves** large, ± opposite, long-petiolate, ± orbicular, base cordate, margins remotely dentate; 5-veined at base. **Flowers** pendent in dense, terminal racemes; yellow, with red dotted honey guides on lower corolla lobes; peduncles elongating in fruit. **Calyx** shorter than corolla. **Corolla** obliquely campanulate; limb sub-bilabiate, flaring. **Stamens** included; anthers with thecae spreading; staminode 1. **Ovary** ovate, tapering into long, terete, persistent style, 2-carpellate, 1-locular; stigma 2-lobed. **Flowering time** summer. **Fruit** a large, woody, cylindrical-ovoid capsule, tapering into elongated, slender, curved beak; surface with rough protuberances; splitting longitudinally into 2 valves. **Seeds** obovate, tuberculate. Weed in maize fields; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Albany Thicket (Fort Beaufort, King William's Town, Bathurst).

*PROBOSCIDEA Schmidel

Species 10, warm Americas; 1 introduced in sthn Afr., from Louisiana, ornamental and cultivated for fruit, sporadic as garden escape, and perhaps naturalised, FS, EC.

louisianica (Mill.) Thell. subsp. **fragrans** (Lindl.) Bretting

Upright devil's claw, tiger claw

Annual herb; plant densely viscid, glandular-pubescent. **Leaves** opposite, long-petiolate, cordate, margins irregularly and shallowly toothed, veins digitate at base. **Flowers** in few-flowered, loose, axillary racemes, cream-coloured and purple, with yellow throat (pale rose-purple in cultivation). **Calyx** spathe-like, with 5 ± connate, unequal lobes. **Corolla** campanulate, obscurely bilabiate, limb short, flaring. **Stamens** didynamous, included. **Ovary** ovate, tapering into persistent style, 2-carpellate but 1-locular; placentation parietal with several ovules; stigma broader than style, 2-lobed. **Flowering time** summer. **Fruit** a cylindric-ovoid, 2-valved capsule, tapering into a long, curved beak which splits, forming 2 large, opposed, hook-like appendages when dry; pericarp deciduous, fleshy; endocarp woody. **Seeds** obovate, crinkled, without wings. Probably a garden escape; Upper Karoo (Cradock District).

BAILEY, L.H. 1949. Martyniaceae. *Manual of cultivated plants*. Revised edn. Macmillan, New York.
IHLENFELDT, H.-D. 1988. Pedaliaceae. *Flora zambesiaca* 8,3: 86–113.
IHLENFELDT, H.-D. 1994. Phytogeography of Pedaliaceae R.Br. In J.H. Seyani & A.C. Chikuni, *Proceedings of the XIIIth Plenary Meeting of AETFAT, Malawi* 2: 1063–1075.
IHLENFELDT, H.-D. 2004. Martyniaceae. In J. Kadereit, *Families and genera of vascular plants* VII: 283–288.
LAWRENCE, G.H.M. 1957. *Proboscidea* and other unicorn plants (Martyniaceae). *Baileya* 5: 126–132.
STAPF, O. 1897. Pedaliaceae and Martyniaceae. *Die natürlichen Pflanzenfamilien* 4,3b: 253–269.
STAPF, O. 1904. Pedalineæ. *Flora capensis* 4,2: 454–463.
STAPF, O. 1906. Pedalineæ. *Flora of tropical Africa* 4,2: 538–570.
THE PLANT NAMES PROJECT. 2002. *International Plant Names Index*. Published on the internet, http://www.ipni.org (accessed on 2 Aug. 2002).
VAN ESELTINE, G.P. 1929. A preliminary study of the unicorn plants. *New York State Agricultural Experiment Station. Technical Bulletin* 149: 1–41.

MELASTOMATACEAE
(= MEMECYLACEAE)
(Order Myrtales)

Compiled by C.L. Bredenkamp

The authors of the current account initially considered placing the genus *Memecylon* into family Memecylaceae DC. but declined from doing so, based on the following literature perspectives. Renner (1993) suggested a phylogeny in which there are two major lineages in the Melastomataceae (genera ± 166, species 4 200–4 500) and a clearly distinct Memecylaceae (genera ± 6, species 430). Jacques-Félix (1995) placed the genus *Memecylon* into the family Melastomataceae, subfam. Memecyloideae, sect. Memecyleae. APGII (2003) regarded the Memecylaceae as an optional synonym of Melastomataceae. Finally APGIII (2009) decided on inclusion of the Memecylaceae DC., *nom. cons.* in Melastomataceae Juss. (1789), *nom. cons.*, stating that common usage is for broadened family circumscriptions. Stevens (2008) followed APGIII and placed the Memecylaceae in synonymy under the subfamily Olisbeoideae of the Melastomataceae.

Adapted from Fernandes & Fernandes (1978).

1a Trees or shrubs with glabrous leaves; flowers small with whitish or bluish petals; anthers dolabriform (axe-shaped) opening by 2 longitudinal slits..... **Memecylon**

1b Annual or perennial herbs with rarely glabrous, setose, lanate or tomentose leaves; flowers large and showy with pale mauve to purple petals; anthers ovoid, lanceolate or oblong, opening by 1 apical pore:

2a Delicate annual herbs or perennials; flowers 4-merous in terminal capitate cymes or in heads surrounded by uppermost leaves; receptacle ovoid or broadly campanulate..... **Antherotoma**

2b Perennial herbs or shrubs; flowers 5-merous in racemiform or ± condensed panicles; receptacle ovoid..... **Dissotis**

ANTHEROTOMA (Naudin) Hook.f.

Species 11, in Africa, formerly included in either *Osbeckia* or *Dissotis*; 3 in sthn Afr., N, B, LIM, NW, G, M, S, KZN, EC.

Based on stamen morphology, Jacques-Félix (1995: 267–270) concluded the nomenclature of *A. debilis* as below.

debilis (Sond.) Jacq.-Fél.
(= *Dissotis debilis* (Sond.) Triana, *Osbeckia debilis* Sond.)

Perennial, rarely annual herb, 0.10–0.95 m high; usually many-stemmed from base. **Leaves** linear-lanceolate to ovate, longitudinally 3–5-nerved, setae mainly on nerves. **Flowers** in cymes, congested terminally in few-flowered heads, surrounded by uppermost leaves. **Receptacle** ovoid. **Sepals** oblong-triangular with subterminal stellate-setose appendages. **Petals** mauve or rosy-purple. **Stamens** unequal in length; anthers of longer ones with long pedoconnectives (connective tissue of anther forming a pedestal) provided anteriorly with a deeply furcate appendage; anthers of shorter stamens similar to those of longer ones, but shorter and with a minutely appendiculate pedoconnectives. **Flowering time** summer. **Fructiferous receptacle** broadly campanulate. **Capsule** slightly shorter than receptacle, with a marginally setose crown around insertion of style. In grassland near water; Indian Ocean Coastal Belt (Port St Johns).

naudinii Hook.f.

Annual herb, 0.06–0.38 m high; usually unbranched. **Leaves** increasing in size upwards, ovate to oblong, longitudinally 3–5-nerved, subappressed-pilose on both surfaces, more

dense on nerves below. **Flowers** in terminal, capitate cymes, surrounded at base by 2–4(5) leaves. **Receptacle** broadly campanulate, appendages at summit with bristles inserted at apices. **Sepals** triangular-subulate, stellate-setose at apices. **Petals** pale mauve to pink. **Stamens** with anthers oblong, up to 2 mm long, obliquely truncate at apex; diam. of pore as wide as that of anther. **Flowering time** summer. **Fructiferous receptacle** roundish at base, somewhat contracted above capsule. **Capsule** slightly shorter than receptacle, with a ring of bristles around insertion of style. Top of plateau; Sub-Escarpment Savanna (on road to Kokstad from Oribi Gorge).

DISSOTIS Benth.

Species ± 120, Africa; ± 3 in sthn Afr., N, B, LIM, NW, M, S, KZN, EC.

canescens (E.Mey. ex R.A.Graham) Hook.f.

Pink wild tibouchina; *sichobochobo* (S); *imfenyenkala* (Z)

Perennial herb or shrub, 0.25–1.80 m high; stems 4-angled; tomentose with stellate hairs, intermixed with stalked glands. **Leaves** ± oblong-lanceolate, entire, 3–5-nerved; upper surface dark green, sparsely stellate-tomentose, lower surface greyish green, densely stellate-tomentose. **Flowers** in short, terminal panicles. **Receptacle** ovoid, purplish, stellate-hairy. **Sepals** triangular-oblong, outer surface stellate-tomentose, alternating with linear, bristly intersepalar segments. **Petals** pink to bright purple. **Stamens** 8–10, unequal; anthers of longer stamens linear, with wavy margins, opening by a terminal pore, pedoconnective incurved at back, with 2 lateral appendages; anthers of shorter stamens with pedoconnective shortly appendiculate. **Flowering time** all year. **Fruit** a 4- or 5-locular capsule, included in persistent calyx. **Seed** small, cochleate. Moist seepage areas between tufts of grass; Indian Ocean Coastal Belt (Mkambati Nature Reserve, Port Edward).

MEMECYLON L.

Species ± 320, in Old World tropics and subtropics, ± 70 in Africa; 3 in sthn Afr., KZN to EC Border area.

bachmannii Engl.

Pondo rose-apple; *Pondo-roosappel* (A); *umbondi* (X)

Tree, 2.0–6.1 m high. **Leaves** rounded to broadly ovate, entire, base rounded, shortly petiolate to subsessile. **Inflorescences** with flowers in abbreviated fascicles or cymes; peduncles short; subtending bracts usually persistent. **Receptacle** broadly campanulate, 4-lobed. **Petals** broadly ovate, whitish or bluish. **Stamens** 8, equal; anthers axe-shaped, with 2 anterior thecae dehiscing by 2 longitudinal slits. **Ovary** 1-locular, wholly adherent to receptacle, sunken or convex at apex; style filiform. **Flowering time** Nov.–Apr. **Fruit** an ovoid berry. Forests, riverbanks, mouths and gorges; Indian Ocean Coastal Belt, Sub-Escarpment Savanna, Indigenous Forests (Umtamvuna Nature Reserve, Port Edward, Cwebe Forest).

natalense Markgr.

Small-leaved rose-apple; *kleinblaar roosappel* (A); *ugalagala-oluncini* (X)

Tree, 1.8–7.0 m high; young branches slender. **Leaves** smaller than for *M. bachmannii*, usually ovate, base acute or cuneate, petiolate. **Inflorescences** usually with 3-flowered cymes; peduncles long, branched; subtending bracts usually deciduous. **Receptacle** obconic, 4-lobed, lobes wider than high. **Petals** subrhombic, whitish. **Stamens** 8, equal,

each anther with dorsal, elliptic, yellowish gland. **Ovary** 1-locular, wholly adherent to receptacle, sunken or convex at apex; style filiform. **Flowering time** midsummer. **Fruit** a subglobose berry. In forest; Indigenous Forests (Port Shepstone District, Weza State Forest).

ANGIOSPERM PHYLOGENY GROUP [APG]. 1998. An ordinal classification for the families of flowering plants. *Annals of the Missouri Botanical Garden* 85: 531–553.
ANGIOSPERM PHYLOGENY GROUP [APG]. 2003. An update of the Angiosperm Phylogeny Group classification for the orders and families of flowering plants: APG II. *Botanical Journal of the Linnean Society* 141: 399–436.
ANGIOSPERM PHYLOGENY GROUP [APG]. 2009. An update of the Angiosperm Phylogeny Group classification for the orders and families of flowering plants: APG III. *Botanical Journal of the Linnean Society* 161: 105-121.
FERNANDES, A. & FERNANDES, R. 1956. Revisão das Melastomatáceas do Herbário Nacional de Pretoria. *Memórias da Sociedade Broteriana* 11: 5–96.
FERNANDES, R. & FERNANDES, A. 1978. Melastomataceae. *Flora zambesiaca* 4: 220–276.
HASTON, E., RICHARDSON, J.E., STEVENS, P.F., CHASE, M.W. & HARRIS, D.J. 2009. The Linear Angiosperm Phylogeny Group (LAPG) III: a linear sequence of the families in APG III. *Botanical Journal of the Linnean Society* 161: 128–131.
JACQUES-FÉLIX, H. 1995. Histoire des Melastomataceae d'Afrique. *Bulletin du Muséum National d'Histoire Naturelle*. Paris 16,4, section B. *Adansonia* 2-4: 235–311.
RENNER, S.S. 1993. Phylogeny and classification of the Melastomataceae and Memecylaceae. *Nordic Journal of Botany* 13: 519–540.
STEVENS, P.F. 2008. Angiosperm Phylogeny Website. Version 9. Internet. http://www.mobot.org/MOBOT/research/APweb/ (accessed April 2012).

MELIACEAE

(Order Sapindales)

Compiled by C.L. Bredenkamp

1a Leaves simple or rarely irregularly pinnate:
2a Leaves simple; stamens free almost to base; fruit a large inflated capsule, valves separating only near apex ..... **Nymania**
2b Leaves simple or rarely variable and irregularly pinnate with deeply lobed or partite leaflets; stamens completely united or united almost to apex; fruit a leathery or woody capsule, valves separating almost to base ..... **Turraea**
1b Leaves compound:
3a Leaves 2- or 3-pinnate; staminal tube purplish; fruit a drupe ..... ***Melia**
3b Leaves regularly once-pinnate; fruit a capsule or a drupe:
4a Staminal tube cup-shaped; filaments united for whole or most of their length; fruit a drupe ..... **Ekebergia**
4b Staminal tube elongate; filaments united only in lower $^1/_2$–$^2/_3$; fruit a capsule ..... **Trichilia**

EKEBERGIA Sparrm.

Cape ashes; *essenhout* (A)

Species 3 or 4, confined to Africa; 2 in sthn Afr., LIM, M, S, KZN, WC, EC.

Leaf rachis not winged or very narrowly winged

capensis Sparrm.

Cape ash, dog plum; *Kaapse essenhout* (A); *umgwenye* (X); *umnyamathi* (Z)

Evergreen or semi-evergreen tree, 2–18 m high; wide canopy; dioecious. **Leaves** imparipinnate; leaflets ± lanceolate, entire, apex acuminate, base asymmetric. **Flowers** unisexual; in axillary panicles up to 250 mm long; white or pinkish white. **Calyx** saucer-

shaped, puberulous. **Petals** elliptic-oblong, densely puberulous on both surfaces. **Disc** annular. **Staminal tube** basin-shaped, with 10 sessile anthers at apex of tube. **Ovary** sessile; style short and thick; stigma obscurely 4- or 5-lobed. **Fruit** a dry, globose, deep red drupe, 18 × 15 mm, with 2–4 pyrenes. **Seeds** mostly 1 per locule, exarillate. Forest and scrub forest, alt. 0–2 075 m; Sub-Escarpment Savanna, Indigenous Forests, Indian Ocean Coastal Belt (Kokstad and Alfred Districts SW along coast to Port St Johns and Kei River Mouth, from Tsitsikamma National Park to Port Elizabeth, Alexandria, Port Alfred and East London).

Leaf rachis broadly winged

pterophylla (C.DC.) Hofmeyr

Rock Cape ash; *klip-essenhout* (A)

Differing from *E. capensis* as follows: Shrub or small tree, 1–6 m high. **Leaves** with 3–5 leaflets, coriaceous, elliptic to spathulate, margins recurved, apex rounded or emarginate, base attenuate. **Flowers** in more congested inflorescences up to 60 mm long. **Flowering time** Oct.–Feb. **Fruit** up to 10 × 10 mm. Scrub and evergreen forest, alt. 90–1 980 m; Sub-Escarpment Savanna, Indigenous Forests, Indian Ocean Coastal Belt (Pondoland, Oribi Gorge and Egoso SW, Greater Addo Elephant National Park).

*MELIA L.

Monotypic genus, Asia to Australia; an Indian cultivar, planted as ornamentals, is currently a declared invader (Category 3) in sthn Afr., leaves, bark, flowers and especially fruit poisonous, widespread.

azedarach L.

Seringa, syringa, Persian lilac; *maksering*, *sering* (A)

Tree, 1–30 m high; indumentum of simple, glandular and tufted-stellate hairs. **Leaves** 2- or 3-pinnate; leaflets crenate or serrate, imparipinnate. **Flowers**: bisexual and male on same individual (polygamous); in panicles. **Petals** imbricate, lilac, perfumed. **Staminal tube** narrowly cylindrical; anthers 10, shortly apiculate, purplish. **Disc** annular. **Flowering time** Sept.–Nov. **Fruit** a 3–8-locular drupe; locules usually 1-seeded; green turning yellow, persisting after the leaves fall. Invades savanna, roadsides, urban areas, wasteland, especially watercourses and riverbanks; widespread in all bioregions, less frequent in Upper Karoo.

NYMANIA Lindb.

Monotypic genus, indigenous to sthn Afr., N, NC, WC, EC.

capensis (Thunb.) Lindb.

Chinese lanterns; *klapperbos* (A)

Rigidly branched, evergreen shrub or small tree, 1–5 m high; indumentum of simple hairs. **Leaves** mostly in fascicles on abbreviated short-shoots, simple, entire. **Flowers** bisexual, solitary, axillary, dull red. **Calyx** 4-lobed to near base. **Petals** 4, imbricate. **Stamens** 8; filaments curved, fused only near base, without appendages; far-exserted. **Flowering time** Aug.–Apr. **Fruit** a papery capsule, inflated, deeply 4-lobed with locules laterally compressed, wing-like; at first suffused with carmine, later straw-coloured or silvery grey. **Seeds** reniform, minutely verrucose, puberulent. Various types of karroid vegetation, bushland peripheral to karoo, often with succulents; Lower Karoo, Dry High-

veld Grassland, Rainshadow Valley Karoo, Albany Thicket, Eastern Fynbos-Renosterveld (Jansenville E to Somerset East, southwards from Willowmore to Great Fish River).

TRICHILIA P.Browne

Natal mahogany; *rooi-essenhout* (A)

Species ± 85, fairly cosmopolitan in tropics and subtropics, concentrated in America, 15 in Africa, 2 in Asia; 2 in sthn Afr., LIM, M, S, KZN, EC.

dregeana Sond.

Forest Natal mahogany; *bos rooi-essenhout* (A); *umkhuhlu* (X); *umathunzini* (Z)

Evergreen tree, 2–15 m high; crown dense, wide spreading; apparently dioecious. **Leaves** imparipinnate; leaflets 7–11, entire, apices shortly acuminate, lateral nerves 7–12 in widely spaced pairs. **Flowers** in cymose panicles. **Calyx** 5-lobed. **Petals** 5, imbricate. **Staminal tube** with 10 stamens; filaments connate in lower half, free portion often densely villous, with a pair of lateral appendages at apex. **Flowering time** midsummer. **Fruit** a coriaceous capsule, 2–4-locular, up to 50 mm in diam., without a stipe or an indistinct stipe up to 3 mm long. **Seeds** 1 or 2 per locule, large. Evergreen forests, high rainfall areas, alt. 15–1 220 m; Indigenous Forests (Port Edward to Port St Johns S, from Komga to Kentani).

TURRAEA L.

Honeysuckle tree; *kanferfoelieboom* (A)

Species ± 50, in Africa, Madagascar, Mascarenes and the Comores, and 1 widespread species in the tropical Far East; 6 in sthn Afr., B, LIM, NW, G, M, S, KZN, EC.

Calyx divided, free almost to base, ± 1/3 as long as petals, lobes foliaceous; style shorter than petals; subshrubs up to 0.4 m high

pulchella (Harms) T.D.Penn.

Suffrutex, ± 0.2 m high; stems tufted, herbaceous, arising from strong, woody rootstock. **Leaves** simple, obovate-deltate, deeply toothed in upper half, up to 30 mm long, base cuneate. **Flowers** solitary or in 2- or 3-flowered axillary cymules. **Petals** oblanceolate-oblong, white. **Staminal tube** split at apex. **Ovary** 5-locular, style densely hairy, 5 mm long with capitate style head (a distally dilated part of style, of which proximal part functions as a receptacle for pollen and distal part as a stigmatic surface). **Flowering time** Sept.–Mar. **Fruit** a 5-valved capsule, ± 6-seeded, thinly woody. **Seeds** strongly curved, dark brown; aril a small, whitish, slightly fleshy lobe, covering ± one tenth of seed. In tall grass, alt. 305–365 m; Indian Ocean Coastal Belt (rediscovered at Matabetule Plateau W of Durban; confined to Kentani District).

Calyx cup-shaped with 5 short teeth, much shorter than petals; style longer than petals; shrubs or small trees

floribunda Hochst.

Honeysuckle tree; *kanferfoelieboom* (A); *umhlatholana* (X); *umadlozane* (Z)

Deciduous shrub or small tree, 1–9 m high. **Leaves** ovate, up to 140 mm long, setulose especially on nerves beneath, apex acuminate. **Flowers** in 2–10-flowered fascicles, terminating short-shoots, appearing before leaves, scented. **Petals** narrowed into a long claw, pale green turning pale yellow. **Staminal tube** pure white, widening upwards; tube 10-toothed; anthers shortly apiculate. **Ovary** 10-locular, style exserted, bent at apex, style

head depressed globose. **Flowering time** Sept.–Mar. **Fruit** a 10- or 12-valved capsule, thickly woody. **Seeds** 2 in each locule, red or black, subglobose with ± conspicuous orange, red or whitish aril. Forests, forest margins, dune forest, alt. 5–915 m; Indian Ocean Coastal Belt, Indigenous Forests (Port Edward to Port St Johns southwards, from Mazeppa Bay and Kei River Mouth to East London).

obtusifolia Hochst.

Lesser honeysuckle tree; *klein-kanferfoelieboom* (A); *amazulu*, *ikunzi* (Z)

Shrub, scrambler, 0.6–5.0 m high. **Leaves** in fascicles, variable, ± cuneate-obovate or lobed in upper $^1/_3$, up to 50 mm long, glabrous beneath, apex acute to emarginate. **Flowers** in 1–4-flowered, axillary cymes. **Petals** narrowly spathulate, pure white. **Staminal tube** cylindric. **Ovary** 5-locular, style exserted, straight, style head turbinate or cylindric. **Flowering time** Sept.–Mar. **Fruit** a 5-valved capsule, thinly woody. **Seeds** 2 in each locule, red, depressed-globose; aril vestigial, confined to adaxial surface. Forests, coastal thicket, wooded grassland, riverbanks and mouths, alt. 5–1 405 m; Indian Ocean Coastal Belt, Indigenous Forests, Sub-Escarpment Savanna (Port Edward to Coffee Bay S, from Qora River Mouth to Kentani and from East London along coast to Alexandria).

CANDOLLE, C. DE. 1894. *Trichilia pterophylla*. *Bulletin de l'Herbier Boissier* 2: 581, t. 12.
DAHLGREN, R. & VAN WYK, A.E. 1988. Structures and relationships of families endemic to or centered in southern Africa. *Monographs in Systematic Botany from the Missouri Botanical Garden* 25: 1–94.
HARVEY, W.H. 1860. Aitonieae. *Flora capensis* 1: 243, 244.
PENNINGTON, T.D. & STYLES, B.T. 1975. A generic monograph of the Meliaceae. *Blumea* 22: 419–540.
SONDER, O.W. 1860. Meliaceae. *Flora capensis* 1: 244–248.
STYLES, B.T. & WHITE, F. 1991. *Flora of tropical East Africa*. Meliaceae: 1–67.
WHITE, F. 1986. The taxonomy, chorology and reproductive biology of southern African Meliaceae and Ptaeroxylaceae. *Bothalia* 16: 143–168.
WHITE, F. & STYLES, B.T. 1963. Meliaceae. *Flora zambesiaca* 2: 285–319.
WHITE, F. & STYLES, B.T. 1986. Meliaceae. *Flora of southern Africa* 18, 3: 39–61.
WILLIAMS, R. 1989. *Turraea pulchella* rediscovered. *Bothalia* 19: 31, 32.

MELIANTHACEAE

(Order Geraniales)

Compiled by C.L. Bredenkamp

Calyx subequal at base; ovules 1 in each locule; leaf rachis not winged ..... **Bersama**
Calyx very oblique at base; ovules 2–4 in each locule; leaf rachis winged..... **Melianthus**

BERSAMA Fresen.

White ashes; *witessenhoutbome* (A)

Species ± 8, ± 4 in Africa; 3 in sthn Afr., LIM, M, S, KZN, EC.

Racemes stout; bracts rhombic, apices caudate and indumentum velutinous (pile-like), silvery, silky

swinnyi E.Phillips

Coastal white ash; *kus-witessenhout* (A); *isindiyandiya* (X); *isindiyandiya* (Z)

Small to medium-sized tree, 1.5–10.0 m high. **Leaves** crowded at ends of rather stout branches; imparipinnate; leaflets 4–7-jugate (coupled together), oblong-lanceolate, apex rounded, margins entire; lateral veins distinct, midrib prominent below. **Stipules** intrapet-

iolar. **Inflorescences** axillary, stout racemes. **Flowers** greenish white. **Calyx** velutinous. **Flowering time** Nov.–Jan. **Fruit** subglobose capsule, conspicuously warty with tawny, velutinous protuberances, inner surface woody. **Seeds** brownish, partly enveloped by a yellowish aril at base. Margins of coastal forest and sandstone outcrops; Sub-Escarpment Savanna, Indigenous Forests, Indian Ocean Coastal Belt (Umtamvuna Nature Reserve, Port St Johns and Cwebe Forest in Mthatha District).

Racemes erect, more slender or spike-like; bracts linear to ovate, apices acute or acuminate and indumentum densely tomentose

lucens (Hochst.) Szyszyl.

Glossy white ash; *blinkblaar-witessenhout* (A); *isindiyandiya* (X, Z); *undiyaza* (Z)

Evergreen shrub to medium-sized tree, up to 3 m high. **Leaves** imparipinnate; leaflets 1- or 2(4)-jugate, obovate or elliptic, apex rounded or subacute, margins thickened and undulate; venation conspicuous, yellowish. **Stipules** intrapetiolar. **Inflorescences** erect racemes. **Flowers** greenish cream-coloured. **Calyx** tomentellous. **Flowering time** Nov.–Feb. **Fruit** subglobose capsule, rugose, tomentellous, outer surface leathery, inner surface woody. **Seeds** bright red with a yellow cup-shaped aril, covering ± $^1/_3$ of seed. Forest areas, associated bushveld, rock crevices, river mouths, coastal dunes; Sub-Escarpment Savanna, Indigenous Forests, Indian Ocean Coastal Belt (Mqanduli District, Port St Johns, between Fish River and Fort Beaufort, East London).

tysoniana Oliv.

Common white ash; *gewone witessenhout* (A); *isindiyandiya* (X, Z); *indiyandiya* (Z)

Small to medium-sized tree, 3–10 m high. **Leaves** imparipinnate; leaflets 4–6-jugate, oblanceolate-oblong, apex rounded or tapering into a point, margins entire or finely toothed in upper half; midrib prominent below, sometimes with hair tuft domatia in axils of lateral veins, glabrous when mature, somewhat scabrous. **Stipules** intrapetiolar. **Inflorescences** dense, erect, spike-like racemes. **Flowers** greenish white to cream-coloured. **Calyx** tomentellous. **Flowering time** Aug.–May. **Fruit** subglobose capsule, covered with tawny, velutinous, woody protuberances, inner surface strongly woody. **Seeds** reddish brown, enveloped by a yellow aril at base. Margins of coastal and montane forest; Indigenous Forests (Qabangeni Forest near Magusheni, forests from the Transkei and Pondoland S to Komga).

MELIANTHUS L.

Turkey bush; *kalkoentjiebos* (A)

Species 6, sthn Afr., widespread in both dry and moist areas.

All species possibly poisonous to livestock (melianthosis).

comosus Vahl

Shrub or undershrub, 0.7–2.4 m high. **Leaves** imparipinnate, rachis unwinged to slightly winged; leaflets up to 5 pairs, elliptic, serrate, upper surface thinly stellate-hairy, lower surface canescent. **Inflorescences** subterminal, pendulous racemes; bracts broadly ovate. **Flowers** solitary at nodes. **Calyx** 5-partite, large, asymmetric, green with dark red spot basally, canescent. **Petals** 4(5), spathulate with hairy claw, dark red. **Nectary** joined to lateral sepals at base only. **Flowering time** Aug.–Oct. **Fruit** membranous capsule, valves compressed at opening of apex, canescent. **Seeds** subglobose, black, shiny. River- or streambanks, forest margins, alt. 120–2 230 m; Upper Karoo, Drakensberg Grassland, Sub-Escarpment Grassland, Albany Thicket, Indigenous Forests [Oviston E to Roma (Mthatha), southwards from Hankey to Grahamstown].

dregeanus Sond.

Natal honey flower

Shrub or undershrub, 0.6–2.0 m high, often with unpleasant smell. **Leaves** imparipinnate, rachis unwinged to slightly winged; leaflets up to 7 pairs, elliptic, ± serrate, upper surface sparsely stellate-hairy, lower surface a mat of stellate hairs; stipules paired, cordate. **Inflorescences** subterminal, pendulous racemes, up to 130 mm long; bracts cordate. **Flowers** alternate. **Calyx** 5-partite, large, asymmetric, green with dark red spot basally. **Petals** 4(5), spathulate with hairy claw, reddish. **Nectary** wholly adnate to lateral sepals at base, forming a cup. **Flowering time** Oct.–Jan. **Fruit** membranous capsule, with 4 rounded lobes, valves sharply keeled, glabrous. **Seeds** black, shiny, without an aril. Found between 30º and 33º S, alt. 365–1 400 m; Upper Karoo, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indigenous Forests (Middelburg District, through Queenstown and Amatole Mts to Kentani and Komga).

major L.

Kruidjie-roer-my-nie (A); *ubuhlungu bemamba* (X)

Foetid shrub, 0.5–2.4 m high. **Leaves** imparipinnate, with rachis winged (leaf base decurrent); leaflets up to 6 pairs, elliptic, toothed, both surfaces glabrous; stipules paired. **Inflorescences** terminal, many-flowered racemes, over 300 mm long; bracts ovate-acuminate. **Flowers** 2–4 at nodes. **Calyx** 5-partite, longer than petals, asymmetric. **Petals** 4, with hairy claw, red. **Flowering time** Oct.? **Fruit** membranous capsule, net-veined, 4-lobed. **Seeds** black, shiny. Vleis, riverbanks, alt. 25–1 370 m; Albany Thicket, Drakensberg Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Indigenous Forests (Pearston District E to King William's Town, southwards from Port Elizabeth to Alexandria).

ANGIOSPERM PHYLOGENY GROUP [APG]. 2003. An update of the Angiosperm Phylogeny Group classification for the orders and families of flowering plants: APG II. *Botanical Journal of the Linnean Society* 141: 399–436.
PHILLIPS, E.P. 1921. The genus *Bersama*. *Bothalia* 1: 33–39.
PHILLIPS, E.P. & HOFMEYER, J. 1927. The genus *Melianthus*. *Bothalia* 2: 351–355.
SHIPUNOV, A.B. 2005. Systema Angiospermararum. Internet. http://herba.msu.ru/shipunov/ang (accessed Apr. 2006).
SONDER, O.W. 1860. Meliantheae. *Flora capensis* 1: 366–369.
TANSLEY, S.A. & SCHELPE, E.A.C.L.E. 1984. Two new combinations in *Melianthus*. *Bothalia* 15: 143–145.
WHITE, F. 1966. Melianthaceae. *Flora zambesiaca* 2: 544–547.

MENISPERMACEAE

(Order Ranunculales)

Compiled by C.L. Bredenkamp

Key to genera based on leaf morphology

Leaves broadly ovate to peltate ..... **Stephania**
Leaves ovate, trowel-shaped or subreniform, not subpeltate to peltate..... **Cissampelos**

Key to genera based on structure of endocarp (after Botha 1980)

Condyle obovate; septum smooth, unperforated; dorsal ridge conspicuous ..... **Stephania**
Condyle narrowly obovate; septum somewhat rough, often perforated; dorsal ridge inconspicuous or absent ..... **Cissampelos**

CISSAMPELOS L.

Davidjies (A)

Species ± 30, N and S America, Asia, tropical and sthn Afr., as well as Madagascar; 4 in sthn Afr., fairly widespread, except FS and L.

capensis L.f.

Davidjieswortel, *fynblaarklimop* (A)

Dioecious, multi-stemmed subshrub, 0.4–2.0 m high, upper branches trailing; glabrous. **Leaves** ovate or trowel-shaped; petioles pulvinate at base, 25 mm long. **Inflorescences** axillary; male flowers cymose; female flowers 1 or 2 on short lateral branchlets. **Male flowers** sessile or pedicels 2 mm long, velvety hairy; corolla cup-shaped. **Female flowers**: pedicels 3 mm long; sepals basally succulent, lower surface hairy. **Flowering time** Nov.–Mar. **Drupe** obovate. Well-drained, sandy, granite soils, full sun; Upper Karoo, Sub-Escarpment Grassland, Albany Thicket, Eastern Fynbos-Renosterveld, Indigenous Forests (Middelburg District E to Queenstown, southwards from Willowmore through Humansdorp to Grahamstown).

torulosa E.Mey. ex Harv.

uKhalimele-omkhulu (Z)

Liana, 0.3–2.0 m high, stems green, slender. **Leaves** subreniform, base ± broadly cordate; petioles pulvinate at base, geniculate, slender, ± 85 mm long. **Inflorescences** axillary; male flowers cymose, peduncles ± 70 mm long; female flowers, 1–4, peduncles up to 100 mm long. **Male flowers**: pedicels variable in length; corolla cup-or saucer-shaped. **Female flowers**: pedicels variable in length; sepals membranous, glabrous. **Flowering time** July–Nov. **Drupe** obovate. Undergrowth, shade, closed woodland; Indigenous Forests, Drakensberg Grassland, Eastern Fynbos-Renosterveld (Weza State Forest SE to Port St Johns, forests at Hogsback, Knysna and East London Districts).

STEPHANIA Lour.

Species ± 30, 5 in tropical Africa, 25 in S India to Middle and South China to New Guinea; 1 (with 2 varieties) in sthn Afr., widespread, except N and B.

abyssinica (Quart.-Dill. & A.Rich.) Walp.

Twining lianas, 1.5–3.0 m high. **Leaves** simple, broadly ovate, base rounded, apex subacute. **Inflorescences**: umbelliform cymes. **Male flowers**: sepals 6(8), in 2 whorls; petals 3(4), free; stamens 2–6, arranged in a disc-shaped, stalked synandrium. **Female flowers** similar to male, but sepals 3(4), free; carpel l; style short; stigma shortly lobed into 3 branches. **Flowering time** July–Jan. **Drupe** subspherical-flattened, exocarp smooth, bright orange when ripe; endocarp bony, horseshoe-shaped, with 3 longitudinal rows of tubercles or transverse ridges. **Seed** curved, cotyledons appressed. Areas of high humidity, full sun, forming dense mats, roadsides; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indigenous Forests (Kokstad District to Port St Johns).

BOTHA, D.J. 1975. *'n Taksonomiese studie van die Suid-Afrikaanse verteenwoordigers van die Menispermaceae*. Ph.D thesis, Potchefstroom University for Christian Higher Education.
BOTHA, D.J. 1980. The endocarp of the southern African Menispermaceae. *Journal of South African Botany* 46: 23–31.
HARVEY, W.H. 1860. Menispermaceae. *Flora capensis* 1: 9–13.

KESSLER, P.J.A. 1993. Menispermaceae. In K. Kubitzki, J.G. Rohwer & V. Bittrich, *The families and genera of vascular plants — dicotyledons* 2. Springer-Verlag, Berlin.
RHODES, D.G. 1975. A revision of the genus *Cissampelos*. *Phytologia* 30: 415–484.
TROUPIN, G. 1956. *Flora of tropical East Africa.* Menispermaceae: 1–32.
TROUPIN, G. 1960. Menispermaceae. *Flora zambesiaca* 1: 150–171.
TROUPIN, G. 1962. Monographie des Menispermaceae africaines. *Académie Royale des Sciences d'Outre-Mer, Classe des sciences naturelles et médicales mémoires* 13: 1–313.
TROUPIN, G. & GONÇALVES, M.L. 1973. Menispermaceae. *Flora de Moçambique* 7: 1–27.

MENYANTHACEAE

(Order Asterales)

Compiled by C.L. Bredenkamp

Based on DNA analyses, Tippery et al. (2008) concluded that Menyanthaceae consists of five genera of aquatic and wetland plants distributed world-wide. Three monotypic genera *Liparophyllum*, *Menyanthes* and *Nephrophyllidium* are clearly differentiated morphologically, but the two larger genera (*Nymphoides* and *Villarsia*) contain several taxa of uncertain affinity. Results supported the monophyly of Menyanthaceae. Species of *Nymphoides* (except *N. exigua*) resolved to a single, deeply-nested clade, indicating that the floating-leaved habit is derived evolutionarily within the family. Although *Villarsia* comprised a paraphyletic clade towards *Nymphoides*, it was decided that this genus would contain only South African taxa.

Inflorescence a cluster of pedicellate flowers; fruit indehiscent or splitting irregularly ..... **Nymphoides**
Inflorescence cymose; fruit dehiscing by 4 valves ..... **Villarsia**

NYMPHOIDES Ség.

Species ± 20, Africa, Asia, East Indies, Australia and New Zealand; 5 in sthn Afr., N, B, LIM, NW, G, M, S, KZN, WC, EC.

thunbergiana (Griseb.) Kuntze

Geel waterlelie (A); *marombodane* (Venda)

Perennial, aquatic herb, rootstock thick, floating stolons ± 0.5 m long, few. **Leaves** in a rosette on the rootstock, or alternate along floating stolons; blade circular, with a sinus at base. **Flowers** 5–20, clustered at nodes, pedicellate, subtended by small bracts; heterostylous. **Sepals** triangular. **Petals** mostly fimbriate inside, pale yellow. **Flowering time** Dec.–Apr. **Capsule** developing under water, ± ovoid, less than 10-seeded. **Seeds** lenticular, ± tuberculate. Pools and rivers, alt. up to 1 600 m; Indian Ocean Coastal Belt, Albany Thicket, Eastern Fynbos-Renosterveld (Mkambati Nature Reserve S to East London, Greater Addo Elephant National Park E to Grahamstown).

VILLARSIA Vent.

Species ± 16, SE Asia, Australia and sthn Afr.; 1 in sthn Afr., WC, EC.

capensis (Houtt.) Merr.

Oval-leaved/Cape buck-bean

Semi-aquatic herb; in swampy ground, short tufted plant, 0.05 m high, in deep water up to 1 m high. **Leaves**: basal ones long-stalked, blade ovate-oblong, entire or irregularly dentate; cauline ones alternate, much reduced and distant. **Flowers** in lax or congested cymose, sometimes paniculate inflorescences. **Calyx** deeply 5-lobed. **Corolla** 5-lobed,

crenate-fimbriate on margins; tube short, white or yellow. **Stamens** arising on corolla tube. **Ovary** 1-locular, with minute, basal glands; placentas thickened. **Flowering time** Oct.–Jan. **Capsule** 4-valved, splitting at apex. **Seeds** 2. Fynbos, swamps, free-standing water, sandstone, full sun; Eastern Fynbos-Renosterveld (Humansdorp District).

ASTON, H.I. 1969. The genus *Villarsia* (Menyanthaceae) in Australia. *Muelleria* 2: 2–61.
COOK, C.D.K. 1990. *Aquatic plant book*. SPB Academic Publishing, The Hague.
HILL, A.W. & PRAIN, D. 1909. Gentianeae. *Flora capensis* 4,1: 1056–1121.
MACKINDER, B. 1990. Menyanthaceae. *Flora zambesiaca* 7,4: 51–56.
MARAIS, W. & VERDOORN, I.C. 1963. Gentianaceae. *Flora of southern Africa* 26: 172–242.
RAYNAL, A. 1971. Répartition géographique des *Nymphoides* (Menyanthaceae) africaines et malgaches. *Mitteilungen der Botanischen Staatssammlung München* 10: 122–134.
RAYNAL, A. 1974a. Le genre *Nymphoides* (Menyanthaceae) en Afrique et à Madagascar. 1re Partie: Morphologie. *Adansonia* 2,14(2): 227–270, 405–458.
RAYNAL, A. 1974b. Le genre *Nymphoides* (Menyanthaceae) en Afrique et à Madagascar. 2e Partie: Taxonomie. *Adansonia* 2,14(3): 405–458.
TIPPERY, N.P., LES, D.H., PADGETT, D.J. & JACOBS, S.W.L. 2008. Generic circumscription of Menyanthaceae: a phylogenetic evaluation. *Systematic Botany* 33: 598–612.

MESEMBRYANTHEMACEAE see AIZOACEAE

MOLLUGINACEAE

(Order Caryophyllales)

Compiled by C.L. Bredenkamp

1a Flowers with petaloid staminodes (inconspicuous, not visible to the naked eye in *Glinus*), conspicuous, 5–many ..... **Corbichonia**
1b Flowers without petaloid staminodes:
2a Ovary 1-locular with 1 ovule; style often asymmetrical; fruit a nutlet ..... **Adenogramma**
2b Ovary 2–7-locular; fruit a loculicidal capsule:
3a Ovules 1 per locule ..... **Psammotropha**
3b Ovules many per locule:
4a Ovules with long funicles; seeds with appendaged strophiole; leaves alternate, opposite or apparently whorled, without stipules ..... **Glinus**
4b Ovules with short funicles; seeds without appendaged strophiole; leaves alternate, opposite or whorled, generally with stipules:
5a Stipules small (± 2 mm long) glabrous or hairy, margins entire, caducous or absent; leaves basally arranged, opposite or whorled, linear, oblanceolate, obovate or spathulate ..... **Mollugo**
5b Stipules larger (± 5–6 mm long), persistent (stipules caducous in *Pharnaceum alpinum* only), adnate to leaf-base, margins lobate, with setose hairs; leaves alternate or whorled, linear:
6a Inflorescences cymose, in pseudoracemes; ovary surrounded by nectariferous disc ..... **Pharnaceum**
6b Inflorescences umbellate; ovary not surrounded by a nectariferous disc ..... **Hypertelis**

ADENOGRAMMA Rchb.

Muggiesgras (A)

Species 10, endemic to sthn Afr., western coastal belt of N, WC, EC.

sylvatica (Eckl. & Zeyh.) Fenzl

Slender, sprawling, perennial herb, stems 0.1–1.0 m long. **Leaves** ± ovate-lanceolate, pale green, thin, acute, bristle-tipped; in distant whorls of 4; stipules filiform, membranous. **Flowers** in upper axils; pedicels thread-like. **Perianth segments** white with a green midrib, ± cucullate. **Anthers** yellow. **Ovary** 1-locular; ovules 1 per locule; style often asymmetrical; stigma capitate. **Flowering time** Aug.–Dec. **Fruit** a nutlet, usually

laterally compressed, brown, finely granulate. Streams, under rocks on lower mountain slopes; Indigenous Forests (Uitenhage, Otterford Forest Reserve).

CORBICHONIA Scop.

Species 2, Africa to SW Asia; 2 in sthn Afr., N, B, LIM, NW, G, M, S, KZN, NC, EC.

decumbens (Forssk.) Exell

iNyongwane (Z)

Glabrous, perennial herb or subshrub, ± 0.5 m high, with decumbent stems, woody at base. **Leaves** alternate, slightly fleshy, obovate, apiculate; petioles winged, decurrent; stipules 0. **Inflorescences** lax, terminal or seemingly leaf-opposed cymes. **Flowers** pedicellate, pink, mauve, magenta or red. **Perianth segments** free, ovate, cuspidate, with membranous margins. **Staminodes** many, membranous, petaloid, slender, fugaceous. **Ovary** 5-locular; many ovules per locule; styles 5, free, sessile, linear, spreading. **Flowering time** summer. **Fruit** a loculicidal, 5-valved capsule, yellowish green, shiny, included in perianth. **Seeds** many, subreniform, concentrically ridged, with white aril. Woodland, savannas, stony and alluvial soils, cultivated ground; Sub-Escarpment Savanna (Mqanduli Hills SW to Komga).

GLINUS L.

Species ± 13, pantropical with 2 reaching temperate regions as introduced weeds; 3 in sthn Afr., N, B, LIM, M, S, FS, KZN, NC, EC.

oppositifolius (L.) DC.

Much-branched, annual herb, up to 0.5 m high, often forming mats, ± glabrous, tomentose at leaf axils. **Leaves** opposite or in whorls of 4–6, ± elliptic-oblong, obscurely serrulate in upper half; stipules 0. **Inflorescence** a dense, sessile to short-pedunculate, seemingly axillary cyme. **Flowers** few to many at nodes, pedicellate. **Perianth segments** 5, free, pink, often yellowish on inner surface, margins hyaline, tip mucronate, persistent. **Staminodes** 0. **Stamens** 3–10. **Ovary** of 3 united carpels; stigmas 3, sessile, of hyaline papillae, persistent. **Flowering time** Aug.–Dec. **Fruit** enveloped in perianth, an ovoid, loculicidal capsule. **Seeds** dark brown with rows of small tubercles, funicle filiform. Littoral dunes; Indian Ocean Coastal Belt (Port St Johns).

HYPERTELIS E.Mey. ex Fenzl

Species 8, basically a sthn Afr. genus, with 1 species extending to tropical Africa and Madagascar and 1 endemic to St Helena; 7 in sthn Afr., widespread, except L.

Annual, stems quite herbaceous

arenicola Sond.

Glaucous, prostrate herb, 0.02–0.12 m high; branches ascending, purplish with age. **Leaves** alternate, filiform to cylindrical, ± fleshy, slightly glandular; stipules entire, membranous, adnate to leaf base, forming dilated, amplexicaul sheath. **Inflorescences** axillary, 3–5-flowered umbels; peduncles up to 8 mm long. **Perianth segments** 5, the outer 2 or 3 subsucculent, the inner narrower, membranous, cucullate, whitish or pink. **Staminodes** 0. **Stamens** 3(5). **Stigmas** 3–5, short. **Flowering time** Dec.–Apr. **Fruit** a membranous, rounded loculicidal, 3–5-valved capsule. **Seeds** brown or black, kidney-shaped, shining, minutely punctuate. Damp, brackish, fine-grained soils near coast; Eastern Fynbos-Renosterveld (Redhouse near Uitenhage).

Perennial, stems woody, at least at base

bowkeriana Sond.

Shrubby, glaucous, creeping herb, 0.01–0.05 m high; branches ascending. **Leaves** alternate, opposite or crowded into axillary fascicles, linear, subcylindrical, ± fleshy, with wart-like glands; stipules triangular, arising from expanded, membranous margins of leaf bases. **Inflorescences** axillary, 4–8-flowered umbels; peduncles up to 100 mm long; pedicels up to 20 mm long. **Perianth segments** 5, the outer 2 or 3 subsucculent, the inner narrower, membranous, greenish or whitish (purple). **Staminodes** 0. **Stamens** 5. **Stigmas** 3–5, short. **Flowering time** Dec.–Apr. **Fruit** a membranous, rounded, loculicidal, 3–5-valved capsule. **Seeds** brown, triangular in outline, smooth, shining. Salty soils, salt pan depressions, riverbeds, dry sand in karoo; Lower Karoo, Sub-Escarpment Savanna, Rainshadow Valley Karoo, Albany Thicket (Graaff-Reinet E to Kei River Valley S, from Steytlerville E to Fish River Valley).

salsoloides (Burch.) Adamson

Volstruisbrak, *braksuring*, *haassuring* (A)

Perennial dwarf shrub, 0.05–0.45 m high; base woody with many short, erect branchlets. **Leaves** crowded, glaucous, linear to cylindrical, succulent, with wart-like glands; stipules with acute or acuminate ascending points. **Inflorescences** 4–8-flowered umbels; peduncles up to 100 mm long, stout, glandular warts in upper part; pedicels up to 17 mm long. **Perianth segments** 5, the outer 2 or 3 subsucculent, the inner narrower, membranous, greenish or whitish with wart-like glands on back. **Staminodes** 0. **Stamens** 5–8 with bright yellow anthers. **Stigmas** 3–5, short. **Flowering time** Dec.–Apr. **Fruit** a membranous, loculicidal, 3–5-valved capsule. **Seeds** dark brown or black, triangular in outline, smooth. Salt marshes; Sub-Escarpment Grassland, Lower Karoo, Albany Thicket (Queenstown S, from Graaff-Reinet to Cradock and Tarkastad District, and from Kleinpoort to Fish River Valley).

MOLLUGO L.

Species ± 20, tropics and subtropics of both hemispheres, with a few species widespread as introduced weeds in temperate regions; 6 in sthn Afr., N, B, LIM, NW, G, M, S, FS, KZN, L, NC, EC.

cerviana (L.) Ser. ex DC.

Glabrous, many-stemmed, delicate annual, 0.05–0.20 m high; nodes slightly swollen. **Leaves**: basal leaves crowded into a rosette, linear, oblanceolate or spathulate; cauline leaves in whorls on stem, ± linear, slightly fleshy; stipules small, scarious. **Inflorescences** axillary or terminal, 2–4-flowered, umbellate cymes. **Flowers** inconspicuous, green, rounded; pedicels filiform, up to 18 mm long. **Perianth segments** 5, green, margins hyaline. **Staminodes** 0. **Stamens** (3)5. **Stigmas** 3, short, papillate. **Flowering time** Jan.–Mar. **Fruit** a membranous, ellipsoidal, loculicidal capsule included within persistent perianth. **Seeds** many, triangular, shining, brown. Grassland, sand dunes, riverbanks, cultivated ground; Upper Karoo, Dry Highveld Grassland, Sub-Escarpment Grassland (Bethulie S to Middelburg, E to Queenstown).

PHARNACEUM L.

Sneeuvygie (A)

Species ± 25, Africa; 25 in sthn Afr., N, NW, G, FS, KZN, L, NC, WC, EC.

1a Leaves alternate on stem or in a basal rosette in whorls
2a Leaves flat, rigid, erect, in a basal rosette; stipules caducous

[E?]alpinum Adamson

Perennial subshrub, ± 0.3 m high; stems woody at base, forming small, dense tufts. **Leaves** up to 30 × 3 mm, widening at apex, sheathing at base. **Inflorescences** of few-flowered, cymose pseudoracemes; peduncles up to 40 mm long, with 1 or 2 whorls of leaves, forking at nodes. **Perianth segments** 5 ± obovate, green (reddish brown) with white, membranous margins, connate at base. **Nectariferous disc** of 3 broad, obtuse lobes, white. **Stigmas** small, cylindrical, reflexed. **Flowering time** Nov.–Mar. **Fruit** a rounded, membranous, loculicidal, 3–5-valved capsule, longer than perianth. **Seeds** few, black, shining, bordered. Among rocks, rocky outcrops, rock sheets, on summits of the southern Drakensberg; Mesic Highveld Grassland, Drakensberg Grassland (Lady Grey, Witteberg Mts, Joubertspas, E to Barkly East and Rhodes).

2b Leaves linear or filiform; stipules persistent
3a Stipules entire or with 1 or 2 lateral points

detonsum Fenzl

Perennial subshrub, 0.01–0.02 m high; stems woody at base, branched, suberect, in small tufts. **Leaves** up to 15 mm long, revolute, apiculate into a bristle. **Inflorescences** many; peduncles slender, up to 60 mm long, mostly with one few-leaved whorl, from where branching of pseudoracemes commences. **Perianth segments** 5, often yellowish inside and at edges. **Nectariferous disc** of 3 broad, obtuse, crenulate lobes. **Stigmas** broad, revolute. **Flowering time** Dec.–Mar. **Fruit** a rounded, membranous, loculicidal, 3–5-valved capsule, as long as perianth. **Seeds** shining, subglobose. Open sandy or rocky places in drier regions; Mesic Highveld Grassland, Sub-Escarpment Grassland (Zastron District to Bailey, S to Queenstown and Cradock).

3b Stipules cut into hairs or narrow lobes at top or edges
4a Stipules thin translucent, white

elongatum (DC.) Adamson

Perennial, decumbent dwarf shrub, with creeping stems 0.03–0.25 m long, woody at base, the youngest white. **Leaves** alternate, crowded at top of stems, up to 30 mm long, spreading; stipules decurrent, sheathing, varying in length to almost as long as leaves. **Inflorescences** terminal; peduncles up to 250 mm long, terminating in a whorl of leaves and umbel-like pseudoracemes. **Nectariferous disc** red or yellow, of 3 or 5 obtuse, truncate segments. **Stigmas** red or yellow, erect, revolute. **Flowering time** Aug.–Oct. **Fruit** an ovoid, loculicidal, 3–5-valved capsule, longer than perianth. **Seeds** black, shining, globose-biconvex. Coastal sand, gravel, rocks; Eastern Fynbos-Renosterveld, Albany Thicket (Uitenhage, Port Elizabeth to Kowie West).

4b Stipules firm, opaque, white or brownish, sheathing at base

ciliare Adamson

Perennial, dwarf shrub, with lax tufts 0.02–0.05 m long; woody at base. **Leaves** slender, ascending, not crowded, up to 10 mm long, hair-points deciduous. **Inflorescences** terminal;

peduncles up to 90 mm long, purplish, terminating in a whorl of leaves and dichasium-like pseudoracemes. **Nectariferous disc** white, of 3 broad, thin, truncate or emarginate lobes. **Stigmas** white, flat, broad. **Flowering time** Sept., Oct. **Fruit** a rounded, loculicidal, 3–5-valved capsule, slightly longer than perianth. **Seeds** dark brown, shining, minutely rugose, compressed with a broad, flat border. Rocky places in Little Karoo, closed shrubland, gravel; Eastern Fynbos-Renosterveld (Willowmore, Baviaanskloof).

dichotomum L.f.

Erect or sprawling dwarf shrub, simple or branched, 0.10–0.15 m high, woody only at very base. **Leaves** alternate, crowded, tufted at apex, up to 30 mm long, hair-points deciduous. **Inflorescences** terminal; peduncles up to 80 mm long, terminating in a whorl of leaves; repeatedly dichasial, ultimately pseudoracemes. **Nectariferous disc** white, of 3 obtuse, very thin lobes. **Stigmas** short, white, revolute. **Flowering time** Aug.–June. **Fruit** a rounded, loculicidal, 3–5-valved capsule, slightly longer than perianth. **Seeds** dark brown, finely granulate, discoid-biconvex, rim distinct. Open places on sand, karoo margins, valley bushveld, coastal grassland; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indigenous Forests, Albany Thicket (Cala S, from Fort Beaufort to Alice and from Tsitsikamma Forest through Port Elizabeth and Alexandria to Port Alfred).

trigonum Eckl. & Zeyh.

Low-growing, prostrate or sprawling dwarf shrublet, stems woody only at very base, much branched in or just above ground, 0.03–0.15 m high. **Leaves** crowded, ± squarrose, up to 8 mm long, trigonous, hair-pointed. **Inflorescences** terminal; peduncles up to 60 mm long, slender, forking into pseudoracemose branches. **Nectariferous disc** of 3 broad, crenulated lobes. **Stigmas** short, thick, less than 1 mm long. **Flowering time** Aug.–May. **Fruit** a rounded, loculicidal, 3–5-valved capsule, slightly longer than perianth. **Seeds** shiny, subglobose, distinctly bordered. Dry sandy or rocky slopes, closed shrubland, grassland; Upper Karoo, Eastern Fynbos-Renosterveld, Albany Thicket (Cradock to Uniondale S, from Uitenhage to Port Elizabeth, Grahamstown and Port Alfred).

1b Leaves in whorls along the stem, with or without a basal rosette; prostrate or sprawling plants

fluviale Eckl. & Zeyh.

Short-stemmed perennial, with 5–15 prostrate, annual branches 0.10–0.25 m long. **Leaves**: basal ones linear, flat, up to 20 mm long, withering at flowering time; cauline leaves whorled, shorter and narrower, often revolute. **Stipules** on stems bulged below leaves; white opaque, not sheathing, basally entire, divided into lobes or coarse hairs in upper part. **Inflorescences** terminal and lateral, spreading; peduncles up to 30 mm long, forking 1–3×, ultimate branches pseudoracemose. **Nectariferous disc** white, of 3 broad, obtuse lobes. **Stigmas** thick, white. **Flowering time** Aug.–Nov. **Fruit** rounded, slightly longer than perianth. **Seeds** dark brown, very finely granular, flattened, biconvex, distinctly bordered. Sandy slopes, riverbanks; Albany Thicket, Sub-Escarpment Grassland, Eastern Fynbos-Renosterveld, Albany Thicket (Somerset East and Fort Beaufort southwards, from Knysna E to Uitenhage and Grahamstown).

thunbergii Adamson

Glabrous perennial, ± woody at base; stems many, up to 0.6 m long. **Leaves** in whorls of 6–8; oblong or elliptical, thin, acute, up to 25 × 0.7 mm. **Stipules** cut to base into lobes or hairs. **Inflorescences** axillary, ascending, pseudoracemose with 3–8 flowers;

peduncles slender, up to 30 mm long. **Nectariferous disc** small, of 5 obtuse, usually white lobes. **Stigmas** short, stout. **Flowering time** Aug.–May. **Fruit** rounded, slightly shorter than perianth. **Seeds** black, shining, distinctly bordered. Bushy places near coast, southeastern coastal belt; Indian Ocean Coastal Belt, Indigenous Forests, Albany Thicket, Eastern Fynbos-Renosterveld (Mkambati Nature Reserve, Port St Johns, East London, Port Alfred, Port Elizabeth, Humansdorp).

PSAMMOTROPHA Eckl. & Zeyh.

Species ± 11, mostly confined to sthn Afr., but with 2 extending further north, 1 into tropical Africa, LIM, NW, G, M, S, FS, KZN, L, NC, EC.

frigida Schltr.

Small, tufted, herbaceous plant, 0.03–0.10 m in diam., in low cushions or mats; apricot- or purplish-coloured. **Leaves** crowded at branch tips, a few scattered; incurved, oblong or obovate, subacute to apiculate, slightly narrowed at base, margins in upper half forming a pale, membranous border. **Inflorescences** glomerulate cymes; peduncles up to 50 mm long. **Flowers** crowded, pedicellate, small. **Perianth segments** obtuse, incurved, ± cucullate, bulged on back. **Style** 4- or 5-fid at top. **Stigmas** small, knob-like. **Flowering time** Oct.–Mar. **Fruit** a chartaceous, loculicidal capsule; 1 ovule per locule. **Seeds** brown, finely punctate. Rock crevices on mountain summits mostly in WC; Upper Karoo (Middelburg District, Kompasberg).

mucronata (Thunb.) Fenzl

Short-stemmed plant, basal leaves in cushions, 0.04–0.25 m high; stems slender, up to 100 mm long. **Leaves** in tufts, linear-spathulate, distinctly narrowed at base, base and margins whitish, membranous, tapering into acute apex with terminal bristle, midrib indistinct; stipules caducous, except on inflorescence. **Inflorescences** umbellate cymes; peduncles up to 25 mm long; bracts leaf-like with mucronate bristle. **Flowers** in groups of 3–6. **Perianth segments** incurved, with broad membranous edge, midrib bulging. **Style** as long as ovary, apically 3- or 5-fid. **Flowering time** Oct.–Apr. **Fruit** a chartaceous, loculicidal capsule; 1 ovule per locule. **Seeds** brown with fine, concentric ridges. Damp, rocky places on mountains and grassland; Mesic Highveld Grassland, Drakensberg Grassland, Upper Karoo, Sub-Escarpment Grassland, Indian Ocean Coastal Belt (Barkly East District E to Ntsikeni Nature Reserve, southwards to Middelburg and Wodehouse Districts, and from Fort Cunynghame to Stutterheim).

myriantha Sond.

iMphephotshani (Z)

Perennial subshrub or cushion plant, 0.01–0.08 m high; stems erect, widened at top; rooting at nodes, forming runners. **Leaves** crowded into basal rosette, linear, not narrowed at base, acute with terminal bristle, midrib distinct; stipules caducous, except on inflorescence. **Inflorescences** glomerulate cymes; peduncles up to 100 mm long. **Flowers** crowded, pedicellate, small. **Perianth segments** incurved, herbaceous, free, green, with membranous margins. **Stamens** on a small, annular disc. **Stigmas** (3)5 spreading or recurved, longer than style. **Flowering time** Oct.–Mar. **Fruit** a chartaceous, loculicidal capsule; 1 ovule per locule. **Seeds** blackish brown. Grassy plateaus on mountain summits, rocky outcrops on eastern mountains; Drakensberg Grassland, Sub-Escarpment Grassland (Cala E to Ntsubane Forest and S to Hogsback).

ADAMSON, R.S. 1955. The South African species of Aizoaceae. I. *Adenogramma* and *Polpoda*. *Journal of South African Botany* 21: 83–95.
ADAMSON, R.S. 1958a. The South African species of Aizoaceae. IV. *Mollugo*, *Pharnaceum*, *Coelanthum* and *Hypertelis*. *Journal of South African Botany* 24: 11–66.
ADAMSON, R.S. 1958b. The South African species of Aizoaceae. V. *Corbichonia*. *Journal of South African Botany* 24: 67–69.
ADAMSON, R.S. 1959. The South African species of Aizoaceae. VIII. *Psammotropha*. *Journal of South African Botany* 25: 51–68.
ADAMSON, R.S. 1961. The South African species of Aizoaceae. IX. *Glinus*. *Journal of South African Botany* 27: 125–130.
ENDRESS, M.E. & BITTRICH, V. 1993. Molluginaceae. In K. Kubitzki, J.G. Rohwer & V. Bittrich, *The families and genera of vascular plants — dicotyledons* 2. Springer-Verlag, Berlin.
FRIEDRICH, H.C. 1966. Molluginaceae. *Prodromus einer Flora von Südwestafrika* 26: 1–21.
GONÇALVES, M.L. 1978. Molluginaceae. *Flora zambesiaca* 4: 522–548.
PHILLIPS, E.P. 1951. The genera of South African flowering plants, edn 2. *Memoirs of the Botanical Survey of South Africa* No. 25.
ROSS, J.H. 1972. Molluginaceae. Flora of Natal. *Memoirs of the Botanical Survey of South Africa* No. 39.
SONDER, O.W. 1860. Caryophylleae. *Flora capensis* 1: 120–151.

MONIMIACEAE

(Order Laurales)

Compiled by C.L. Bredenkamp

XYMALOS Baill.

Monotypic, East Africa from Sudan to sthn Afr., forests in LIM, M, S, KZN, EC.

monospora (Harv.) Baill.

Lemonwood; *lemoenhout* (A); *uvethe* (X); *umhlwehlwe* (Z)

Evergreen tree or shrub, dioecious, 3–25 m high. **Leaves** subopposite, simple, coriaceous, entire or irregularly glandular-toothed, gland-dotted; stipules 0. **Inflorescence** velvety pubescent racemes or cymes in axils of upper leaves. **Male flowers** with small flat receptacle; tepals 4–6; stamens 10–15. **Female flowers** with 3–5 tepals; ovary superior, unicarpellate, obovoid, glabrous, a ring of hairs around its base, 1-locular; ovule solitary; stigma thick, sessile, discoid. **Flowering time** May–Sept. **Fruit** a 1-seeded drupe, ovoid, smooth, often enclosed by perianth. **Seed** compressed, ellipsoid. Misty to full sunlight, moist areas with leached siliceous soils, rich in humus; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests, Drakensberg Grassland (Insizwa S through Amatole Mts to Hogsback, Stutterheim and King William's Town).

PHILLIPSON, W.R. 1987. A classification of the Monimiaceae. *Nordic Journal Botany* 7: 25–29.
PHILLIPSON, W.R. 1993. Monimiaceae. In K. Kubitzki, J.G. Rohwer & V. Bittrich, *The families and genera of vascular plants — dicotyledons* 2. Springer-Verlag, Berlin.
STANNARD, B.L. 1997. Monimiaceae. *Flora zambesiaca* 9,2: 42–44.
VERDCOURT, B. 1968. *Flora of tropical East Africa.* Monimiaceae: 1–3.
WRIGHT, C.H. 1912. Monimiaceae. *Flora capensis* 5,1: 492, 493.

MONTINIACEAE

(Order Solanales)

Compiled by C.L. Bredenkamp

MONTINIA Thunb.

Peperbos (A)

Monotypic, SW Angola and sthn Afr., N, B, NC, WC, EC.

caryophyllacea Thunb.

Wild clove-bush; *bergklapperbos* (A); *t'iena* (Nama)

Dioecious, erect, glaucous shrub, up to 1.5 m high. **Leaves** alternate, simple, entire, penninerved, shortly petiolate, ± glabrous, coriaceous, elliptic or oblanceolate; stipules 0. **Male flowers** in terminal corymbs; calyx tube expanded, shortly 4-lobed; petals 4, free, fleshy, rounded, white; stamens 4, disc basin-shaped, large, yellow-green. **Female flowers** solitary or in groups of 2(3); calyx tube fusiform, adnate to ovary, shortly 4-toothed; petals as in male; disc epigynous; ovary inferior, 2-carpellate, ellipsoid; style 2-branched, stigmas horseshoe-shaped. **Flowering time** May–Oct. **Fruit** a 1-locular, subwoody, ellipsoid capsule, crowned by persistent calyx lobes, disc and style, opening by 2 valves. **Seeds** flat, winged. Rocky slopes; Eastern Fynbos-Renosterveld, Indigenous Forests, Albany Thicket, Sub-Escarpment Savanna (Joubertina District E to Baviaanskloof, Uitenhage, Port Elizabeth, Grahamstown and Southwell, and to Humansdorp).

ADAMSON, R.S. 1950. Saxifragaceae DC. In R.S. Adamson & T.M. Salter, *Flora of the Cape Peninsula*. Juta, Cape Town.
FRIEDRICH-HOLZHAMMER, M. 1967. Montiniaceae. *Prodromus einer Flora von Südwestafrika* 54: 1.
HARVEY, W.H. 1862. Saxifragaceae. *Flora capensis* 2: 305–309.
MENDES, E.J. 1978. Montiniaceae. *Flora zambesiaca* 4: 54–57.
MILNE-REDHEAD, E.W.B.H. 1955. Montiniaceae. In *Hooker's Icones Plantarum*, 5th series. Vol. 6,1. tt. 3541–3544.
SMITH, J.E. 1792. *Montinia*. *Spicilegium Botanicum*. Davis, London.

MORACEAE

(Order Rosales)

Compiled by J. Burrows

Flowers borne within a fleshy hollow receptacle, globose or obovoid, closed at the top except for a small ostiole; leaf margins entire ..... **Ficus**
Flowers in dense, globose heads, spikes or catkins; leaf margins incised or serrate ..... **Morus**

FICUS L.

Species 750–800, with ± 500 in Asia and Australia, ± 150 in the Neotropics and ± 100 in Africa/Madagascar, predominantly in moist forests, some in warm temperate and/or xeric regions; 26 in sthn Afr., widespread.

Four subgenera: *Pharmacosycea*, *Urostigma*, *Ficus*, and *Sycomorus*, based mainly on differences in flower construction and sex distribution.

1a Syconia (figs) borne in pairs in leaf axils, sometimes on bare twigs below leaves
2a Leaves with long hairs on both surfaces

glumosa Delile
(= *Ficus sonderi* Miq.)

African rock fig, golden-haired rock fig, mountain rock fig; *harige rotsvy*, *bergvy*, *rotsvy* (A); *mphaya* (NS); *inkokhokho* (Z)

Tree, 4–10 m high, rock-splitter, rarely terrestrial. **Main stem** short, crooked; bark whitish to yellowish green, smooth or flaking; branchlets densely hairy. **Leaves** alternate, stiff, round-oblong to broadly elliptic (30–140 × 16–95 mm), thickly textured, dark green glossy above, densely hairy when young, base lobed to rounded, apex rounded; petioles 5–50 mm long, hairy; stipules large and prominent on new growth, up to 50 mm long, densely hairy. **Syconia (figs)** single or in pairs in leaf axils, stalkless, ± rounded, 8–15 mm in diam., densely to sparsely hairy, pink or red when ripe; ostiole often raised, yellowish. Rocky hills and outcrops in seasonally-dry deciduous woodland; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests (Bizana District of Transkei).

2b Leaves hairless
3a Leaf bases variously cordate; leaves lanceolate, venation cream-coloured, prominent; new leaves red-bronze

ingens (Miq.) Miq.

Red-leaved fig, red-leaved rock fig; *rooiblaarrotsvy*, *rooiblaarvy* (A); *umkhiwane* (X); *inkhokhokho* (Z)

Free-standing, deciduous tree, up to 18 m high and 30 m wide, or small rock-splitter. **Leaves** stiff, ovate, oblong-lanceolate or lanceolate (45–165 × 27–85 mm), dark olive-green, somewhat glossy; veins distinctly pale, base usually square, sometimes rounded or cordate, apex acuminate; petioles 6–42 mm long. **Syconia (figs)** stalked, often shortly, borne in pairs or singly in leaf axils, or on bare twigs below leaves, round to pear-shaped, 10–13 mm in diam., smooth, with or without small warts, finely hairy or hairless, creamish green, turning pinkish when ripe. Mixed woodland, riverine forest and rocky outcrops, often on cliffs; Sub-Escarpment Grassland, Indigenous Forests, Indian Ocean Coastal Belt, Sub-Escarpment Savanna, Albany Thicket (Umtamvuna River Valley to eastern Suurberg).

3b Leaf bases rounded to cuneate or tapering; leaves oblanceolate, elliptic to lanceolate
4a Leaf apices shortly acuminate, acute or obtuse; syconia sessile or stalked, hairy or not
5a Large usually free-standing tree with spreading crown; syconia sessile, variously hairy

burkei (Miq.) Miq.
(= *Ficus petersii auctt.*, *non* Warb., *Ficus thonningii pro parte*)

Common wild fig; *gewone wildevy* (A); *moumo* (NS, T); *umthombe* (X, Z); *umbombe* (Z)

Tree 15–18 m high, crown spreading, or a strangler, deciduous. **Leaves** alternate or whorled, leathery, elliptic to narrowly obovate (45–120 × 17–60 mm), mid- to dark green, subglossy above, paler below, hairless or rarely finely hairy, base rounded to narrowly tapering, apex rounded to pointed; petioles 7–48 mm long. **Syconia (figs)** borne singly or in pairs in leaf axils, or just below leaves, ± sessile on a thickened, saucer-shaped basal plate, round, 10–20 mm in diam.; ostiole raised, nipple-like,

usually hairy, green, ripening pink or yellowish. Coastal forest or thicket, along larger river valleys; Indian Ocean Coastal Belt, Indigenous Forests, Sub-Escarpment Savanna, Albany Thicket (Umtamvuna River Valley to Alexandria District, planted elsewhere).

5b Small tree or shrub, usually strangling or on rocks; syconia distinctly stalked, glabrous

burtt-davyi Hutch.

Burtt Davy's fig, scrambling fig, veld fig; *rooitou*, *veldvy* (A); *uluzi* (X); *umthombe* (Z)

Shrub or small tree, up to 6 m high, forest liane or strangler, more rarely on rocks. **Leaves** alternate, simple, elliptic, obovate or oblanceolate (30–120 × 10–50 mm), thinly leathery, slightly glossy above, hairless, base rounded to tapering, distinct pair of V-shaped veins arising from base, apex variously pointed, margins entire, slightly inrolled; petioles 4–25 mm long. **Syconia (figs)** borne singly or in pairs on twigs of previous year's growth, round, ± 12 mm in diam., smooth with few small warts, hairless, yellowish green when ripe; ostiole not prominent; stalk up to 9 mm long. Forest or rocky outcrops in grassland and woodland, common in coastal bush; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests, Eastern Fynbos-Renosterveld, Lower Karoo, Albany Thicket (Umtamvuna River Valley to Graaff-Reinet, Meiringspoort and Knysna).

4b Leaf apices blunt to truncate; syconia always sessile, glabrous

craterostoma Warb. ex Mildbr. & Burret

Forest fig, blunt-leaved fig; *stompblaarvy*, *wurgvy*, *bostouboom* (A); *moumo* (NS); *umthombe* (X); *isishlamfane* (Z)

Small to medium tree, 5–10(–20) m high, strangler or rock-splitter. **Bark** creamish grey to light grey, smooth, with longitudinal fissures. **Leaves** spirally arranged, sometimes in one plane, leathery, glossy dark green, obovate to obtriangular (30–95 × 17–52 mm), hairless, base tapering, apex rounded to truncate; petioles 4–23 mm long. **Syconia (figs)** in pairs in leaf axils, without stalk, ± round, with a slight nipple, hairless, usually glossy, with creamy yellow spots. Semi-deciduous forest or coastal forest; Indian Ocean Coastal Belt, Indigenous Forests, Sub-Escarpment Savanna, Albany Thicket (Umtamvuna River to Kei River).

1b Syconia borne on main branches or stems, on modified leafless branches (trusses) or on caterpillar-like spurs.
6a Syconia borne on caterpillar-like spurs appressed against the stem and branches.

bizanae Hutch. & Burtt Davy

Pondo fig, Pondoland fig; *Pondovy* (A); *umthombe* (X)

Tree, 15–18 m high, lithophytic or a strangler. **Leaves** held stiffly, leathery, elliptic to ovate, 65–110 × 37–68 mm, olive-green above, paler below, glabrous throughout, apex shortly acuminate to acute, base rounded to broadly cuneate, margins ± flat, basal pair of veins forming a 'V'; petioles 15–65 mm. **Syconia (figs)** 1–3, borne on appressed spurs 10–40 mm long, set on older branches and stems, receptacle ellipsoid to obovoid, 35–45 × 30–35 mm, glabrous to subglabrous, yellowish green with slightly raised whitish dots, ostiole faintly raised, stalk 13–25 mm long. Coastal and riverine forest along coastal belt; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests (Umtamvuna River Valley to Dwesa-Cwebe Forest).

6b Syconia (figs) borne on modified leafless branches (or trusses) produced on the main branches and trunks; trusses persistent

sur Forssk.
(= *Ficus capensis* Thunb.)

Cape fig, broom-cluster fig; *besemtrosvy*, *besembosvy*, *koeman* (A); *mogo* (NS); *umkwane* (X); *umkhiwane* (Z)

Tree with rounded crown, up to 12(–25)m high. **Leaves** alternate, spiralled, thinly leathery, ovate to elliptic (55–200 × 20–130 mm), dark green, paler below, glabrous on both surfaces, base rounded to cordate, apex rounded to acute, margins widely and irregularly dentate; petioles 13–90 mm long. **Syconia (figs)** borne on much-branched leafless branches (trusses), main branches, trunk or roots (syconia borne just below soil level); figs round to pear-shaped, 28–40 mm in diam., usually hairless, green, spotted with minute cream-coloured spots, turning pink/red when ripe; stalk ± 10 mm long. Thicket, riverine and semi-deciduous forest, or rocky hills; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests, Eastern Fynbos-Renosterveld, Albany Thicket (Umtamvuna River Valley to Baviaanskloof and Tsitsikamma forests).

MORUS L.

Species ± 13, in temperate to subtropical regions of the Old and New World; only 1 native in Africa, northern KZN; 1 possible escape from cultivation in northern Pondoland of the EC.

***alba** L.

White mulberry; *witmoerbei* (A)

Deciduous tree, 3–10 m high, crown rounded. **Leaves** thinly textured, very variable, entire to deeply incised, ovate to narrowly ovate, 50–250 × 20–160 mm, upper surface glabrous, smooth, subglossy, lower surface glabrous, usually with hair tufts in vein axils, apex acute, base cordate to truncate, margins coarsely serrate to dentate, venation raised below, cream-coloured, basal 3 veins forming a 'V'; petioles 10–35 mm long. **Male inflorescence** an axillary catkin, ± 25 mm long, calyx lobes ovate. **Female inflorescence** pedunculate, cylindrical, 8–15 mm long, styles free to base, style arms glabrous to glabrescent. **Syconia** compound, fleshy, cylindrical, 15–60 mm long, whitish, ripening to white, pink or purple-black; edible. Recorded only from KZN side of Umtamvuna River Valley (Umtamvuna Nature Reserve, probably occurs on EC side of border).

BARKER, N.P. 1987. *Ficus ingens*. *The Flowering Plants of Africa* 49: t. 1957.
BERG, C.C. 1986. Subdivision of *Ficus* subgen. *Urostigma* sect. *Galoglychia* (Moraceae). *Proceedings van de Koninklijke Nederlandse Akademie van Wetenschappen*. Ser. C, 89: 121–127.
BERG, C.C. 1989. *Flora of tropical East Africa*. Moraceae: 1–86.
BERG, C.C. 1991. Moraceae. *Flora zambesiaca* 9,6: 13–76.
BROWN, N.E. & HUTCHINSON, J. 1920. Moraceae. *Flora capensis* 5,2: 522–528.
BURROWS, J.E. & BURROWS, S.M. 2003. *The Figs of southern & south-Central Africa*. Umdaus Press, Pretoria.
MILDBRAED, J. & BURRET, M. 1912. Die afrikanischen Arten der Gattung *Ficus* Linn. *Botanische Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie* 46: 189–269.
ROHWER, J.G. 1993. Moraceae. In K. Kubitzki, J.G. Rohwer & V. Bittrich, *The families and genera of vascular plants — dicotyledons* 2. Springer-Verlag, Berlin.
VAN GREUNING, J.V. 1990. A synopsis of the genus *Ficus* (Moraceae) in southern Africa. *South African Journal of Botany* 56: 599–630.
VON BREITENBACH, J. 1974. The wild figs of southern Africa. *Trees in South Africa* 26,3: 58–80.

MYOPORACEAE

(Order Lamiales)

Compiled by W.G. Welman

*MYOPORUM Banks & Sol. ex G.Forst.

Species 32, mostly Australia; 1 naturalised in sthn Afr., along coasts of WC, EC.

tenuifolium G.Forst. subsp. **montanum** (R.Br.) Chinnock

Manatoka, manitoka

Evergreen, spreading shrub or tree, up to 6 m high. **Leaves** ± sessile, lanceolate to linear-lanceolate, up to 100 mm long, apex acute, base tapering, glabrous, ± fleshy, margins entire. **Flowers** in small, axillary clusters. **Calyx** 2–3 mm long, 5-lobed, lobes acute. **Corolla** bell-shaped, 5-lobed, white, often purple-spotted, 5–8 mm long. **Flowering time** July–Nov. **Fruit** a ± fleshy, globose drupe, 6–8 mm long, dark purple. **Seed** globose, wrinkled, brown, 5–7 mm in diam. Coastal dunes and fynbos, riverbanks and valleys, also cultivated; origin Australia, declared invader (Category 3), poisonous; Albany Thicket, Eastern Fynbos-Renosterveld, Indigenous Forests (± coastal, Humansdorp District, Alexandria, East London).

HENDERSON, L. 2001. *Alien weeds and invasive plants*. Plant Protection Research Institute Handbook No. 12, Agricultural Research Council, Paarl Printers, Cape Town.

MYRICACEAE

(Order Fagales)

Compiled by C.L. Bredenkamp

MORELLA Lour.

Species ± 53, temperate and subtropical parts of both hemispheres; 9 in sthn Afr., widespread.

Leaves narrowly attenuate at base

quercifolia (L.) Killick

Maagpynbossie (A)

Dioecious, low spreading shrub, 0.1–0.6 m high. **Leaves** spathulate-ovate, pinnatisect to coarsely repand-dentate, up to 50 mm long, conspicuously gland-dotted beneath; petioled. **Male spikes** with rachis not visible, bracts very broad, gland-dotted; stamens 2–4, anthers papillose. **Female spikes** with rachis scarcely to clearly visible, densely gland-dotted; style branches filiform. **Flowering time** Aug.–Dec. **Fruit** a globose drupe, warted, covered with white wax. Coastal, sand, limestone, river mouths, floodplains; Eastern Fynbos-Renosterveld, Indigenous Forests, Sub-Escarpment Savanna, Albany Thicket (Nature's Valley E to Port Elizabeth and Grahamstown).

serrata (Lam.) Killick

Lance-leaved waxberry; *smalblaar-wasbessie*, *waterolier* (A); *umakhuthula* (X); *lulethi* (Z)

Shrub or small tree, 1–6 m high. **Leaves** narrowly elliptic, up to 100 mm long, mostly toothed, conspicuously reticulate-veined above, usually gland-dotted beneath, margins

± revolute; petioled. **Inflorescences** axillary, catkin-like spikes. **Male flowers** subtended by solitary bracts; stamens 4. **Female flowers** subtended by solitary bracts; gynoecium 2-carpellate; sessile, 1-locular; ovule solitary, style short; stigmas 2. **Flowering time** Aug.–Dec. **Fruit** a globose drupe, warted, covered with white wax. Rocky streamsides, mountain slopes; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Eastern Fynbos-Renosterveld, Albany Thicket (Mzimkhulu River S, from Elliot District E to Port Edward and southwards through Amatole Mts, from Tsitsikamma to Port Elizabeth and Grahamstown).

Leaves broadly cuneate to round at base

brevifolia (E.Mey. ex C.DC.) Killick

Dioecious, dwarf shrub, 0.3–1.0 m high; arising from underground rootstock. **Leaves** narrowly elliptic, up to 30 mm long, apex acute, margins with 1–5 serrations in upper half, conspicuously glandular; scarcely petiolate. **Male spikes** with rachis not visible, bracts imbricate, trullate-triangular; stamens 2(4), anthers epapillose. **Female spikes** with rachis scarcely visible, pubescent; style branches filiform (slightly flattened). **Flowering time** Aug.–Dec. **Fruit** a globose drupe, warted, wax-covered. Confined to hills and mountains; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indigenous Forests, Eastern Fynbos-Renosterveld, Albany Thicket (Umtamvuna Nature Reserve southwards, Amatole Mts, Tsitsikamma Forests, E to Grahamstown).

cordifolia (L.) Killick

Candle berry, dune waxberry; *glashout*, *duin-wasbessie* (A)

Dioecious shrub, 0.5–3.0 m high. **Leaves** imbricate, sessile, broadly ovate-cordate, up to 30 mm long, toothed, margins revolute, gland-dotted. **Male spikes** with rachis fairly visible, bracts solitary, broadly ovate; stamens 2. **Female spikes** with rachis glabrous, visible; style branches 2, filiform. **Flowering time** July–May. **Fruit** a globose drupe, warted, densely covered with wax. Common on sand dunes; Indian Ocean Coastal Belt, Albany Thicket, Eastern Fynbos-Renosterveld (Port St Johns SW along coast to Cape St Francis).

humilis (Cham. & Schltdl.) Killick

Dioecious shrub, 0.5–1.0 m high; ultimate branchlets glabrous to tomentulose. **Leaves** elliptic-ovate to broadly ovate, up to 45 mm long, apex acute to apiculate, margins entire, with a few serrations in upper quarter; scarcely petiolate. **Male spikes** with rachis scarcely visible, bracts broadly trullate-ovate, ridged; stamens 4, anthers epapillose. **Female spikes** up to 40 mm long, rachis visible, glabrous to tomentulose; style branches flattened, thick, long. **Flowering time** July–Nov. **Fruit** a globose drupe, warted, covered with white wax. Coastal, riverbanks, forest edges; Eastern Fynbos-Renosterveld, Indigenous Forests, Albany Thicket (Joubertina E to Grahamstown and to Humansdorp).

pilulifera (Rendle) Killick

Broad-leaved waxberry; *breëblaar-wasbessie* (A)

Dioecious shrub or tree, 3–30 m high; branchlets often prominently lenticulate, glabrous to tomentulose. **Leaves** narrowly elliptic to elliptic-obovate, up to 65 mm long, apex acute to apiculate, margins crenate-serrate in upper $^{2}/_{3}$, coriaceous; petioles distinct, up to 10 mm long. **Male spikes** with rachis not or scarcely visible, pubescent, gland-dotted, bracts obtrullate, ciliate, ridged; stamens 5–8, anthers minutely papillose. **Female spikes** up to 45 mm long, rachis visible, pubescent; style branches 2, flattened. **Flowering time**

July–Nov. **Fruit** an ellipso-globose drupe, warted, wax-covered. High altitudes, forests, moderate slopes in Molteno Formation, grassland; Indigenous Forests, Sub-Escarpment Grassland (Transkei, Insizwa SW to Maclear, Engcobo and Baziya Forest Station).

HUTCHINSON, J. 1917. Myricaceae. *Flora of tropical Africa* 6,2: 307–314.
HUTCHINSON, J. 1925. Myricaceae. *Flora capensis* 5,2: 561–572.
KILLICK, D.J.B. 1969. The South African species of *Myrica*. *Bothalia* 10: 5–17.
KILLICK, D.J.B., POLHILL, R.M. & VERDCOURT, B. 1998. New combinations in African Myricaceae. *Kew Bulletin* 53: 993–995.
KUBITZKI, K. 1993. Myricaceae. In K. Kubitzki, J.G. Rohwer & V. Bittrich, *The families and genera of vascular plants — dicotyledons* 2. Springer-Verlag, Berlin.
WHITE, F. 1993. African Myricaceae and the history of the Afromontane flora. *Opera Botanica* 121: 173–188.
WILBUR, R.L. 1994. The Myricaceae of the United States and Canada: genera, subgenera and series. *Sida* 16: 93–107.

MYRSINACEAE

(Order Ericales)

Compiled by C.L. Bredenkamp & M.M.H. Matiapoto

1a Petals free; filaments present; shrubs (occasionally tree-like) or often climbers ..... **Embelia**
1b Petals united; filaments present or absent; trees or shrubs:
2a Filaments developed, sometimes very short, united at base by a membrane; leaves usually 10–40 mm long, twigs thin and woody..... **Myrsine**
2b Filaments obsolete or very nearly so; leaves up to 120 mm long, and then oblanceolate; twigs thickish and soft when young..... **Rapanea**

EMBELIA Burm.f.

Species ± 100, through Asia, Australia, Mascarene Islands, as well as tropical Africa; 2 in sthn Afr., N, KZN, EC.

ruminata (E.Mey. ex A.DC.) Mez

East Coast embelia; *ooskus-embelia* (A); *ibhinini* (Z)

Scandent shrub (occasionally tree-like) or liana, 3.00–10.75 m high. **Leaves** petiolate, obovate-oblong, up to 50 mm long, margins entire or crenate. **Inflorescences** short, few-flowered, axillary racemes. **Flowers** small, bisexual, often male or female flowers on the same tree. **Calyx** small, cup-shaped, 4- or 5-lobed. **Petals** 4 or 5, free, oblong, inner surface densely papillose. **Stamens** 4 or 5, free; filaments linear; anthers ovate, introrse dehiscence. **Disc** small, 5-crenate. **Ovary** superior, 1-locular, ovule single, basal; stigma discoid. **Flowering time** July–Dec. **Fruit** a 1-seeded drupe, up to ± 14 mm in diam.; pericarp fleshy; endocarp woody. Coastal or inland forests of EC, extending to KZN; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests, Albany Thicket (Port Edward SW to Komga and Grahamstown).

MYRSINE L.

Cape myrtle; *mirtings* (A)

Species ± 7, from Africa to E Asia; 2 in sthn Afr., LIM, NW, G, M, S, FS, KZN, L, WC, EC.

africana L.

Shrub, up to 3 m high; dioecious or polygamo-dioecious. **Leaves** obovate, 5–20 mm long, margins toothed in apical half, revolute. **Inflorescences** of 1–5-flowered, axillary

clusters. **Flowers** cream-coloured. **Calyx** connate at base, margins ciliate, gland-dotted. **Corolla** longer than calyx; lobes 4 or 5, ciliate, gland-dotted. **Hermaphrodite flowers** with stamens included. **Male flowers** with stamens exceeding corolla; filaments present, anthers crimson, longer than filaments. **Ovary** superior, ovoid; style short; stigma disciform fimbriate. **Flowering time** all year. **Fruit** a 1-seeded, fleshy drupe, endocarp crustaceous, black. Grassland, open woodland, forests, mountain fynbos; Dry Highveld Grassland, Sub-Escarpment Grassland, Upper Karoo, Indigenous Forests, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Burgersdorp E to Mount Currie southwards, from Sterkstroom to Maclear, Graaff-Reinet to King William's Town and Baviaanskloof to Grahamstown).

pillansii Adamson

Large Cape myrtle; *groot-mirting* (A)

Shrub, up to 3 m high; dioecious or polygamo-dioecious. **Leaves** elliptic, 20–50 mm long, margins finely toothed, revolute. **Inflorescences** of 1–4-flowered, axillary clusters. **Flowers** cream-coloured. **Calyx** divided nearly to base, minutely ciliate, gland-dotted. **Corolla** longer than calyx; tube up to 0.75 mm long, lobes ciliate, gland-dotted. **Stamens** included; filaments present; anthers brown, sagittate. **Ovary** superior, subglobose; style short; stigma disciform asymmetrically lobed. **Flowering time** May–Oct. **Fruit** a 1-seeded, drupe. Rare species of low shrub or bush, distribution range remarkable; Indigenous Forests, Eastern Fynbos-Renosterveld (Tsitsikamma District, Witelsbos).
Burrows (1999) suggested that this species may be a genetic aberration of *M. africana*, necessitating further chromosome research. According to McMurtry (2006) the species might be a hybrid between *M. africana* and *Rapanea melanophloeos*.

RAPANEA Aubl.

Cape beeches; *Kaapse boekenhoutbome* (A)

Species ± 100, pantropical, throughout most of Africa; 2 in sthn Afr., LIM, M, S, KZN, WC, EC.

[E]**gilliana** (Sond.) Mez

Dwarf Cape beech; *dwerg Kaapse boekenhout* (A)

Small tree or shrub, 0.75–1.25(4.00) m; dioecious or polygamo-dioecious; minutely brown puberulous. **Leaves** leathery, subsessile, oblanceolate, margins revolute, surfaces with white, lepidote scales. **Inflorescences** 4–7-flowered in axillary fascicles. **Flowers** cream-coloured. **Calyx** divided almost to base, sepals 5, with dark glandular dots or ducts. **Corolla** tube ± 1 mm long, lobes ovate-oblong, upper surface strongly papillose, margins glandular-ciliate. **Stamens** sagittate. **Style** obsolete. **Stigma** capitate. **Flowering time** May–July. **Fruit** an ellipsoid drupe, ± 8 mm long, style base persistent. Coastal dunes, scrub, rocky outcrops; Eastern Fynbos-Renosterveld, Albany Thicket (Humansdorp through Port Elizabeth to Kowie and Bathurst).

melanophloeos (L.) Mez

[= *Myrsine melanoploeos* (L.) R.Br. ex Sweet**]**

Cape beech; *Kaapse boekenhout* (A); *isiqwane sehlhathi* (X); *umaphipha* (Z)

Tree, 3–20 m high; twigs rather thick and soft; minutely brown puberulous. **Leaves** petiolate, oblong or oblong-lanceolate, 60–120 × 15–40 mm, apex subacute; texture rather thick, veins mostly sunken, margins slightly recurved, surfaces minutely gland-

dotted. **Inflorescences** few- to several-flowered fascicles in axils of lower leaves; functionally male, female or bisexual. **Flowers** cream-coloured. **Calyx** 5-parted, sepals ovate-lanceolate, minutely ciliate. **Corolla** 3–4 mm long, tube ± 1 mm long, lobes oblong or elliptic-lanceolate, dark spotted, inner margins minutely papillose. **Stamens** inserted within corolla tube, anthers oblong. **Style** very short. **Stigma** thick. **Flowering time** May–July. **Fruit** a globose drupe, 4–5 mm in diam. Pioneer in ravines or a component of medium or high forest; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indigenous Forests, Indian Ocean Coastal Belt, Drakensberg Grassland, Eastern Fynbos-Renosterveld, Albany Thicket (Transkei, Ntlenzi S, from Queenstown to Lusikisiki District, Mpofu Game Reserve to Komga and from Suurberg Pass to Grahamstown).

BURROWS, J. 1999. *Myrsine*. *Plantlife* 20: 25, 26.
DYER, R.A. 1963. Myrsinaceae. *Flora of southern Africa* 26: 1–9.
HALLIDAY, P. 1984. *Flora of tropical East Africa*. Myrsinaceae: 1–19.
HARVEY, W.H. & WRIGHT, C.H. 1906. *Flora capensis* 4,1: 431–436.
KUPICHA, F.K. 1983. Myrsinaceae. *Flora zambesiaca*: 7,1: 198–210.
MABBERLEY, D.J. 1980. Generic names published in Salisbury's reviews of Robert Brown's works. *Taxon* 29: 597–606.
McMURTRY, D. 2006. Flagging the status of *Myrsine pillansii*. *Plantlife* 35: 44–46.
MEZ, C. 1902. Myrsinaceae. *Das Pflanzenreich* 4. 236 (Heft 9): 1–437.
SWEET, R. 1818. *Hortus suburbanus Londinensis*. James Ridgeway, London.

MYRTACEAE

(Order Myrtales)

Compiled by C.L. Bredenkamp & M.M.H. Matiapoto

1a Fruit fleshy, edible:
2a Flowers solitary ..... ***Psidium**
2b Flowers in axillary fascicles or terminal panicles:
3a Calyx tube sharply distinguished from pedicel; limb of calyx deeply 4(5)-lobed ..... **Eugenia**
3b Calyx tube contracted gradually into pedicel; limb of calyx entire or repandly lobed ..... **Syzygium**
1b Fruit a capsule, dehiscent:
4a Petals and calyx fused into an operculum, deciduous at anthesis ..... ***Eucalyptus**
4b Perianth not as above:
5a Flowers pedicellate, in panicles ..... ***Syncarpia**
5b Flowers sessile, solitary or in spikes:
6a Flowers solitary; calyx persisting; stamens generally short and not showy ..... ***Leptospermum**
6b Flowers in spikes; calyx not persisting; stamens long and brightly coloured ..... ***Callistemon**

*CALLISTEMON R.Br.

Bottlebrush

Species ± 30 or more, endemic to Australia; 2 naturalised in EC.

rigidus R.Br.

Shrub or small tree, 1.5–2.5 m high. **Leaves** linear to elliptic; oil glands and venation prominent. **Flowers** in cylindrical spikes, axis downy, at first terminal but axis soon growing out into leafy shoot; hypanthium ovoid. **Sepals** 5. **Petals** 5, usually red. **Stamens** many, much longer than petals, in 2 or more series, rarely united in short ring at base, red. **Style** simple, up to 23 mm long. **Fruit** a cup-shaped, woody capsule, usually remaining on stem for several years. **Seeds** very small, many. Tolerant of dry and waterlogged conditions; origin Australia, declared invader (Category 3); (mostly in Grahamstown District).

speciosus (Sims) DC.
Albany bottlebrush

Evergreen, bushy shrub, up to 3 m high. **Leaves** long, narrow, grey-green. **Flowers** in cylindrical clusters. **Flowers** bright red. Half hardy (mostly in Grahamstown District).

*EUCALYPTUS L'Hér.

Species almost 600, mostly Australian but some extending into Indonesia; some 320 have been cultivated in sthn Afr. and ± 6 occur as escapees.

camaldulensis Dehnh.
Red river gum; *rooibloekom* (A)

Evergreen tree, 18–40 m high, with a spreading crown, smooth, mottled, white or grey bark, often tinged red in very cold localities. **Leaves** pale, dull green; adult leaves 120–220 mm long, narrow, pendulous; juvenile leaves smaller and broader; twigs and petioles red. **Flowers** cream-coloured with long-exserted stamens, buds conical, egg-shaped, or beaked, up to 10 mm long. **Flowering time** Sept.–Jan. (all year). **Fruit** a brown to reddish brown capsule, 7–8 mm long, with prominent rims and protruding triangular valves. Cultivated for shelter, timber, firewood, ornaments; honey source; invades perennial, seasonal and intermittent watercourses; origin Australia except Tasmania; transformer, declared invader (Category 2).

diversicolor F.Muell.
Karri, *karie* (A)

Tall, dense, massively branched, evergreen tree, 25–58 m high; bark smooth, except at butt, grey to orange-yellow in blotches. **Leaves** dark green and glossy above, distinctly paler beneath; adult leaves lanceolate, 100–140 mm long; juvenile leaves broader or ovate, 40–80 mm long. **Flowers** cream-coloured with long-exserted stamens, buds with conical lids, up to 14 mm long. **Flowering time** May–Dec. (all year). **Fruit** a brown, globose capsule, up to 12 mm long, with enclosed valves. Cultivated for timber, shelter, ornaments; honey source; invades forest gaps, fynbos, roadsides, watercourses; origin SW Australia; potential transformer, declared invader (Category 2).

grandis W.Hill ex Maiden
Saligna gum; *salignabloekom* (A)

Perennial, evergreen tree with shaft-like trunk, up to 20 m high; bark smooth, except butt up to 4 m high, peeling in long, thin strips to expose a powdery, white, grey-white or blue-grey surface. **Leaves** dark green and glossy above, paler below; adult leaves 130–200 mm long, similar to juvenile leaves. **Flowers** cream-coloured with long-exserted stamens, buds up to 8 mm long, pear-shaped with conical lids; peduncles flattened. **Flowering time** Apr.–Aug. **Fruit** a capsule, brown with bluish grey bloom, pear-shaped, 7–10 mm long, with protruding valves that arch inwards. Cultivated for timber, shelter, shade, firewood; honey source; invades forest gaps, plantations, watercourses, roadsides; origin E and NE Australia; transformer, declared invader (Category 2).

lehmannii (Schauer) Benth.
Spider gum; *spinnekopbloekom* (A)

Perennial, evergreen tree, up to 6 m high; dense, rounded, bushy, branching near ground level, bark smooth grey-brown. **Leaves** light green; adult leaves 70–90 mm long, more tapering than juvenile leaves. **Flowers** greenish yellow with long-exserted stamens,

in large, fused clusters, buds capped with elongated, curved, finger-like lids, 50 mm long. **Flowering time** June–Jan. **Fruit** a greyish brown capsule, fused into a wooden mass, up to 50 × 80 mm. Cultivated for shelter, sandbinding, timber; honey source. Invades coastal fynbos, coastal dunes; origin SW Australia; transformer, declared weed in WC and declared invader (Category 2) elsewhere in RSA.

EUGENIA L.

Species ± 1 000 (1 115, to include *Hexaclamys*), cosmopolitan in warm climates; 14 in sthn Afr., LIM, M, S, KZN, EC.

1a Seed from single-seeded fruit ± reniform or oblong-globose; lower lamina surface in fresh leaves light green, conspicuously gland-dotted, young leaves glabrous or sparingly pubescent; flowers white, rarely tinged pink; ripe fruit purplish black with white flesh
2a Hypanthium obconical (infundibular): stigma flattened, conspicuously expanded, bifid, orbicular or elliptic in outline; primary vein of leaf blades branching some distance before apex to join the marginal veins

capensis (Eckl. & Zeyh.) Sond.

Dune myrtle; *duine-mirt* (A); *inozane* (Z)

Rhizomatous suffrutex, shrub or small tree, 0.3–6.0 m high; young branchlets with rather dense, fairly persistent, indumentum of short, erect hairs. **Leaves** elliptic to orbicular. **Flowers** axillary, usually in 1–10(15)-flowered fascicles; pedicels (4)8–16(18) mm long. **Interstaminal area** surrounding style, conspicuously convex. **Flowering time** Jan.–Mar. Sandy soils, coastal dunes, grassland, inland forests and savannas; Indian Ocean Coastal Belt, Indigenous Forests, Sub-Escarpment Savanna, Albany Thicket (Mkambati Nature Reserve SW through East London to Alexandria).

2b Hypanthium globose-obconical (campanulate): stigma slightly capitate; primary vein of leaf blades terminating at apex

natalitia Sond.

Forest myrtle; *bosmirt* (A); *mohlahlanja* (NS); *umanzana* (Z)

Medium-sized tree, rarely shrub, 1–20 m high; internodes (6)15–25(35) mm long. **Leaves** oblanceolate to widely elliptic, apex caudate-acute to bluntly acuminate, margins entire. **Flowering time** June–Dec. Confined to forests, rarely with riverine forms; Indigenous Forests [Transkei, including Pondoland, Lwandile (Nkhwintyini Forest), Fort Cunynghame].

simii Dummer

River myrtle; *rivier-mirt* (A)

Much-branched shrub, 1–3 m high; internodes (4)6–10(20) mm long. **Leaves** narrowly oblanceolate or narrowly elliptic, apex acute, never with jutting point, margins entire. **Flowering time** Nov., Dec. Confined to banks and islands of rivers, alt. 0–300 m; Indian Ocean Coastal Belt (endemic to sandstone 'edaphic island' of southern KZN and Pondoland).

umtamvunensis A.E.van Wyk

Thick-leaved forest myrtle; *dikblaar bosmirt* (A)

Medium-sized tree, rarely shrub, 1–10 m high; branchlets relatively thick and stout, dark rusty brown becoming grey with age, occasionally with rather prominent, irregular, longitudinal ribs. **Leaves** thick and coriaceous, apex obtuse, rounded or occasionally

shortly and bluntly acute. **Flowers** usually in conspicuous short-shoots (brachyblasts) up to 6 mm long, short axillary racemes not recorded; sessile or with pedicels up to 4(6) mm long. **Flowering time** Oct., Nov. Forest trees on sandy, poor black acidic soil overlaying Table Mountain Sandstone; Indian Ocean Coastal Belt, Indigenous Forests, (endemic to sandstone region of southern KZN and Pondoland; Beacon Hill near Port Edward and Umtamvuna Nature Reserve).

1b Seed from single-seeded fruit ± globose; lower lamina surface in fresh leaves whitish green, not conspicuously gland-dotted, young leaves almost glabrous to densely pubescent; flowers white, often tinged pink; ripe fruit bright red (rarely creamish orange in E. albanensis*) with yellow flesh*
3a Rhizomatous suffrutices not exceeding 0.4 m in height, forming clones in grassland

albanensis Sond.

Myrtle apples; *vlakappels* (A)

Suffrutex, 0.1–0.4 m high. **Leaves** narrowly elliptic to broadly oblanceolate, (5)10–20 mm wide; bracteoles lanceolate, acute, occasionally foliaceous. **Flowers** in 3-flowered cymules (absent in some plants). **Flowering time** Sept.–Feb. **Fruit** large, up to 50 mm in diam. Forest edges, rocky grassland (recently burnt); Indian Ocean Coastal Belt, Indigenous Forests, Albany Thicket (coastal regions of EC; Lusikisiki, Mkambati Nature Reserve, Port Edward, Peddie and Hogsback Districts).

3b Trees or shrubs in forests or savannas
4a Leaves with midrib markedly elevated on upper lamina surface

zuluensis Dummer

Paper-barked myrtle; *papierbas-mirt* (A); *umbonzane* (Z)

Tree or shrub, 1.5–12.0 m high; mature bole bark shed in papery flakes. **Leaves** with midrib elevated into a narrow, median ridge. **Flowers** nearly always solitary in axils of leaves; pedicels relatively long and slender. **Flowering time** Nov., Dec. Under canopy tree of mist belt forest; Indigenous Forests (extreme northern parts of EC; Weza State Forest).

4b Leaves with midrib channelled to ± plane on the upper leaf surface
5a Hypanthium densely pubescent

erythrophylla Strey

Large-leaved myrtle; *grootblaar-mirt* (A)

Medium-sized to large canopy tree, 1.5–6.0 m high; indumentum densely villous or tomentose. **Leaves** thick and coriaceous, up to 170 × 10 mm, new leaves bright red. **Flowers** solitary or rarely in abbreviated racemes; hypanthium obconical (infundibular); shortly pedicellate or sessile. **Flowering time** Nov., Dec. Indian Ocean Coastal Belt, Indigenous Forests (endemic to sandstone regions of southern KZN and Pondoland; Umtamvuna Nature Reserve, Lusikisiki District, Mkambati Nature Reserve).

5b Hypanthium glabrous or very sparingly pubescent

verdoorniae A.E.van Wyk

Small-leaved myrtle; *fynblaar-mirt* (A)

Small tree or densely-leaved shrub, 1–5 m high. **Leaves** narrowly elliptic to linear-lanceolate, (4)5–6(8) mm wide; midrib slightly concave above when dried, flat below in fresh material; orbicular; essentially glabrous. **Flowers** solitary or rarely in short

racemes. **Flowering time** June, July. Forests, sandstone rocks at coast, islands in riverbeds and mouths; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests (endemic to sandstone regions of southern KZN and Pondoland; Port Edward, Umtamvuna Nature Reserve, Beacon Hill, Ntsubane, Lusikisiki District).

[E]**zeyheri** (Harv.) Harv.

Eastern Cape myrtle; *Oos-Kaapse mirt* (A); *isiduli sehlathi* (X); *ummbelwane* (Z)

Small to medium-sized tree, 1–4 m high. **Leaves** narrowly elliptic to lanceolate, apex acute, base cuneate to ± rounded; midrib on upper leaf surface visible as a plane, greenish line; essentially glabrous; petioles bent towards apex or forward (antrorse), but not closely appressed to axis; lamina slightly ventrally deflexed at junction with petiole. **Flowers** solitary or rarely in short racemes; pedicels 2–5 mm long. **Flowering time** Oct.–Dec. Relatively dry forest or shrub forest, valleys, river mouths or near shore; Indigenous Forests, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Albany Thicket, Eastern Fynbos-Renosterveld (Mount Currie District along coast, common in Bathurst and Albany Districts, SW to Uitenhage and Cape St Francis).

sp. A

Pink-leaved myrtle; *pienkblaar-mirt* (A)

Small, much-branched tree, ± 2.5 m high; bark smooth grey. **Leaves** elliptic, nearly always more than 15 mm wide, apex rounded, base cuneate, thickly coriaceous; midrib raised below in fresh material, channelled above; upper surface of young leaves densely sericeous, hairs with a silvery sheen, often coral-pink in colour; petioles relatively thick, blackish. **Flowers** distinctly pedicellate, hypanthium glabrous. **Flowering time** Oct.–Dec. Exposed forest margins on sandstone outcrops; Indigenous Forests, Indian Ocean Coastal Belt, Sub-Escarpment Savanna (Port Shepstone District, Port Edward).

sp. B

Mock paper-barked myrtle; *vals papierbas-mirt* (A)

Large canopy tree. **Leaves** elliptic-obovate, nearly always more than 15 mm wide, apex bluntly acuminate or caudate acute, base narrowly cuneate to narrowly attenuate, thinly coriaceous; midrib raised below in fresh material, channelled above; young leaves sparingly pubescent with whitish appressed hairs or essentially glabrous; petioles relatively thin, brownish green. **Flowers** lacking cymules, hypanthium not sericeous. **Flowering time** Oct.–Dec. Coastal forest; Indigenous Forests, Indian Ocean Coastal Belt (endemic to sandstone region of southern KZN and Pondoland).

*LEPTOSPERMUM J.R.Forst. & G.Forst.

Species ± 80, Australia or Tasmania; 1 naturalised in WC, EC.

laevigatum (Gaertn.) F.Muell.

Australian myrtle; *Australiese mirt* (A)

Large, densely branching, spreading shrub or tree, 1.5–4.5(8.0) m high; bark grey, flaking in thin strips. **Leaves** dull greyish green, obovate, 15–30 mm long, apex acute, shortly petiolate, margins entire, texture firm. **Flowers** axillary, solitary, up to 20 mm in diam. **Calyx**: hypanthium erect or spreading above at anthesis. **Sepals** 5, imbricate. **Petals** 5, spreading, conspicuous, white. **Stamens** shorter than petals, in 5 antipetalous groups; anthers conspicuous. **Flowering time** Aug.–Oct. **Fruit** a woody capsule with valves opening at top. **Seeds** somewhat ovoid, winged or wingless. Cultivated, invades forest clearings, mountain and lowland fynbos, on sandy soils; declared weed (Ciskei S, Port Elizabeth and Humansdorp).

*PSIDIUM L.

Species ± 100, tropical and South America, currently pantropical; 2 or more naturalised in sthn Afr., in warm, moist parts of M, S, KZN, WC, EC.

cattleianum Sabine

Strawberry/cherry guava; *aarbeikoejawel* (A)

Slender tree or evergreen shrub, 1–8 m high; young branches cylindrical, smooth. **Leaves** opposite, obovate-elliptic, apex abruptly acute, base long-tapering, leathery, dark green, shiny, glabrous. **Flowers** solitary. **Petals** 5, spreading, white. **Stamens** conspicuous, many, in many series, much longer than petals. **Flowering time** Oct.–Dec. **Fruit** purplish red berries, flesh white, many-seeded, sweet. Cultivated, invades savanna and forest margins; origin Brazil, declared invader (Category 3) (Port Edward, Port St Johns).

guajava L.

Guava; *koejawel* (A)

Small tree or evergreen shrub, 2–5(10) m high; young branches 4-angled, hairy. **Leaves** opposite, ovate to oblong-elliptic, apex rounded or acute, base rounded, leathery, venation impressed above, raised below, hairy below. **Flowers** in groups of 1–3. **Petals** 5, spreading, white. **Stamens** conspicuous, many, in many series, shorter than petals. **Flowering time** Oct.–Dec. **Fruit** green to yellow, many-seeded berries, 25–100 mm in diam., flesh white, yellow or pink, sweet, pleasantly flavoured. Cultivated, invades savanna, forest margins, roadsides, watercourses; origin tropical America, declared invader (Category 2) (Port Shepstone S to East London).

*SYNCARPIA Ten.

Species 3, endemic to Australia; 1 occasionally naturalised in sthn Afr., LIM, EC.

glomulifera (Sm.) Nied.

Tree, rarely shrub, up to 10 m high; bark fibrous, deeply furrowed, grey on surface, brown below. **Leaves** opposite when young, later forming pseudowhorls; glabrous. **Flowers** in a 7-flowered (or fewer by abortion) dichasium; sessile, basally connate. **Petals** 4 or 5, white, orbicular, caducous. **Stamens** many, free, much longer than petals. **Ovary** inferior, 3(4)-locular. **Flowering time** Nov.? **Fruit** capsular, fruiting hypanthia, connate, forming a woody, compound fruit. **Seeds** narrowly cuneate. Waysides, S-facing slopes, in maritime scrub (South Coast, bordering on EC).

SYZYGIUM Gaertn.

Water-berry trees; *waterbessies* (A)

Species ± 1 045, fairly cosmopolitan in warm areas; 6 in sthn Afr., N, B, LIM, M, S, KZN, EC.

1a Leaves 4–5(10) mm wide

pondoense Engl.

Pondo water-berry; *Pondo-waterbessie* (A)

Much-branched shrub or tree, 1–3 m high; bark grey, branches, reddish brown, 4-angled. **Leaf** narrowly elliptic to oblong, up to 45 mm long, apex and base acute, leathery, dark, shiny green, gland-dotted; midrib indented above, prominent below. **Flowers** in branched, terminal corymbose cymes, white, showy. **Stamens** many. **Flowering time** Nov., Dec. **Fruit** a globose berry, ± 15 mm in diam., red to purple, calyx per-

sistent. Msikaba Formation sandstone, rocks along riverbanks, islands in riverbeds and -mouths; Indian Ocean Coastal Belt, Indigenous Forests (Umtamvuna, Lusikisiki District, Port Edward and Mkambati Nature Reserve).

1b Leaves more than 10 mm wide
2a Leaf base deeply cordate, amplexicaul; petioles up to 2 mm long

cordatum Hochst. ex C.Krauss.

Umdoni; *waterbessie* (A); *montlho* (NS); *kowa* (T); *umswi* (X); *umdoni* (Z)

Small or medium-sized evergreen tree, 3–15 m high; foliage very dense, slightly glaucous; bark dark brown, rough, flaking; young stems quadrangular, slightly winged. **Leaf** oblong-elliptic or suborbicular, up to 80 mm long, apex broadly rounded to subacute. **Flowers** in branched, terminal, corymbose cymes, creamy white to pink, fragrant. **Stamens** many, fluffy. **Flowering time** Aug.–May. **Fruit** an oval berry, ± 18 × 9 mm, purple-black, urceolate, calyx persistent. Swamp forests, inland and coastal forests, wooded areas, watercourses, river mouths, sandy coastal plains; Indigenous Forests, Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Lusikisiki District E to Mkambati Nature Reserve, southwestwards in forests through Kentani District and East London to Nature's Valley).

2a Leaf base broadly rounded and slightly lobed to shortly attenuate; petioles > 2 mm long

gerrardii (Harv. ex Hook.f.) Burtt Davy

Forest water-berry; *bos-waterbessie* (A); *mohlahlanya* (NS); *umjomi-wehlathi* (X); *umdunywana* (Z)

Medium to large evergreen tree, 1–20 m high; crown dense, young growth pinkish to yellowish green. **Leaf** elliptic, up to 55 mm long, often folded upwards along midrib, apex acuminate or caudate, twisting to one side, base attenuate; petiole distinct, up to 8 mm long. **Flowers** in branched, terminal, corymbose cymes, white, fragrant. **Stamens** many, fluffy. **Flowering time** summer. **Fruit** a globose berry, up to 20 mm in diam., dark red to purplish black, calyx persistent. Canopy constituent in coastal and montane forests; Indigenous Forests [Pondoland, Lusikisiki to Beacon Hill, SW to Stutterheim and Kentani Districts (Kologha and Manubi Forests)].

intermedium Engl. & Brehmer

Hybrid water-berry; *kruis-waterbessie* (A)

Closely resembles *S. cordatum*, but differs in the following: medium-sized tree, 4–15 m high; bark grey or dark brown. **Leaf** ovate to obovate-elliptic, up to 150 mm long, apex rounded to acute, base broadly rounded and slightly lobed; petiole distinct, 2–6 mm long. **Flowers** in branched, terminal, corymbose cymes, white, receptacles pink. **Stamens** many, fluffy. **Flowering time** Aug.–Dec. **Fruit** an urceolate berry, up to 15 mm long, purple-black, remains of calyx persistent. Riverine forests, marshy or vlei areas; Indigenous Forests (Port Shepstone District on KZN border).

BEAN, A.R. 1995. A revision of *Syncarpia* Ten. (Myrtaceae). *Austrobaileya* 4: 337–344.
BRICE-BRUCE, A.P. 1979. *A key to eucalypts in southern Africa*. Wattle Research Institute, University of Natal, Pietermaritzburg.
CHIPPENDALE, G.M. 1988. *Eucalyptus, Angophora* (Myrtaceae). *Flora of Australia* 19: 1–448.
MITCHEM, C.M. 1997. *Callistemon* Brown. *European garden flora* 5: 318–322.
STEVENS, P.F. 2007. Angiosperm Phylogeny Website. Version 7. Internet. http://www.mobot.org/MOBOT/research/APweb/ (accessed July 2007).

THOMPSON, J. 1989. A revision of the genus *Leptospermum* (Myrtaceae). *Telopea* 3: 301–449.
VAN WYK, A.E. 1979. A new species of *Eugenia* L. (Myrtaceae) from southern Natal and Transkei. *Journal of South African Botany* 45: 273–277.
VAN WYK, A.E. 1982. A new species of *Eugenia* (Myrtaceae) from southern Natal. *South African Journal of Botany* 1: 158–162.
VAN WYK, A.E. 1985. *Contributions towards a new classification of* Eugenia *L. (Myrtaceae) in southern Africa*. D.Sc. thesis, University of Pretoria.
WHITE, F. 1978. Myrtaceae. *Flora zambesiaca* 4: 183–212.

NITRARIACEAE
(= PEGANACEAE)
(Order Sapindales)

Compiled by C.L. Bredenkamp

Based on molecular data the Nitrariaceae is assigned to Sapindales. Phenetically, in wood anatomy and chemistry there are similarities to Zygophyllaceae. Both families occur in dry and warm habitats (Stevens 2006). Current treatment regards Peganaceae as an optional synonym of Nitrariaceae following APG (2003).

*PEGANUM L.

Species ± 6, arid regions in northern hemisphere, but few in America, also Australia; 1 introduced in sthn Afr., NC, EC.

harmala L.

Perennial, dwarf shrub or herb, ± 0.5 m high; rhizome strong, woody; bark basally only, stems glabrous, beige, ± shiny. **Leaves** opposite, much-divided, lobes linear, apex acute; foliar raphides present; stipules ± foliaceous, divided. **Flowers** white. **Androecium**: stamens 15, obdiplostemonous (outer whorl of stamens opposite petals, inner whorl opposite sepals). **Ovary** with many ovules per carpel. **Flowering time** Oct.? **Fruit** a loculicidal capsule. Along roads; Lower Karoo (Willowmore District).

ANGIOSPERM PHYLOGENY GROUP [APG]. 2003. An update of the Angiosperm Phylogeny Group classification for the orders and families of flowering plants: APG II. *Botanical Journal of the Linnean Society* 141: 399–436.
SHEAHAN, M.C. 2006. Zygophyllaceae. In K. Kubitzki, *The Families and Genera of Vascular Plants*. Vol. 9: 488–500. Springer, Berlin.
SHEAHAN, M.C. & CHASE, M.W. 1996. A phylogenetic analysis of Zygophyllaceae R.Br. based on morphological, anatomical and *rbc*L sequence data. *Botanical Journal of the Linnean Society* 122: 279–300.
SHEAHAN, M.C. & CHASE, M.W. 2000. Phylogenetic relationships within Zygophyllaceae based on DNA sequences of three plastid regions, with special emphasis on Zygophylloideae. *Systematic Botany* 25: 371–384.
SHEAHAN, M.C. & CUTLER, D.F. 1993. Contribution of vegetative anatomy to the systematics of the Zygophyllaceae R.Br. *Botanical Journal of the Linnean Society* 113: 227–262.
STEVENS, P.F. 2006. Angiosperm Phylogeny Website. Version 7. Internet. http://www.mobot.org/MOBOT/research/APweb/ (accessed Sept. 2006).

NYCTAGINACEAE

(Order Caryophyllales)

Compiled by C.L. Bredenkamp, M.M.H. Matiapoto & M. Struwig

Extracted from Struwig et al. (2011), Struwig (2012).

1a Flowers > 30 mm long; bracts large, connate, forming a calyx-like involucre; branches soft and brittle ..... ***Mirabilis**

1b Flowers < 20 mm long; bracts small, free:

2a Inflorescence an umbel; perianth funnel-shaped; flowers relatively conspicuous ..... **Commicarpus**

2b Inflorescence a compound cyme; perianth bell-shaped, relatively small and inconspicuous ..... **Boerhavia**

BOERHAVIA L.

Species ± 40, in almost all tropical and subtropical areas of the world, mostly in North America; several are cosmopolitan weeds; 7 in sthn Afr., fairly widespread, except L, throughout warm, arid regions, often found in disturbed areas.

Anthocarps eglandular, glabrous, turbinate, tip truncate, broadly obtuse or tip ending in a point

*erecta L.

Erect spiderling; *regop kleefbossie* (A)

Annual or perennial herb, branching freely from base, spreading. **Stems** decumbent to prostrate, puberulous with scattered, long, gland-tipped hairs around nodes, sometimes viscid. **Leaves** 15–51 mm long, oblong, lanceolate, elliptic, deltoid or ovate, glabrescent to sparsely pubescent, discolorous, usually distinctly reddish brown glandular-punctate on both surfaces, base shortly attenuate, obtuse or truncate, rounded ± truncate; petioles 5–35 mm long, pubescent or pilose. **Inflorescence** a terminal, compound cyme, usually freely branched; peduncles glabrous to puberulent. **Flowers** minute, campanulate, up to 2.5 mm long. **Perianth** lower part green, coriaceous, clavate, 5-ribbed, persistent upper part of flower petaloid, pink, purple or white. **Ovary** 0.4–0.5 mm long, glabrous; style exserted. **Flowering time** Oct.–May. **Fruit** 3–4 mm long, 5-ribbed, obscurely undulated along the margins. Weed, disturbed and waste-ground, cultivated land, eaten as vegetable in KZN; Dry Highveld Grassland, Eastern Fynbos-Renosterveld, Albany Thicket (Somerset East and Bedford districts S, Boschkraal Farm between Kirkwood and Addo and S to Uitenhage District).

*cordobensis Kuntze

Sticky spiderling; *kleefbossie* (A)

Annual or perennial herb, 0.4 m high. **Stems** prostrate, puberulous to hispid with scattered, long, septate hairs. **Leaves** deltoid, oblong, lanceolate, elliptic or ovate; blade 14–47 × 8–34 mm, sparsely hispid on margins and nerves below, glabrous above, base obtuse to truncate, apex acute to obtuse; petioles 3–25 mm long. **Inflorescence** a compound cyme, usually freely branched; peduncles glandular-puberulous. **Flowers** small, 3 mm long, lower portion of flower green, coriaceous, 3- or 4-ribbed with apices of ribs expanded, upper portion petaloid, purple. **Flowering time** Nov.–Apr. **Fruit** 3–4 mm long anthocarp, 3- or 4-winged. Weed, spreading along roads and in gardens, open woodlands, grassland, grazed; Dry Highveld Grassland, Upper Karoo, Lower Karoo, Albany Thicket, Sub-Escarpment Grassland, Drakensberg Grassland (Graaff-Reinet E to Cradock, southwards from Bedford District to Uitenhage area).

Anthocarps glandular, pubescent, narrowly elliptic-clavate, tip rounded

coccinea Mill.

Scarlet spiderling; *perskleefbossie* (A)

Annual or perennial herb, 0.3–2.0 m long, sometimes viscid. **Stems** sprawling or ascending with erect flowering stems, diffusely branched, sparsely to densely glandular-pubescent, with interspersed long, septate hairs. **Leaves** 11–42 mm long, elliptic, oblong, ovate, lanceolate, oval, base shortly attenuate or rounded, apex acute, apiculate or rounded, glandular-pubescent along veins; petioles 3–35 mm long, glandular-pubescent.**Inflorescences** terminal and axillary, compound cymes; peduncles often stout; bracteoles 0.6–2.0 mm long, ovate, acuminate, margins fimbriate. **Flowers** 3–many per cluster. **Perianth** 1–4 mm long, campanulate, lower part green, coriaceous, elliptic, 5-ribbed, upper part petaloid, white or pink. **Stamens** subequal, exserted, 1.5–4.5 mm long. **Ovary** 0.4–0.6 mm long, glabrous; style long, exserted. **Flowering time** Sept.–Apr. **Fruit** 3–5 mm long anthocarp, 5-ribbed. Gravel, Ecca shale, roadsides. Lower Karoo, Albany Thicket (NW of Grahamstown).

COMMICARPUS Standl.

Species ± 30–35, mainly in Africa, except the extreme north and south, but also in warm regions of Europe, Asia, Australia, North and South America; 8 in sthn Afr., widespread.

Phylogenetic studies indicate that both genera *Boerhavia* and *Commicarpus* are monophyletic groups (Douglas & Spellenberg 2010).

pentandrus (Burch.) Heimerl

Cerise stars; *veldpatats* (A)

Perennial herb, forming mats, up to 2 m in diam., from a woody rootstock. **Stems** procumbent, branching. **Leaves** 13–39 mm long, ovate-elliptic, orbicular, deltoid, margins entire, slightly fleshy; petiolate. **Inflorescence** an umbel, sometimes with up to 3 whorls of umbels; peduncles 30–150 mm long; pedicels 2–18 mm long. **Perianth** 2–6 mm long, lower part of flower clavate, greenish, with 10 narrow, longitudinal grooves, with 1 or 2 rows of prominent sessile glands around apex, with smaller, less prominent glands scattered over surface below; upper part petaloid, pink or purple with a distinct greenish basal tube. **Stamens** exserted; filaments filiform; anthers transverse-elliptic. **Ovary** ellipsoid. **Flowering time** late summer (Oct.–May). **Fruit** 7–9 mm long anthocarps, clavate, 10-ribbed, 5 thickly stalked glands alternating with 5 smaller, less prominent glands around apex, sessile glands scattered over surface below apex. Grassland, forest clearings, flood plains, grazed, on a variety of soils; Sub-Escarpment Grassland (Queenstown District).

*MIRABILIS L.

Species ± 60, almost exclusively in warmer parts of America, from California to Argentina, 1 in western Himalayas and SW China, 1 in Europe (an escape from cultivation); 2 introduced into sthn Afr., N, LIM, NW, G, M, FS, KZN, NC, WC, EC.

jalapa L.

Four-o'clock; *vieruurtjie* (A)

Perennial herb, 0.5–1.5 m high; stems erect, nodes thickened; roots often tuberous. **Leaves** opposite, 35–130 mm long, ovate or ovate-triangular, lower petiolate, upper almost sessile. **Inflorescences** axillary or terminal, cymose, 1–many-flowered,

compound dichasia. **Flowers** bisexual, 40–50 mm long, fragrant; bracts forming a calyx-like involucre with 5 lobes; lobes acuminate. **Perianth**: tube funnel-shaped, constricted above ovary, limb spreading, brightly coloured, white, red, yellow or variegated. **Stamens** exserted; filaments filiform, incurved, connate into a fleshy cup at base; anther thecae subglobose. **Ovary** ellipsoid or ovoid; style filiform, long-exserted; stigma globose. **Flowering time** spring to summer (Oct.–Apr.). **Fruit** an anthocarp, ellipsoid to subglobose, 7–9 mm long, 5-ribbed or 5-angled dark brown to black. Garden escape and disturbed areas. So widely cultivated and naturalised in tropical and subtropical regions of Americas, that origin is uncertain, declared invader (Category 3); Upper Karoo, Eastern Fynbos-Renosterveld, Sub-Escarpment Savanna (Oviston Nature Reserve, Grahamstown District).

BAKER, J.G. & WRIGHT, C.H. 1909. Nyctagineae. *Flora of tropical Africa* 6,1: 1–9.
BITTRICH, V. & KÜHN, U. 1993. Nyctaginaceae. In K. Kubitzki, J.G. Rohwer & V. Bittrich, *The families and genera of vascular plants — dicotyledons* 2. Springer-Verlag, Berlin.
BURTT DAVY, J. 1926. Nyctaginaceae. *A manual of the flowering plants and ferns of the Transvaal with Swaziland* 1. Longmans, Green & Co., London.
CODD, L.E.W. 1966. Notes on *Boerhavia* in southern Africa. *Bothalia* 9: 113–121.
COOKE, T. 1910. Nyctagineae. *Flora capensis* 5,1: 392–398.
DOUGLAS, N.A. & SPELLENBERG, R. 2010. A new tribal classification of Nyctaginaceae. *Taxon* 59: 905–910.
FOSBERG, F.R. 1978. Studies in the genus *Boerhavia* L. (Nyctaginaceae). *Smithsonian Contributions to Botany* 39: 1–20.
LE DUC, A. 1995. A revision of *Mirabilis* section *Mirabilis* (Nyctaginaceae). *Sida* 16: 613–648.
MEIKLE, R.D. 1978. A key to *Commicarpus*. *Notes from the Royal Botanic Garden Edinburgh* 36: 235–249.
STANNARD, B.L. 1988. Nyctaginaceae. *Flora zambesiaca* 9,1: 12–28.
STIRTON, C.H. 1982. Nyctaginaceae. The identity of *Boerhavia pterocarpa* in South Africa. *Bothalia* 14: 79, 80.
STRUWIG, M. 2012. *A systematic study of* Boerhavia *L. and* Commicarpus *Standl.(Nyctaginaceae) in southern Africa*. PhD thesis, North-West University, Potchefstroom.
STRUWIG, M., SIEBERT, S.J., KLAASSEN, E.S. 2011. Notes on *Commicarpus* Standl. in southern Africa, including a new record for Namibia. *Bothalia* 41: 289–326.
WHITEHOUSE, C. 1996. *Flora of tropical East Africa.* Nyctaginaceae: 1–19.

NYMPHAEACEAE

(Order Nymphaeales)

Compiled by C.L. Bredenkamp

NYMPHAEA L.

Species ± 46, plus several hybrids, cosmopolitan in tropical and temperate climates; 2 in sthn Afr., widespread, except L and NC.

nouchali Burm.f.

Cape- or blue water lily; *blou waterlelie* (A); *ikhubalo lechanti* (X); *amaxibu* (Z)

Aquatic, rhizomatous, perennial herb, rooted in bottom mud. **Leaves** spirally arranged, ovate to almost circular, floating, palmately veined, basal lobes slightly overlapping to widely diverging, margins entire, wavy or bluntly toothed; long-petioled. **Flowers** solitary, showy, long-pedunculate, held up to 0.3 m above water. **Sepals** green to whitish with rose-pink apex (var. *caerulea*) or blue to purple (var. *zanzibariensis*). **Petals** 12–24, violet-blue or reddish, sometimes pink or white, grading into stamens. **Stamens** 30–100,

outer with broad petaloid filaments, anthers yellow, blue or purple, opening by longitudinal slits, introrse. **Ovary** sunk in receptacle, syncarpous, many-locular; ovules many per locule. **Flowering time** Aug.–Mar. **Fruit** a large berry. **Seeds** many, sinking to bottom and germinating when aril decays. Permanent or temporary pools up to 3 m deep; Indian Ocean Coastal Belt, Albany Thicket, Eastern Fynbos-Renosterveld [Mkambati Nature Reserve (var. *caerulea*); Umzimvubu, SW to Kentani, Uitenhage and Humansdorp districts (var. *zanzibariensis*)].

BORSCH, T. & WIERSEMA, J. 2007. Waterlily Family Tree: complete list of *Nymphaea* in the GRIN Taxonomy Database. Internet. http://www.victoria-adventure.org/waterlilies/family_tree.html (accessed 6 Aug. 2007).
COOK, C.D.K. 1990. *Aquatic plant book*. SPB Academic Publishing, The Hague.
FRIEDRICH-HOLZHAMMER, M. 1968. Nymphaeaceae. *Prodromus einer Flora von Südwestafrika* 39: 1, 2.
HARVEY, W.H. 1860. Nymphaeaceae. *Flora capensis* 1: 13, 14.
MENDONÇA, F.A. 1960. Nymphaeaceae. *Flora zambesiaca* 1,1: 175–180.
SCHNEIDER, E.L. & WILLIAMSON, P.S. 1993. Nymphaeaceae. In K. Kubitzki, J.G. Rohwer & V. Bittrich, *The families and genera of vascular plants – dicotyledons* 2. Springer-Verlag, Berlin.
THULIN, M. 1993. Nymphaeaceae. *Flora of Somalia* 1: 22, 23.
VERDCOURT, B. 1989. Nymphaeaceae. *Flora of tropical East Africa* 1: 1–12.

OCHNACEAE

(Order Malpighiales)

Compiled by C.L. Bredenkamp

OCHNA L.

Species ± 86, Africa, Mascarenes and Asia; 12 in sthn Afr., widespread but absent from the winter rainfall region, N, B, LIM, NW, G, M, S, KZN, L, WC, EC.

1a Flowers arranged in many-flowered inflorescences or in reduced few-flowered, subumbellate fascicles
2a Carpels and drupelets kidney-shaped, attached centrally to receptacle on indented side; bark flaking to expose patches of a different colour

arborea Burch. ex DC.

Cape plane; *Kaapse rooihout* (A); *umthentsema* (X); *umthelelo* (Z)

Understorey tree or shrub, 1.5–12.0 m high; wood light red. **Leaves** shortly petiolate, deep green, broadly to narrowly elliptic, base truncate, apex acute, margins nearly smooth to sharply serrate, veins distinctly reticulate; stipules intrapetiolar, fused. **Sepals** 5, ovate-convex, green, persistent, becoming enlarged in fruit, dark red, reflexed. **Petals** 5, obovate-cuneate, yellow, fugaceous. **Stamens** ± 30, free; filaments as long as biporose anthers. **Carpels** 5, 1-ovulate; styles completely united or upper ends free, recurved; stigmas capitate. **Flowering time** Aug.–Nov. **Fruit** hard, black and shiny drupelets. Forest scrub, dune forest or bushveld (var. *arborea*), mist belt forests (var. *oconnorii*); Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indigenous Forests, Indian Ocean Coastal Belt, Albany Thicket, Eastern Fynbos-Renosterveld (Oribi Gorge, SW through Stutterheim and East London to Grahamstown, Uitenhage and Tsitsikamma).

2b Carpels and drupelets oblong-globose, attached basally to receptacle; bark not flaking, evenly coloured

holstii Engl.

Red ironwood; *rooi-ysterhout* (A); *moroko* (NS); *ngqelene* (X); *umthelelo* (Z)

Understorey tree, 0.5–12.0 m high; wood red; bark rough ridged, grey or brown, young branches with raised lenticels. **Leaves** immature at flowering, shortly petiolate, narrowly elliptic, base cuneate, apex attenuate-acuminate, margins regularly serrate; veins distinctly reticulate below; stipules intrapetiolar, fused. **Pedicels** slender, up to 30 mm in fruit. **Sepals** narrowly elliptic, ivory-coloured at anthesis, red, pink, purple or green in fruit. **Petals** obovate, pale to bright yellow, fugaceous. **Stamens** ± 40; filaments 3 mm long, dehiscing by longitudinal slits. **Carpels** 5(6), stigmas swollen, lobed. **Flowering time** Oct., Nov. Shady ravines in mist belt and gallery forests, along rivers; Sub-Escarpment Savanna, Indigenous Forests (Kokstad, Ngeli Forest, SW to Engcobo Mtn, Dwessa and Hluleka Forest Reserves and Tsolo District).

natalitia (Meisn.) Walp.

Natal plane; *Natal-rooihout* (A); *isibomvu* (X); *mbovu* (Z)

Understorey tree, 0.15–10.00 m high; wood red; bark dark, rough; branchlets grey, lenticellate, galls often present. **Leaves** shortly petiolate, narrowly oblong, apex and base obtuse, margins serrulate; lateral veins at right angles to midrib, leathery; stipules intrapetiolar, elongate-deltoid. **Pedicels** dark brown, slender, up to 25 mm in fruit, articulated in lower quarter. **Sepals** elliptic-convex, green at anthesis, wine red in fruit. **Petals** obovate, yellow, fugaceous. **Stamens** ± 30; filaments 3 mm long, anthers biporose. **Carpels** 6–12, stigmas irregular, glandular. **Flowering time** July–Dec. **Fruit** black, shiny drupelets. Forests, coastal scrub, sandy soil, amongst rocks; Sub-Escarpment Savanna, Indigenous Forests, Indian Ocean Coastal Belt, Eastern Fynbos-Renosterveld (Mthatha to Mkambati Nature Reserve and Port St Johns S, from Stutterheim and Kei River Mouth to Groendal in Uitenhage District and Knysna).

1b Flowers solitary (rarely 2 placed close together) on short lateral spurs

serrulata (Hochst.) Walp.

Small-leaved plane; *fynblaarrooihout* (A); *ilitiye* (X); *umbovu* (Z)

Small, evergreen tree or shrub, 0.6–2.0 m high; wood red; branchlets brown, densely verrucose with lenticels; galls often present. **Leaves** with lamina elliptic, apex and base ± obtuse, margins sharply serrulate; reticulately veined, thinly coriaceous, shiny, dark green; stipules intrapetiolar, linear, bidentate; petioles 1 mm long. **Pedicels** dark brown, slender, up to 15 mm in fruit, articulated 1–2 mm above base. **Sepals** ovate, green, wine red in fruit. **Petals** broadly obovate. **Stamens** ± 20; filaments 3 mm long; anthers biporose. **Carpels** 5, stigmas apical, discoid. **Flowering time** July–Dec. **Fruit** oblong-ovoid, black drupelets. Forest edges, scrub forest, fynbos; Indigenous Forests, Albany Thicket, Eastern Fynbos-Renosterveld, Rainshadow Valley Karoo (Mount Frere District E to Oribi Gorge southwards, from Cala to Port St Johns, across Amatole Mts from Katberg Forest to Willowvale District, Baviaanskloof to Steytlerville, Port Elizabeth, Grahamstown and East London, and to Humansdorp).

DU TOIT, P.C.V. & OBERMEYER, A.A. 1976. Ochnaceae. *Flora of southern Africa* 22: 1–12.
ROBSON, N.K.B. 1963. Ochnaceae. *Flora zambesiaca* 2: 224–262.

OLEACEAE

(Order Lamiales)

Compiled by C.L. Bredenkamp

1a Fruit a woody capsule; corolla salver-shaped, tube well developed, lobes spreading, with a group of swollen hairs at base of lobes ..... **Schrebera**
1b Fruit a drupe, berry or membranous capsule; corolla lobes without a group of swollen hairs:
2a Corolla tube long and slender, lobes spreading abruptly ..... **Jasminum**
2b Corolla tube short or absent:
3a Fruit a berry ..... ***Ligustrum**
3b Fruit a drupe:
4a Leaves on flowering branches usually with domatia; calyx deeply lobed; inflorescence few-flowered; seeds without endosperm ..... **Chionanthus**
4b Leaves without domatia; calyx toothed or shallowly lobed; inflorescence many-flowered; seeds with endosperm ..... **Olea**

CHIONANTHUS L.

Pock ironwood trees; *pokysterhoutbome* (A)

Species ± 100, in tropics and subtropics of America, Africa and Asia, and also on certain islands in these regions; 3 in sthn Afr., widespread, except in N, B, FS, L, NC.

Leaves ± 20–70 mm long on flowering shoots

foveolatus (E.Mey.) Stearn

Pock ironwood; *pokysterhout* (A); *morašane* (NS); *umnqumaswele* (X); *idlebe-dudu* (Z)

Tree or shrub, up to 10 m high; branchlets short, frequently branched, glabrous to velvety hairy (subsp. *tomentellus*), lenticels conspicuous, bark pale grey. **Leaves** with lamina elliptic or broadly elliptic, ending in broad acumen, base acute, apex recurved or apex ± acute; upper leaf surface glossy, lower surface dull, midrib and lateral nerves raised, pubescent domatia in axils of lateral nerves, margins ± thickened, revolute; petioles 2–4 mm long. **Inflorescences** few- to several-flowered, axillary cymes, up to 10(20) mm long; axes ± glabrous. **Calyx** deeply 4-lobed. **Corolla** white; lobes ± cucullate at apex. **Stamens** 2(4). **Gynoecium** subglobose; stigma subcapitate. **Flowering time** all year. **Fruit** a drupe with thin fleshy layer, purplish black when ripe. **Seeds** solitary. Forests and forest margins.

Two subsp. in EC:

foveolatus subsp. **foveolatus**

Indigenous Forests; Sub-Escarpment Savanna, Albany Thicket (uMzimkhulu District, across Amatole Mts to Grahamstown and Port Elizabeth).

foveolatus subsp. **tomentellus** (I.Verd.) Stearn

Indigenous Forests; Sub-Escarpment Savanna, Albany Thicket, Eastern Fynbos-Renosterveld (Umtamvuna Nature Reserve, SW along the coast to Nature's Valley).

Leaves ± 90–130 mm long on flowering shoots

peglerae (C.H.Wright) Stearn

Giant pock ironwood; *reuse-pokysterhout* (A); *umdlebe* (X); *isizimane* (Z)

Tree, 4–18 m high; lenticels conspicuous, bark grey. **Leaves** with lamina obovate to oblong-elliptic, base tapering, apex tapering to attenuate, glossy, dark green, lower

surface with midrib and lateral nerves raised, pubescent domatia in axils of lateral nerves, margins ± thickened; petioles 15–20 mm long. **Inflorescences** few- to several-flowered cymose panicles. **Corolla** white or cream-coloured. **Flowering time** Aug.–Feb. **Fruit** an ovoid drupe, up to 15 mm long, dark purple when ripe. Coastal and mountain evergreen forest; Indigenous Forests (Kokstad District E to Izingolweni, SW to Stutterheim and Riebeek East District, and to Tsitsikamma).

JASMINUM L.

Jasmine

Species ± 450, Asia, Africa and Australia; 10 in sthn Afr., B, LIM, NW, G, M, S, KZN, NC, WC, EC.

1a Leaves compound, 3–5-foliolate

angulare Vahl

Wild jasmine; *wildejasmyn* (A); *umalala* (Z)

Climbing or scrambling shrub, reaching up to 10 m high in trees; ultimate branchlets with ridged angles, often with crisped hairs. **Leaves** opposite, petioles ascending; leaflets broadly ovate, apex acute, domatia often present in axils of lower veins. **Inflorescence** consisting of 1 or 2 compact terminal cymes. **Flowers** sweetly scented. **Calyx** campanulate, tube up to 3 mm long, 7-toothed. **Corolla** white, greenish outside; tube slender, up to 35 mm long; lobes 5. **Stamens** 2, included; filaments short; anthers apiculate. **Ovary** brown; style slender, exserted; stigma bilobed. **Flowering time** Aug.–May. **Fruit** a globose, 2-seeded berry, deeply bilobed. Hillsides, near rivers, scrub and scrub forest, coastal bush; Sub-Escarpment Savanna, Sub-Escarpment Grassland, Drakensberg Grassland, Eastern Fynbos-Renosterveld, Albany Thicket (Clydesdale E to Izingolweni, SW to Queenstown, from Port Elizabeth to Grahamstown and East London).

1b Leaves unifoliolate
2a Calyx lobes much shorter than tube

breviflorum Harv. ex C.H.Wright

Wild jasmine

Climber, usually rampant, 0.2–4.0 m high; hairs patent-crisped or short and stiff. **Leaves** broadly ovate, apex acute to rounded, pubescent especially on lower venation; petioles short, articulated. **Inflorescences** terminal on twigs, 3-flowered; pedicels up to 15 mm long. **Flowers** scented. **Calyx** with tube up to 3 mm long, 5-lobed. **Corolla** white, salver-shaped; tube slender, up to 20 mm long; lobes ± 7, slightly shorter than tube. **Stamens** 2, included; filaments short; anthers ± 3.5 mm long. **Ovary** 2-celled with one ovule in each; style filiform, exserted; stigma lobes viscous. **Flowering time** Nov.–Apr. **Fruit** a twin berry (one aborting), subglobose, black when ripe. Semi-shade in dry scrub and open woodland; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Albany Thicket (southeast KZN southwards through Queenstown and Komga, to Grahamstown and Fish River).

2b Calyx lobes almost as long or much longer than tube

multipartitum Hochst.

Wild jasmine; *ihlolenkozazane* (Z)

Dwarf shrub or climber, 0.3–3.0 m high. **Leaves** papery, shiny, green, ovate-oblong, apex rounded; 2–5-paired on short twigs, closely spaced; petioles up to 5 mm long, articulated.

Inflorescences terminal on lateral twigs, 1-flowered. **Flowers** scented. **Calyx**: tube up to 3 mm long; lobes 5–9, subulate. **Corolla** white, pink-flushed, salver-shaped; tube slender, up to 30 mm long; lobes ± 11, ½ tube length. **Stamens** 2, included; filaments short; anthers ± 3.5 mm long, apiculate. **Ovary** quadrate, truncate; style exserted; stigma 2-lobed. **Flowering time** Aug.–May. **Fruit** a twin berry (one aborting), oblong-globose, black when ripe. Dry rocky slopes, koppies or scrub bush; Sub-Escarpment Savanna, Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Eastern Fynbos-Renosterveld, Albany Thicket (Mount Ayliff E to Port Edward, SE to Uitenhage, Ecca River Valley and East London).

streptopus E.Mey.

Climbing or scrambling shrub, 0.5–2.0 m high; pubescent, hairs appressed or patent, straight or crisped. **Leaves** ovate-acuminate, up to 35 mm long, papery, midrib fringed with hairs, domatia on lower surface in axils of lateral veins; petioles up to 4 mm long, articulate near apex. **Inflorescences** terminal on ultimate branchlets, usually 1-flowered. **Flowers** scented. **Calyx**: tube up to 2.5 mm long; lobes 4–7, subulate. **Corolla** white, salver-shaped; tube slender, up to 15 mm long; lobes ± 6, > ½ tube length. **Stamens** 2, included. **Flowering time** July–Jan. **Fruit** a twin berry (one aborting), globose, brownish to black when ripe. Undergrowth in bush clumps, along rivers, forest edges; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Alfred District E to Umtamvuna River and Mpunzi Drift).

*LIGUSTRUM L.

Species ± 40, Europe, northern Africa, East and South-East Asia to Australia; 3 in sthn Afr., all declared invaders (Category 3), invasive status: potential transformers, G, M, FS, KZN, L, EC.

japonicum Thunb.

Japanese wax-leaved privet; *Japanse liguster* (A)

Evergreen shrub or small tree, 3–6 m high; shoots minutely downy. **Leaves** thick, leathery, dark green (almost black), glossy, ovate to oblong, up to 100 mm long, base rounded, apex acuminate to acute, sometimes green and yellow variegated. **Inflorescences** large terminal panicles, loosely arranged, heavily scented. **Flowers** white, 3–5 mm long. **Flowering time** Oct.–Feb. **Fruit** shiny, black berries, up to 10 mm long. Origin Korea and Japan; invades woodlands, forests, riverbanks, cultivated for hedging and ornament.

lucidum Aiton

Chinese wax-leaved privet; *Chinese liguster* (A)

Differing from *L. japonicum*: height 3–10 m. **Leaves** dark green, up to 150 mm long. **Inflorescences**: dense terminal panicles. Origin Korea and China (street trees in Jamestown).

sinense Lour.

Chinese privet; *Chinese liguster* (A)

Deciduous or semi-evergreen shrub, 3–6 m high; shoots densely downy. **Leaves** mid- to dark green, sometimes variegated to yellow, ovate-elliptic, up to 80 mm long, midrib hairy on lower surface. **Inflorescences**: terminal panicles up to 100 mm long, heavily scented. **Flowers** white, 3–5 mm long, stalked. **Flowering time** Oct.–Feb. **Fruit** shiny, black berries. Origin China; invades woodlands, forests, riverbanks, cultivated for hedging and ornament.

OLEA L.

Olive and ironwood trees; *olien- en ysterhoutbome* (A)

Species ± 33, tropical and subtropical, incl. New Zealand and Hawaii, Mediterranean region, Africa, Asia and Mascarene Islands; 4 in sthn Afr., widespread.

1a Leaves densely covered with peltate glands on lower surface; secondary veins conspicuous, anastomosing into an intramarginal vein; inflorescences small, axillary

europaea L. subsp. **africana** (Mill.) P.S.Green

Wild olive; *olienhout* (A); *mohlware* (NS); *umnquma* (X); *umnqumo* (Z)

Tree or shrub, 2–14 m high. **Leaves** opposite, slightly coriaceous, slightly bicoloured, linear-ovate, apex acute to acuminate, tapering to base, margins entire. **Inflorescences** trichotomous panicles, many-flowered. **Flowers** small, creamy white; pedicels short. **Sepals** 5. **Corolla** with short tube, 4-lobed. **Stamens** 2 arising on corolla tube; anthers dorsifixed with extrorse dehiscence. **Ovary** subglobose; stigma bilobed; ovules 2, pendulous. **Flowering time** Sept.–Feb. **Fruit** a drupe, with thin, fleshy mesocarp, up to 10 mm long, red to black when mature. **Seeds** usually solitary. Riparian forest, open savanna, associated with rocky outcrops or termitaria; widespread in all bioregions (Bethulie E to Port Shepstone, SW to Humansdorp District and E to East London).

1b Leaves apparently glabrous on lower surface; secondary veins conspicuous to obscure, not anastomosing into an intramarginal vein; inflorescences mostly terminal
2a Primary vein raised on both upper and lower surfaces; shrubs to small trees; leaves linear-oblong

exasperata Jacq.

Dune olive; *duinolien* (A)

Small, umbrella-shaped tree or shrub, 2–7 m high. **Leaves** opposite, coriaceous, apex acuminate to obtuse, tapering to base, margins entire. **Inflorescences** trichotomous panicles, many-flowered. **Flowers** small, creamy white; pedicels short. **Sepals** 4-lobed, fused basally. **Corolla** 4-lobed, partially fused into small tube. **Stamens** 2 arising on corolla tube; anthers dorsifixed with extrorse dehiscence. **Ovary** subglobose; stigma bilobed. **Flowering time** Sept.–Mar. **Fruit** a drupe, with thin, fleshy mesocarp, up to 10 mm long, black when mature. Endemic to south-eastern Cape coasts; Eastern Fynbos-Renosterveld, Indigenous Forests, Albany Thicket (Port Elizabeth E to East London District and Gonubie River Mouth).

2b Primary vein sunken on upper surface; medium to large trees; leaves variously elliptical

capensis L.

Ironwood; *ysterhout* (A); *morašane* (NS); *umhlebe* (X); *umsishane*, *umzimane* (Z)

Three subsp. in EC:

capensis subsp. **capensis**

False ironwood; *valsysterhout* (A)

Shrub to medium-sized tree, up to 12 m high. **Leaves** obovate-oblong, crowded towards ends of ultimate branchlets. **Inflorescences** terminal, compact; peduncles robust. **Flowering time** Sept.–Apr. Afromontane and coastal forest; Indigenous Forests (Port Edward SW along coast to East London, Port Elizabeth and Humansdorp).

capensis subsp. **enervis** (Harv. ex C.H.Wright) I.Verd.

Bushveld ironwood; *bosveldysterhout* (A)

Shrub to large forest tree, up to 18 m high. **Leaves** elliptical, coriaceous, rigid, apex acuminate with sharp tip. **Inflorescences** compact. **Flowering time** Dec.–July. Afromontane and coastal forest; Indigenous Forests (Oribi Gorge Nature Reserve and Port Edward).

capensis subsp. **macrocarpa** (C.H.Wright) I.Verd.

Black ironwood; *swartysterhout* (A)

Large, forest tree, up to 30 m high. **Leaves** narrowly elliptic, not coriaceous, apex acute; petioles purple-tinged on lower portion. **Flowering time** Nov.–Mar. **Fruit** large, up to 20 × 10 mm, pericarp thickly fleshy. Afromontane forest; Indigenous Forests (Lusikisiki District (Ntsubane Forest), Stutterheim, Willowmore and Humansdorp Districts, and to Grahamstown).

woodiana Knobl.

Forest olive; *bosolien* (A); *usintlwa* (X); *umnquma* (Z)

Medium to large tree, 2–20 m high. **Leaves** opposite, papyraceous, uniformly coloured, apex and base acute, margins entire. **Inflorescences** trichotomous panicles, many-flowered, not dense or compact; peduncles relatively long. **Flowers** small, white; pedicels short. **Sepals** 4-lobed, fused basally. **Corolla** 4-lobed, partially fused into small tube. **Stamens** 2, inserted on corolla. **Ovary** subglobose; stigma bilobed. **Flowering time** Oct.–May. **Fruit** a drupe, semi-ovoid, narrowing to apex, oblique at base; pericarp thinly fleshy, black when mature. Coastal and Afromontane forest; Indigenous Forests (Umtamvuna River and Port St Johns SW, from King William's Town to Komga, Alexandria to East London, and to Hofmansbosch).

SCHREBERA Roxb.

Wild jasmine bushes; *wildejasmynbosse* (A)

Species ± 10, Africa and India; 2 in sthn Afr., N, B, LIM, M, S, KZN, EC.

alata (Hochst.) Welw.

Wild jasmine; *wildejasmyn* (A); *umgwenyehlangul* (X); *umshishane* (Z)

Tree or shrub, 4–15 m high. **Leaves** opposite, compound, imparipinnate with 5(7) leaflets; rachis usually winged. **Inflorescences** terminal, paniculate cymes. **Flowers** white to pink, heterostylous. **Calyx** loosely enveloping corolla, truncate or irregularly lobed. **Corolla** salver-shaped, tube well developed, cylindrical; segments 6 or more, spreading to reflexed, each with a group of swollen, brown to purplish hairs at base. **Stamens** 2, arising on corolla; anthers longer than filaments. **Ovary** small, truncate; style filiform; stigma bifid. **Flowering time** Oct.–Jan. **Fruit** a woody, bivalved capsule, with loculicidal dehiscence, ± clavate. **Seeds** 4 per locule, winged. Closed woodland, forests, forest fringes; Sub-Escarpment Savanna, Indigenous Forests, Indian Ocean Coastal Belt (Umtamvuna Nature Reserve).

DYER, C. 1991. *A biosystematic study of the African species of* Olea. Unpublished Ph.D thesis, University of Witwatersrand, Johannesburg.
GREEN, P.S. 1986. *Jasminum* in Arabia: studies in the genus *Jasminum* L. (Oleaceae). *Kew Bulletin* 41: 413–418.
GREEN, P.S. 2002. A revision of *Olea* L. (Oleaceae). *Kew Bulletin* 57: 91–140.

GREEN, P.S. & KUPICHA, F.K. 1979. Notes on the genus *Olea*. *Kew Bulletin* 34: 69–75.
HARVEY, W.H. 1906/1907. Oleaceae. *Flora capensis* 4,1: 478–488.
HERMAN, P.P.J. & CONDY, G. 1997. *Olea europaea* subsp. *africana*. *Flowering plants of Africa* 55: 92–95, t. 2137.
KUPICHA, F.K. 1983. Oleaceae. *Flora zambesiaca* 7,1: 300–327.
STEARN, W.T. 1980. African species of *Chionanthus* L. (Oleaceae) hitherto included in *Linociera* Swartz. *Botanical Journal of the Linnean Society* 80: 191–206.
VERDOORN, I.C. 1963. Oleaceae. *Flora of southern Africa* 26: 100–128.

OLINIACEAE

(Order Myrtales)

Compiled by C.L. Bredenkamp & N. Madlokazi

OLINIA Thunb.

Species 8–10, Africa; 6 in sthn Afr., forest and forest margins, LIM, G, M, FS, KZN, EC.

1a Bracts reduced to scales, < 0.5 mm long, < 1 mm wide and green
2a Leaves discolorous; inflorescence loose and terminal

emarginata Burtt Davy

Mountain hard pear; *berg-hardepeer* (A); *umngona-lahlo* (X); *unquthu* (Z)

Shrub or tree, 1–15 m high; branchlets quadrangular, tinged red towards tip, ± glabrous. **Leaves** subsessile, entire, elliptic-oblong, base cuneate, apex emarginate, dark green and shiny above, margins slightly inrolled; secondary nerves faintly visible. **Cymes** many-flowered. **Flowers** pink, sweet-scented. **Hypanthium** glabrous. **Petal**: lobes up to 3 mm long. **Ovary** with 5 locules; style puberulent; stigma thickened, globose. **Flowering time** Oct.–Jan. **Fruit** a globose drupe, ± 10 mm in diam., red. Mountain ravines, forests, thicket, wooded streambanks; Indigenous Forests, Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Albany Thicket (Mount Fletcher District southwards to Queenstown, Victoria East, Uitenhage and Alexandria District).

2b Leaves concolorous; inflorescence dense and axillary

radiata Hofmeyr & E.Phillips

Forest hard pear; *bos-hardepeer* (A); *umphunzi* (X); *umzaneno* (Z)

Tree, 3–25 m high; branchlets quadrangular, bark smooth light grey. **Leaves** oblanceolate to elliptic, shiny above, apex rounded, margins entire, wavy; petioles short. **Cymes** many-flowered. **Hypanthium** puberulent, up to 1.7 mm long; style glabrous. **Petal**: lobes up to 1 mm long, panduriform, base obtuse, apex acuminate. **Ovary** with 4 locules. **Flowering time** Sept.–Nov. **Fruit** many drupes, ± 10 mm in diam., dark red. Forests, kloofs, riverbanks, seashores; Indian Ocean Coastal Belt, Indigenous Forests, Sub-Escarpment Savanna (Ngele southwards, from Lusikisiki District to Port Edward).

1b Bracts > 1 mm long, > 2 mm wide and creamy white
3a Bracts persistent through anthesis; 9 flowers clustered at tip of each identifiable axis

capensis (Jacq.) Klotzsch

Cape hard pear; *Kaapse hardepeer* (A)

Small tree, 1–5 m high; pink branchlets quadrangular, bark smooth greyish. **Leaves** decussate, lamina obovate-oblanceolate, both sides pubescent, up to 71 × 8 mm, base

decurrent, apex acuminate-obtuse, slightly emarginate in mature leaves, margins entire, slightly revolute; venation brochidodromous; petioles pink, 7 mm long. **Cymes** compact, axes markedly pubescent. **Flowers** perigynous. **Hypanthium** red, glabrous, 2 mm long. **Sepal**: lobes rudimentary. **Petal**: lobes creamy white, strongly scented. **Ovary** inferior with 5 locules; style glabrous, ± 1 mm long; stigma capitate. **Flowering time** May–July. **Fruit** a globose drupe, ± 9 mm in diam., pink-red. Forest, thicket, river mouths, mountain slopes; Indigenous Forests, Eastern Fynbos-Renosterveld, Sub-Escarpment Savanna, Albany Thicket (Uitenhage and Port Elizabeth to Albany District, and to Humansdorp).

3b Bracts falling off after onset of anthesis; 3 flowers at tip of each identifiable axis

[E]micrantha Decne.

Eastern Cape hard pear; *Oos-Kaapse hardepeer* (A)

Large tree, up to 15 m high; branches quadrangular, slightly pubescent, bark grey. **Leaves** decussate, elliptic–obovate, up to 37 × 18 mm, venation brochidodromous, base attenuate, apex obtuse to apiculate, margins entire; petioles slightly pubescent on dorsal surface, 3 mm long; stipules rudimentary, brownish black. **Cymes** dichasial, compact, axillary and terminal. **Flowers** perigynous. **Hypanthium** glabrous to slightly pubescent, 2.6 mm long. **Petal**: lobes brownish, oblanceolate, 2 × 1 mm. **Ovary** inferior with 5 locules; style reduced, glabrous; stigma capitate. **Flowering time** Aug.–Jan. **Fruit** a dark red drupe, pericarp soft and fleshy. Forests and closed woodland, mountain slopes and ravines, also coastal; Sub-Escarpment Grassland, Indigenous Forests (Maclear southwards to Port Elizabeth, Alexandria District and Grahamstown).

ventosa (L.) Cufod.

Hard pear; *hardepeer* (A); *umngenalahla*, *umnonono* (X)

Large tree, 2–20 m high; pink branchlets quadrangular, bark smooth greyish. **Leaves** decussate, lamina obovate-oblanceolate, both sides glabrous, base decurrent, apex acuminate to obtuse, slightly emarginate in mature leaves, margins entire, slightly revolute; venation brochidodromous; petioles pink. **Cymes** dichasial, axes slightly pubescent. **Flowers** perigynous. **Hypanthium** pink, glabrous, > 3 mm long. **Sepal**: lobes rudimentary. **Petal**: lobes creamy white, strongly scented, 3.3 × 1.5 mm. **Ovary** inferior with 5 locules; style glabrous, ± 1 mm long; stigma capitate. **Flowering time** May–July. **Fruit** a globose drupe, ± 7 mm in diam., pink-red. Forests, thickets, river mouths, mountain slopes; Indigenous Forests, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Uitenhage and Port Elizabeth to Albany District, and to Humansdorp).

BURTT DAVY, J. 1926. *A manual of the flowering plants and ferns of the Transvaal with Swaziland, South Africa*. Part 1. Longmans, Green & Co., London.
DAHLGREN, R. & VAN WYK, A.E. 1988. Structures and relationships of families endemic to or centered in southern Africa. *Monographs in Systematic Botany from the Missouri Botanical Garden* 25: 1–94.
HOFMEYR, J. & PHILLIPS, E.P. 1922. The genus *Olinia*. *Bothalia* 1: 97–104.
SEBOLA, R.J. & BALKWILL, K. 1999. Resurrection of two previously confused species, *Olinia capensis* (Jacq.) Klotzsch and *O. micrantha* Decne. (Oliniaceae). *South African Journal of Botany* 65: 97–103.
SONDER, O.W. 1862. Olinieae. *Flora capensis* 2: 519, 520.

ONAGRACEAE

(Order Myrtales)

Compiled by C.L. Bredenkamp

1a Floral tube absent; sepals persistent in fruit after petals have fallen; petals lacking, or if present, yellow ..... **Ludwigia**

1b Floral tube present; sepals not persistent in fruit, falling with floral tube; petals yellow, rose-purple, or white:

2a Flowers zygomorphic; petals white; fruit nut-like, indehiscent, with 2–8 ovules ..... ***Gaura**

2b Flowers actinomorphic; petals yellow, rose-purple, or white; fruit a dehiscent capsule, with many ovules:

3a Seeds with an evident tuft of hairs (coma); petals rose-purple or white; capsule slender, > 10× as long as wide; basal leaves opposite ..... **Epilobium**

3b Seeds lacking a coma; petals yellow, rose-purple or white; capsule clavate or elongate, < 10× as long as wide; all leaves alternate ..... ***Oenothera**

EPILOBIUM L.

Willowherb

Species 185, with a centre of diversity in North America, 10 in Africa; 4 in sthn Afr., N, LIM, NW, G, M, S, FS, KZN, L, NC, WC, EC.

Stigma deeply 4-cleft

capense Buchinger ex Hochst.

Cape willowherb, salt of the shepherds; *mosika nokana* (SS); *icikiciki* (Z)

Perennial herb, 0.2–1.2 m high. **Stems** with strigulose pubescence, underground stems almost vertical with white, fleshy, rounded scales. **Leaves** narrowly lanceolate, serrate; rounded, obtuse or subcordate at base; petioles distinct, 1.0–2.5 mm long. **Flowers** erect or somewhat drooping in bud. **Petals** 4, rose-purple to white. **Stigma** white. **Flowering time** Dec.–Feb. **Fruit** a slender capsule, 30–90 mm long, loculicidal; pedicels 10–60 mm long. **Seeds** oblong-obovoid, papillose, up to 1.6 mm long, brown, coma up to 7 mm long. Moist places and mountain meadows; Drakensberg Grassland, Sub-Escarpment Savanna, Sub-Escarpment Grassland, Albany Thicket, Indigenous Forests (Naude's Neck Pass E to Clydesdale, southwards from Andriesberg to Mthatha, Somerset East to Komga and to Willowmore).

hirsutum L.

Great willowherb

Robust herb, 0.2–2.7 m high. **Stem** with long spreading pubescence; fleshy scales absent at base of plant. **Leaves** oblong-lanceolate, coarsely toothed, sessile, distinctly clasping at base. **Flowers** erect in bud. **Petals** 4, bright purplish rose. **Stigma** held above anthers at anthesis. **Flowering time** Dec.–Feb. **Fruit** a loculicidal capsule, 30–80 mm long; pedicels 2–12 mm long. **Seeds** oblong-obovoid, acute at base, coarsely papillose, up to 1.15 mm long, dark brown, coma up to 7 mm long. Montane regions, roadsides; Drakensberg Grassland, Sub-Escarpment Grassland, Upper Karoo, Indigenous Forests, Sub-Escarpment Savanna (Joubertspas E to Mtentu Bridge, southwards from Middelburg across Amatole Mts to Komga).

Stigma entire, clavate

salignum Hausskn.

Perennial herb, 0.2–1.6 m high; strongly rhizomatous, lacking fleshy scales. **Stem** evenly strigulose. **Leaves** narrowly elliptic, weakly serrulate, distinctly petiolate, narrowly

cuneate to attenuate at base. **Flowers** nodding in bud, later erect; petals white or cream-coloured, rose after pollination, 5–15 mm long. **Flowering time** Dec.–Mar. **Fruit** a loculicidal capsule, 30–70 mm long; pedicels 8–45 mm long. **Seeds** oblong-obovoid, obtuse at base, minutely reticulate, up to 1.35 mm long, light brown or tan, coma up to 9 mm long. Moist places along eastern mountains of sthn Afr.; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Albany Thicket (Rhodes District E to Clydesdale, southwards to Komga).

tetragonum L.

Square-stalked willowherb

Perennial herb, 0.1–1.0 m high; plants strigillose. **Leaves** narrowly lanceolate, bluish green, denticulate, subsessile and strongly decurrent. **Flowers** erect at anthesis. **Petals** 4, rose-purple to white, 2.5–3.5 mm long. **Flowering time** summer. **Fruit** a 35–110 mm long capsule; pedicels 1.2–3.0 mm long. **Seeds** oblong-obovoid, acute at base, coarsely papillose, up to 1.3 mm long, coma up to 10 mm long. Coastal to high altitudes; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Albany Thicket (Kokstad District, King William's Town, Uitenhage).

*GAURA L.

Species 21, North America, centering in the Great Plains and Texas; 2 in sthn Afr., NW, G, M, FS, WC, EC.

lindheimeri Engelm. & A.Gray

Robust, clumped, perennial herb, up to 1 m high; branching from underground crown. **Leaves** narrowly elliptic, coarsely and remotely serrate. **Inflorescence** a raceme or panicle. **Flowers** villous in bud, opening near sunrise. **Floral tube** villous, up to 9 mm long. **Sepals** villous. **Petals** 4, white, fading to light or deep pink. **Flowering time** Dec.–Feb. **Fruit** a sessile, broad-based, indehiscent capsule, nut-like, up to 9 × 3.5 mm. **Seeds** 1–4, ovoid, up to 2.3 × 1.5 mm, yellowish to light brown. Cultivated, road- and railway sides; origin USA, Louisiana and Texas; Albany Thicket (Grahamstown District).

sinuata Nutt. ex Ser.

Perennial herb, up to 0.6 m high; aggressively rhizomatous, forming extensive mats. **Leaves** linear to narrowly oblanceolate, sparsely sinuate-dentate. **Inflorescence** a raceme. **Flowers** strigillose in bud, opening near sunset. **Floral tube** strigillose, up to 5 mm long. **Sepals** strigillose. **Petals** 4, white, fading pink. **Flowering time** early summer. **Fruit** an indehiscent capsule with evident stipe 2–8 mm long, nut-like, up to 15 × 3.5 mm. **Seeds** ovoid, up to 4 × 3 mm, light to reddish brown. Grassland, abandoned land; origin USA, Texas, Oklahoma, a noxious weed limited by self-incompatibility; Albany Thicket, Eastern Fynbos-Renosterveld (Van Staden's Pass).

LUDWIGIA L.

Species ± 85, worldwide, mainly South America, relatively few in Africa; 7 in sthn Afr., N, B, LIM, NW, G, M, S, FS, KZN, L, WC, EC.

Leaves opposite; petals absent

*palustris (L.) Elliott

False loosestrife, water purslane; *senama-thabeng* (SS)

Annual herb, hydrophyte, up to 0.5 m long; creeping, rooting at nodes, forming mats, glabrous. **Leaves** broadly elliptic, 4–8 main veins on each side of midrib. **Flowers**

solitary in leaf axils (opposite). **Sepals** 4; up to 2 × 1.8 mm. **Stamens** 4; pollen shed singly. **Fruit** an elongate-globose capsule, up to 5 × 3 mm, obscurely 4-angled, dull brown, irregularly loculicidal. **Seeds** pluriseriate in each locule, free, elongate-ovoid, up to 0.9 × 0.3 mm, light brown. Margins of streams, lakes, wetlands; Indigenous Forests, Sub-Escarpment Savanna, Albany Thicket (Underberg District, Mount Frere, Komga).

Leaves alternate; petals present

adscendens (L.) Hara

Herb, hydrophyte, 0.5–1.0 m long; stems prostrate or erect, rooting at nodes, with conspicuous, white, erect, spindle-shaped pneumatophores clustered at nodes of floating stems and from roots. **Leaves** narrowly lanceolate, 6–12 main veins on each side of midrib. **Flowers** solitary in leaf axils. **Sepals** 5; up to 14 × 2.8 mm. **Petals** up to 18 × 10 mm. **Stamens** 10; pollen shed singly. **Fruit** a terete capsule, up to 30 mm long, longitudinally 10-ribbed, bulged at 1.5 mm intervals, light brown, thick walled, tardily dehiscent; pedicels up to 20 mm long. **Seeds** uniseriate, up to 1.3 mm long, pale brown, firmly embedded in coherent cubes of woody endocarp. Wetlands, along rivers and lakes, often floating, sometimes in large masses; Indigenous Forests (Port St Johns).

octovalvis (Jacq.) P.H.Raven

Robust, well-branched herb, 0.04–4.00 m high; plants densely pubescent to subglabrous. **Leaves** ovate, 11–20 main veins on each side of midrib. **Flowers** solitary in leaf axils. **Sepals** 4; up to 15.0 × 7.5 mm. **Petals** up to 17 × 17 mm. **Stamens** 8; pollen shed in tetrads. **Fruit** a subterete capsule, up to 45 mm long, longitudinally 8-ribbed, pale brown, readily loculicidal; pedicels up to 10 mm long. **Seeds** up to 0.75 mm long, brown, free; raphe inflated, equal in diam. to body of seed. Wet places, forests, alt. 2–1 095 m; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests (Mtentu Bridge, Umtamvuna Nature Reserve, Port Edward, Port St. Johns).

*OENOTHERA L.

Evening primroses; *aandblomme* (A)

Species ± 125, all native to North and South America, mostly introduced from temperate zones of the Americas, widely naturalised in the Old World; 14 in sthn Afr., widespread.

1a Petals white or rose-purple; flowers opening near sunrise or sunset; capsules evidently clavate

rosea L'Hér. ex Aiton

Rose evening primrose; *rooskleurige-aandblom* (A)

Weedy perennial, 0.20–0.25 m high; many stems from a woody caudex; strigillose throughout. **Leaves** alternate, ± oblanceolate, entire to pinnatifid at base of blade, base cuneate, apex acute; petioles up to 30 mm long. **Flowers** borne in axils of reduced leaves, opening near sunrise, diurnal. **Floral tube** up to 8 mm long, slender. **Sepals** deflexed to one side in anthesis. **Petals** up to 10 mm long, rose-purple. **Flowering time** Sept.–Apr. **Fruit** a capsule, up to 10 × 4 mm, narrowly winged, base fitting into hollow, ribbed stipe. **Seeds** oblong-ovoid. Weed, introduced in 1890s; Upper Karoo, Drakensberg Grassland, Sub-Escarpment Savanna, Sub-Escarpment Grassland, Albany Thicket (Oviston E to Oribi Gorge, southwards to Grahamstown and East London).

tetraptera Cav.

White evening primrose; *witaandblom* (A); *moopeli-o-mosoeu* (SS)

Weedy perennial, 0.15–0.40 m high; many stems from a woody caudex; long-spreading hairs throughout. **Leaves** alternate, ± oblanceolate, entire to irregularly sinuate-pinnatifid, base cuneate, apex acute; petioles up to 10 mm long. **Flowers** borne in axils of reduced leaves, opening near sunset, nocturnal. **Floral tube** up to 10 mm long. **Sepals** deflexed to one side in anthesis. **Petals** up to 35 mm long, white, fading purplish. **Flowering time** Oct.–Jan. **Fruit** a capsule, up to 15 × 8 mm, with prominent wings, base gradually narrowed into hollow, ribbed stipe. **Seeds** obovoid. Weed, first recorded in 1883 in Queenstown, grassland, moderate slopes, streambeds, road- and railway sides; Mesic Highveld Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Drakensberg Grassland, Albany Thicket (Zastron E to Kokstad District, southwards to Grahamstown).

1b Petals yellow; flowers opening near sunset; capsules not evidently clavate, sometimes slightly enlarged in upper third
2a Floral tube > 60 mm long

jamesii Torr. & A.Gray

Giant evening primrose

Stout, erect, winter annuals or biennials, 0.15–2.15 m high; forming rosettes; stems strigillose. **Leaves**: rosette leaves 60–200 mm long; cauline leaves broadly lanceolate, sinuate-serrulate, base cuneate, apex acuminate. **Floral tube** up to 130 mm long. **Sepals** with free tips 3–6 mm long. **Petals** up to 50 mm long. **Fruit** a capsule up to 50 × 10 mm. **Seeds** sharply angled, 1.5–2.0 mm long. Weed, riverbank, first recorded in 1926 at Welverdiend Station; Sub-Escarpment Grassland (Queenstown).

2b Floral tube < 60 mm long
3a Capsules broad at base; seeds sharply angular; open flowers ± reaching tip of stem

glazioviana Micheli

Bushy biennial, short-lived perennial, 0.8–1.2 m high; forming rosettes; stems crisp puberulent, many hairs arising from red papillae. **Cauline leaves** broadly lanceolate, crinkled, base cuneate, apex ± acute; petioles 0–20 mm long. **Floral tube** up to 50 mm long. **Sepals** with free tips 5–8 mm long. **Petals** up to 50 mm long. **Flowering time** Dec.–May. **Fruit** a capsule, up to 30 × 6 mm. **Seeds** 1.3–1.7 mm. Cultivated garden plants, first recorded in 1891 in EC; Upper Karoo, Drakensberg Grassland, Sub-Escarpment Grassland, Indigenous Forests, Sub-Escarpment Savanna, Albany Thicket (Albert District E to Umtamvuna Nature Reserve, southwards to Grahamstown).

3b Capsules cylindrical or tapering at base; seeds rounded, not sharply angular; open flowers well spaced down stem, not clustered above
4a Leaves deeply and coarsely toothed

laciniata Hill

Cutleaf evening primrose; *aandblom* (A); *lesoma* (SS)

Erect, often rank annual, 0.2–0.6 m high; often with many stems from base; upper parts strigillose to densely villous. **Leaves** lanceolate, base attenuate, apex acute to rounded; lower leaves petiolate. **Flowers** borne in axils of reduced leaves, buds curved upwards. **Floral tube** up to 35 mm long. **Sepals** with slender, free tips 0.5–3.0 mm long.

Petals 5–25 mm long, fading reddish. **Flowering time** Aug.–Dec. **Fruit** a capsule, up to 15 × 4 mm, cylindric, not winged, subsessile. **Seeds** ± 1 mm long, obovoid, coarsely pitted, light brown. Disturbed or cultivated land, gardens, first recorded in 1905 in KZN; Upper Karoo, Drakensberg Grassland, Albany Thicket (Bethulie District, Dohne Research Station, Amalinda Gardens East London).

4b Leaves with ± blunt, shallow teeth or entire to remotely sinuate-dentate

indecora Cambess.

Evening primrose; *nagblom* (A)

Erect annual, 0.2–0.9 m high; with several branches; plants with very short hairs, appearing glabrous to naked eye. **Leaves** lanceolate, apex acute to acuminate; bracts cuneate at base, as long or longer than capsules they subtend. **Flowers** in axils of reduced leaves, buds erect. **Floral tube** up to 15 mm long. **Sepals** with slender, free tips ± 1 mm long. **Petals** 3–6 mm long, fading reddish. **Style** surrounded by anthers at anthesis. **Flowering time** Nov.–Apr. **Fruit** a capsule, up to 22 × 2 mm, not winged, subsessile. **Seeds** up to 1.3 mm long, broadly ellipsoid, shallowly pitted, light brown. Recently burned, grazed, cultivated land, first recorded in 1918 in Cape Peninsula; Upper Karoo, Sub-Escarpment Grassland, Drakensberg Grassland, Albany Thicket (Norvalspont E to Kokstad District, southwards from Fort Beaufort to Salem).

parodiana Munz

Erect to somewhat decumbent, annual or biennial, 0.3–0.7 m high; forming a rosette, side branches arching; plants evidently erect-pubescent. **Cauline leaves** ovate, apex acute; bracts rounded at base, sessile, shorter than capsules they subtend. **Floral tube** up to 20 mm long, flecked red. **Sepals** flecked dark reddish brown, with slender, free tips ± 1.5 mm long, erect or divergent. **Petals** 3–6 mm long. **Flowering time** June–Jan. **Fruit** a capsule, up to 30 × 5 mm, valves often clearly separated at end. **Seeds** up to 1.5 mm long, ellipsoid. Weed of disturbed and cultivated land, first recorded in 1909 in Mpumalanga; Upper Karoo, Eastern Fynbos-Renosterveld, Sub-Escarpment Savanna, Albany Thicket (Oviston, Albert District, Greater Addo Elephant National Park, Salem, Bathurst District).

stricta Ledeb. ex Link

Yellow evening primrose; *geelaandblom* (A)

Annual or short-lived perennial, 0.3–1.0 m high; forming a rosette, several stout stems from taproot; villous. **Cauline leaves** lanceolate, apex acute, sessile. **Flowers** in axils of much reduced upper leaves, mature buds erect. **Floral tube** up to 45 mm long, slender. **Sepals** with free tips ± 2 mm long. **Petals** 15–32 mm long, fading reddish. **Flowering time** Sept.–Apr. **Fruit** a capsule, up to 40 × 4 mm, enlarged upward. **Seeds** 1–5 mm long, obovoid, brown, 1 row in each locule. Road- and railway sides, first recorded in 1888 in EC; Mesic Highveld Grassland, Dry Highveld Grassland, Sub-Escarpment Grassland, Lower Karoo, Albany Thicket (Zastron, southwards to Port Elizabeth and Grahamstown).

DIETRICH, W. 1977. The South American species of *Oenothera* (*Raimannia*, *Renneria*; Onagraceae). *Annals of the Missouri Botanical Garden* 64: 425–626.

DIETRICH, W. & RAVEN, P.H. 1985. Revision of *Oenothera* sect. *Oenothera* subsect. *Emersonia* (Onagraceae). *Systematic Botany* 10: 29–48.

FREAN, M., BALKWILL, K., GOLD, C. (née ANDERSON) & BURT, S. 1997. The expanding distributions and invasiveness of *Oenothera* in southern Africa. *South African Journal of Botany* 63: 449–458.

GOLDBLATT, P. & RAVEN, P.H. 1997. *FSA* contributions 9: Onagraceae. *Bothalia* 27: 149–165.
HARVEY, W.H. 1862. Onagrarieae. *Flora capensis* 2: 503–507.
MUNZ, P.A. 1965. Onagraceae. In C.T. Rogers, *North American Flora*, ser. 2,5: 182–196. The New York Botanical Garden, New York.
RAVEN, P.H. 1963. The Old World species of *Ludwigia* (including *Jussiaea*), with a synopsis of the genus (Onagraceae). *Reinwardtia* 6: 327–427.
RAVEN, P.H. 1967. A revision of the African species of *Epilobium* (Onagraceae). *Bothalia* 9: 309–333.
RAVEN, P.H. 1978. Onagraceae. *Flora zambesiaca* 4: 329–346.

OROBANCHACEAE

(formerly included in SCROPHULARIACEAE)

(Order Scrophulariales)

Compiled by S.J. Smithies & Z.L. Magwaza

Orobanchaceae, a family of mainly parasitic plants, is difficult to separate from Scrophulariaceae. Over the last decade the Orobanchaceae often changed in size as genera had been added or removed. This depended largely on whether a group of parasitic genera, long placed in the Scrophulariaceae, was moved to the Orobanchaceae or not. Ideas about the ranking of the groups also became important. Recent research in morphology, molecular phylogeny and chemistry, led to the development of new classification schemes. Young et al. (1999) found two sets of parasites forming a monophyletic clade (having a common ancestor) and proposed that this clade be defined as Orobanchaceae. They were followed by Olmstead et al. (2001), Wolfe et al. (2005), Tank et al. (2006) and Mabberley (2008), as well as websites of Nickrent (1999 onwards) and Stevens (2012). Other authors placed all the genera in Scrophulariaceae *s.l.*, such as Fischer (2004) and Ghazanfar et al. (2008). At present, despite all the research, the relationships among many families in Lamiales (Scrophulariales), and partly their limits, are still unclear (APG 2009). The current treatment considers all the parasitic genera as Orobanchaceae.

1a Plants holoparasitic, lacking chlorophyll, or apparently so because of other colouring masking green colour; leaves scale- or bract-like or aborted:
2a Flowers in dense, often subcorymbose to head-like spikes; corolla limb 3-lobed..... **Hyobanche**
2b Flowers usually in more lax racemes or spikes, sometimes dense above and lax below, rarely in dense heads; corolla limb 5- or 4-lobed:
3a Corolla tube bent abruptly above middle; anthers unithecate ..... **Striga**
3b Corolla tube straight or somewhat curved but not abruptly bent as above; anthers bithecate but sometimes thecae unequal and one may be subobsolete:
4a Corolla distinctly bilabiate; ovary unilocular with parietal placentation; seeds subglobose .... ***Orobanche**
4b Corolla subregular to somewhat bilabiate; ovary bilocular with axile placentation; seeds linear, clavate or oblong:
5a Corolla yellow or orange with red or markedly darker veins; anther thecae equal or unequal, all fertile ..... **Alectra**
5b Corolla variously coloured, if yellow, without darker veins; anther thecae unequal, one fertile, one barren or subobsolete..... **Harveya**
1b Plants not apparently or actually holoparasitic, but often hemiparasitic; leaves with chlorophyll:
6a Calyx and corolla 4(5)-lobed, if 5-lobed, then corolla subrotate and calyx not hairy inside..... *[2]**Bartsia**
6b Calyx with 5(4) lobes or teeth, if with 4, then calyx with 7, 8, 10 or 11 ribs or veins:
7a Shrubs or subshrubs..... **Graderia**
7b Herbs, often hemiparasitic:
8a Anthers with 2 fertile thecae, equal to somewhat unequal:

9a Calyx enlarged and inflated in fruit ..... **Melasma**
9b Calyx not enlarged and inflated in fruit ..... **Alectra**
8b Anthers unithecate or with 1 fertile theca and 1 variously modified theca:
10a Anthers bithecate, with 1 fertile theca and 1 narrow, sterile one; corolla subcampanulate ..... **Sopubia**
10b Anthers all unithecate; corolla tube ± cylindrical or gradually widening above:
11a Corolla tube rather sharply curved at or above the middle and often dilated at the curve; anthers basifixed ..... **Striga**
11b Corolla tube straight or sometimes slightly curved; anthers dorsifixed:
12a Flowers small, sessile or subsessile, usually in spikes or globose clusters, corolla lobes subequal, ovary elliptical ..... **Buchnera**
12b Flowers large, usually petiolate and in racemes (rarely sessile and in spikes); corolla lobes unequal; ovary ovate, ovoid or globose ..... **Cycnium**

ALECTRA Thunb.

Yellow witchweed

Species ± 40, Asia, tropical and sthn Afr.; ± 17 in sthn Afr., widespread.

capensis Thunb.

Sono (S)

Annual or perennial herb, parasite, 0.06–0.37 m high; stem erect, branched, leafy, with long whitish pubescence. **Leaves** 15 × 5 mm, sessile, ovate or lanceolate, entire, apex obtuse, narrowed at base. **Inflorescence** short, dense, terminal, subspicate; flowers yellow with reddish brown veins. **Bracts** leaf-like, ciliate. **Calyx** campanulate, bibracteolate; lobes acute or apiculate. **Corolla** yellow with dark stripes; tube funnel-shaped near throat; limb 5-lobed, spreading. **Stamens** exserted or nearly so; 2 filaments bearded; anthers oblong-ovoid; thecae obtuse or acute, apices apiculate. **Ovary** ± glabrous; style longer than stamens. **Flowering time** Oct.–Apr. Grassland, rocky areas, alt. 0–2 200 m; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Lower Karoo, Dry Highveld Grassland, Albany Thicket (Queenstown E to Transkei southwards, from Graaff-Reinet to Kei River Mouth and to Grahamstown).

orobanchoides Benth.

Annual herb, parasite, 0.1–0.6 m high; stem erect, simple or branched near base, pubescent to subglabrous. **Leaves** 3.5–13.0 × 1–2 mm, scale-like, opposite or alternate, lanceolate to ovate-oblong, entire, hispid, apex obtuse. **Inflorescence** a spike with many, small, orange-yellow flowers, red-veined on reverse, in axils of upper leaves. **Bracts** linear to oblong, hispid-pubescent. **Calyx** campanulate, externally pubescent, internally glabrous; lobes ovate or obtuse, ± equal. **Corolla** veined; lobes elliptic, obtuse or spathulate. **Stamens** subequal; filaments ± glabrous; anthers elliptic, obtuse. **Ovary** globose, glabrous; style compressed; stigma simple, glabrous. **Flowering time** Feb., Mar. Grassland and bushveld; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Matatiele E to Kokstad, southwards to Shawbury, Port St Johns).

pumila Benth.

Annual herb, parasite, 0.03–0.12(–0.30?) m high; stem scabrous. **Leaves** cauline, scale-like. **Inflorescence** a dense spike; flowers small. **Calyx**: lobes shortly obtuse. **Flowering time** Mar.–June. Well-drained, stony sand; Upper Karoo, Sub-Escarpment Grassland, Albany Thicket (Middelburg, Queenstown, Graaff-Reinet).

sessiliflora (Vahl) Kuntze

Verfblommetjie (A)

Annual or perennial herb, parasite, 0.04–0.68 m high; stem purple, branched, ± glabrous. **Leaves** sessile, opposite, deltate-ovate or lanceolate, base cuneate and spinose, apex obtuse or acute, attenuate, margins purple. **Inflorescence** a dense, terminal spike, with many flowers; flowers yellow to dull orange, subsessile, solitary in axils of bracts. **Bracts** leaf-like, ciliate. **Calyx** campanulate, ciliate at upper margins and ribs; lobes lanceolate, subequal, longer than tube, ciliate; tube bibracteolate at base. **Corolla** campanulate, longer than calyx; lobes obtuse. **Stamens** unequal; filaments short, glabrous, long bearded; anthers unequal, thecae apiculate. **Ovary** with recurved stigma. **Flowering time** Nov.–Apr. Grassland, damp areas, alt. 0–1 900 m; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Albany Thicket, Eastern Fynbos-Renosterveld (Matatiele E to Port Edward, southwards from Willowmore to Grahamstown, and Humansdorp).

thyrsoidea Melch.

Annual? herb, root parasite, 0.25–0.38 m high; stem simple, erect, pubescent. **Leaves** erect, subimbricate, longer than internodes, ovate-lanceolate, base sessile, obtuse, margins and nerves hispid. **Inflorescence** a dense spike; flowers yellow, axillary, many, subsessile. **Calyx** ± 12 mm long, campanulate, hispid; lobes triangular. **Corolla** with obovate lobes. **Stamens** equal in length; filaments 5 mm long, glabrous; anthers parallel, thecae unequal in length; base broader; tip mucronulate. **Ovary** ± 2.5 mm in diam., globose; style ± 10 mm long; tip recurved. **Flowering time** Feb. Grassland, damp areas; Sub-Escarpment Grassland (Queenstown, Lesseyton Neck).

*?BARTSIA L.

(= *BELLARDIA* All.)

Species 49 or 60, mostly South America (Andes), also S Europe, Orient, North America and Africa; 1 in sthn Afr., possibly introduced, sporadic in NC, WC, EC.

trixago L.

Annual herb, parasite, 0.15–0.50 m high; stem simple, erect, leafy, glandular-hispid. **Leaves** sessile, opposite, lanceolate or linear, glandular, viscid-hispid, apex obtuse, margins obtusely toothed. **Inflorescence** a short, terminal spike; flowers yellow, sessile. **Bracts** ovate or lanceolate, equal to or exceeding calyx, toothed, viscid-hairy. **Calyx** ovoid, viscid-pubescent; lobes deltoid, pointed. **Corolla** externally glandular-pubescent; lower lip dilated, bifid. **Stamens**: anthers ± bearded, with subglandular hairs. **Ovary**: style longer than stamens, recurved towards tip, hispid-pubescent; stigma thickened, obovoid. **Flowering time** Dec., Jan. Grassland, dry soil between rocks in riverbed; Dry Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland (Kloppershoekspruit Valley S to Molteno, Cala, Katberg and Cathcart).

BUCHNERA L.

False verbena

Species ± 100, mostly Old World tropics and subtropics; ± 9 in sthn Afr., widespread, except NC.

dura Benth.

Annual or perennial herb, parasite, 0.06–0.60 m high; stem terete, erect or suberect, puberulent. **Leaves** opposite, lower obovate, middle oblong, upper linear, hispid.

Inflorescence a long, terminal spike; flowers pale blue or deep lilac. **Bracts** ovate, concave, ciliate. **Calyx** oblong, 5–8 mm long ± glabrous, 8- or 10-ribbed; lobes lanceolate or ovate, ciliate, apex acute. **Corolla** with slender tube, externally pilose; lobes oval or bovate, glabrous. **Stamens** and style included in corolla tube. **Flowering time** Nov.–July. **Fruit** included in calyx when mature. Well-drained stony soil, burnt grassland; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Eastern Fynbos-Renosterveld, Albany Thicket (Qacha's Neck E to Kokstad southwards, from Port Edward to Port Elizabeth and Skurwenek).

simplex (Thunb.) Druce

False verbena; *umusa omkhulu* (Z)

Annual or perennial herb, parasite, 0.06–0.52 m high; stem terete, simple, glabrous, subglabrous or hispid at base. **Leaves** basal, lower broadly obovate, upper linear-oblong, hispid. **Inflorescence** short, terminal, compact when mature; flowers white. **Bracts** mostly ciliate. **Calyx** 4–8 mm long; tube 8-ribbed, glabrous; lobe ciliate. **Corolla** white; tube externally glabrous; lobes glabrous. **Stamens** and style included in corolla tube. **Flowering time** Oct.–Mar. **Fruit** extends beyond calyx lobes when mature. Grassland and forest; Drakensberg Grassland; Indigenous Forests, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Ramatseliso's Post S to Weza State Forest, Katberg, Kentani and Grahamstown).

CYCNIUM E.Mey. ex Benth. emend. Engl.

Mushroom flower

Species ± 15, East Africa to sthn Afr.; 4 in sthn Afr., widespread, except L, NC and WC.

adonense E.Mey. ex Benth.

Ink plant; *inkblom* (A)

Perennial herb, parasite, 0.06–0.15 m high; stem decumbent, scabrous, hispid. **Leaves** 70 × 30 mm, subsessile, opposite, lanceolate or elliptic, roughly hairy, apex acute or obtuse, margins incise-dentate. **Inflorescence** a raceme; flowers large, axillary, white, turn blue-black when bruised. **Calyx** 8–75 mm long, tubular, campanulate to urceolate in fruit; tube mostly subplicate between ribs; lobes narrowly triangular, ovate. **Corolla** occasionally slightly gibbous above middle; tube cylindrical, funnel-shaped at apex, externally shaggy with glandular hairs, internally pubescent; throat yellow. **Stamens** inserted; filaments yellow, puberulous; anthers obtuse at base, glabrous. **Ovary** ovoid, compressed; stigma compressed. **Flowering time** Sept.–Dec. Grassland, on rocky slopes, open woodlands, forest edges and streamlines; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Albany Thicket (Izingolweni S to Maclear District, Port Edward, Komga and Bathurst).

racemosum Benth.

Large pink ink plant; *berginkplant* (A); *injanga* (X); *uhlabahlangane* (Z)

Perennial herb, parasite, 0.1–1.2 m high; stem erect, simple, ribbed. **Leaves** 80 × 20 mm, sessile, opposite or subopposite, lanceolate, rough, apex acute or apiculate, margins purple-red, dentate. **Inflorescence** a terminal raceme; flowers pink or white, solitary or in pairs, turn black when bruised. **Calyx** 12 mm long, nearly glabrous; lobes short, narrow; tips hooked; tube straight. **Corolla** pilose; tube subcylindrical, funnel-shaped, curving near apex, externally glabrous, internally pilose. **Stamens** with bearded filaments;

anthers apiculate, glabrous. **Ovary** fleshy, ovoid-conical; stigma ± thickened. **Flowering time** Nov.–Mar. Grassland, humus-rich soil, rocky places, up to alt. 2 600 m; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Albany Thicket (Roma E to Bizana southwards, Maclear District, Katberg and Grahamstown).

tubulosum (L.f.) Engl.

Inkblom (A)

Perennial, rarely annual herb, parasite, 0.07–0.90 m high; stem slender, semi-erect, branched or simple, smooth or verrucose, glabrous or pubescent. **Leaves** linear, apex acute or obtuse, margins entire; petioles long (± 15 mm). **Inflorescence** a raceme; flowers white or pink. **Calyx** campanulate; tube ribbed; lobes equal, ovate to filiform, reflexed. **Corolla** with curved or straight tube. **Ovary** ovoid, compressed; stigma compressed. **Flowering time** Sept.–Apr. Humus-rich soil, shallow water, grassland; Indian Ocean Coastal Belt, Albany Thicket (Port Edward S to Port St Johns, Brandrug and Bathurst).

GRADERIA Benth.

Wild penstemon

Species 5, Africa and Socotra; 3 in sthn Afr., G, M, S, KZN, WC, EC, roughly from Pilgrim's Rest to Riversdale.

scabra (L.f.) Benth.

Wild penstemon, pink ground-bells; *impundu*, *isimonyo*, *ugweja*, *umphuphutho* (Z)

Perennial herb or suffrutex, parasite, 0.08–0.65 m high; stem erect, herbaceous when young, branched at base, pilose. **Leaves** 10–22(–30) × 4–17 mm, subsessile, opposite or alternate, lanceolate, margins incised-pinnatifid with acute teeth; nerves prominent beneath. **Inflorescence** a raceme; flowers pink, in axils of upper leaves, shortly pedicellate, bibracteolate. **Calyx** 7–10 mm long, campanulate, hispid; lobes triangular-lanceolate. **Corolla** funnel-shaped; tube pubescent; lobes broadly rounded, spreading. **Stamens**: filaments filiform, pilose; anthers glabrous. **Ovary** somewhat gibbous; style filiform, persist in young fruits. **Flowering time** Aug.–Mar. Well-drained soil, hill slopes; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Eastern Fynbos-Renosterveld, Albany Thicket (Ramatseliso's Plateau E to Ngeli Mtn southwards, from Port Edward to East London and from Tsitsikamma to Humansdorp).

HARVEYA Hook.

Species ± 40, all perennial root parasites occurring in Africa, Madagascar, and the southern tip of the Arabian peninsula; 13 in sthn Afr., LIM, NW, G, S, FS, KZN, L, NC, WC, EC.

According to Randle (2006).

1a Anthers bithecous, one theca fertile and crescent-shaped, the other sterile and subulate
2a Inflorescence spicate or corymbose

[E]**hyobanchoides** Schltr. ex Hiern

Bont-inkblom (A)

Perennial herb, parasite 0.18–0.34 m high; vegetative parts scarlet; stems fleshy, simple, villous. **Leaves** sessile, concave, obovate, 8–95 × 5–6 mm, apex obtuse to acute; villous.

Inflorescence spicate, with 12–36 sessile flowers, yellow and green. **Bracts** elliptical to oblanceolate, concave. **Calyx** 23–30 mm long, externally villous, internally pubescent-glabrescent, bilabiate. **Corolla** cylindrical; tube 35–37(–42) mm long dorsally; dense band of hairs encircling tube at base of stamens at point of corolla constriction; lobes ± equal, semi-orbicular to deltate, olive to deep chlorophyllous green. **Stamens** didynamous; anthers nearly or just exserted. **Ovary** ovoid; style recurved at tip; stigma exserted. **Flowering time** July–Oct. Sandy soils along shores of EC; Indian Ocean Coastal Belt, Albany Thicket, Eastern Fynbos-Renosterveld (Kentani, Grahamstown, Humansdorp).

pumila Schltr.

Perennial, dwarfed herb, parasite, 0.03–0.12 m high; stems fleshy, distally rarely branching with hairs increasing in abundance toward the tip, villous. **Leaves** imbricate, base sessile, concave, elliptic to ovate, 4–6 × 2–6 mm, apex obtuse to acute; sparsely pubescent. **Inflorescence** a corymb, with 2–8 pink flowers. **Bracts** obovate to ovate, concave. **Calyx** 20–35 × 9–12 mm, bilabiate, externally villous, internally glabrous; lobes lanceolate. **Corolla** campanulate, glabrous; tube white to pale yellow, constricted above ovary; lobes ± equal. **Stamens** didynamous, inserted at point of corolla expansion; filaments puberulent at tip. **Ovary** ovoid; style incurved at tip, included; stigma globose. **Flowering time** Sept.–Jan. Well-drained to seasonally waterlogged soil; Upper Karoo, Drakensberg Grassland, Sub-Escarpment Grassland, Albany Thicket, Sub-Escarpment Savanna (Kraalberg S to Molteno, from Hankey E to Grahamstown and East London).

scarlatina (Benth.) Hiern

Annual herb, parasite, 0.07–0.20 m high; stem yellow to greenish yellow, viscid, pubescent. **Leaves** sessile, concave, oblanceolate, 4–5 × 5–8 mm, apex obtuse to subacute; puberulous, hairs appressed or directed upwards. **Inflorescence** a spike, with 4–12 yellow flowers. **Bracts** opposite, elliptical to lanceolate or oblanceolate, concave. **Calyx** 30–52 × 9–17 mm, obconical at base, bilabiate, externally villous, internally pubescent; lobes deltate to lanceolate. **Corolla** tough; tube yellow, erect, ± equal, reflexed, slightly curved, externally pubescent, internally puberulent to glabrescent. **Stamens** didynamous, inserted above base of corolla; filaments puberulent, nearly exserted. **Ovary** spherical–ovoid, exserted, incurved at tip; stigma clavate. **Flowering time** Jan.–Mar. High alpine grassland of EC; Drakensberg Grassland, Sub-Escarpment Grassland (Lady Grey E to Barkly East and along Drakensberg Mts to Elliot).

2b Inflorescence racemose
3a Corolla limb orange to scarlet, tube subcylindrical

bolusii Kuntze

Rooi-inkblom (A)

Perennial herb, parasite, 0.05–0.29 m high; stem maroon to deep red, simple. **Leaves** opposite or subopposite, sessile, scale-like, appressed, elliptical to ovate, 6–9 × 3–4 mm, apex obtuse to acute; puberulous. **Inflorescence** terminal with 4–10(–22) crimson-orange flowers. **Bracts** opposite, elliptic to lanceolate, villous. **Calyx** 12–25 × 6–7 mm, campanulate or subconical at base, bilabiate, externally pubescent to villous, internally glabrous; lobes lanceolate to narrowly deltate. **Corolla** tough; tube bright yellow inside the throat, externally pubescent, internally glabrous. **Stamens** didynamous, nearly exserted, inserted above base of corolla; filaments flattened, glabrous; anthers bithecous. **Ovary** ovoid; style exserted incurved below stigma; stigma oblong. **Flowering time** Nov.–Jan. Mountains, alt. 240–1 700 m; Drakensberg Grassland (Amatole Mts to Gaika's Kop).

stenosiphon Hiern
Skarlaken-inkblom (A)

Perennial herb, parasite, 0.03–0.70 m high; stem maroon or green with maroon markings, glabrescent at base, villous at apex. **Leaves** subsessile, elliptical, rarely obovate or oblanceolate, 6–10 × 2–5 mm, apex acute; upper surface pubescent, hairs appressed or directed upwards, lower surface glabrous to puberulent. **Inflorescence** with 2–6 orange-red flowers. **Bracts** opposite, lanceolate to oblanceolate, concave, villous. **Calyx** 13–23 × 7–14 mm, campanulate or obconical proximally, villous externally, internally pubescent at tips of lobes, glabrous at base; lobes deltate. **Corolla** membranous; tube subcompressed, externally pubescent, internally villous; throat yellow. **Stamens** not didynamous, inserted ± middle of corolla tube; filaments flattened, glabrous; anthers bithecous. **Ovary** flask-shaped; style incurved at tip, oblong; stigma oblong. **Flowering time** Nov.–Mar. Damp areas of Langeberg and Outeniqua Mts; Eastern Fynbos-Renosterveld (Humansdorp).

3b Corolla limb white, cream-coloured, pink, rosy-purple, tube inflated
4a Corolla limb white to cream-coloured, or slightly tinged with pink at the tips of the lobes, tube strongly compressed laterally; stigma chlorophyllous green

capensis Hook.
Wit-inkblom (A)

Annual or perennial herb, parasite, 0.11–0.65 m high; stem dusky brown to greenish yellow, covered in glandular hairs, simple, viscid. **Leaves** concave, ovate, elliptical or lanceolate, 4–18 × 3–8 mm, apex acute to obtuse; pubescent or villous, hairs appressed or antrorse. **Inflorescence** with 2–10 flowers, white with pink edge. **Bracts** ovate to lanceolate, villous. **Calyx** 17–22 ×10–13 mm, campanulate or obconical at base, bilabiate, externally villous, internally pubescent; lobes deltate to lanceolate. **Corolla** ampliate; tube laterally compressed, externally villous, internally puberulent; limb oblique, bilabiate; lobes obovate. **Stamens** didynamous, inserted. **Pistil** chlorophyllous green. **Ovary** ovoid; stigma bright green, globose, somewhat bilobed. **Flowering time** Nov.–Jan. moist slopes and mountain springs of south-western mountains of EC; Eastern Fynbos-Renosterveld (Willowmore to Humansdorp).

4b Corolla limb pink, purple or sulphur yellow, throat not strongly compressed; stigma white or yellow

[E]huttonii Hiern
(= *H. leucopharynx* Hilliard & B.L.Burtt, *H. pulchra* Hilliard & B.L.Burtt, *H. silvatica* Hilliard & B.L.Burtt)

Herb, parasite, 0.15–0.40 m high; stem greenish yellow or dull red, glabrous to villous, simple. **Leaves** imbricate, scaly, concave, elliptical, 7–13 × 3–5 mm, apex acute, subacute or obtuse; villous, hairs directed upwards. **Inflorescence** with 6–12 light pink flowers. **Bracts** elliptical, concave, apex acute, or obtuse, villous. **Calyx** bilabiate, campanulate or obconical at base, villous externally, lobes deltate-lanceolate. **Corolla**: white or pale yellow, dorsally keeled, externally villous, internally glabrescent, throat white or yellow, limb pink or lilac, lobe orbicular-obovate, crenulate, lobulate or lacerate, pubescent at margins. **Stamens** didynamous, included; filaments puberulent. **Ovary** spherical, ovoid; style incurved at tip; stigma globose. **Flowering time** Nov.–Feb. From the Amatole to Drakensberg Mts; Drakensberg Grassland, Sub-Escarpment

Grassland, Upper Karoo, Sub-Escarpment Savanna (Lady Grey E to Matatiele, Graaff-Reinet and Grahamstown).

pauciflora (Benth.) Hiern.
[= *H. coccinea* (Harv.) Schltr., *H. tubulosa* Harv. ex Hiern]

Annual herb, parasite. 0.1–0.3 m high; stem red to dusky purple, terete, glabrous proximally, villous towards tip. **Leaves** sessile, concave, elliptical, 4–11 × 2–4 mm, apex acute; pubescent to villous, hairs appressed or directed upwards. **Inflorescence** with 4–10 flowers. **Bracts** elliptical to oblanceolate, concave, villous, apex acute or obtuse. **Calyx** campanulate, externally pubescent to villous; lobes deltate. **Corolla** creamy white, pale pink or yellow, curved, dorsally keeled, externally villous, internally glabrous; limb bilabiate; lobes orbicular, ovate. **Stamens** didynamous, included, margins crenulate or lobulate; filaments puberulent-pubescent. **Ovary** ovoid; style incurved at tip; stigma globose, included. **Flowering time** Oct.–Jan. Wide range of habitats, alt. 10–2 300 m; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (along coast from Engcobo to Kentani, and from Tsitsikamma to Port Alfred).

purpurea (L.f.) Harv. ex Hook.

Pers-inkblom (A)

Annual or perennial herb, parasite, 0.05–0.35 m high; stem red, green or yellow, fleshy, glabrescent, viscid. **Leaves** concave, ovate to lanceolate, 5–21 × 2–5 mm, apex acute; hairs erect or directed upwards. **Inflorescence** terminal, with 2–12 light pink flowers. **Bracts** elliptical to lanceolate, villous, apex acute or subacute. **Calyx** campanulate to obconical at base, bilabiate, villous; lobes lanceolate, as long as tube. **Corolla** white yellow, with sulphur-yellow or pink limbs; tube curved, dorsally keeled; throat glabrescent, limb bilabiate; lobes ovate-obovate or lacerate, margins ciliate. **Stamens** slightly didynamous, inserted, included; filaments puberulent. **Ovary** spherical to broadly elliptical; style globose or oblong, down curved; stigma globose to oblong. **Flowering time** July–Nov. Cape Fold belt, coastal plains; Eastern Fynbos-Renosterveld, Albany Thicket (Willowmore to Grahamstown).

1b Anthers monothecous, or bithecous but the sterile theca < 1 mm long

speciosa Bernh.
(= *H. cathcartensis* Kuntze)

Inkblom (A); *mokunye*, *seona* (SS); *isinama* (X); *umshelazana omhlophe* (Z)

Perennial herb, parasite, 0.15–1.00 m high; stem greenish yellow, erect, simple, glabrous. **Leaves** sessile, opposite, elliptical to subovate, 10–37 × 9–22 mm, apex acute or acuminate; glabrous or sparsely appressed-hairy. **Inflorescence** with 4–12 white flowers. **Bracts** elliptic-ovate or spathulate, glabrous. **Calyx** campanulate-obconical at base, cylindrical, glabrous; lobes oblique, deltate. **Corolla** creamy white to pale yellow, curved at point of expansion, externally villous; throat pale lemon-yellow, villous; limb bilabiate. **Stamens** ± equal, inserted; anthers extended as far as stigma, monothecous; filaments flattened, glabrous. **Ovary** ovoid; style distally incurved, extending to throat of corolla; stigma globose, 2-lobed. **Flowering time** Oct. –Apr. Montane grassland, forest margins, S-facing slopes, soil and leaf litter moist; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Albany Thicket, Eastern Fynbos-Renosterveld (Lady Grey E to Barkly East S, from Queenstown to Port St Johns, Port Elizabeth and Humansdorp).

HYOBANCHE L.

Red broomrape; *katnaels* (A)

Species ± 7, sthn Afr., widespread, but scattered and uncommon, not in B, LIM, NW, G, M.

[E]robusta Schönland

Herb, parasite, up to 0.23 m high; stem fleshy. **Leaves** scale-like, densely imbricate, carinate, orbicular-ovate or oblong to elongate-oblong, lower surface red-brown, upper surface white, villous-tomentose, base abruptly acute, apex acute to obtuse. **Inflorescence** a spike. **Bracts** oblong, obtuse, villous-tomentose. **Corolla** curved upwards, upper parts purple; tube externally villous-tomentose, internally glabrous, apex subacute; mouth oblique; base yellow, unilabiate. **Stamens** barely exserted; filaments basally pubescent; anthers deep yellow-brown. **Ovary** globose, glabrous; style tip curved downwards, flattened-subclavate. Coastal dunes; Eastern Fynbos-Renosterveld (Humansdorp).

rubra N.E.Br.

Herb, parasite, 0.04–0.15 m high; stem almost woody. **Leaves** fleshy, sessile, concave, imbricate, broadly ovate, glabrous. **Inflorescence** a dense corymb; flowers pink or red, with short pedicels. **Bracts** oblong, ciliolate; base obtuse. **Calyx** acutely 5-lobed, pilose, back lobe linear and free, the rest falcate, connate to middle. **Corolla** tubular, externally pubescent, internally glabrous; mouth oblique. **Stamens** ± equal to corolla in length, glabrous; anthers exserted at maturity. **Ovary** ovoid, glabrous; style equal to corolla in length, curved at tip, glabrous; stigma large, slightly bilobed, compressed dorsally. **Flowering time** Oct.–Dec. Stony ground and grassland; Drakensberg Grassland, Sub-Escarpment Grassland (Barkly East E to Maclear District southwards to Bailey).

sanguinea L.

Herb, parasite, 0.02–0.25 m high; stem white, simple, fleshy. **Leaves** pale rosy or scarlet, imbricate, sessile, appressed, fleshy, concave, base attenuate, ovate, entire, apex obtuse; upper surface tomentose, lower surface glabrous. **Inflorescence** a terminal spike, elliptical or conical; flowers red, many, sessile, oblong. **Bracts** sessile, fleshy, obtuse. **Calyx** 5-cleft; lobes oblong, obtuse, sometimes connate, with purple pubescence externally. **Corolla** purplish, subcylindrical, curved, externally shaggy, ringent, unilabiate; lip emarginate; mouth vertical. **Stamens** with dehiscent anthers. **Ovary** yellowish; stigma white, emarginate, exserted, thickened at tip. **Flowering time** July–Nov. Well-drained, sandy and loamy soil; Dry Highveld Grassland, Mesic Highveld Grassland, Upper Karoo, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Joubertspas S to Middelburg, Graaff-Reinet, Kei River Mouth, Port Elizabeth, Grahamstown and Humansdorp).

MELASMA P.J.Bergius

Witch's foxglove

Species 5, America, Africa; 1 in sthn Afr., LIM, NW, M, S, FS, KZN, L, WC, EC, in vleis, marshes and riversides.

scabrum P.J.Bergius

Perennial herb, parasite, 0.2–1.0 m high; stem leafy, branched, diffuse or ascending, viscid-scabrid. **Leaves** opposite, sessile or subsessile, elliptic, 10–50 × 2–6 mm, base acute, apex obtuse, margins dentate; upper surface deep green, lower surface pale green.

Inflorescence a long raceme; flowers with long pedicels. **Bracts** leaf-like. **Calyx** campanulate, densely reticulate-veined; tube loose in flower, inflated in fruit, unequal at insertion of pedicels. **Corolla** white, yellow or brown; tube purple, campanulate, glabrous; throat purple or brown; lobes white, rounded, veined, glabrous. **Stamens** included; filaments pubescent. **Ovary**: style scarcely exserted, inflexed above. **Flowering time** Dec.–Mar. Grassland and stony soil; Upper Karoo, Drakensberg Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Albany Thicket, Eastern Fynbos-Renosterveld (Maclear District E to Mthatha and Port Edward S, from Stutterheim to Willowmore, Grahamstown and Humansdorp).

*OROBANCHE L.

Broomrape

Species ± 150, ± cosmopolitan; 2 in sthn Afr., probably introduced from Mediterranean region, N, LIM, M, NC, WC, EC.

minor Sm.

Annual herb, holoparasite, 0.1–0.4 m high; stem yellow, simple, whole plant ± glandular-pilose. **Leaves** 5–17 × 2.0–4.5 mm, ovate to lanceolate, entire, apex acute. **Inflorescence** a terminal spike, laxly elongated at maturity; flowers dull yellow to violet-blue, sessile. **Bracts** leaf-like, long-acuminate. **Calyx** 5.5–11.0 mm long, subequally divided to base dorsally and ventrally in 2 segments, each segment ovate to ovate-lanceolate; teeth acuminate, entire. **Corolla** 10–18 mm long, with dark purple-blue venation; lobes rounded; upper lip emarginate, lower lip subequally divided into 3 lobes, central lobe smaller. **Stamens** inserted; filaments pubescent. **Ovary** with bilobed stigma. Parasitic on various hosts, often affecting cultivated crops, declared weed (Category 1); Eastern Fynbos-Renosterveld (Port Elizabeth).

SOPUBIA Buch.-Ham. ex D.Don

Species 25–30, Himalayas to Indo-China and Taiwan, tropical Africa; 4 in sthn Afr., widespread, but not in NC.

cana Harv.

Perennial herb, hemiparasite, (0.10–)0.15–0.60 m high; most parts grey- or white-felted; stems shrubby at base, stiffly herbaceous and sometimes branched above, erect, virgate, few ribbed, leafy, often with axillary leaf tufts or short-shoots. **Leaves** sessile, simple, 12–30 × 0.7–1.0 mm, linear, obtuse, entire, spreading. **Inflorescence** a leafy and bracteate, terminal raceme, sometimes panicled; flowers often pink, also mauve to purple. **Calyx** campanulate, shortly 5-cleft, often finely tomentose; teeth subdeltate, subacute. **Corolla** 5-cleft, tube ± as long as lobes; lobes subrotate, subequal, rounded, crenulate. **Flowering time** Jan.–Mar. Well-drained grassland; Sub-Escarpment Grassland (Kokstad and Maclear districts).

mannii Skan

Perennial herb, hemiparasite, 0.18–0.60 m high; stems 1–several, often branched above, few ribbed, puberulous in grooves, leafy above to densely so, usually with axillary leaf tufts or short-shoots. **Leaves** opposite or whorled, simple or rarely trifid, linear to filiform, 8–45 × 0.5–1.3 mm, acute, revolute, papillate-scabrid on margins, spreading. **Inflorescence** a narrow, terminal raceme up to 190 mm long, these sometimes in loose panicles; flowers many, often in whorls, mostly pink, also mauve, rarely purple or white.

Calyx campanulate, tube glabrous; lobes deltate, woolly-pubescent on margins and inside. **Corolla** tube short; limb longer, patent, lobes suborbicular. **Flowering time** Dec.–May, mainly Feb. Grassland, sometimes damp to swampy; Drakensberg Grassland, Indian Ocean Coastal Belt, Sub-Escarpment Savanna (Baziya Mtn to Mkambati and Stutterheim to Kentani).

simplex (Hochst.) Hochst.

Perennial herb, hemiparasite, 0.2–0.6 m high; stems mostly simple, sometimes few branched above, erect, often virgate, many-ribbed, puberulous in grooves. **Leaves** few, alternate or ternate, (5.5–)12.0–20.0 × 0.5–1.0 mm, linear, simple, sessile, entire, usually appressed. **Inflorescence** a loose raceme up to 300 mm long, sometimes a little panicled, dense at top, elongating; flowers pink to mauve, alternate or whorled. **Calyx** campanulate to hemispherical, minutely scabrid; lobes deltate, woolly at margins. **Corolla** rotate; throat dark purple; lobes crenulate. **Flowering time** Aug.–Feb. Grassland, sandy soil derived from sandstone; Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Sub-Escarpment Savanna (Matatiele S to Port Edward, Port St Johns and King William's Town).

STRIGA Lour.

Witchweed

Species ± 40, Africa, Asia, Australia, introduced in N America; ± 7 in sthn Afr., widespread, but mostly in eastern half, not in WC; often pestilential in cereal crops.

asiatica (L.) Kuntze

Buri, mealie-witchweed; *mielierooiblom*, *kopseerblommetjie* (A); *seona* (SS); *isona* (Z)

Annual herb, parasite, 0.05–0.45 m high; stem erect, branched, scabrid, hispid. **Leaves** (8–)16 × 1 mm, alternate or opposite, linear, entire, apex obtuse, scabrid. **Inflorescence** a terminal spike; flowers opposite or alternate. **Bracts** linear, longer than calyx. **Calyx** 6 × 2.5 mm, scarious between ribs, scabridly hairy on ribs and teeth. **Corolla** scarlet internally, yellow externally, glabrous or puberulous; tube bent in upper part near limb; lobes obovate, upper lobe emarginate, lower lobes spreading. **Ovary** with persistent style; stigma with white pollen. **Flowering time** Jan., Feb. A common weed parasite on maize, reducing yield, humus-rich soil; Sub-Escarpment Grassland, Indian Ocean Coastal Belt (Umzimvubu and Port Edward).

bilabiata (Thunb.) Kuntze

Annual or perennial herb, parasite, 0.07–0.60 m high; grey-green-black; stem erect, simple, pubescent. **Leaves** erect, appressed, linear to lanceolate, scabrid, margins ciliate. **Inflorescence** a dense, terminal spike, elongating in fruits. **Bracts** imbricate, lanceolate, margins ciliate-pubescent. **Calyx** pubescent; tube subulate at apex, hyaline between nerves. **Corolla** pink or violet; tube angled just below lobes, narrow, pubescent. **Flowering time** July-May. Grassland, stony soil; Upper Karoo, Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Albany Thicket (Aliwal North E to Barkly East, southward from Queenstown to Port St Johns, Juanasberg, King William's Town, Komga and East London).

elegans Benth.

Large mealie witchweed; *kopseerblommetjie* (A); *sona* (S); *lethibela*, *mohohlong* (SS); *umnaka*, *isona* (Z)

Annual herb, parasite, 0.06–0.40 m; stem erect, branched, striate, leafy, hispid-scabrid. **Leaves** sessile, opposite or alternate, lanceolate-linear, erect, entire, scabridly pubescent, apex acute or pointed. **Inflorescence** a terminal, dense spike; flowers many, white, pink or crimson, sessile. **Bracts** lanceolate, acute, scabrid, hispid. **Calyx** narrow, hispid-scabrid; lobes lanceolate or subulate. **Corolla** subcylindrical, externally glandular-puberulous, internally pilose; tube enlarged and bent near apex; limbs spreading; lobes obovate, emarginate; upper lip broad. **Stamens** inserted above middle of corolla tube, glabrous. **Flowering time** Aug.–May. Grassland, well-drained loamy soil; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Albany Thicket (Lady Grey E to Ongeluksnek Nature Reserve, southwards from Queenstown to Maclear District, Stutterheim to Kei River Mouth, and to Grahamstown).

gesnerioides (Willd.) Vatke

Purple witchweed; *bloublom* (A); *sono* (S); *seona* (SS); *igalo* (X)

Perennial herb, parasite, 0.04–0.60 m high; stem tufted, green-yellow, usually branching from base, puberulent. **Leaves** 5–10 × 2–3 mm, scale-like, appressed, puberulent. **Inflorescence** a terminal spike; flowers opposite or alternate. **Bracts** usually same length as calyx. **Calyx** (4–)6 × 2 mm. **Corolla** light blue or dark purple; tube bent below limb; upper lobes sharply recurved. **Ovary** with exserted stigma. **Flowering time** July–Mar. Rocky grassland and cultivated ground; Sub-Escarpment Savanna, Albany Thicket (Kei River Mouth S to Grahamstown and East London).

ANGIOSPERM PHYLOGENY GROUP [APG]. 2009. An update of the Angiosperm Phylogeny Group classification for the orders and families of flowering plants: APG III. *Botanical Journal of the Linnean Society* 161: 105–121.
FISCHER, E. 2004. Scrophulariaceae. In K. Kubitzki, *Families and genera of vascular plants* 7: 333–432. Springer-Verlag, Berlin.
GHAZANFAR, S.A., HEPPER, F.N. & PHILCOX, D. 2008. *Flora of tropical East Africa.* Scrophulariaceae: 1–211.
HANSEN, O.J. 1975. The East African species of *Sopubia* (Scrophulariaceae). *Kew Bulletin* 30: 543–558.
HANSEN, O.J. 1978. The genus *Cycnium* Benth. emend. Engl. (Scrophulariaceae). A taxonomic revision. *Dansk Botanisk Arkiv* 32, 3: 1–72.
HIERN, W.P. 1904. Scrophulariaceae. *Flora capensis* 4,2: 121–420.
HIERN, W.P. & STAPF, O. 1904. Orobanchaceae. *Flora capensis* 4,2: 421, 422.
HILLIARD, O.M. & BURTT, B.L. 1977. Notes on some plants of southern Africa chiefly from Natal: VI. *Notes from the Royal Botanic Garden Edinburgh* 35: 155–177.
HILLIARD, O.M. & BURTT, B.L. 1979. Notes on some plants of southern Africa chiefly from Natal: VIII. *Notes from the Royal Botanic Garden Edinburgh* 37: 309–319.
HILLIARD, O.M. & BURTT, B.L. 1986a. Notes on some plants of southern Africa chiefly from Natal: XII. *Notes from the Royal Botanic Garden Edinburgh* 43: 189–228.
HILLIARD, O.M. & BURTT, B.L. 1986b. Notes on some plants of southern Africa chiefly from Natal: XIII. *Notes from the Royal Botanic Garden Edinburgh* 43: 345–405.
HILLIARD, O.M. & BURTT, B.L. 1989. Notes on some plants of southern Africa chiefly from Natal: XV. *Notes from the Royal Botanic Garden Edinburgh* 45: 179–223.
HOFMANN, H-P. & FISCHER, E. 1998. Preliminary revision of the genus *Sopubia* (Scrophulariaceae) in Madagascar. *Adansonia*, sér. 3, 20: 299–312.
MABBERLEY, D.J. 2008. Mabberley's plant-book, 3rd edn. Cambridge University Press, Cambridge.

MELCHIOR, H. 1932. Die Scrophulariaceen-Gattung *Graderia*. *Notizblatt des Botanischen Gartens und Museums zu Berlin-Dahlem* 11: 603–605.
MELCHIOR, H. 1940. Beitrag zur Kenntnis der Gattung *Melasma*. *Notizblatt des Botanischen Gartens und Museums zu Berlin-Dahlem* 15: 119–127.
MELCHIOR, H. 1941. Die Gattung *Alectra* Thunb. *Notizblatt des Botanischen Gartens und Museums zu Berlin-Dahlem* 15: 423–447.
MINKIN, J.P. & ESHBAUGH, W.H. 1989. Pollen morphology of the Orobanchaceae and rhinanthoid Scrophulariaceae. *Grana* 28: 1–28.
NICKRENT, D. 1999 onwards. Parasitic plant connection: http://www.science.siu.edu/parasitic-plants/Relation-Scroph.html (accessed 5 Feb. 2009)
OLMSTEAD, R.G. & REEVES, P.A. 1995. Evidence for the polyphyly of the Scrophulariaceae based on chloroplast *rbc*L and *ndh*F sequences. *Annals of the Missouri Botanical Garden* 82: 176–193.
OLMSTEAD, R.G., DE PAMPHILIS, C.W., WOLFE, A.D., YOUNG, N.D., ELISONS, W.J. & REEVES, P.A. 2001. Disintegration of the Scrophulariaceae. *American Journal of Botany* 88: 348–361.
PHILCOX, D. 1990. Scrophulariaceae. *Flora zambesiaca* 8,2: 1–179.
RANDLE, C.P. 2006. Revision of *Harveya* (Orobanchaceae) of South Africa. *Systematic Botany Monographs* 80: 1-74.
STEVENS, P.F. 2012. Angiosperm Phylogeny Website. Version 9. Internet. http://www.mobot.org/MOBOT/research/APWeb/ (accessed Feb. 2012).
TAKHTAJAN, A. 1997. *Diversity and classification of flowering plants*. Columbia University Press, New York.
TANK, D.C., BEARDSLEY, P.M., KELCHNER, S.A. & OLMSTEAD, R.G. 2006. Review of the systematics of Scrophulariaceae *s.l.* and their current disposition. L.A.S. Johnson review 7. *Australian Systematic Botany* 19: 289–307
VISSER, J. 1981. Scrophulariaceae and Orobanchaceae. *South African parasitic flowering plants*. Juta, Cape Town.
WELLS, M.J., BALSINHAS, A.A., JOFFE, H., ENGELBRECHT, V.M., HARDING, G. & WILD, H. 1954. Rhodesian witchweeds. *Rhodesia Agricultural Journal* 51: 330–342. (Reprinted as Ministry of Agriculture and Lands, Bulletin No. 1782).
WOLFE, A.D., RANDLE, C.P., LIU, L. & STEINER, K.E. 2005. Phylogeny and biogeography of Orobanchaceae. *Folia geobotanica* 40: 115–134.
YOUNG, N.D., STEINER, K.E. & DE PAMPHILIS, C.W. 1999. The evolution of parasitism in Scrophulariaceae/Orobanchaceae: plastid gene sequences refute an evolutionary transition series. *Annals of the Missouri Botanical Garden* 86: 876–893.

OXALIDACEAE

(Order Oxalidales)

Compiled by L.L. Dreyer & K.C. Oberlander

OXALIS L.

Sorrel; *suring*

Species ± 500, cosmopolitan with centres of diversity in South-Central America and SA; ± 210 in sthn Afr., widespread, but mainly in NC, WC, EC.

1a Bulb absent

*corniculata L.

Creeping sorrel; *ranksuring*, *tuinsuring* (A)

Prostrate annual, up to 0.15 m high. **Bulbs** absent. **Stem** branched, often rooting at nodes. **Leaves** trifoliolate, leaflets cuneate-obcordate, ciliate; lower surface hairy. **Peduncles** 1–6-flowered. **Flowers** very small (7 mm long), yellow. **Flowering time** all year. Widespread weed of cultivation; Upper Karoo, Mesic Highveld Grassland,

Indigenous Forests, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Albany Thicket, Eastern Fynbos-Renosterveld (Oviston E to Kokstad, southwards to East London and Humansdorp).

1b Bulb present
2a Underground rhizome absent

***latifolia** Kunth

Acaulescent geophyte, up to 0.25 m high. **Bulbs** shallow, many, originating from leaf bases, rhizome absent. **Leaves** basally congested, trifoliolate, leaflets obdeltoid. **Peduncles** 6–13-flowered. **Flowers** light pink with greenish tube. **Flowering time** Feb.–Apr. Widespread weed of cultivation; Indian Ocean Coastal Belt, Albany Thicket (South Coast to East London).

2b Underground rhizome present
3a Peduncles many-flowered
4a Flowers yellow

pes-caprae L.

Geelsuring, *langbeensuring* (A)

Acaulescent to caulescent geophyte, up to 0.35 m high. **Bulbs** pale brown, ovate-oblong. **Stem** up to 0.1 m long. **Leaves** apically congested, trifoliolate, leaflets subbilobed, cuneate-obcordate. **Peduncles** 3–20-flowered. **Flowers** yellow. **Flowering time** June–Oct. Introduced in EC; Lower Karoo, Eastern Fynbos-Renosterveld, Albany Thicket (Graaff-Reinet, Willowmore and Port Elizabeth).

4b Flowers pink/white/red

bowiei Lindl.

Acaulescent geophyte, up to 0.03 m high. **Bulbs** ovoid to lanceolate, smooth, brown. **Leaves** basally congested, trifoliolate, leaflets suborbicular-obcordate. **Peduncles** 3–12-flowered. **Flowers** pink with greenish tube. **Sepals** without apical calli. **Flowering time** Mar.–May. Rock crevices, mountain slopes, roadsides; Albany Thicket, Sub-Escarpment Savanna (Graaff-Reinet S and E to Port Elizabeth, Grahamstown and East London).

caprina L.

Bokspoortjie, *boksuring* (A)

Slender, acaulescent geophyte, up to 0.2 m high. **Bulbs** ovoid, with apical beak, brown. **Leaves** basally congested, trifoliolate, leaflets widely triangular, bilobed to middle. **Peduncles** 2–4-flowered. **Flowers** light pink (rarely white) with greenish tube. **Flowering time** Apr.–June. Sand, behind primary dunes, woodland, roadsides; Albany Thicket, Eastern Fynbos-Renosterveld (Uitenhage, Alexandria and Kenton on Sea, and to Humansdorp).

semiloba Sond.

Acaulescent geophyte, up to 0.2 m high. **Bulbs** ovoid to lanceolate, smooth, brown. **Leaves** basally congested, trifoliolate, leaflets suborbicular-obcordate. **Peduncles** 3–12-flowered. **Flowers** pink with greenish tube. **Sepals** with apical calli. **Flowering time** Oct.–May. Mountainous areas and river valleys; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Eastern Fynbos-Renosterveld, Albany Thicket (Ongeluksnek Nature Reserve to Kokstad southwards, across Amatole Mts to Uitenhage, Grahamstown and East London).

Differs from *O. bowiei* in having smaller leaves and apical calli on sepals, otherwise the two species are similar.

stellata Eckl. & Zeyh.

Caulescent geophyte, up to 0.3 m high. **Bulbs** ovoid, dark brown with distinct apical beak. **Stem** up to 0.9 m long, rarely branched. **Leaves** apically congested, trifoliolate, leaflets deeply bilobed to middle. **Peduncles** 3–6-flowered. **Flowers** rosy or white with yellow tube. **Flowering time** Apr.–June. Gravelly soil, grassland, gardens; Upper Karoo, Dry Highveld Grassland, Eastern Fynbos-Renosterveld, Albany Thicket (Cradock E to Komga, southwards from Port Elizabeth to Alexandria and Kowie).

[E]stenorrhyncha T.M.Salter

Caulescent geophyte, up to 0.25 m high. **Bulbs** ovoid with long apical beak, ash-coloured. **Stem** stout. **Leaves** apically congested, trifoliolate, leaflets bilobed to middle. **Peduncles** 3–7-flowered. **Flowers** brick-red or salmon with yellow tube. **Flowering time** Jan.–June. Cultivated in gardens from the wild (e.g. Kirstenbosch), probable garden escapes, near Keiskamma and Fish Rivers; Eastern Fynbos-Renosterveld, Albany Thicket (Uitenhage to East London).

tragopoda T.M.Salter

Acaulescent geophyte, up to 0.2 m high. **Bulbs** ovoid, shortly beaked with ridged tunics, pale brown. **Leaves** basally congested, trifoliolate, leaflets broadly obcordate. **Peduncles** 3–7-flowered. **Flowers** lilac with greenish tube. **Flowering time** Jan.–May. Valley Bushveld in shady spots, in cultivation at Kirstenbosch; Eastern Fynbos-Renosterveld, Albany Thicket, Sub-Escarpment Savanna (Alice, Greater Addo Elephant National Park, Addo, Grahamstown, Bushman's River Mouth).

3b Peduncles 1-flowered
5a Above-ground stem present

[E]bifurca Lodd.

Caulescent geophyte, up to 0.3 m high. **Bulbs** conical to ovoid-conical, dark brown. **Stem** hirsute, densely leafy. **Leaves** cauline and terminal, trifoliolate, leaflets bifurcate to middle or below, Y-shaped. **Flowers** rose or white with yellow tube. **Flowering time** Jan.–Apr. Grassland, soil rocky sandy/loam, full sun, slope gentle; Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Eastern Fynbos-Renosterveld, Albany Thicket, Sub-Escarpment Savanna (Queenstown and Mkambati River Mouth southwards, from Cradock, to Greater Addo Elephant National Park, Port Elizabeth, Grahamstown and East London).

ciliaris Jacq.

Caulescent geophyte, up to 0.3 m high. **Bulbs** ovoid to oblong-ovoid, brown. **Stem** robust to slender. **Leaves** apically congested, trifoliolate, leaflets oblong to linear. **Flowers** pink, lilac or white with yellow tube. **Flowering time** Apr.–July. Closed shrubland; Eastern Fynbos-Renosterveld (Willowmore to Port Elizabeth).

incarnata L.

Caulescent geophyte, up to 0.3 m high. **Bulbs** ovoid, pale brown. **Stem** slender, branched. **Leaves** trifoliolate, leaflets obcordate. **Flowers** white or pale lilac with greenish tube. **Flowering time** Aug., Sept. Sandy soil, shady places, in forests; Indigenous Forests (Storms River Forest E to Uitenhage and Port Elizabeth).

polyphylla Jacq.

Vingersuring, *fynblaarsuring* (A)

Caulescent geophyte, up to 0.3 m high. **Bulbs** ovoid, sometimes gummy. **Stem** rigid. **Leaves** apically congested, 3–5(–7)-foliolate, leaflets linear-conduplicate, with prominent

apical calli. **Flowers** rose, lilac to white with yellow tube. **Flowering time** Mar.–June. Grassland, open woodland; Sub-Escarpment Savanna, Albany Thicket, Eastern Fynbos-Renosterveld (Komga SW to Port Elizabeth and Humansdorp).

[E]tysonii E.Phillips

Caulescent geophyte, up to 0.25 m high; covered by glandular indumentum. **Bulbs** unknown. **Stem** erect, leafy. **Leaves** cauline to apically congested, trifoliolate, leaflets bilobed to below middle, Y-shaped. **Flowers** white. **Flowering time** Oct.–Mar. Disturbed grassland, roadsides; Sub-Escarpment Grassland (Kokstad S to Queenstown, Cala Pass and Indwe).

5b Above-ground stem absent

[E]algoensis Eckl. & Zeyh.

Acaulescent geophyte, up to 0.12 m high. **Bulbs** ovoid, brown. **Leaves** trifoliolate, fleshy, leaflets oblanceolate to rotund, with swollen epidermal cells. **Flowers** lilac or white with yellow tube. **Flowering time** June–Sept. Open woodland, fynbos, recently burned areas, moderate slopes; Eastern Fynbos-Renosterveld, Albany Thicket (Willowmore E to Uitenhage, Humansdorp, Port Elizabeth and Grahamstown).

depressa Eckl. & Zeyh.

Acaulescent geophyte, up to 0.12 m high. **Bulbs** oval, shallow, dark brown. **Leaves** trifoliolate, fleshy, leaflets cuneate to rounded, with swollen epidermal cells. **Flowers** white, lilac or pink with yellow tube. **Flowering time** Nov.–May. Recently burned grassland, in well-drained, rocky, sandy, loam soil; Upper Karoo, Drakensberg Grassland, Sub-Escarpment Grassland, Eastern Fynbos-Renosterveld, Albany Thicket (Bethulie District S and SE to Middelburg, Queenstown, Katberg pass, Port Elizabeth, Alexandria and East London).

imbricata Eckl. & Zeyh.

Acaulescent geophyte, up to 0.14 m high. **Bulbs** shallow, in clusters, often contorted. **Leaves** trifoliolate, many, leaflets obcordate to cuneate, hairy. **Flowers** rose with greenish tube. **Flowering time** Apr.–June. Grassland, closed woodland, gardens; Eastern Fynbos-Renosterveld, Albany Thicket (Graaff-Reinet S to Humansdorp District and E to Uitenhage, Port Elizabeth, Alexandria, Hopewell and East London).

nortieri T.M.Salter

Acaulescent geophyte, up to 0.09 m high. **Bulbs** ovoid, smooth, blackish brown. **Leaves** mostly unifoliolate, first leaves often trifoliolate, elliptic-obovate. **Flowers** bright pink with yellow tube. **Flowering time** June. Sandy, stony soil, full sun, gentle slope; Rainshadow Valley Karoo (WC to Willowmore).

obliquifolia Steud. ex Rich.

Acaulescent geophyte, up to 0.15 m high. **Bulbs** ovoid or globose, often roughly veined. **Leaves** trifoliolate, leaflets elliptical to cuneate-obovate. **Flowers** rose or white with yellow tube. **Flowering time** Dec.–Mar. Grazed grassland, dolerite, moderate slopes; Upper Karoo, Dry Highveld Grassland, Sub-Escarpment Grassland (Tussen-die-Riviere E to Weza State Forest S, from Middelburg to Ntsimbini Peak near Engcobo).

psilopoda Turcz.

Acaulescent geophyte, up to 0.13 m high. **Bulbs** ovoid to globular, with apical beak, greyish brown. **Leaves** trifoliolate, densely silky, leaflets very broadly obcordate. **Flowers** white or rose with yellow tube. **Flowering time** Mar.–June. Grassland, rocky slope, soil moist; Sub-Escarpment Grassland (Rhodes District, Naude's Neck and Alice).

punctata L.f.

Acaulescent geophyte, up to 0.08 m high; small, often densely hairy. **Bulbs** shallow, small, sharply angled and pitted, dark brown. **Leaves** trifoliolate, leaflets cuneate-rotund, with swollen epidermal cells. **Flowers** white or lilac with yellow tube. **Flowering time** Apr.–June. Grassland; Eastern Fynbos-Renosterveld, Albany Thicket (Alice S to Uitenhage, Grahamstown and Boknes in Alexandria District).

purpurea L.

Grootsuring (A)

Acaulescent geophyte, up to 0.15 m high. **Bulbs** large, often gummy. **Leaves** trifoliolate, leaflets broadly cuneate to rotund, covered with semi-transparent streaks and spots. **Flowers** pink or white with yellow tube. **Flowering time** May–Sept. Stony soil, grassland, hillsides; Eastern Fynbos-Renosterveld (Uitenhage to Port Elizabeth, and to Humansdorp).

setosa E.Mey. ex Sond.

Acaulescent geophyte, up to 0.1 m high. **Bulbs** narrow ovoid, coarsely veined, dark brown. **Leaves** trifoliolate, leaflets broadly rotund, with swollen epidermal cells. **Flowers** white with yellow tube. **Flowering time** Mar.? Habitat?; Sub-Escarpment Grassland, Sub-Escarpment Savanna (Queenstown E to Mthatha, S to King William's Town).

smithiana Eckl. & Zeyh.

Klawersuring, *rooisuring* (A)

Acaulescent geophyte, up to 0.2 m high. **Bulbs** ovoid, reddish brown. **Leaves** trifoliolate, leaflets variably bilobed, often to near base. **Flowers** lilac or white with greenish tube. **Flowering time** Jan.–Aug. Widespread, well-drained soils, grassland, mountain slopes, riverbanks, valleys, old lands; Upper Karoo, Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Eastern Fynbos-Renosterveld, Albany Thicket (Bethulie E to Ngeli Mtn southwards, from Middelburg E to Mthatha, Cradock E to Komga and from Greater Addo Elephant National Park to Port Elizabeth, Grahamstown and East London).

EXELL, 1963. Oxalidaceae. *Flora zambesiaca* 2: 149–162.
SALTER, T.M. 1944. The genus *Oxalis* in South Africa. *Journal of South African Botany*, Suppl. Vol. 1: 1–355.
SCHREIBER, A. 1966. *Prodromus einer Flora von Südwestafrika* 63: 1–8.
SONDER, O.W. 1860. Oxalidaceae. *Flora capensis* 1: 312–351.
THULIN, M. & MOGGI, G. 1993. Oxalidaceae. *Flora of Somalia* 1: 193, 194.

PAPAVERACEAE

(including FUMARIACEAE)

(Order Ranunculales)

Compiled by C.L. Bredenkamp & M. Struwig

The Fumariaceae is currently placed in the order Ranunculales. Stevens (2012) regards the Fumariaceae as synonymous to the Papaveraceae which is divided into the subfamilies Pteridophylloideae (from Japan), Papaveroideae and Fumarioideae. APG (2003) treats the Fumariaceae as an optional synonym of the Papaveraceae.

OXALIDACEAE

1a Herbs with soft or rather bristly-hairy leaves (trichomes multicellular and multiseriate); flowers with 2 large, fugaceous sepals enclosing the bud; petals crumpled, not spurred; stamens many (Subfamily **Papaveroideae**):

2a Ovary of 2 carpels..... ***Glaucium**

2b Ovary of > 2 carpels:

3a Flower buds erect; corolla creamy white or yellow; sepals with conspicuous stiff apical processes; capsule opening by slits; seeds orbicular..... ***Argemone**

3b Flower buds drooping; corolla salmon-pink, orange, red or purple; sepals without stiff apical processes; capsule opening by pores beneath the stigmas; seeds irregularly angular to ellipsoid, ovoid, oblong, falcate or reniform..... **Papaver**

1b Herbs with glabrous leaves; flowers with very small or almost invisible calyx; petals not crumpled, usually spurred; stamens in 2 groups of 3 each (Subfamily **Fumarioideae**):

4a Plants without tendrils; fruit ± globose, nut-like and indehiscent, 1-seeded..... ***Fumaria**

4b Plants with tendrils; fruit a many-seeded bladdery capsule or, if 1-seeded, ± discoid or trigonous:

5a Fruit a many-seeded, bladdery capsule..... **Cysticapnos**

5b Fruit a small nut..... **Discocapnos**

*ARGEMONE L.

Species ± 23, native to North America, West Indies, Central and South America, 1 endemic to Hawaiian Islands; 2 in sthn Afr., widespread as declared weeds, poisonous, skin irritants.

mexicana L.

Yellow-flowered Mexican poppy; *geelblom bloudissel* (A); *ntsavantsane* (SS)

Annual herb, 0.3–0.9 m high; sap white to orange. **Leaves** sessile or clasping at base, glaucous, pinnately lobed or incised with a dentate, prickly margins, often prickly surface, often mottled over veins. **Flowers**: buds subglobose, length ± equal to width. **Sepals** 2 or 3, each lobe with conspicuous stiff apical horns; outer surface usually sparsely prickly. **Petals** in 2 whorls of 3, large, obovate, bright yellow. **Flowering time** all year, mostly Sept.–Jan. **Fruit** a capsule armed with needle-like prickles, opening from apex, up to $^1/_3$ of total length, rarely almost towards base; valves separating from framework of vascular elements, with remains of persistent style and stigma still attached to vascular framework. **Seeds** many, orbicular, sculptured, brown-black, narrowly crested and with a short apical point. Roadsides, wasteland, abandoned and cultivated lands, riverbanks and -beds, competitive in watercourses, as well as poisonous and irritant; origin Mexico, declared weed (Category 1); Sub-Escarpment Savanna (Grahamstown, Botha's Ridge).

ochroleuca Sweet

White-flowered Mexican poppy; *witblom bloudissel* (A)

Same as for *A. mexicana* with the following distinguishing characters:

Flowers: buds more oblong, with longer sepal horns; typically larger, with very pale yellow petals. **Fruit** a capsule, typically longer and more spindle-shaped; spines generally longer, more widely spaced and coarser. Habitat, same as for *A. mexicana*; declared weed (Category 1); Upper Karoo, Sub-Escarpment Grassland, Sub-Escarpment Savanna (Albert District, S to Middelburg, Queenstown, Grahamstown and Komga).

CYSTICAPNOS Mill.

Species 5, confined to sthn Afr., N, M?, FS, KZN, L, NC, WC, EC.

Annual with a slender taproot; leaves not finely divided; sap yellow

cracca (Cham. & Schltdl.) Lidén
(= *Corydalis laevigata* E.Mey, *Phacocapnos dregeanus* Bernh.)

Climbing annual, up to 1 m high; with yellow sap. **Leaves** bipinnately compound, ultimate segments broadly obovate, 2- or 3-lobed almost to base, lobes elliptical to obovate, terminal segments tendrilliform. **Inflorescences** racemes sessile, up to 4–20-flowered. **Flowers** pale pink with dark reddish tips. **Sepals** ovate, 1.0–1.5 × 0.50–0.75 mm, irregularly toothed. **Petals**: outer ones naviculate-spathulate, apically winged; upper saccate at base; inner with claw adnate to upper petal, blade inflated, ellipsoid with fleshy dorsal crest. **Stamens** 6, in 2 groups. **Ovary** lanceolate, dorsiventrally flattened; ovules biseriate; style straight or slightly curved. **Flowering time** (Aug.) Sept., Oct. **Fruit** a lanceolate, blade-like capsule, containing many seeds in 2 peripheral rows. Seasonally moist habitats in coastal and inland scrub, alt. up to 1 000 m; Eastern Fynbos-Renosterveld, Albany Thicket (WC to Port Elizabeth, Grahamstown and Port Alfred).

Perennial with fleshy taproot; leaves finely divided; sap clear

pruinosa (Bernh.) Lidén
'Musa-pelo-la-noka (SS)

Tufted perennial, 0.17–0.52 m high; with fleshy taproot and clear sap. **Leaves** bipinnately compound, ultimate segments broadly obovate, 2- or 3-lobed almost to base, terminal segments tendrilliform. **Inflorescences** racemes up to 30-flowered. **Flowers** 2-lipped, 8–9 mm long, rosy pink. Sepals persistent, 3–4 mm long, lateral, scale-like. **Petals** free, partly connate at tips, upper one with magenta base, prolonged into very short, obtuse spur. **Stamens** 6, in 2 groups. **Ovary** elliptic or oblong, with 2 narrow keels; ovules many; style linear; stigma ± thickened at apex, with 2 erect, stigmatic papillae. **Flowering time** Dec.–Mar. **Fruit** a membranous capsule, thin-walled, inflated, lanceolate. **Seeds** many, small, lenticular; testa black, shiny; enclosed in small bag formed by endocarp, held to exocarp by narrow threads. Alpine grassland, mountain passes and slopes, forest margins; Drakensberg Grassland, Sub-Escarpment Grassland, Upper Karoo, Albany Thicket, Indigenous Forests, Lower Karoo (Rhodes E to Kokstad, from Queenstown to Graaff-Reinet and Cathcart).

DISCOCAPNOS Cham. & Schltdl.

Monotypic, sthn Afr., WC, EC.

mundii Cham. & Schltdl. subsp. **dregei** (Harv.) J.C.Manning & Goldblatt, *stat. nov.*

Annual herb, ± 1.5 m high, climbing; stems hollow, internodes long; sap yellow. **Leaves** bipinnately compound, parallel-sided, 3-fid at tip, ultimate segments tendrilliform. **Inflorescences** racemes 8–15-flowered; pedicels erect, apically recurved. **Flowers** with very short pedicels, pale rose with dark tips. **Flowering time** (Aug.) Oct.–Dec. **Fruit** a pendent, discoid samara, 3.0–3.5 mm in diam., peripheral wing 0.5–0.8 mm wide; pubescent with unicellular trichomes, cuticle striate. **Seed** lenticular, testa glossy black, epidermal cells hexagonal. Restricted to moist, loamy or humic soils at forest edges and

bush clumps, usually in sheltered valleys or drainage lines; Eastern Fynbos-Renosterveld, Indigenous Forests (known from 3 collections along southern foothills of Outeniqua and Tsitsikamma mts, between Knysna and Humansdorp).

*FUMARIA L.

Species ± 55, North temperate, especially Mediterranean, also to central Asia and 1 in Himalayas and Atlantic islands, 1 in tropical Africa; 2 in sthn Afr., widespread weeds, often in lucerne lands.

muralis Sond. ex W.D.J.Koch

Drug fumitory, pink weed; *duiwel-kerwel*, *duiwekerwel* (A)

Perennial herb, ± 0.5 m high; diffuse, glaucous, soft, stems erect, straggling or climbing. **Leaves** petiolate, glabrous, lamina bipinnatisect with cuneate lobes. **Inflorescences** racemes 10–17-flowered. **Bracts** shorter than pedicels. **Flowers** pedicellate, 7–12 mm long; pink, tipped blackish purple. **Sepals** ovate, toothed. **Petals**: lower petal with rather narrow margins. **Flowering time** Sept.–May. **Fruit** a nutlet, up to 2.25 mm in diam., subglobose to ovoid, green, smooth or rugulose. Sandy soil, well drained, full sun; Sub-Escarpment Grassland, Drakensberg Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Indigenous Forests, Albany Thicket (Queenstown S, across Amatole Mts to Komga, from Willowmore to Suurberg in Greater Addo Elephant National Park, Grahamstown and Port Alfred, and to Skoenmakerskop near Port Elizabeth).

*GLAUCIUM Mill.

Species ± 23, from Atlantic Europe, Canary Islands to central Asia; 1 recorded as a garden escape in sthn Afr., NC, WC, EC.

corniculatum (L.) Rudolph

Annual to biennial, branched herb, 0.3–0.5 m high, with taproots; glaucous, ± glandular-pilose; sap yellow. **Leaves** large, basal ones rosulate, petiolate; cauline ones alternate, sessile, often amplexicaul, ± lobed or toothed, pinnately incised or divided. **Inflorescences** axillary or terminal, 1-flowered, bracteate. **Flowers** hypogynous, long-pedicelled. **Sepals** 2, distinct, caducous. **Petals** 4, convolute in bud, yellow, orange or red, caducous. **Stamens** (7)10–30, free. **Ovary** of 2 connate carpels separated by false septum into 2 cells, elongated; placenta rib-shaped; style indistinct; stigma 2-lobed. **Fruit** a 2-valved capsule, straight; locule filled with pithy placental proliferation. **Seeds** many, dark brown, subglobose or reniform, reticulate-pitted. Garden weed; Albany Thicket, Sub-Escarpment Savanna (Victoria East, Garfield).

PAPAVER L.

Species ± 80, widespread in northern hemisphere of Old World, Europe, temperate Asia, also Australia and Africa; 4 (3 introduced) in sthn Afr., N, LIM, NW, G, M, FS, KZN, L, NC, WC, EC.

aculeatum Thunb.

Wild poppy; *koring papawer* (A); *sehlohlo* (SS)

Annual herb, 0.1–1.0 m high, from taproots, glaucous, hairy, bristly or spiny; sap milky or coloured. **Leaves** rosulate, dentate or crenate, pinnately incised, ± spiny, petiolate. **Flowers** solitary or cymose on elongated peduncles; bracteate; buds drooping. **Sepals** 2, distinct, mostly caducous. **Petals** broadly obovate, salmon-pink or orange-red.

Ovary with parietal placentas, clavate, bristly; ovules many; style absent; stigmas arranged in conical to flat disc over placentas, velvety. **Flowering time** Sept.–Feb. **Fruit** a capsule, clavate in outline, opening by 3–18 pores. **Seeds** many, small, often reniform, with sculptured testa. Spreading on cultivated lands and waste places, grassland, mountain slopes; Upper Karoo, Drakensberg Grassland, Dry Highveld Grassland, Sub-Escarpment Grassland, Albany Thicket (Bethulie E to Naude's Neck, S through Amatole Mts to Komga and to Willowmore).

*rhoeas L.

Flanders or corn poppy; *wilde papawer* (A)

Same as for *P. aculeatum*, with following distinguishing characters:

Annual, occasionally perennial herb, 0.1–0.9 m high, forming robust cushions; glabrous or hairy, not bristly or spiny. **Leaves** amplexicaul, pinnately incised or pinnately compound, ± glabrous. **Flowers** solitary on elongated, bristly peduncles. **Petals** bright red, sometimes with black marks, drying magenta. **Stamens** brownish black. Abundant in old wheat fields; Upper Karoo, Eastern Fynbos-Renosterveld (Albert District and Uitenhage).

ANGIOSPERM PHYLOGENY GROUP [APG]. 1998. An ordinal classification for the families of flowering plants. *Annals of the Missouri Botanical Garden* 85: 531–553.
ANGIOSPERM PHYLOGENY GROUP [APG]. 2003. An update of the Angiosperm Phylogeny Group classification for the orders and families of flowering plants: APG II. *Botanical Journal of the Linnean Society* 141: 399–436.
EXELL, A.W. 1960. Papaveraceae. *Flora zambesiaca* 1: 180, 181.
EXELL, A.W. & GONÇALVES, M.L. 1973. Papaveraceae. *Flora de Moçambique* 9: 1–3.
KADEREIT, J.W. 1988. The affinities of the south-hemispherical *Papaver aculeatum* Thunb. (Papaveraceae). *Botanische Jahrbücher* 109: 335–341.
KADEREIT, J.W. 1993. Papaveraceae. In K. Kubitzki, J.G. Rohwer & V. Bittrich, *The families and genera of vascular plants — dicotyledons* 2. Springer-Verlag, Berlin.
KIGER, R.W. 1997. Papaveraceae. *Glaucium*. *Flora of North America north of Mexico* 3: 302–304.
KIGER, R.W. & MURRAY, D.F. 1997. Papaveraceae. *Papaver*. *Flora of North America north of Mexico* 3: 323–333.
LIDÉN, M. 1986. Synopsis of Fumarioideae (Papaveraceae) with a monography of the tribe Fumarieae. *Opera Botanica* 88: 1–133.
LIDÉN, M. 1993. Fumariaceae. In K. Kubitzki, J.G. Rohwer & V. Bittrich, *The families and genera of vascular plants — dicotyledons* 2. Springer-Verlag, Berlin.
LIDÉN, M. 1995. Papaveraceae. *Flora of Ecuador* 52: 1–13.
MANNING, J.C., GOLDBLATT, P. & FOREST, F. 2009. A revision of the Fumariaceae (Fumarioideae) in southern Africa, including naturalized taxa. *Bothalia* 39: 47–65.
MOWAT, A.B. & WALTERS, S.M. 1964. Papaveraceae. *Flora europaea* 1: 246–259.
OWNBEY, G.B. 1958. Monograph of the genus *Argemone* for North America and the West Indies. *Memoirs of the Torrey Botanical Club* 21: 1–159.
OWNBEY, G.B. 1961. The genus *Argemone* in South America and Hawaii. *Brittonia* 13: 91–109.
OWNBEY, G.B. 1997. Papaveraceae. *Argemone*. *Flora of North America north of Mexico* 3: 314–322.
STEVENS, P.F. 2006. Angiosperm Phylogeny Website. Version 7. Internet. http://www.mobot.org/MOBOT/research/APweb/ (accessed Sept. 2006).
STEVENS, P.F. 2012. Angiosperm Phylogeny Website. Version 9. Internet. http://www.mobot.org/MOBOT/research/APweb/ (accessed Mar. 2012).

PASSIFLORACEAE

(Order Malpighiales)

Compiled by C.L. Bredenkamp

1a Flowers mostly unisexual; corona ill-developed or absent; rootstock or stem swollen or tuberous ... **Adenia**
1b Flowers bisexual; corona well developed:
2a Flowers small, up to 15 mm in diam.; androgynophore absent, stamens arising from within upper half of inner corona ... **Basananthe**
2b Flowers usually much larger; androgynophore distinct ... ***Passiflora**

ADENIA Forssk.

Species 100, fairly cosmopolitan in tropical countries; 10 in sthn Afr., widespread, except in WC.

gummifera (Harv.) Harms

Monkey rope; *slangklimop* (A); *umPhindamshaya* (Z)

Subligneous climber, 0.5–30.0 m high. **Leaves** entire to 3(5)-lobed, ± orbicular; gland at blade-base solitary. **Inflorescences**: peduncles ending in tendrils. **Flowers** solitary or in cymes; corona absent. **Male flowers** more numerous; hypanthium cup-shaped, with stamens inserted at base; anthers up to 6 mm long, apiculate. **Female flowers**: receptacle funnel-shaped; sepals free; petals 5; disc glands absent; staminodes present; ovary ovoid, several ovules on 3(–5) parietal placentas; style short; stigmas (sub)sessile. **Flowering time** Dec., Jan. **Fruit**: each inflorescence with 1–4 stipitate, ± ovoid, 3–5-valved capsules; pericarp woody-coriaceous. **Seeds** 30–50 per capsule, subovate. Vigorous trailer, woodland and forests; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests (Port Shepstone, Port St Johns, Kentani, Kei River Mouth).

BASANANTHE Peyr.

Species 32, Africa, Madagascar to Malaya; 5 in sthn Afr., N, B, LIM, M, S, KZN, EC.

sandersonii (Harv.) W.J.de Wilde

Perennial dwarf shrub or climber, 0.1–0.6 m high; shoots erect or prostrate from rootstock, tendrils sometimes present. **Leaves** polymorphic, lanceolate to broadly ovate, subsessile, entire; false stipules absent. **Inflorescences** 1–3-flowered; flowers cymose, peduncled. **Sepals** 5–7. **Petals** absent, 1 or 2. **Corona** double, outer fimbriate above, inner cup-like, membranous. **Stamens** 5, arising from within upper $^1/_2$ of corona. **Ovary** stipitate, with 3 or more ovules on 3(4) parietal placentas; styles 3(4), free; stigmas globose. **Flowering time** Aug.–Feb. **Fruit** a 3(4)-valved capsule. **Seeds** 1–4, somewhat compressed, arillate. Regularly burnt grassland, woodland, forest edges; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests (Clydesdale, Ixopo, Lusikisiki and Bizana districts).

*PASSIFLORA L.

Species 525, not Africa, including *Hollrungia* and *Tetrapathaea*, mostly Americas and ± 20 in SE China and Australasia; several species have been introduced in sthn Afr. as ornamentals or edible fruits, LIM, NW, G, M, S, KZN, WC, EC.

coerulea L.

Blue passion flower; *siergrenadilla* (A)

Perennial climber, 0.9–2.1 m; provided with tendrils. **Leaves** petiolate, 5–7-lobed; lobes lanceolate, apex acute, margins entire; stipules large, sickle-shaped. **Flowers** 5-merous;

hypanthium saucer-shaped to cylindrical. **Sepals** free, white to pinkish inside. **Petals** same as sepals. **Corona** extra-staminal; filaments of outer corona showy, purple at base, white in middle, blue at tip; inner corona flat or plicate; nectary ring present. **Androgynophore** distinct. **Stamens** 5(–8), free. **Ovary** globose to fusiform; styles 3(4), stigmas capitate. **Flowering time** Aug.–Mar. **Fruit** a yellow to orange, ovoid berry, exocarp coriaceous, many-seeded. Invading forest margins, woodlands, roadsides, riverbanks origin Brazil to Argentina, declared weed (Category 1); (Alice, Uitenhage and Grahamstown District).

DE WILDE, W.J.J.O. 1971. A monograph of the genus *Adenia* Forssk. (Passifloraceae). *Mededelingen Landbouwhogeschool Wageningen* 71-18: 1–281.
DE WILDE, W.J.J.O. 1973. Revision of *Basananthe*, formerly *Tryphostemma* (Passifloraceae). *Blumea* 21: 327–356.
DE WILDE, W.J.J.O. 1976. Passifloraceae. *Flora of southern Africa* 22: 104–128.
HARVEY, W.H. 1862. Passifloreae. *Flora capensis* 2: 498–502.
LIEBENBERG, L.C.C. 1939. A revision of the South African species of *Adenia*. *Bothalia* 3: 513–570.

PEDALIACEAE

(Order Lamiales)

Compiled by C.L. Bredenkamp & S.J. Smithies

1a Fruit with 4 longitudinal wings; ovary 2-locular, with 1 or 2 ovules in each locule; corolla tube somewhat gibbous at base, but not conspicuously saccate ..... **Pterodiscus**
1b Fruit not as above; ovary 2-locular or falsely 4-locular, with few to many ovules; corolla tube sometimes gibbous at base or produced into a spur:
2a Fruit beaked; corolla tube not distinctly gibbous at base ..... **Sesamum**
2b Fruit 2-horned at apex; corolla tube gibbous at base ..... **Ceratotheca**

CERATOTHECA Endl.

Species 5, Africa; 4 in sthn Afr., widespread, except L: 1 mainly in eastern half, Griqualand West (Eastern NC) and EC, 3 in small northern areas of N, B and LIM. Cultivated ornamental in warm countries.

triloba (Bernh.) Hook.f.

Wild foxglove; *vingerhoedblom* (A); *udonqabatwa* (Z)

Annual or short-lived perennial herb, up to 2.5 m high; stems erect, branched; plants malodorous, ± densely covered with mucilage glands and hairs. **Leaves** opposite, petiolate; lamina variable, broadly cordate or trilobate, margins coarsely crenate or serrate. **Flowers** solitary, axillary; pedicels short, pendent; lilac to cream-coloured, anterior lobe purple-striped. **Corolla**: tube curved, funnel-shaped; limb subbilabiate. **Stamens** included; filaments linear; anthers oblong-linear. **Nectary** annular. **Ovary** equally 2-locular, falsely 4-locular; ovules many in 1 series per compartment; style subterete; stigma of 2 lanceolate lobes. **Flowering time** summer. **Fruit** an oblong capsule, truncate at apex with 2 lateral horns. **Seeds** many, obovate, with double fringe, testa black when ripe. Sandy soils, disturbed vegetation; Indian Ocean Coastal Belt, Albany Thicket (Port St Johns, East London).

PTERODISCUS Hook.

Species ± 18, Africa; 4 in sthn Afr., N, B, LIM, NW, G, M, S, FS, NC, EC.

luridus Hook.f.

Perennial, succulent herb, ± 0.4 m high; caudex (aerial stem) short, arising from subterranean tuber, several annual shoots arising from caudex. **Leaves** ± opposite, broadly oblong, deeply pinnatifid, subsucculent. **Flowers** solitary, axillary, shortly pedicellate; dirty yellow, tinged purple. **Calyx** much shorter than corolla tube. **Corolla** ± 2-lipped; tube funnel-shaped; limb spreading. **Stamens** didynamous, included; filaments linear, glandular-villous at base. **Ovary** 2-locular; locules undivided; ovules mostly 1–3 per locule, pendulous; style linear, included; stigma of 2 ovate lobes, margins fimbriate. **Flowering time** Nov.–Feb. **Fruit** indehiscent, laterally compressed, with a longitudinal parchment-like wing on each of 4 edges, unarmed, ± circular in lateral view; upper part of fruit sterile, forming distinct beak. **Seeds** 1 or 2 in each locule. Stony, rocky soil, roadsides, hillsides; Upper Karoo (Middelburg and Cradock districts).

SESAMUM L.

Species ± 19, mostly in tropical and subtropical Africa, also Mascarene Islands, S Europe to India and Sri Lanka; 11 in sthn Afr., 1 escape from cultivation, N, B, LIM, NW, G, M, S, FS, KZN?, NC, WC, EC.

capense Burm.f.

Aprilbaadjie, *seeroogblaar* (A)

Annual or perennial herb, 0.15–2.00 m high; younger parts densely glandular-pilose. **Leaves**: lamina of lower leaves 5–7-fid, upper ones 3-fid; upper surface ± glabrous, venation sunken, lower surface glandular-pilose, venation winged. **Flowers** with extrafloral nectaries (reduced flowers) at base; usually purple, throat dark purple. **Calyx** much shorter than corolla tube. **Corolla**: tube shortly cylindrical at base, obliquely campanulate above; limb subbilabiate. **Stamens** subdidynamous, included. **Ovary** subcylindrical, 2-locular, falsely 4-locular with false, parietal septum; ovules many per compartment, 1-rowed; placentation axile; style included; stigma of 2 ± obovate, membranous lobes. **Fruit** a ± erect capsule, narrowly oblong, shortly beaked, 4-sulcate, loculicidal towards base. **Seeds** obovate, 3-winged with 1 apical and 2 lateral wings. Valleys, mountain slopes; Upper Karoo, Dry Highveld Grassland, Albany Thicket (Bethulie S to Cradock).

ABELS, J. 1975. Die Gattungen *Ceratotheca* Endl. und *Dicerocaryum* Boj. (Monographie der afrikanischen Pedaliaceae III–IV). *Memórias da Sociedade Broteriana* 25: 5–358.
BRUCE, E.A. 1953a. Notes on African Pedaliaceae. *Kew Bulletin* 1953: 417–429.
BRUCE, E.A. 1953b. *Flora of tropical East Africa*. Pedaliaceae: 1–23.
GRABOW-SEIDENSTICKER, U. 1988. Der *Sesamum calycinum*-Komplex (Pedaliaceae R.Br.). *Mitteilungen aus dem Institut für Allgemeine Botanik Hamburg* 22: 217–241.
IHLENFELDT, H.-D. 1988. Pedaliaceae. *Flora zambesiaca* 8,3: 86–113.
IHLENFELDT, H.-D. 1994a. Species concepts in *Sesamum* L. (Pedaliaceae). In J.H. Seyani & A.C. Chikuni, *Proceedings of the XIIIth Plenary Meeting of AETFAT, Malawi* 1: 395–400.
IHLENFELDT, H.-D. 1994b. Phytogeography of Pedaliaceae R.Br. In J.H. Seyani & A.C. Chikuni, *Proceedings of the XIIIth Plenary Meeting of AETFAT, Malawi* 2: 1063–1075.
IHLENFELDT, H.-D. & GRABOW-SEIDENSTICKER, U. 1979. The genus *Sesamum* L. and the origin of the cultivated sesame. In G. Kunkel, *Proceedings of the IXth Plenary Meeting of AETFAT, Las Palmas*: 53–60.
STAPF, O. 1904. Pedalineae. *Flora capensis* 4,2: 454–463.
STAPF, O. 1906. Pedalineae. *Flora of tropical Africa* 4,2: 538–570.
STRAKA, H. & IHLENFELDT, H.-D. 1965. Pollenmorphologie und Systematik der Pedaliaceae R.Br. *Beiträge zur Biologie der Pflanzen* 41: 175–207.

PEGANACEAE see NITRARIACEAE

PENAEACEAE

(Order Myrtales)

Compiled by C.L. Bredenkamp

PENAEA L.

Noughts-and-crosses

Species 4, endemic to 'fynbos' in southern parts of Cape, WC, EC.

cneorum Meerb.

Shrublet or shrub, 0.5–4.0 m high; branched near base, young stems glabrous. **Leaves** imbricate, entire, coriaceous; variable according to geographic position, linear to cordate. **Inflorescences** spike-like, 6–14-flowered. **Perianth**: tube cylindric-campanulate, yellow, green, purplish; lobes ± a $^1/_3$ as long as tube, triangular, becoming reflexed. **Stamens**: filaments erect, linear, ± as long as the elliptic-oblong connective; anthers ± oblong, slightly shorter than connective, with shortly papillate fissure margins. **Ovary** sessile, smooth, with 4 ascending ovules in each locule; style slender; stigma capitate, quadrangular, relatively large. **Flowering time** Aug.–May. **Fruit** a capsule, up to 7 mm long. **Seeds** 2.7 mm long. Moist sandy, rocky soil, riverbanks, streams, mountain slopes; Eastern Fynbos-Renosterveld, Indigenous Forests, Albany Thicket (Tsitsikamma, Humansdorp District, Suurberg, Uitenhage, Port Elizabeth).

DAHLGREN, R. 1971. Studies on Penaeaceae VI. The genus *Penaea*. *Opera Botanica* 29: 5–58.
DAHLGREN, R. & VAN WYK, A.E. 1988. Structures and relationships of families endemic to or centered in southern Africa. *Monographs in Systematic Botany from the Missouri Botanical Garden* 25: 1–94.
ROURKE, J.P. & MCDONALD, D.J. 1989. A new species of *Penaea* (Penaeaceae), from the Langeberg range, southern Cape. *South African Journal of Botany* 55: 400–404.
STEPHENS, E.L. 1915. Penaeaceae. *Flora capensis* 5,2: 81–98.

PERACEAE

(previously under EUPHORBIACEAE)

(Order Malpighiales)

Compiled by C.L. Bredenkamp & N. Ngoepe

Genera 5, species ± 135: *Clutia* a large African genus; *Pera* a neotropical genus of 30–40 species, extending from Cuba to Central America south to Brazil with greatest concentration in the Amazon basin; *Pogonophora* a genus of 3 species, 2 neotropical (Venezuela, Amazonian, Guianas and Brazil), the other in Gabon (West Africa); *Trigonopleura* a genus of 3 species, 1 widespread from Malaya to Celebes, 1 in central Philippines and the other in W Sarawak, scarcely different from *Chaetocarpus*, a genus of 13 species with a disjunct distribution.

Family description adapted from Stevens (2010).

Shrubs to trees. **Cork** cambium? **Leaves** alternate, margins entire, venation pinnate. **Stipules** small or absent. **Staminate flowers**: stamens 2–8, connate; anthers extrorse. **Carpellate flowers**: staminodes absent; ovule with both integuments 3–6 cells in diam., exotegmic with a lignified palisade, exotegmen tracheoidal (cells with the general characteristics of tracheid-like cells or tracheids but not associated with xylem). **Fruit**:

septa membranaceous and without visible vascularisation, valves connected at base, perianth (when present) persistent. **Seed** carunculate or arillate, very shiny.
Bayesian and parsimony analyses of DNA sequence data suggest a separate familial placement of the Peraceae between the Rafflesiaceae and the Picrodendraceae in the Malpighiales (Wurdack & Davis 2009).
For key to the families segregated from the Euphorbiaceae *s.l.*, see **EUPHORBIACEAE** (p. 898).

CLUTIA L.

Species 75, Africa and 2 in tropical Arabian Peninsula; 35 in sthn Afr., widespread, except N and NW.

abyssinica Jaub. & Spach

Large lightning bush; *grootbliksembos* (A); *umagqatshala* (X)

Perennial tree or shrub, 0.7–5.0 m high; glabrous to evenly pubescent, dioecious. **Leaves** membranous, ovate to elliptic-lanceolate, glabrous to sparingly or evenly pubescent on both surfaces, base cuneate or rounded, apex narrowed to subacute or obtuse, attenuate. **Male fascicles** dense, many-flowered; bracts 0.5–1.0 mm long, broadly deltate, chaffy, straw-coloured. **Male flowers**: pedicels jointed; sepals elliptic-obovate, rounded; petals deltate, unguiculate, pistillode cylindric, slightly broadened apically. **Female fascicles** 1–many-flowered; bracts as in male. **Female flowers**: pedicels 5 mm long; sepals oblong-lanceolate, obtuse; petals spathulate, eglandular, glabrous; styles divaricate. **Flowering time** May–July. **Fruit** pusticulate, glabrous or subglabrous. **Seeds** ovoid, minutely pitted. Grassland, forest, shady, alt. 107–1 525 m; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests (Transkei, Sikuba River, Elliotdale District).

affinis Sond.

Oumeisieknie (A)

Perennial shrub, 0.3–2.5 m high; erect, much branched; twigs spreading, terete or slightly angled. **Leaves** firmly membranous, opaque, lanceolate-spathulate, oblong-obovate or linear-elliptic, base narrowed from beyond middle, apex obtuse or subacute, margins flat; pubescent or puberulous on both surfaces; distinctly petioled. **Male flowers**: sepals narrow-oblong, obtuse, pubescent, 3-lobate basal scale; petals round-obovate, thickened claw, base 2-glandular. **Female flowers**: sepals narrower than male, basal scale 3-lobate; petals narrower than male, eglandular; ovary glabrous; styles free. **Flowering time** June–Nov. **Fruit** an ovoid capsule, glabrous, puncticulate and slightly warted. **Seeds** black and shining. Grassland, forest, closed woodland, sandy or rocky soil, alt. 60–2 135 m; Indian Ocean Coastal Belt, Drakensberg Grassland, Sub-Escarpment Savanna, Indigenous Forests, Eastern Fynbos-Renosterveld, Albany Thicket (Transkei, Egoso S, from Fort Beaufort District to Komga, Baviaanskloof Mts to Port Alfred, and to Humansdorp).

alaternoides L.

Perennial shrub or dwarf shrub, 0.15–3.00 m high; stems slender, woody, considerably branched; twigs ascending, glabrous. **Leaves** sessile, coriaceous, opaque, lanceolate or narrowly obovate-lanceolate, base gradually narrowed, apex obtuse but mucronulate, margins scabrous and distinctly revolute; glabrous on both surfaces. **Male flowers**: few-flowered glomerules; sepals obovate, obtuse, 3-lobate basal scale; petals widely obovate, cuneately unguiculate; base 2-glandular. **Female flowers** solitary; sepals

elliptic-lanceolate, larger than male, basal scale 3-lobate; petals oblong-obovate, eglandular; ovary glabrous; styles free. **Flowering time** Aug.–Nov. **Fruit** a subglobose capsule. **Seeds** black and shining. Grassland, forest, sandy soil, alt. 30–1 900 m; Sub-Escarpment Grassland, Indigenous Forests, Drakensberg Grassland, Eastern Fynbos-Renosterveld, Albany Thicket (Queenstown District to Ntsubane Forest S, from Hogsback to Stutterheim District and from Kareedouw Pass to Grahamstown and Southwell).

[E]**alpina** Prain

Perennial dwarf shrub or herb, 0.1–0.3 m high; stems several; rootstock woody; twigs angled or slightly winged; sparingly and softly tawny hirsute. **Leaves** membranous, petiolate, pellucid-punctate, ovate, base rounded or truncate, apex obtuse, margins revolute; glabrous on both surfaces, nerves not visible; petioles 3.2–4.3 mm long, pubescent. **Male flowers**: 2-nate in leaf axils; pedicels short, surrounded at base by ovate, hyaline scales with margins ciliate towards base; sepals ovate, obtuse; petals spathulate, eglandular, each with minute gland attached within its insertion; rudimentary ovary cylindric, glabrous. Stony soil/rocky, alt ± 3 100 m; Drakensberg Grassland (Barkly East District, Ben McDhui).

cordata Bernh.

Perennial dwarf shrub or herb, 0.20–0.75 m high; stems simple, occasionally branched; several from woody rootstock; angular above, terete below. **Leaves** shortly petioled, when young membranous then later firmly papery, pellucid-punctate but not warted, base subcordate, shortly acuminate, margins slightly recurved; glabrous on both surfaces. **Male flowers** solitary or in pairs; pedicels capillary; sepals ovate-oblong, obtuse, punctate but not warted, basal scale 2–4-lobate; petals rounded-ovate. **Female flowers** solitary; pedicels rigid, angled; sepals oblong, punctate, basal scale 2-lobed; petals as in male, eglandular; ovary glabrous; styles free. **Flowering time** July–Nov. **Fruit** a subglobose capsule, faintly warted-punctate. Grassland, stony or rocky soil, alt. 75–1 500 m; Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Pondoland, Bizana to Lusikisiki District and Mkambati).

daphnoides Lam.

Vaalbossie (A)

Perennial shrub, 0.5–2.0 m high, erect; much branched; twigs spreading, sharply angular. **Leaves** firmly membranous, opaque, lanceolate-oblong; obtuse, margins flat; petioles distinct, puberulous. **Male flowers**: pedicels slender; sepals obovate-oblong, obtuse, basal scale 5–7-lobate; petals rounded spathulate, glabrous, eglandular; rudimentary ovary short, glabrous, cylindric, truncate and slightly dilated at tip. **Female flowers**: pedicels rigid; sepals as in male, but basal scale 1–4-lobate; petals as in male; ovary glabrous, smooth. **Flowering time** Aug.–Nov. **Seeds** small, black and shining. Grassland, forest, closed shrubland, sandy or sandy loam, rocky or stony soil, alt. 5–1 890 m; Sub-Escarpment Grassland, Drakensberg Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Rainshadow Valley Karoo, Albany Thicket, Indigenous Forests (Otto Du Plessis Pass S, from Seymour to Komga, Willowmore District, Steytlerville District, Greater Addo Elephant National Park and Bathurst District, and to Humansdorp).

disceptata Prain

Perennial dwarf shrub or herb; 0.2–0.6 m high; erect, stems angular above, terete below; stems simple, occasionally branched; rootstock woody. **Leaves** shortly petioled, when young membranous, soon firmly papery, pellucid-punctate and sparingly warted, lower orbicular or ovate-oblong, upper ovate-lanceolate, base wide to narrow-cuneate, apex

acute, margins slightly recurved. **Male flowers** 2–4; pedicels capillary; sepals ovate-oblong, obtuse, basal scale 3–5-lobate; petals rounded-ovate, eglandular, rudimentary ovary subcylindric, glabrous. **Female flowers**: pedicels rigid, slender; sepals oblong, punctuate, basal scale 2-lobed; petals as in male, eglandular or with solitary basal gland; ovary hirsute; styles distinctly connate at base. **Flowering time** Oct. Grassland, stony or rocky soil, alt. 9–1 675 m; Mesic Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland [Between Lady Grey and Jamestown, Transkei (York)].

[E]**dregeana** Scheele

Perennial shrub, 0.2–1.5 m high; branches spreading, many; twigs distinctly angular. **Leaves** sessile, from ovate to lanceolate, base rounded or wide-cuneate, apex shortly acuminate or acute, margins slightly recurved, subcoriaceous or coriaceous. **Male flowers** 1–3; pedicels capillary; sepals ovate-oblong, obtuse, punctate but not warted, basal scale 3–5-lobate; petals cuneate-obovate, shortly clawed, base 2- or 3-glandular, rudimentary ovary glabrous, cylindric. **Female flowers**: pedicels rigid, angled; sepals as in male but larger; petals as in male but 1-glandular; ovary glabrous; styles distinctly connate at base. **Flowering time** Sept.–Feb. **Fruit** a subglobose capsule, distinctly warted-punctate. Grassland, sandy, stony or rocky, recently burned soil, alt. 365–1 035 m; Drakensberg Grassland, Albany Thicket, Sub-Escarpment Savanna (Maclear District, Suurberg, Grahamstown, Alexandria).

ericoides Thunb.

Laventelbos (A)

Perennial dwarf shrub or herb, 0.15–0.60 m high; branches stoutish; twigs spreading, puberulous. **Leaves** sessile, coriaceous, opaque, erect, subimbricate, shining, quite glabrous; linear-lanceolate, base cuneate, apex acute, margins involute, convex below and concave above. **Male flowers** in pairs; pedicels shorter than calyx, puberulous; sepals oblong or ovate, obtuse, with large 1–3-lobate basal gland; petals cuneate-obovate, clawed, with solitary small gland, rudimentary ovary short, rounded, glabrous. **Female flowers** solitary from perulate (pouch- or wallet-shaped) axillary swellings, scales many; sepals narrower and larger than male; petals as in male but eglandular; ovary glabrous; styles free, 2-partite. **Flowering time** Mar.–June. **Fruit** a subglobose capsule, smooth. **Seeds** black and shining. Grassland, fynbos, open woodland, alt. 10–1 680 m; Eastern Fynbos-Renosterveld, Albany Thicket, Sub-Escarpment Savanna [Baviaanskloof (Goewermentskloof) E to Uitenhage, Port Elizabeth and Grahamstown].

heterophylla Thunb.

Perennial shrub or dwarf shrub, 0.15–0.35 m high; stems simple; rootstock woody; angular. **Leaves**: lower ones widely ovate, upper ones ovate-lanceolate; shortly petioled, membranous, soon firmly papery, pellucid-punctate and when young warted, base rounded or subcordate, apex acute or rarely obtuse, margins slightly recurved. **Male flowers**: 2–4-flowered fascicles; pedicels capillary; sepals ovate-oblong, obtuse, warted-punctate, basal scale 3-lobate; petals rhomboid-ovate, eglandular; ovary rudimentary, subcylindric, glabrous. **Female flowers** solitary; sepals oblong, subacute, warted-punctate, basal scale 3-lobate; petals as in male, eglandular; ovary glabrous; styles free. **Fruit** a subglobose capsule, warted-punctuate. **Seeds** black and shining. Grassland recently burned, forest, karoo, closed shrubland, sandy, stony, rocky soil, alt. 45–1 524 m; Sub-Escarpment Grassland, Indigenous Forests, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Queenstown S, Hogsback Forest to Willowvale District and Uitenhage to East London).

hirsuta (Sond.) Müll.Arg.

Lightning bush; *ubuhlungu bedila* (Z)

Perennial shrub, dwarf shrub or herb, 0.1–1.5 m high; sparingly to densely pubescent and/or hirsute; stems several, simple or sparingly branched; rootstock woody. **Leaves** sessile, elliptic-lanceolate or elliptic-oblanceolate, base cuneate or rounded-cuneate, apex subacute, obtuse or attenuate, entire, chartaceous, densely villous on both surfaces at first, later becoming sparingly to evenly pubescent or hirsute. **Male fascicles** 1–several-flowered; bracts triangular-lanceolate, chaffy. **Male flowers**: pedicels 1 mm long; sepals oblanceolate-oblong, rounded; petals oblanceolate, rounded. **Female flowers** solitary; pedicels 2 mm long, stouter than in male; sepals elliptic-lanceolate, subacute, densely fulvous-sericeous; styles suberect-divaricate. **Fruit** sparingly to evenly pubescent, compressed-ellipsoid, smooth. Grassland, grazed, stony, rocky soil, alt. 395–2 000 m; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna (Maclear S, across Amatole Mts to Komga and to Grahamstown).

[E]impedita Prain

Perennial dwarf shrub, up to 0.8 m high; stems rigid, erect; copiously virgately branched in upper $^1/_2$, terete, glabrous. **Leaves** shortly petioled, firmly papery, imbricate, obovate, truncate or retuse, base gradually cuneate, margins flat, glabrous, pellucid-punctate and warted. **Male flowers** solitary or in pairs; pedicels short; sepals suborbicular, fleshy, 2–4-lobed basal scale; petals obovate, gradually narrowed towards base; rudimentary ovary ovoid, glabrous. Karoo, sandy, stony, rocky soil, alt. up to 2 135 m; Sub-Escarpment Grassland, Dry Highveld Grassland (Andriesberg near Bailey S, from Graaff-Reinet District E to Cathcart).

katharinae Pax

Perennial shrub, 0.5–1.4 m high; twigs softly silky with spreading hairs. **Leaves** sessile, membranous, lanceolate, blunt, base gradually narrowed, margins slightly revolute. **Male flowers** in pairs; pedicels short in both sexes; sepals oblong, silky, basal scale 3- or 4-partite; petals rhomboid, acute, glabrous, long-clawed, minute simple basal scale; ovary rudimentary, narrow, glabrous. **Female flowers** solitary; sepals widely ovate, acute, silky, basal scale 2–5-lobed; petals oblong, acute, sparingly hairy or glabrous, without basal scale; ovary densely silky; styles free, glabrous. **Fruit** a subglobose capsule, densely silky-velvety. **Seeds** brownish black and shining. Forest, stony or rocky soil, alt. 540–2 670 m; Sub-Escarpment Grassland, Drakensberg Grassland, Indigenous Forests (Queenstown, Katberg, Amatole Mts).

laxa Eckl. ex Sond.

Perennial shrub, 0.15–0.70 m high; stems slender, woody, much branched; twigs spreading, glabrous. **Leaves** sessile, coriaceous, opaque, lanceolate, base rounded, apex obtuse but mucronulate, margins slightly scabrous; glabrous on both surfaces. **Male flowers** in few-flowered glomerules; sepals obovate, obtuse, basal scale 3-lobate, petals widely obovate, cuneately unguiculate; base 2-glandular; ovary rudimentary, turbinate, glabrous. **Female flowers** solitary; sepals elliptic-lanceolate, larger than male, basal scale 3-lobate; petals oblong-obovate, eglandular; ovary glabrous; styles free. **Flowering time** Aug.–Jan. **Fruit** a subglobose capsule. **Seeds** black and shining. Grassland, fynbos, open woodland, stony or rocky soil, alt. 10–2 200 m; widespread in all bioregions, except in Upper Karoo, Mesic Highveld Grassland and Rainshadow Valley Karoo (Queenstown E to Mkambati Nature Reserve southwards, from Pearston to Kei River Mouth, from Kouga to Grahamstown and to Humansdorp).

marginata E.Mey. ex Sond.
Perennial shrub, 0.5–1.2 m high; twigs spreading, angular. **Leaves** shortly petioled, firmly papery, obovate, base gradually cuneate, apex acute, margins flat, spreading; densely grey-pubescent on both surfaces; petioles 2.0–2.5 mm long. **Male flowers** 1–3; pedicels short, hoary pubescent; sepals densely pubescent, ovate-oblong, basal scale 7–9-lobate; petals distinctly clawed, rhomboid, sparingly hairy externally, with minute gland; rudimentary ovary cylindric, sparingly hairy throughout. **Female flowers** solitary; sepals ovate-oblong, basal scale simple; petals oblong, externally pubescent, 2-lobed basal scale; ovary tomentose; styles short. **Fruit** a capsule, sparingly shortly tomentose. **Seeds** black and shining. Humic clay, rocky outcrop, alt. 320–975 m; Albany Thicket (Graaff-Reinet).

monticola S.Moore
Perennial dwarf shrub or herb; 0.20–0.65 m high; stems several; rootstock woody. **Leaves** subsessile, membranous to firmly chartaceous, pellucid-punctate and pusticulate, lower leaves suborbicular-ovate, upper leaves elliptic-ovate or elliptic-oblong, base broadly cuneate or rounded, apex rounded, obtuse or subacute, margins entire, slightly revolute. **Male fascicles** 1–5-flowered; bracts triangular, chaffy. **Male flowers**: pedicels capillary; sepals elliptic-obovate, rounded; petals triangular-rhombic to obovate-spathulate; pistillode cylindric, slightly expanded apically. **Female flowers** solitary; pedicels 10–13 mm long; sepals elliptic-oblong, each with small, flattened, 2-lobed basal gland; petals rhombic-elliptic, eglandular; ovary smooth, glabrous; styles spreading. **Fruit** punctate, glabrous, ochreous (pale yellow). **Seeds** obovoid, minutely punctate; caruncle thin, papyraceous, straw-coloured. Grassland, recently burned, sandy soil, alt. 60–1 998 m; Sub-Escarpment Grassland, Indigenous Forests, Sub-Escarpment Savanna (Ngeli Forest, Ntsubane Forest, East London).

nana Prain
Perennial shrub or dwarf shrub, 0.1–1.2 m high; branches stout, intricately branched; twigs glabrous. **Leaves** sessile, closely imbricate, glabrous, coriaceous, ovate, base rounded, apex acute, margins involute; convex subcarinate below, deep concave above. **Male flowers** solitary; pedicels short, glabrous; sepals ovate, obtuse, clawed, with solitary small gland at junction of lamina and claw; rudimentary ovary short, rounded, glabrous. Grassland, rocky slopes, alt. 2 000–3 170 m; Drakensberg Grassland (Barkly East District).

natalensis Bernh.
Perennial shrub, 0.4–1.5 m high; much branched; twigs fastigiate, slender, sparingly tawny-pubescent, and soon glabrous. **Leaves** petioled, firmly papery, pellucid-punctate, but not warted, linear- to oblong-lanceolate, base cuneate, apex acute, margins flat; pubescent on both surfaces when young, soon glabrescent. **Male flowers**: pedicels capillary; sepals rounded-ovate, pubescent outside, basal scale 3–5-lobed; petals wide-rounded-obovate, eglandular; rudimentary ovary slender, narrow-cylindric, glabrous. **Female flowers** solitary or in pairs; pedicels firm; sepals larger than in male, ovate, subacute, pubescent outside, basal scale 2-lobed (less often 1–3-lobed); petals obovate-oblong, without basal scale; ovary glabrous; styles free. **Flowering time** Dec., Jan. **Fruit** a warted-punctuate capsule. **Seeds** black and shining. Grassland, sandy loam, stony/rocky soil, alt. 518–2 360 m; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Albany Thicket, Eastern Fynbos-Renosterveld (Barkly East to Rhodes District S, from Queenstown to Barkly Pass, Cathcart to Kei River, and from Willowmore District to Groendal Wilderness Reserve).

[E]platyphylla Pax & K.Hoffm.
uNgwaleni (Z)

Perennial dwarf shrub or herb, 0.1–0.3 m high; fastigiately branched; twigs angular. **Leaves** petioled, firmly papery to subcoriaceous, ovate or suborbicular, base rounded or subcordate, apex obtuse, margins slightly recurved; faintly pellucid-punctate when young, not warted. **Male flowers** 1–3; pedicels up to 6.4 mm long, capillary, pubescent; sepals rounded, pubescent outside, obtuse, basal scale 4- or 5-lobate; petals rhomboid-orbicular, shortly clawed, glabrous, eglandular; rudimentary ovary cylindric, glabrous. **Flowering time** July. Sandy soil, alt. ± 835 m; Indian Ocean Coastal Belt (Mkambati Nature Reserve).

polifolia Jacq.
Perennial shrub, 0.2–1.2 m high; stems slender, woody, much branched; twigs spreading, glabrous. **Leaves** sessile, thinly coriaceous, opaque, lanceolate or linear-lanceolate, base cuneate, apex obtuse but mucronulate, margins not scabrous, revolute; glabrous on both surfaces. **Male flowers**: in 2- or 3-flowered glomerules; pedicels slender, glabrous; sepals oblong-obovate, obtuse, basal scale glands 3 or 4; petals obovate, cuneate and base 2-glandular; rudimentary ovary turbinate, glabrous. **Female flowers** solitary; pedicels as in male; sepals ovate-lanceolate, with large 2–4-lobate basal scale; petals cuneate-obovate, eglandular; ovary glabrous; styles free. **Flowering time** May–Dec. **Fruit** a subglobose capsule. **Seeds** black and shining. Grassland, fynbos, sandy, loam, gravel, stony/rocky, alt. 30–1 845 m; Upper Karoo, Eastern Fynbos-Renosterveld, Albany Thicket (Henning Station S, Witteberg and Willowmore Districts E to Suurberg and Port Elizabeth).

pterogona Müll.Arg.
Perennial shrub, 0.3–1.3 m high; much branched; twigs spreading, finely warted, glabrous; stems, branches and twigs membranously winged; wings narrow, finely denticulate and lacerate. **Leaves** subsessile, firmly membranous, warted, punctate, linear-lanceolate to elliptic-linear, apex obtuse or shortly triangular, mucronulate, margins entire or denticulate, flat; glabrous on both surfaces. **Male flowers** clustered; pedicels glabrous; sepals obovate, verrucose-punctate, margins entire, glabrous, basal gland 2- or 3-lobate; petals cuneate-obovate, entire, base 2-glandular; rudimentary ovary cylindric, glabrous, with dilated discoid tip. **Female flowers** solitary or in pairs; pedicels glabrous; sepals ovate-lanceolate, glabrous, basal scale 2- or 3-lobate; petals narrow-obovate, glabrous, eglandular; ovary glabrous, warted-punctate; styles free. **Fruit** a glabrous capsule, warted. **Seeds** black and shining. Gravel, alt. 125–819 m; Rain-shadow Valley Karoo, Albany Thicket (Steytlerville, Uitenhage District, Groendal Wilderness Reserve).

pubescens Thunb.
Perennial dwarf shrub, 0.2–0.5 m high; twigs pubescent. **Leaves** sessile, firmly membranous, lanceolate or linear, blunt, base narrowed, margins distinctly revolute; pubescent on both surfaces when young, then occasionally glabrescent. **Male flowers** 1–4; pedicels equal; sepals densely pubescent, narrow-obovate, basal scale 3-partite; petals narrow-obovate, glabrous, base 1-glandular; rudimentary ovary short, glabrous. **Female flowers** solitary; pedicels shorter than calyx; sepals lanceolate, obtuse, basal scale 3–5-partite; petals narrow-obovate, slightly hairy or glabrous, without

basal scale; ovary densely pubescent; styles free, glabrous. **Flowering time** Dec. **Fruit** a subglobose capsule, densely pilose. **Seeds** brownish black and shining. Clay or loam soil, alt. 150–730 m; Drakensberg Grassland (Adelaide).

pulchella L.

Warty-fruited lightning bush; *gewone bliksembos* (A); *iqadi*, *umsipane* (X); *iKhambi lenkosi* (Z)

Perennial shrub, dwarf shrub or herb, 0.01–2.50 m high; twigs warted, slightly appressed-hairy when young. **Leaves** distinctly petioled, membranous, warted, punctuate, ovate or ovate-oblong, rarely suborbicular, base cuneate, apex subacute or obtuse, margins flat, glabrous. **Male flowers**: few-flowered fascicles; sepals oblong-obovate, warted-punctuate, 3-lobate basal scale; petals deltoid-ovate, narrowed to wide claw, with simple basal scale; rudimentary ovary widened upwards, glabrous. **Female flowers** paired; sepals firmer than male, 2- or 3-lobate basal scale; petals as in male, with small basal scale; ovary glabrous; styles free. **Fruit** a glabrous capsule, warted-punctate. **Seeds** black and shining. Grassland, forest, sandy loam, stony/rocky soil, alt. 5–2 090 m; widespread in all bioregions, except in Upper Karoo, Rainshadow Valley Karoo and Lower Karoo (Aliwal North to Kokstad S, from Queenstown to Port St Johns, Somerset East to Kei River Mouth, Baviaanskloof to Grahamstown, and to Storms River Bridge).

rubricaulis Eckl. ex Sond.

Jeukbossie (A)

Perennial dwarf shrub, 0.1–0.6 m high; stems firm, woody, considerably branched; twigs ascending, glabrous. **Leaves** sessile, densely imbricate, coriaceous, opaque, oblong-obovate, base rounded or wide-cuneate, apex obtuse but mucronulate, margins scabrous, flat, glabrous; glaucous on both surfaces. **Male flowers**: few-flowered glomerules; pedicels slender; sepals obovate, obtuse, basal scale 3-lobate; petals widely obovate, cuneately unguiculate, base 2-glandular; ovary rudimentary, turbinate, glabrous. **Female flowers** solitary; pedicels glabrous; sepals elliptic-lanceolate, larger than male, basal scale 3-lobate; petals obovate-oblong, eglandular; ovary glabrous; styles free. **Fruit** a subglobose capsule. **Seeds** black and shining. Fynbos grassland, recently burned, sandy soil, alt. 15–2 315 m; Sub-Escarpment Grassland, Drakensberg Grassland, Eastern Fynbos-Renosterveld (Maclear District and Hogsback S, from Groendal Wilderness Reserve to Port Elizabeth and to Humansdorp).

virgata Pax & K.Hoffm.

Perennial dwarf shrub or herb, 0.15–0.50 m high; stems slender, woody rootstock, virgate, simple or sparingly branched, glabrous. **Leaves** sessile, coriaceous, opaque, oblong-obovate, base rounded, apex obtuse but mucronulate, margins slightly scabrous, flat; glabrous on both surfaces. **Male flowers** solitary or in pairs; sepals obovate, obtuse, basal scale 3-lobate; petals widely obovate, cuneately unguiculate, base 1-glandular; ovary rudimentary, turbinate, glabrous. **Female flowers** solitary; sepals elliptic-lanceolate, larger than male, basal scale 3-lobate; petals obovate-oblong, eglandular; ovary glabrous; styles free. **Fruit** a subglobose capsule. **Seeds** black and shining. Forest, grassland, recently burned, sandy/loamy, stony/rocky soil, alt. 80–2 075 m; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Eastern Fynbos-Renosterveld, Indigenous Forests (Mkambati Nature Reserve S, Uitenhage District, Longmore Forest Reserve).

DAVIS, C.C., WEBB, C.O., WURDACK, K.J., JARAMILLO, C.A. & DONOGHUE, M.J. 2005. Explosive radiation of Malpighiales supports a Mid-Cretaceous origin of modern tropical rain forests. *American Naturalist* 165: E36–E65.
PRAIN, D. 1920. Euphorbiaceae [in part]. *Flora capensis* 5,2: 427–456.
RADCLIFFE-SMITH, A. 1987a. *Flora of tropical East Africa*. Euphorbiaceae Part 1: 1–407.
RADCLIFFE-SMITH, A. 1987b. Segregate families from the Euphorbiaceae. *Botanical Journal of the Linnean Society* 94: 47–66.
RADCLIFFE-SMITH, A. 1996. Euphorbiaceae. *Flora zambesiaca* 9,4: 1–337.
RADCLIFFE-SMITH, A. 2001. *Genera Euphorbiacearum*. Royal Botanic Gardens Kew, Kew.
SOLTIS, D.E., GITZENDANNER, M.A. & SOLTIS, P.S. 2007. A 567-taxon data set for angiosperms: The challenges posed by Bayesian analyses of large data sets. *International Journal of Plant Science* 168: 137–157.
STEVENS, P.F. 2010. Angiosperm Phylogeny Website. Version 9. Internet. http://www.mobot.org/MOBOT/research/APweb/ (accessed Aug. 2010).
WEBSTER, G.L. 1994a. Classification of the Euphorbiaceae. *Annals of the Missouri Botanical Garden* 81: 3–32.
WEBSTER, G.L. 1994b. Synopsis of the genera and suprageneric taxa of Euphorbiaceae. *Annals of the Missouri Botanical Garden* 81: 33–144.
WURDACK, K.J. & DAVIS, C.C. 2009. Malpighiales phylogenetics: Gaining ground on one of the most recalcitrant clades in the angiosperm tree of life. *American Journal of Botany* 96: 1551–1570.

PHRYMACEAE

(Order Lamiales)

Compiled by C.L. Bredenkamp

MIMULUS L.

Monkey flowers

Species 91, widespread, mostly temperate America, also in Madagascar, India, Australia, tropical and sthn Africa; 2 (1 naturalised) in sthn Afr., widespread, except WC.

gracilis R.Br.

Perennial herb, 0.09–0.75 m high; stems simple or branching ± from base, erect, ascending or decumbent, narrowly winged. **Leaves** opposite, sessile, simple, 47–60 × 16 mm, lanceolate to narrowly oblong, irregularly denticulate. **Flowers** single, axillary, pedicellate in lax, leafy racemes. **Corolla** up to 12 mm long, tubular, bilabiate, white, cream-coloured or pale yellow with contrasting spots inside. **Flowering time** all year, mainly Dec. Usually moist areas, also dry, grassy hillsides; Sub-Escarpment Grassland, Drakensberg Grassland, Indian Ocean Coastal Belt, Indigenous Forests (Thaba Chitja S, Queenstown and Maclear districts, across Amatole Mts to King William's Town and Kentani, outlier at Graaff-Reinet).

GRANT, A.L. 1924. A monograph of the genus *Mimulus*. *Annals of the Missouri Botanical Garden* 11,2–3: 99–389.

PHYLLANTHACEAE

(previously under EUPHORBIACEAE)

(Order Malpighiales)

Compiled by C.L. Bredenkamp & N. Ngoepe

Genera ± 59, species ± 2 000; pantropical, but especially Malesia, some temperate.

Family description adapted from Stevens (2010).

Herbs to trees; cyanogenesis via tyrosine pathway, tropane and pyrrolizidine alkaloids, cucurbitacins and nonhydrolysable tannins. **Cork**? **Wood**: vessel elements with simple or scalariform perforation plates. **Leaves** on orthotropic (straight) axes often reduced, spiral on plagiotropic (oblique) axes; 2-ranked sometimes spiral, involute or conduplicate, margins entire. **Plant** dioecious. **Staminate flowers**: disc extrastaminal or absent; stamens 2–35, often ± connate, extrorse, pollen reticulate. **Carpellate flowers**: carpels and locules (1)2–5(–15); ovule with outer integument 2–many and inner integument 2–3 (–5) cells across, exotegmen with radially-elongated ribbon-like cells, tegmen 2–5(–20) cells thick; styles usually bifid, stigmas with adaxial furrow, wet. **Fruit** a septicidal capsule or schizocarp. **Seeds** large, sometimes with caruncle.

Bayesian, and parsimony analyses of DNA sequence data suggest a separate familial placement of the Phyllanthaceae between the Picrodendraceae and Hypericaceae in the Malpighiales (Wurdack & Davis 2009). For key to the families segregated from the Euphorbiaceae *s.l.*, see **EUPHORBIACEAE** (p. 898).

1a Herbs, sometimes woody at base, or succulent herbs or shrubs:
2a Petals present, at least in male flowers ..... **Andrachne**
2b Petals absent ..... **Phyllanthus**
1b Shrubs or trees:
3a Petals present, at least in male flowers:
4a Male calyx lobes valvate ..... **Bridelia**
4b Male calyx lobes imbricate:
5a Male flowers with 3 sepals; ovary absent ..... **Heywoodia**
5b Male flowers with 5 sepals; ovary rudimentary:
6a Male disc annular, villous ..... **Lachnostylis**
6b Male disc saucer-shaped, glabrous ..... **Andrachne**
3b Petals absent:
7a Fruit indehiscent, drupaceous, usually 1-seeded by abortion ..... **Antidesma**
7b Fruit dehiscent, sometime tardily so, mostly with > 1 seed:
8a Pistillode absent in male flowers:
9a Male disc annular ..... **Margaritaria**
9b Male disc usually composed of ± separate glands ..... **Phyllanthus**
8b Pistillode present in male flowers ..... **Flueggea**

ANDRACHNE L.

Species 15, mainly in warm parts of northern hemisphere; 1 in sthn Afr., LIM, M, S, KZN, WC, EC.

ovalis (Sond.) Müll.Arg.

False lightning bush, insecticide-root, devil's bush; *valsbliksembos* (A); *umBezo*, *umGquata* (X); *uMbesa*, *umBheza* (Z)

Perennial tree or shrub, monoecious; 0.6–6.0 m high; young twigs terete. **Leaves** membranous to chartaceous, ovate to elliptic-ovate, base cuneate or rounded, apex subacute

or obtuse; petioles slender, sparingly pubescent when young, soon glabrescent. **Stipules** triangular-ovate, sparingly ciliolate. **Male flowers**: pedicels 2–4 mm long; sepals obtuse, united at base, suborbicular-obovate, minutely ciliolate; petals suborbicular; stamens connate in lower $^1/_3$. **Female flowers**: pedicels apically dilated; sepals ovate, minutely papillose; petals suborbicular-obovate; disc cupular, margins irregularly lobulate and/or denticulate; ovary globose, sparingly setulose. **Flowering time** Aug.–Feb. **Fruit** depressed, rounded, 3-lobed, veins strongly reticulate. **Seeds** irregularly compressed-trigonous, dorsally irregularly foveolate-rugulose, ventrally excavated. Ravines, forest margins, grassy and stony slopes, alt. 275–1 980 m; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indigenous Forests, Albany Thicket, Eastern Fynbos-Renosterveld (Kokstad District to Msikaba River Mouth S, from Fort Beaufort to Kei River Mouth, and from Loerie Dam to Uitenhage and Bloukrans Drift).

ANTIDESMA L.

Species 170, mostly in warmer parts of Old World, 10 in Africa; 1 in sthn Afr., N, B, LIM, M, S, KZN, EC.

venosum E.Mey. ex Tul.

Tassel-berry; *voëlsitboom* (A); *umtyongi* (X); *isiqutwane* (Z)

Perennial tree or shrub, 0.55–8.00 m high; branches drooping; crown dense; twigs lenticellate; young shoots and buds sparingly to densely fulvous- or ferruginous-tomentose, or pubescent. **Leaves** stratified, elliptic-obovate to oblong-oblanceolate, base rounded or cuneate, apex rounded or obtuse, thickly chartaceous to thinly coriaceous; petioles adaxially canaliculate. **Stipules** lanceolate to linear-lanceolate, acute, evenly to densely pubescent or tomentose. **Male inflorescences** terminal or subterminal on short lateral shoots; bracts minute. **Male flowers**: calyx 3–5-lobed, unequal, subacute or obtuse, pubescent, ciliate. **Female inflorescences** lateral, densely paniculate. **Female flowers**: calyx cupular, 3- or 4-lobed; ovary compressed-ellipsoid, smooth, glabrous; styles terminal, bifid, strongly recurved, glabrous. **Flowering time** Dec. **Seeds** ellipsoid. Sandy banks and alluvial soils, riverine and lakeshore vegetation, alt. 7–1 220 m; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests (Lusikisiki District E to Mkambati Waterfall and S to Port St Johns).

BRIDELIA Willd.

Species 37, Africa to Asia and Australia; 4 in sthn Afr., N, B, M, S, KZN, EC.

micrantha (Hochst.) Baill.

Coastal goldenleaf, mitzeerie; *mitserie*, *mzeriehout* (A); *umHlahlamakhwaba* (X); *umShonge* (Z)

Perennial tree or shrub, 2–20 m high; deciduous, much branched, trunk and branches with scattered blunt thorns, wood hard, twigs lenticellate; young shoots and petioles evenly to sparingly pubescent or subglabrous. **Leaves** elliptic to elliptic-oblong, shortly obtuse-acuminate, base rounded to cuneate, subentire or shallowly crenate, thinly coriaceous. **Stipules** linear-lanceolate, puberulous or pubescent. **Male flowers**: pedicels sparingly appressed-puberulous; sepals triangular-ovate, acute, glabrous within; petals obtriangular, apically tridentate, shallowly 5-lobed, glabrous; filaments narrowing apically. **Female flowers** faintly scented, subsessile or with short, stout pedicels; sepals triangular; petals elliptic, subentire; ovary ovoid-subglobose, 2- or 3-celled; styles free,

bifid, stigmas smooth. **Fruit** ellipsoid or occasionally subglobose. **Seeds** smooth, slightly shiny. Gully forests, rain and mist forest patches, flooded grassland, alt. 300–1 830 m; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests (Lusikisiki District, Mkambati Nature Reserve, Port St Johns, Hogsback).

FLUEGGEA Willd.

Species 16, tropics and E Asia; 2 in sthn Afr., KZN, EC.

verrucosa (Thunb.) G.L.Webster

Warty white-berry bush

Perennial shrub, 0.6–2.5 m high; monoecious; copiously branching; twigs terete, conspicuously lenticellate-verrucose. **Leaves** firmly chartaceous to subcoriaceous, obovate, base cuneate, apex minutely apiculate, margins entire; petioles glabrous or hirtellous. **Stipules** lanceolate, acute to acuminate. **Inflorescences** at proximal axils of annual growth; bisexual or staminate cymules. **Male flowers** several, lateral; pedicels capillary; sepals mostly 6, outer sepal oblong, acute, scarious-margined, inner sepals obovate to suborbicular, entire; disc segments 6, thickened, roundish or elongated; stamens mostly 6, free; anthers ellipsoid. **Female flowers**: solitary; pedicels straight or curved; sepals same as in male; disc thick, smooth; ovary 3 carpels; styles free. **Fruit** a subglobose capsule, reticulate. **Seeds** plano-convex. Thorn scrub or woodland, alt. 15–1 220 m; Sub-Escarpment Grassland, Indigenous Forests, Drakensberg Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Queenstown to Tsitsa River S, from Katberg Mts to Komga and from Baviaanskloof to Fish River Mouth).

HEYWOODIA Sim

Species 1, tropical East Africa and sthn Afr., S, KZN, EC.

lucens Sim

Black ebony, stink-ebony; *stink-ebbehout* (A); *umnebelele* (X); *ibeyana* (Z)

Perennial tree; 2–25 m high; bark irregularly peeling in corky sheets or patches. **Leaves** entire, broadly ovate to elliptic-ovate, shortly acuminate, cuneate, base rounded or truncate. **Stipules** elliptic-ovate, subacute; bracts transversely ovate, erose, chaffy. **Male flowers**: sepals resembling bracts, but larger, ciliolate; petals elliptic-oblong, slightly erose, membranous; stamens 3 mm long. **Female flowers**: pedicels 3–5 mm long; bracteoles ovate, chaffy; sepals 2 or 3, resembling bracteoles; petals 5 or 6, same as in male; ovary ovoid-subglobose, shallowly 4- or 5-lobed; stigmas slightly papillose. **Fruit** with 3 or 4 vascular traces on each septum. **Seeds** smooth. Moist evergreen forest, deep shade, gallery forest, alt. 5–585 m; Sub-Escarpment Savanna, Indigenous Forests, Indian Ocean Coastal Belt (Ntsubane Forest near Kokstad, Cwebe and Sasa Forests near Mthatha and Pungwane Forest near Port St Johns southwards, from Elliotdale District to Dwesa Forest and Kentani).

LACHNOSTYLIS Turcz.

Species 2, sthn Afr., WC, EC.

hirta (L.f.) Müll.Arg.

Coalwood; *koolhout* (A)

Perennial tree or shrub, 1.5–8.0 m high; dioecious; much branched; branches twiggy, tomentose or pubescent when young, then glabrous and covered with many conspicuous

lenticels. **Leaves** oblanceolate, base gradually narrowed, apex somewhat rounded and mucronate, margins cartilaginous; conspicuously reticulate on both surfaces; petioles slightly pubescent. **Stipules** lanceolate, membranous, sparingly pubescent or glabrous. **Flowers** in axillary fascicles; shortly pedicellate; pedicels woolly-tomentose. **Male flowers**: sepals 5, ovate-elliptic, obtuse, woolly-pubescent; petals obovate, base narrowed, glabrous; disc glands 5, large, woolly-pubescent; stamens 5; filaments glabrous; rudimentary ovary tripartite, segments bilobed, villous. **Female flowers**: sepals as in male; petals narrower than in male; disc thick, annular, villous; ovary 3-locular, ovoid-globose, tomentose; style spreading. **Fruit** a trilobed capsule. **Seeds** wrinkled. Bare rock, gravel, forest, closed woodland, alt. 10–305 m; Eastern Fynbos-Renosterveld (Elands River, Groendal Wilderness Reserve and Uitenhage S to Humansdorp).

MARGARITARIA L.f.

Species 14, pantropical; 1 widespread in tropical and sthn Afr., N, B, LIM, M, S, KZN, EC.

discoidea (Baill.) G.L.Webster

Narrow-leaved peacock-berry; *poubessie*, *smalblaar-fisantebessie* (A); *umphunzito* (X); *upata* (Z)

Perennial tree or shrub, 1–30 m high; many-stemmed, densely branched; flattened crown; twigs lenticellate. **Leaves** chartaceous, obovate to elliptic-lanceolate, base rounded to cuneate, apex obtuse or rounded to acutely acuminate; glabrous above and beneath; petioles terete, grooved or winged. **Stipules** linear-lanceolate or oblong, acute or obtuse, entire, membranous, soon falling. **Inflorescence**: bracts ovate, chaffy, soon falling. **Male flowers**: pedicels glabrous or sparingly pubescent; sepals unequal, concave, becoming reflexed; disc shallowly 4-lobed; stamens 2–3 mm long. **Female flowers**: pedicels 2–20 mm long; sepals entire, thick; ovary glabrous or sparingly to evenly puberulous; styles erect, spreading or reflexed. **Fruit** subglobose to shallowly or deeply (2)3(4)-lobed, smooth or verrucose. **Seeds**: exotesta fleshy; endotesta plano-convex, smooth. Closed woodland, alt. 5–1 500 m; Sub-Escarpment Savanna, Indigenous Forests (Elliotdale District).

PHYLLANTHUS L.

Species 750–800, cosmopolitan in tropical and subtropical regions, ± 150 in Africa; 22 in sthn Afr., widespread.

glaucophyllus Sond.

Perennial dwarf shrub or herb, 0.08–0.45 m high; semi-prostrate to erect; sparingly branched; rootstock woody; monoecious or dioecious; glabrous. **Leaves** firmly chartaceous to thinly coriaceous, elliptic-lanceolate to ovate or suborbicular, base cuneate-rounded to subcordate, apex subacute, obtuse or rounded, margins revolute. **Stipules** triangular-ovate, acuminate, sparingly fimbriate or denticulate to subentire. **Flowers** solitary. **Male flowers**: pedicels capillary; sepals obovate; disc glands 6, free, orbicular, flat and smooth; stamens 3, minute, free; anthers horizontal. **Female flowers**: pedicels slender; sepals 6, outer obovate, inner oblong; disc annular, thin, flat, shallowly 6-lobed; ovary sessile, 6-lobed, smooth; styles free, deeply bipartite, spreading. **Fruit** depressed 3-lobed to subglobose, smooth. **Seeds** broadly segmentiform. Woodland, grassland, alt. 35–1 615 m; Indian Ocean Coastal Belt (Lusikisiki District).

heterophyllus E.Mey. ex Müll.Arg.

Perennial dwarf shrub or herb, 0.2–0.9 m; monoecious; much branched; branches sharply angular; glabrous. **Leaves** orbicular or broadly elliptic, subobtusely mucronate, rigidly coriaceous, glabrous and dull on both surfaces; stipules subulate-lanceolate, acute, glabrous. **Flowers** solitary or geminate (paired). **Male flowers**: pedicels glabrous; sepals 6, lanceolate, subobtuse, glabrous; disc glands 6, rounded, smooth; stamens 3. **Female flowers**: shortly pedicellate; sepals 6, oblong-lanceolate, subacute, glabrous; ovary smooth; styles slightly spreading. **Fruit** a 3-lobed capsule. **Seeds** almost smooth on back. Top of hills, rare at margin of short coastal forest, roadsides, alt. 50–825 m; Eastern Fynbos-Renosterveld, Albany Thicket (Uitenhage, Swartkops River, Port Elizabeth, Alexandria).

incurvus Thunb.

Dyebossie (A)

Perennial dwarf shrub or herb, 0.15–0.48 m high. Similar to *P. maderaspatensis*, distinguished by caespitose habit; leaves uniformly narrow, often involute, apex spinose and curved, lateral nerves not visible; female pedicels 2–6 mm long; female disc smaller; seeds triquetrous with longitudinal lines of dots. Usually on black basaltic and sandy clay soils, riverbanks, dry riverbeds and amongst rocks, serpentine hills, open woodland, alt. 30–1 580 m; Sub-Escarpment Grassland, Indigenous Forests, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Queenstown District S across Amatole Mts to Komga, from Hankey to Port Elizabeth and Port Alfred).

maderaspatensis L.

Skilpadbossie (A)

Annual or perennial herb, 0.1–1.0 m; monoecious; erect, suberect or decumbent; much branched; glabrous. **Leaves** spirally arranged, chartaceous, linear, lanceolate, oblong, oblanceolate or obovate, acute, subacute, obtuse or rounded, base rounded-cuneate to attenuate. **Stipules** asymmetrically triangular-lanceolate, acuminate, subentire. **Flowers** present in almost all axils, distal axils with male or bisexual few-flowered fascicles, proximal with solitary, female flowers. **Male flowers**: sepals 6, biseriate; disc glands 6, minute, free, rounded, thin, flat, smooth; stamens 3. **Female flowers**: sepals 6, biseriate; disc glands 6, free, squarish, thin, flat, smooth; ovary sessile, rounded, 3-lobed, smooth; styles free, erect, shortly bifid. **Fruit** depressed, rounded or 3-lobed, smooth, segmentiform. Clay and sandy soils, riverbanks and floodplains, short grasslands, alt. 45–1 720 m; Indian Ocean Coastal Belt, Indigenous Forests, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Lower Karoo, Albany Thicket (Mtentu Bridge S to Port St Johns, from Whittlesea E to Komga and from Kommadagga to East London District).

myrtaceus Sond.

Perennial shrub, 0.5–2.5 m high; plants generally dioecious; branches flattened and slightly winged. **Leaves** broadly elliptic-ovate, 19–32 × 6–9 mm, apex obtuse, ± rounded at base; both surfaces glabrous, glaucous beneath. **Stipules** lanceolate, ± 2.5 mm long. **Male flowers** axillary, solitary or paired; sepal 6 in 2 series; disc glands 6, nearly flat and circular; ± warty above; stamens 3. **Female flowers** solitary; sepals 6 in 2 series; disc thick, undulately lobed, glabrous; ovary smooth; styles spreading, bilobed. **Flowering time** Aug.–Dec. **Seeds** silky-textured. Grassland, forest margins and woodland, alt. 305–2 250 m; Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Lusikisiki District, Transkei Coast).

parvulus Sond. var. **garipensis** (E.Mey. ex Drège) Radcl.-Sm.

Perennial dwarf shrub or herb, 0.10–2.28 m; erect, much branched, monoecious. **Leaves** membranaceous, elliptic to elliptic-lanceolate, acute, subacute, base cuneate to rounded, apex obtuse or rounded, glabrous. **Stipules** narrowly triangular-lanceolate. **Flowers** commonly in few-flowered, bisexual cymes, with 1 male and 1 female flower per axil. **Male flowers**: pedicels capillary; sepals 5, ovate-suborbicular, mucronulate; disc glands 5, minute, free, flat, smooth, transversely ovate; stamens 5, free; filaments erect; anthers transversely dehiscent. **Female flowers**: pedicels slender, scaberulous; sepals as in male; disc annular, flat, thin, entire; ovary sessile, 3-lobed to subglobose, smooth; styles free, spreading, bifid; stigmas straight. **Fruit** depressed, 3-lobed to subglobose, smooth or minutely scaberulous-papillose. **Seeds** segmentiform. Grassland, closed woodland, alt. 15–1 713 m; Indigenous Forests, Indian Ocean Coastal Belt (Port St Johns, Kei River Mouth).

polyanthus Pax

Forest potato bush, feather-leaved pheasant-berry; *bos-aartappelbos* (A)

Deciduous shrub or tree, up to 8 m high; branchlets slender, clustered towards main branch ends. **Leaves** simple, alternate, acute or subacute, shiny, up to 60 × 30 mm, membranaceous to thinly chartaceous. **Stipules** present. **Flowers** fasciculate, usually on leafless, lateral shoots which often arise below leafy shoots. **Flowering time** Aug.–Oct. **Fruit** up to 50 mm in diam., depressed-globose, often 4-locular, becoming brown and corky at maturity. **Seeds** uniformly reddish brown. Understorey tree of evergreen forest, evergreen gully forest and swamp forest, alt. 185–520 m; Indigenous Forests (Lusikisiki District, Gwaleni Forest, Mqanduli).

DYER, R.A. 1943. The genus *Lachnostylis* Turcz. *South African Journal of Science* 40: 123–126.
HEYWOOD, V.H., BRUMMITT, R.K., CULHAM, A. & SEBERG, O. 2007. *Flowering plant families of the world*. Royal Botanic Gardens, Kew.
HUTCHINSON, J. 1915. Euphorbiaceae [in part]. *Flora capensis* 5,2: 378–410.
RADCLIFFE-SMITH, A. 1987a. *Flora of tropical East Africa*. Euphorbiaceae Part 1: 1–407.
RADCLIFFE-SMITH, A. 1987b. Segregate families from the Euphorbiaceae. *Botanical Journal of the Linnean Society* 94: 47–66.
RADCLIFFE-SMITH, A. 1996. Euphorbiaceae. *Flora zambesiaca* 9,4: 1–337.
RADCLIFFE-SMITH, A. 2001. *Genera Euphorbiacearum*. Royal Botanic Gardens Kew, Kew.
STEVENS, P.F. 2010. Angiosperm Phylogeny Website. Version 9. Internet. http://www.mobot.org/MOBOT/research/APweb/ (accessed Aug. 2010).
WEBSTER, G.L. 1979. A revision of *Margaritaria* (Euphorbiaceae). *Journal Arnold Arboretum* 60: 403–444.
WEBSTER, G.L. 1984. A revision of *Flueggea* (Euphorbiaceae). *Allertonia* 3: 259–312.
WEBSTER, G.L. 1994a. Classification of the Euphorbiaceae. *Annals of the Missouri Botanical Garden* 81: 3–32.
WEBSTER, G.L. 1994b. Synopsis of the genera and suprageneric taxa of Euphorbiaceae. *Annals of the Missouri Botanical Garden* 81: 33–144.
WURDACK, K.J. & DAVIS, C.C. 2009. Malpighiales phylogenetics: Gaining ground on one of the most recalcitrant clades in the angiosperm tree of life. *American Journal of Botany* 96: 1551–1570.

PHYTOLACCACEAE

(Order Caryophyllales)

Compiled by C.L. Bredenkamp

PHYTOLACCA L.

Species ± 25, frequently hybridising, in tropical or subtropical regions, mainly in America, few in Africa and Asia, often weedy; 5 in sthn Afr., widespread.

1a Carpels free

dodecandra L'Hér.

Scrambling shrub, 1.5–4.0 m high; semi-succulent. **Leaves** petioled, ovate to broadly elliptic, base broadly cuneate, oblique, apex ± acute. **Inflorescences** terminal or lateral racemes. **Flowers** functionally unisexual, yellowish green; pedicels up to 10 mm long. **Sepals** reflexed at anthesis. **Stamens** 10–20 in 1 or 2 whorls; flowers dimorphic, long and short staminate. **Carpels** 4 or 5, upper part of carpels free; styles widened at base. **Flowering time** Feb.–July. **Fruit** 4 or 5 drupelets, style remains pointing outwards at apex of each carpel, orange to red and fleshy when ripe. **Seeds** 2–3 mm in diam., discoidal; testa shiny black. Sometimes forming dense thickets; Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Indigenous Forests (Mtentu Bridge, Umtamvuna Nature Reserve, Port St Johns).

heptandra Retz.

Wild sweet potato, inkberry; *boesman druiwe*, *inkbossie* (A); *monatja* (SS); *umnyanja* (X)

Slender, perennial herb, 0.2–1.0 m high; semi-succulent. **Leaves** ± sessile or shortly petioled, lanceolate-elliptic, base obtuse, apex rounded, mucronate. **Inflorescences** few-flowered spikes. **Flowers** bisexual; pedicels up to 4 mm long. **Sepals** 5, ± united at base. **Stamens** 6 or 7 in one whorl. **Carpels** 5–7; styles ± straight. **Flowering time** Dec.–Mar. **Fruit** 5–7 drupelets. River mouths, riverbanks, mountain slopes, grassland, forests; Dry Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Upper Karoo, Indigenous Forests (Burgersdorp E to Kokstad District, southwards from Middelburg District to Maclear and Somerset East to Kei River Mouth).

1b Carpels ± united

***dioica** L.

Belhambra; *bobbejaandruifboom* (A)

Large, cultivated, ornamental tree, up to 25 m high; trunk huge, succulent, soft-wooded, buttressed. **Leaves** bright green, ovate, base acute, apex hooked-truncate; petioles pinkish, ± 70 mm long. **Inflorescences**: racemes ± 100 mm long; male and female flowers on separate trees. **Flowers** creamy yellow, small, up to 100 mm long; pedicels up to 4 mm long. **Sepals** 5, ± united at base. **Stamens** 6 or 7 in one whorl. **Carpels** 5–7, styles ± straight. **Flowering time** Sept.–Apr. **Fruit** berry-like, succulent, green turning black, pendent. Origin N Argentina, S Brazil, Paraguay, Uruguay; declared invader (category 3); Eastern Fynbos-Renosterveld, Albany Thicket, Sub-Escarpment Savanna (Keurboomsrivier, Baviaanskloof, Uitenhage, Grahamstown).

1c Carpels completely united, the styles ± connivent

***americana** L.

American nightshade, Virginian poke, pokeweed; *karmosynbos*, *inkbos* (A)

Perennial, succulent herb, up to 3 m high. **Leaves** lanceolate-elliptic, mucronate, base acute to obtuse, apex acute; petioles up to 20 mm long. **Inflorescences** axillary racemes, ± 300 mm long; bracts single, bracteoles coupled, lanceolate. **Flowers** pink, small, ± 3 mm long; pedicels up to 12 mm long. **Sepals** 5, ± equal, ovate. **Stamens** 10 in one whorl. **Carpels** 10. **Flowering time** Dec.–Feb. **Fruit** a berry, ± 10-ribbed. Roadsides, disturbed areas, forests; origin eastern North America, introduced into Africa; Drakensberg Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Indigenous Forests, Albany Thicket (King William's Town, Komga, Storms River, Grahamstown).

***octandra** L.

Forest inkberry; *bobbejaandruif*, *inkbessie* (A)

Bushy, ± succulent herb, up to 2 m high. **Leaves** narrowly elliptic to elliptic-lanceolate, base attenuate to obtuse, apex acute to acuminate; petioles decurrent, up to 25 mm long. **Inflorescences** axillary or terminal spikes, up to 140 mm long. **Flowers** bisexual, white, sessile or pedicels up to 1 mm long. **Sepals** 5, subequal, ± ovate, spreading at anthesis. **Stamens** 8–10 in one whorl. **Carpels** 7–10. **Flowering time** Sept.–Apr. **Fruit** a berry, 7–10-ribbed, styles remain clustered inside, depression at apex of fruit, green-black when ripe. Plantations, roadsides; origin tropical America, declared invader (Category 1); Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indigenous Forests, Eastern Fynbos-Renosterveld, Albany Thicket (Maclear E to Ixopo District, southwards from Van Stadens Nature Reserve to Port Elizabeth).

BROWN, G.K. & VARADARAJAN, G.S. 1985. Studies in Caryophyllales 1: Re-evaluation of classification of Phytolaccaceae *s.l. Systematic Botany* 10: 49–63.
HILL, A.W. 1912. Phytolaccaceae. *Flora capensis* 5,1: 454–459.
NOWICKE, J.W. 1968. Palynotaxonomic study of the Phytolaccaceae. *Annals of the Missouri Botanical Garden* 55: 294–363.
NOWICKE, J.W. 1969. Supplementary notes on the Phytolaccaceae 1. *Annals of the Missouri Botanical Garden* 56: 288–290.
ROHWER, J.G. 1993. Phytolaccaceae. In K. Kubitzki, J.G. Rohwer & V. Bittrich, *The families and genera of vascular plants — dicotyledons* 2. Springer-Verlag, Berlin.
SONDER, O.W. 1860. Phytolaccaceae. *Flora capensis* 1: 151–157.
STANNARD, B.L. 1988. Phytolaccaceae. *Flora zambesiaca* 9,1: 163–173.
WEBB, D.A. 1964. Phytolaccaceae. *Flora europaea* 1: 112.

PIPERACEAE

(Order Piperales)

Compiled by C.L. Bredenkamp

Herbs, usually epiphytic, often succulent and brittle; stipules absent; anther thecae usually confluent; stigma 1 ..... **Peperomia**

Herbs or soft-wooded shrubs, usually terrestrial, never succulent; stipules adnate to petiole; anther thecae usually distinct; stigmas 2 ..... **Piper**

PEPEROMIA Ruiz & Pav.

Species ± 1 000, pantropical with its main centres of diversity in tropical South America, 18 in Africa; 5 in sthn Afr., LIM, NW, G, M, S, KZN, L, coastal areas of WC and EC.

1a Leaves ± ovate in whorls of 3 or 4 at nodes; stems succulent; flowers densely crowded on rachis

tetraphylla (G.Forst.) Hook. & Arn.

Succulent herb, 0.10–0.15 m high; stems ± erect, rooting at nodes, mat-forming. **Leaves** 3-veined from base, dark green above, grey-green below; petioles up to 4 mm long. **Inflorescence** a terminal spike, fertile portion up to 11 mm long in flower, 25 mm in fruit. **Flowers** with bracts ± 0.3 mm in diam. **Flowering time** Nov.–July. **Fruit** ± 1 mm long, glanduliferous, long-ellipsoid, with pseudo-cupule at base. Epiphytic or lithophytic, often growing among mosses; Indigenous Forests (Insikeni Forest in Transkei, across Amatole Mts to Kentani District S, from Knysna District to Grahamstown).

1b Leaves 1 or 2 at nodes; flowers usually loosely arranged along the axis or, if dense, then leaves orbicular and stems not succulent
2a Leaves opposite, pilose

blanda (Jacq.) Kunth

Semi-erect herb, 0.05–0.20 m high; stems succulent, rooting at lower nodes. **Leaves** succulent, ± ovate, base cuneate, apex acute to rounded; petioles up to 11 mm long. **Inflorescence** terminal or axillary, slender spikes with widely spaced flowers, fertile portion up to 45 mm long in flower, 145 mm in fruit. **Bracts** ± 0.6 mm in diam. **Flowering time** Jan.–Apr. **Fruit** ± 1 mm long. Epiphytic or lithophytic, cliffs, pockets of soil among rocks; Indigenous Forests (Komga, East London).

2b Leaves mostly alternate, may be opposite below an inflorescence, glabrous or pilose

retusa (L.f.) A.Dietr.

Succulent herb, 0.05–0.20 m high; stems rooting at nodes, mat-forming, glabrous. **Leaves** obovate, succulent, base cuneate, apex rounded to emarginate, dark green; petioles up to 13 mm long. **Inflorescence** terminal and axillary, slender spikes with widely spaced flowers, fertile portion up to 25 mm long in flower, 45 mm in fruit. **Flowering time** Nov.–June. **Fruit** ± 1 mm long. Moist areas, from sea level to Drakensberg in Lesotho, mostly lithophytic; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indigenous Forests (Ngeli and Weza Forests across Amatole Mts to Hogsback S, from Kentani SW to Tsitsikamma).

rotundifolia (L.) Kunth

Herb; stems slender, trailing, not succulent, rooting at nodes. **Leaves** orbicular to broadly obovate, succulent, base rounded to broadly cuneate, apex rounded to emarginate; petioles up to 3 mm long. **Inflorescence** axillary, short and dense, fertile portion up to 6 mm long in flower. **Flowering time** July, Aug. Lithophytic or epiphytic, moist sandstone rocks or rock faces; Indigenous Forests (Oribi Gorge SW, King William's Town to Kei River Mouth and Alexandria to East London).

PIPER L.

Species ± 2 000, cosmopolitan in warmer regions of both hemispheres, only 3 in Africa; often pioneers of disturbed areas such as wood or track edges and landslides; 1 in sthn Afr., LIM, M, S, KZN, WC, EC.

capense L.f.

Herb or soft-wooded shrub, sometimes scrambling, rarely small tree, erect or reclining, 0.5–3.0 m high; stems swollen at nodes. **Leaves** ovate to broadly ovate, palmately 5–7-nerved, base truncate, apex attenuate, glossy green above, paler below; petiolate,

stipules adnate to stem. **Inflorescences** leaf-opposed, solitary, pedunculate, cylindrical spikes. **Flowers** subtended by peltate bracts. **Stamens** 2 or 3; anthers basifixed with thecae usually distinct. **Ovary** sessile, ovoid; styles short; stigmas 2. **Flowering time** Aug.–Mar. **Fruit** compressed-ovoid; pericarp membranous, reddish. Understorey of densely shady, moist forests; Indigenous Forests (distribution disjunct, Tabankulu District S to Port St Johns, Tsitsikamma E to Humansdorp).

BURGER, W.C. 1977. The Piperales and the monocots. *Botanical Review* 43: 345–393.
DINIZ, M.A. 1996. Piperaceae of the *Flora zambesiaca* area. *Kirkia* 16,1: 69–83.
DINIZ, M.A. 1997. Piperaceae. *Flora zambesiaca* 9,2: 24–37.
DÜLL, R. 1973. Die *Peperomia*-Arten Afrikas. *Botanische Jahrbücher* 93,1: 56–129.
IMMELMAN, K.L. 2000. *FSA* contributions 15: Piperaceae. *Bothalia* 30: 25–30.
KILLICK, D.J.B. 1970. *Piper capense. Flowering Plants of Africa* t. 1583.
VAN JAARSVELD, E. 1992. *Peperomia* species of South Africa. *Aloe* 29: 67–69.
VERDCOURT, B. 1996. *Flora of tropical East Africa*. Piperaceae: 1–21.
WRIGHT, C.H. 1912. Piperaceae. *Flora capensis* 5,1: 487–492.

PITTOSPORACEAE

(Order Apiales)

Compiled by C.L. Bredenkamp

PITTOSPORUM Banks ex Sol.

Species ± 150, Macronesian Islands, Africa, Madagascar and Mascarenes, Sri Lanka, Indonesia, the tropical and warm temperate parts of the Asian mainland, as far north as China to Australia, New Zealand, New Guinea, New Caledonia and Polynesia, including Hawaii; 3 (2 introduced) in sthn Afr., LIM, NW, G, M, S, FS, KZN, L, WC, EC.

***crassifolium** A.Cunn.

Cultivated tree, 1–4 m high. **Leaves** coriaceous, obovate, base acute, apex broadly acute to rounded, margins revolute; petioles up to 10 mm long. **Flowers** wine-red. **Fruit** dark brown, larger than that of indigenous species. Cultivated, in gardens; Albany Thicket (Port Elizabeth, Kenton on Sea).

***undulatum** Vent.

Tree or shrub, 3–6 m high. **Leaves** dark green, margins distinctly undulate. **Inflorescences** terminal, umbellate-paniculate, few-flowered, ± 12 mm long. **Flowers** white, larger than that of indigenous species. **Sepals** > 5 mm long, connate in lower $^1/_2$ in a spathe, finally slit on one side, with subulate, hairy lobes bent out. **Flowering time** Nov.? Clayey soil; origin South-West Australia, introduced into British gardens and Canary Islands (from where it was introduced to Paris), declared weed (Category 1); Sub-Escarpment Savanna (King William's Town District).

viridiflorum Sims

Cheesewood; *kasuur* (A); *kgalagangwe* (NS); *umkhwenkwe* (X); *umfusamvu* (Z)

Evergreen, aromatic, woody, resinous tree, 2–10 m high; schizogenous secretory canals present. **Leaves** alternate, ± obovate, entire, glabrous; petiolate; estipulate. **Inflorescences** terminal or axillary, paniculate. **Flowers** cream-coloured, bisexual or unisexual; pentamerous, sweet-scented. **Sepals** free, deciduous. **Petals** ± connate to middle, claws connivent, blades spreading. **Ovary** superior, carpels 2, 1-locular; style, short. **Fruit** a ± globose capsule; valves 2, entire, leathery, brown, splitting through persistent style.

Seeds 4–8 per valve, in 2 rows on each parietal placenta, orange to red, covered by resin. Widespread, absent in drier western parts of EC, woodland, scrub, thicket, forest, riverine fringe; Indigenous Forests, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Eastern Fynbos-Renosterveld, Albany Thicket (Kokstad to Insizwa Mtn and Port Edward southwards, from Queenstown to Port St Johns, Graaff-Reinet to Kentani and from Baviaanskloof to East London).

CUFODONTIS, G. 1952. Revision der afrikanischen Arten von *Pittosporum*. *Feddes Repertorium* 55: 27–113.
CUFODONTIS, G. 1961. Pittosporaceae. *Flora zambesiaca* 1: 298–303.
CUFODONTIS, G. 1966. *Flora of tropical East Africa*. Pittosporaceae: 1–14.
FRIIS, I. 1987. A reconsideration of *Pittosporum* in Africa and Arabia. *Kew Bulletin* 42: 319–335.
SONDER, O.W. 1860. Pittosporeae. *Flora capensis* 1: 443.

PLANTAGINACEAE

(=ANTIRRHINACEAE, SCROPHULARIACEAE *pro parte*, VERONICACEAE)

(Order Lamiales)

Compiled by C.L. Bredenkamp & N. Madlokazi

1a Hydrophytic herbs:
2a Annual, ± 0.07 m long; flowers whitish ..... **Callitriche**
2b Annual, short-lived perennial or perennial herbs, up to 1.2 m high ..... **Veronica**
1b Terrestrial herbs or shrubs:
3a Leaves mostly in a basal rosette ..... **Plantago**
3b Leaves cauline:
4a Leaves palmately veined, reniform to orbicular ..... ***Cymbalaria**
4b Leaves variously veined, leaf shapes various:
5a Stamens 2, exserted ..... **Veronica**
5a Stamens 4, included:
6a Corolla tube glabrous with conical or cylindrical spur on anterior side at base ..... ***Linaria**
6b Corolla tube villous within, with broad pouch on anterior side of base ..... ***Misopates**

CALLITRICHE L.

Species ± 50, cosmopolitan; 2 in sthn Afr., G, M, KZN, WC, EC.

bolusii Schönland & Pax ex Marloth

Annual herb, hydrophyte, ± 0.07 m long. **Leaves** opposite; blade elliptic or spathulate, 6–10 × 1.5–3.5 mm, secondary veins originate from near base of blade, margins entire; petioles up to ± 2 mm long, 1-veined. **Flowers** whitish. **Style** ± 0.1 mm long. **Stamens**: filaments up to ± 0.2 mm long; anthers up to ± 0.10–0.15 mm long. **Fruit** wider than high, up to 0.6–8.0 mm in diam., borne on peduncles 0.1–0.2 mm long; mericarps ± parallel, no wings. Kloofs, indigenous forests along streambanks; Indigenous Forests, Indian Ocean Coastal Belt, Sub-Escarpment Savanna, Albany Thicket (Port St Johns southwards to King William's Town and Grahamstown).

***CYMBALARIA** Hill

Coliseum ivy, ivy-leaved toadflax

Species 9, mainly Western Europe, Mediterranean to Iran; 1 in sthn Afr., cultivated, now a garden escape in G, W, EC.

muralis P.Gaertn., B.Mey. & Scherb. subsp. **muralis**

Coliseum ivy, ivy-leaf toadflax, mother-of-a-thousand

Short-lived, perennial, trailing herb, stems up to 600 mm long. **Leaves** alternate, kidney-shaped to almost round with 5–9 rounded to deltate lobes. **Flowers** single in leaf axils, pedicellate, stalks lengthening in fruit. **Calyx** deeply divided, 5 lobes ± linear, acute. **Corolla** tubular, bilabiate with large palate on lower lip hiding mouth; lobes lilac to violet with yellow palate, or sometimes lobes white with yellow or all white; spur short, up to 3.5 mm long. **Flowering time** Sept.–Mar. Dry to damp soil in gardens, on pavements and perhaps rubbish dumps; Sub-Escarpment Savanna, Albany Thicket (Grahamstown and Port Alfred districts).

*LINARIA Mill

Species ± 150, temperate Europe, Asia (not SE) and North Africa, widely naturalised in temperate regions; ± 3 in sthn Afr., as garden escapes, perhaps naturalised, or becoming so, G, M, FS, KZN, WC, EC.

genistifolia (L.) Mill.

Perennial herb, up to 1 m high; stems erect, often from basal runners, branched in upper parts, leafy, glabrous. **Leaves** alternate, ± erect, stiff, ovate to linear-lanceolate, up to 60 × 15 mm, acute, sessile, entire, often bluish green, glabrous. **Flowers** single in axillary terminal, bracteate, glabrous racemes up to 200 mm long; bright lemon-yellow; pedicellate. **Calyx** up to 12 mm long; lobes ± equal. **Corolla** up to 22 mm long; tube up to 6 mm wide at mouth, bilabiate. **Spur** conical, 4–25 mm long, acute. **Flowering time** Mar. **Seeds** flattened tetrahedral, rugulose, mainly black. Grassy fynbos; Eastern Fynbos-Renosterveld (Port Elizabeth, Upper Bakens River Valley).

vulgaris Mill.

Common linaria, butter and eggs

Perennial herb, up to 0.9 m high; stems ± erect, simple or branched at base or above in racemes, glabrous but sometimes glandular-pubescent in inflorescence. **Leaves** mostly alternate, crowded, up to 60 × 5(–15) mm, ± linear or narrowly elliptical or ± oblanceolate, acute. **Flowers** pale to strong yellow, palate usually orange, pedicellate, bilabiate, in crowded, bracteate racemes of up to 30 flowers. **Calyx** up to 6 mm long. **Corolla** up to 33 mm long; tube up to 10 mm wide at mouth. **Spur** conical, 10–13 mm long, acute. **Flowering time** Dec. **Seeds** ± spherical, black, tuberculate. Old cultivated patches, garden escape; Drakensberg Grassland (Barkly East and Cathcart, Happy Valley).

*MISOPATES Raf.

Species 7, Atlantic Islands, Haiti, North West India and Australia; from Mediterranean to Ethiopia and tropical Africa; 1 in sthn Afr., introduced from southern Europe and northern Africa, sporadic weed of cultivation, KZN, WC, EC.

orontium (L.) Raf.

Weasel's snout

Annual herb, up to 0.6 m high; stems erect or ascending, mostly unbranched. **Leaves** up to 30 × 3 mm, linear to lanceolate or elliptic, ± sessile, entire. **Flowers** in a loose raceme or lower ones single and axillary. **Calyx** 5-lobed; lobes narrowly linear, of unequal length, longest equal to or overtopping corolla tube. **Corolla** 7–9 mm long, bilabiate; tube

± cylindrical, mouth wide but not gaping; pale or reddish pink to mauve with darker veins, throat with long yellow hairs. **Flowering time** Apr., Sept. **Fruit** an ovoid capsule, opening with 2 terminal pores. Bare ground or forest margins; Sub-Escarpment Savanna, Indigenous Forests (Alice and Tsitsikamma, Coldstream).

PLANTAGO L.

Plantain

Species 265, cosmopolitan, mainly in temperate regions; ± 14 in sthn Afr., N, B, LIM, NW, G, M, FS, KZN, L, NC, WC, EC.

1a Leaves petiolate or at least narrowed towards base
2a Leaves broad, up to 4× as long as wide

major L.

Broad-leaved plantain; *platvoet* (A); *bolila* (SS); *indlebe-kathekwana enkulu* (Z)

Perennial herb, 0.10–0.45 m high. **Leaves** in a basal rosette, elliptical, ovate to obovate, up to 400 × 125 mm, glabrous; petioles flattened, up to 200 mm long. **Inflorescences** in spikes up to 135 mm long; many scapes per rosette, up to 300 mm long; bracts usually glabrous to pubescent, apex acute. **Calyx lobes** elliptical, ± 2 × 1 mm, winged, acute. **Corolla** lobes deltoid, ± 1.2 × 0.7 mm, acute. **Flowering time** Sept.–Mar. **Fruit** an ellipsoid capsule, ± 3 × 2 mm. **Seeds** rounded-tetrahedral, 15–25 per capsule, black to dark brown, 1.2 × 0.9 mm, hilum scar at apex small. River mouths, karoo; Upper Karoo, Indian Ocean Coastal Belt, Albany Thicket (Albert District S, Middelburg and Port St Johns, Port Alfred and East London).

longissima Decne.

Perennial herb, 0.25–1.20 m high. **Leaves** cauline, with woolly bases, elliptical, ovate or obovate, 725 × 150 mm, glabrous; petioles flattened, up to 400 mm long. **Inflorescences** in spikes up to 0.50 mm long; one scape per rosette, up to 1.12 mm long; bracts glabrous, apex acute. **Calyx lobes** elliptical, ± 2.5 × 1.0 mm, winged acute. **Corolla** lobes deltoid, ± 2.0 × 1.2 mm, acute. **Flowering time** Oct.–Feb. **Fruit** an ellipsoid capsule, ± 3.0 × 1.5 mm. **Seeds** rounded-tetrahedral, 2–4 per capsule, black to dark brown, 2 × 0.8 mm, hilum scar at apex small. Grassland and streambanks; Indigenous Forests, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Albany Thicket (Kokstad District southwards, from Baziya to Umtentu River, Hogsback to King William's Town and to East London).

2b Leaves narrow, > 4× as long as wide
3a Leaves glabrous

lanceolata L.

Ribwort plantain; *smalbaarplantago* (A); *bolila-nyana* (SS); *indlebe-kathekwana encane* (Z)

Perennial herb, 0.02–0.80 m high. **Leaves** in a basal rosette, linear to narrowly lanceolate or oblanceolate, up to 370 × 35 mm, glabrous; petioles up to 125 mm long. **Inflorescences**: scapes many per rosette, up to 700 mm long; bracts glabrescent, apex subobtuse. **Calyx lobes** elliptic, ± 2.5 × 1.3 mm, winged, obtuse. **Corolla** lobes deltoid, ± 2.0 × 1.2 mm, acute. **Flowering time** all year. **Fruit** an ellipsoid capsule, ± 3.5 × 1.5 mm. **Seeds** boat-shaped, up to 4 per capsule, dark brown, 2.8 × 1.6 mm, hilum scar in a ventral depression almost along as seed. Karoo, grassland, thicket, mountain slopes

and river margins; Upper Karoo, Drakensberg Grassland, Albany Thicket (Aliwal North E to Jamestown southwards, from Middelburg to Elliot, Mountain Zebra National Park to Komga and Willowmore District to East London).

3b Leaves hairy
4a Leaves densely shaggy

*virginica L.

Perennial herb, 0.25–0.55 m high. **Leaves** in a basal rosette, obovate or narrowly spathulate, 220 × 40 mm, densely villous; petioles flattened, up to 40 mm long. **Inflorescences** in spikes up to 200 mm long; scapes few per rosette, up to 170–360 mm long; bracts glabrous, apex acute. **Calyx** lobes elliptical, ± 2 × 1 mm, subacute. **Corolla** lobes broadly deltoid, ± 2.5 × 1.3 mm, acute. **Flowering time** all year. **Fruit** an ellipsoid capsule, ± 3.5 × 2 mm. **Seeds** narrowly tetrahedral, 2–4 per capsule, greenish brown, 1.9 × 1 mm, hilum scar at apex small. Widespread weed from North America; recently burned grassland, open woodland; Mesic Highveld Grassland, Sub-Escarpment Grassland, Albany Thicket (Lady Grey, Maclear and Grahamstown).

4b Leaves with scattered hairs

*myosuros Lam.

Annual or perennial herb, 0.08–0.25 m high. **Leaves** in a basal rosette, linear to narrowly lanceolate to oblanceolate, up to 120 × 12.5 mm, glabrous, rarely pubescent; petioles flattened, up to 100 mm long. **Inflorescences** in spikes up to 66 mm long; scapes few per rosette, up to 180 mm long; bracts densely pilose, apex acute. **Calyx lobes** narrowly elliptic, ± 2.5 × 1.0 mm, not winged, acute. **Corolla** lobes narrowly deltoid, ± 2.5 × 1.0 mm, acute. **Flowering time** Jan. **Fruit** an ellipsoid capsule, ± 3 × 1.5 mm. **Seeds** narrowly tetrahedral, 2–4 per capsule, pale yellowish brown, 1.6 × 1 mm, hilum scar at apex small. Weed introduced from South America; Albany Thicket (Peddie).

1b Leaves amplexicaul, not narrowing towards base
5a Leaves distinctly cauline

crassifolia Forssk.

Fleshy plantain

Perennial dwarf shrub or herb, 0.09–0.40 m high. **Leaves** linear to narrowly lanceolate, up to 260 × 10 mm, pubescent. **Inflorescences** in spikes up to 75 mm long; scapes up to 300 mm long; bracts short, inconspicuous, not projecting beyond flowers, apex subacute. **Calyx lobes** elliptical, ± 2.5 × 1.5 mm, narrowly winged, subacute. **Corolla** lobes deltoid, ± 1.5 × 1 mm, subacute. **Flowering time** all year. **Fruit** an ellipsoid capsule, ± 3 × 1.5 mm. **Seeds** boat-shaped, up to 4 per capsule, brown, 2.3 × 1.2 mm, hilum scar at centre. River mouths, riverbanks, indigenous forests and seashore; Indigenous Forests, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Alice and Stutterheim E to Nahoon River near East London, southwards to Port Elizabeth and Alexandria Districts and to Humansdorp).

5b Leaves in basal rosette

remota Lam.

Perennial herb, 0.2–0.5 m high. **Leaves** in a basal rosette, linear to lanceolate or oblanceolate, up to 210 × 9 mm, glabrous, amplexicaul. **Inflorescences** in spikes up to 125 mm long; scapes few per rosette, up to 400 mm long; bracts glabrous, apex acute to acuminate. **Calyx lobes** narrowly deltoid, ± 3 × 1 mm, narrowly winged, acute. **Corolla** lobes

deltoid, ± 1.4 × 0.8 mm, acute. **Flowering time** all year. **Fruit** an ellipsoid capsule, ± 2 × 1 mm. **Seeds** boat-shaped, 2–4 per capsule, black to dark brown, 3 × 1.9 mm, hilum scar in ventral depression almost as long as seed. Mountain slopes; Sub-Escarpment Savanna, Albany Thicket (Grahamstown).

*rhodosperma Decne.

Annual herb, 0.06–0.50 m high. **Leaves** in a basal rosette, linear, 120 × 8 mm, densely villous, amplexicaul. **Inflorescences** in spikes up to 180 mm long; scapes many per rosette, up to 300 mm long; bracts villous, apex acute. **Calyx** lobes narrowly elliptic, ± 2 × 1 mm, subacute. **Corolla** lobes broadly deltoid, ± 2 × 1.7 mm, acute. **Flowering time** Dec. **Fruit** an ellipsoid capsule, ± 3 × 2 mm. **Seeds** boat-shaped, 2–4 per capsule, greenish brown, 1.9 × 1 mm, hilum scar in ventral depression almost as long as seed. Origin North America; Indigenous Forests (Ngangelizwe District).

coronopus L.

Buck's-horn plantain

Annual herb, 0.07–0.35 m high. **Leaves** in basal rosette, linear-pinnatifid, up to 200 × 5 mm, pubescent. **Inflorescences**: spikes erect, 20–120 mm long, apex acute; scapes many per rosette, up to 320 mm long. **Calyx lobes** narrowly elliptic, ± 2 × 1 mm, acute. **Corolla** lobes deltoid, ± 1 × 0.7 mm, subacute. **Flowering time** Sept.–Dec. **Fruit** an ellipsoid capsule, ± 2.5 × 2 mm. **Seeds** rounded-tetrahedral, up to 4 per capsule, greenish brown, 1.3 × 0.7 mm, hilum scar at apex, small. Grassland; Drakensberg Grassland, Sub-Escarpment Savanna (near Komga).

laxiflora Decne.

Annual? herb, 0.32–0.95 m high. **Leaves** in basal rosette, narrowly lanceolate, up to 150 × 45 mm, coarsely dentate, glabrescent; petioles flattened. **Inflorescences**: spikes 120–300 mm long; scapes few per rosette, up to 200–650 mm long; bracts slightly villous, acute. **Calyx lobes** elliptic, ± 3 mm long, not winged, acute. **Corolla** lobes rotund or ovate, ± 1.4 mm long, acute. **Fruit** an ellipsoid capsule. **Seeds** boat-shaped, dark brown to black, up to 3 mm long, hilum scar in a long ventral depression.

Pilger (1937) states that this species occurs in the EC, but no specimen referable to this species was seen.

VERONICA L.

Speedwell, bird's-eye, brooklime

Species ± 450 (including several genera, trees, shrubs and herbs), mostly north and south temperate, few on tropical mountains; 9 naturalised (1 possibly indigenous) in sthn Afr., sporadic garden escapes or accidentally introduced weeds, widespread in wet areas, but not B.

anagallis-aquatica L.

Blue water-speedwell

Annual or short-lived perennial, hydrophytic herb, up to 1.2 m high; stems creeping, rooting at basal nodes, then abruptly erect, hollow, branched at base or above. **Leaves** up to 100 × 20 mm, opposite, lower ones ovate or lanceolate-oblong, obtuse, petiolate, ± entire or serrulate; upper ones sessile, somewhat clasping. **Flowers** small, blue, mauve or purple, rarely pink, pedicellate, many in axillary racemes up to 100 mm long. **Calyx**: tube short, 4-lobed. **Corolla**: tube short, 4-lobed, lower lobe shorter than others. **Flower-**

ing time Oct.–Feb. **Fruit** a 2-celled, ± globose capsule. Damp to wet places or in water, also dry riverbeds; Upper Karoo, Drakensberg Grassland, Sub-Escarpment Grassland, Dry Highveld Grassland, Sub-Escarpment Savanna, Albany Thicket (Oviston E to Kokstad S, from Middelburg to Queenstown, Mountain Zebra National Park near Cradock to Kentani and to Baviaanskloof).

*beccabunga L.

Perennial, glabrous herb, hydrophyte (helophyte); stems decumbent or ascending, often rooting at basal nodes, fleshy. **Leaves** up to 40 mm long, round, widely ovate or oblong, obtuse, petiolate, ± entire to somewhat crenate or serrate, thick. **Flowers** in opposite, axillary racemes, much longer than leaves at their base. **Calyx**: lobes 4, oblong-lanceolate, acute, ± bent down in fruit. **Corolla**: tube 5–7 mm long, but much wider. **Fruit** a subspherical capsule, breaking into 4 valves. Probably a garden escape, sometimes used as an aquarium plant, in wet areas, sometimes submerged; Upper Karoo, Albany Thicket (near Graaff-Reinet).

*hederifolia L.

Large-leaved speedwell

Annual herb, stems ± procumbent, up to 600 mm long, pubescent. **Leaves** mostly alternate, opposite at base; petiolate, up to 15 mm long, ± circular in outline, 3–7-lobed, terminal lobe the largest. **Flowers** blue or mauve, single in leaf axils; pedicels not or somewhat longer than leaves. **Calyx**: lobes cordate-ovate, ciliate. **Corolla** up to 9 mm in diam. **Fruit** a ± globose capsule, ± 4 × 4 mm, lightly 4-lobed, glabrous. Garden escape or weed, from Europe; habitat?; Sub-Escarpment Savanna (near Komga).

*persica Desf. ex Poir.

Annual herb, decumbent, procumbent or suberect, up to 300 mm high or 600 mm long; stems slender, terete; sparsely pubescent. **Leaves** mostly alternate, opposite only at base; petiolate, ovate to rotund, up to 20 × 20 mm, margins crenate to dentate. **Flowers** single, axillary; pedicels up to 35 mm long, longer in fruit. **Calyx** 4-lobed, spreading, persistent. **Corolla**: tube short, 4-lobed, lobes spreading, light blue, sometimes with dark veins, ± 10 mm in diam. **Stamens** 2. **Flowering time** Aug.–Jan. **Fruit** a laterally flattened capsule, obcordate or kidney-shaped. Grassland, roadsides, old gardens and cultivated areas; Upper Karoo, Dry Highveld Grassland, Rainshadow Valley Karoo, Albany Thicket (Aliwal North to York in Transkei and S to Middelburg, from Graaff-Reinet to Kentani and from Willowmore to Uitenhage and Trappes Valley).

ALBACH, D.C., MEUDT, H.M. & OXELMAN, B. 2005. Piecing together the 'new' Plantaginaceae. *American Journal of Botany* 92: 297–315.
COOKE, T. 1910. Plantagineae. *Flora capensis* 5,1: 387–392.
FISCHER, M.A. 1987. On the origin of *Veronica persica* (Scrophulariaceae) – a contribution to the history of a neophytic weed. *Plant Systematics and Evolution* 155: 105–132.
GLEN, H.F. 1998. FSA contributions 12: Plantaginaceae. *Bothalia* 28: 151–157.
LEHMANN, G. 1988. Plantaginaceae. *Flora zambesiaca* 9,1: 9–12.
PILGER, R. 1937. Plantaginaceae. *Das Pflanzenreich*, Heft 102: 1–466.
VERDCOURT, B. 1971. *Flora of tropical East Africa.* Plantaginaceae: 1–7.
WALTERS, S.M. & WEBB, D.A. 1972. *Veronica*. D.A. Webb, Scrophulariaceae. In T.G. Tutin, V.H. Heywood, N.A. Burges, D.M. Moore, D.H. Valentine, S.M. Walters & D.A. Webb, *Flora europaea* 3: 242–250. Cambridge University Press, Cambridge.

PLUMBAGINACEAE

(Order Caryophyllales)

Compiled by C.L. Bredenkamp

Styles united throughout their length, except for the fairly long stigmas; petals ± connate ..... **Plumbago**
Styles free from base; petals free or connate at base only ..... **Limonium**

LIMONIUM Mill.

Species ± 350; maritime and arid regions of northern hemisphere, Africa and Australia, mainly in the Mediterranean, especially in coastal habitats, several species are valuable ornamentals; 11 in sthn Afr., N, KZN, NC, WC, EC.

1a Stems winged

*sinuatum (L.) Mill.

Statice; *papierblommetjies* (A)

Hairy, perennial shrublet, up to 0.45 m high; stems winged. **Flowering time** summer? Origin Mediterranean region, probably a garden escape; Lower Karoo, Eastern Fynbos-Renosterveld, Rainshadow Valley Karoo (Rietkuil and Aberdeen S to Willowmore District).

1b Stems not winged
2a Leaves obovate-oblong or oblanceolate

scabrum (Thunb.) Kuntze

Sea lavender

Rough scurfy, tufted dwarf shrub, 0.15–0.30 m high. **Leaves** in basal rosettes. **Inflorescence** a dense corymb, freely branched, spreading, lower branchlets sometimes sterile; spikelets mainly 2-flowered; bracts 4–5 mm long, enveloping calyx; rachis and branchlets rough with pitted asperities. **Calyx** 7–8 mm long; limb hyaline, 5-lobed. **Petals** 5, mauve, longer than calyx, linear-oblanceolate. **Ovary** 5-angled, with 5 free styles; stigmas cylindrically filiform. **Flowering time** Oct.–May. **Fruit** a capsule. **Seed** solitary. Coastal dunes, estuaries, mangrove fringes; Indian Ocean Coastal Belt, Albany Thicket, Eastern Fynbos-Renosterveld (Kentani SW to Port Elizabeth, East London and to Nature's Valley).

2b Leaves spathulate, linear, acute or subulate

dregeanum (C.Presl) Kuntze

Tufted dwarf shrub, 0.18–0.30 m high, becoming woody; bases of old scapes subpersistent. **Leaves** in basal rosettes, linear-spathulate, 10–40 mm long. **Inflorescence** a laxly branched corymb, spikelets 3–8-flowered; bracts with membranous margins but not becoming white-membranous throughout with age, sheathing, acute or obtuse; branchlets only slightly tuberculate. **Flowers** with persistent pedicels. **Calyx** 4 mm long, sparsely hairy on tube between ribs; limb white, obtusely 5-lobed. **Petals** 5, lilac to pale pink, longer than calyx, oblong-spathulate. **Ovary** 5-angled; 5 free styles, bent down in bud, later exserted. **Flowering time** Aug.–Dec. Arid and semi-arid regions, calcrete soils, saltpans; Upper Karoo, Albany Thicket, Eastern Fynbos-Renosterveld (Middelburg, Uitenhage, Port Elizabeth).

linifolium (L.f.) Kuntze

Upright, tufted shrublet, 0.03–0.30 m high. **Leaves** stem clasping at base, 20–40 mm long, linear or narrowly spathulate, often rotted away (constant submergence). **Inflo-**

rescence a freely, intricately branched or sparsely branched corymb with few sterile branches, smooth or very lightly scabrid, spikelets 2- or 3-flowered; bracts with membranous margins, enveloping flowers in young stage, obtuse. **Calyx** 6–7 mm long, sparsely hairy on lower $^1/_2$; limb white, with 5 ovate or lanceolate lobes 1 mm long. **Petals** 5, longer than calyx, spathulate, 2-lobed at apex. **Ovary** oblong, 5-angled in upper $^1/_2$; styles 5, filiform; stigmas minute, capitate. **Flowering time** Oct.–Mar. Salt or brak pans or estuaries; Indian Ocean Coastal Belt, Albany Thicket, Sub-Escarpment Savanna (Kei River Mouth SW, along coast, to East London, Grahamstown and Swartkops River).

PLUMBAGO L.

Species ± 24, in warmer regions of both hemispheres; 5 in sthn Afr., widespread, commonly cultivated.

auriculata Lam.

Cape leadwort, plumbago; *syselbos* (A); *umabophe* (X); *uMasweliswe*li (Z)

Shrub, 0.3–1.4 m high; suckering. **Leaves** alternate, oblong or oblong-spathulate, narrowed at each end, apex obtuse to subacute, lower surface sometimes lepidote; petioles amplexicaul, auriculate at base. **Inflorescences** terminal spikes, up to 100 mm long; bracteoles up to 7 mm long. **Calyx** 5-lobed, tubular, up to 13 mm long, puberulous with gland-tipped setae in upper $^2/_3$. **Corolla** pale blue; funnel-shaped, with 5 obovate, spreading lobes. **Stamens** reaching mouth of tube; anthers blue. **Ovary** ± conical; style terminal, filiform, hairy, 5-branched, stigmatic along inner surfaces. **Flowering time** July–May. **Fruit** a pentagonal, turbinate capsule. Stony, rocky soil in closed woodland, shrubland and thicket; Sub-Escarpment Savanna, Sub-Escarpment Grassland, Albany Thicket, Eastern Fynbos-Renosterveld (Umtamvuna River southwards through Queenstown and Komga to Baviaanskloof, Grahamstown and East London).

DYER, R.A. 1961. Plumbaginaceae. *Limonium*. *Bothalia* 7: 488–491.
DYER, R.A. 1963. Plumbaginaceae. *Flora of southern Africa* 26: 15–31.
KUBITZKI, K. 1993. Plumbaginaceae. In K. Kubitzki, J.G. Rohwer & V. Bittrich, *The families and genera of vascular plants — dicotyledons* 2. Springer-Verlag, Berlin.
LINCZEVSKI, I.A. 1979. Notulae de Limoniaceis. *Novosti Sistematiki Vysshikh Rasttenij* 16: 166–168.
LLEDÓ, M.D., CRESPO, M.B., CAMERON, K.M., FAY, M.F. & CHASE, M.W. 1998. Systematics of Plumbaginaceae based on cladistic analysis of *rbc*L sequence data. *Systematic Botany* 23: 21–29.
LLEDÓ, M.D., KARIS, P.O., CRESPO, M.B., FAY, M.F. & CHASE, M.W. 2001. Phylogenetic position and taxonomic status of the genus *Aegialitis* and subfamilies Staticoideae and Plumbaginoideae (Plumbaginaceae): Evidence from plastid DNA sequences and morphology. *Plant Systematics and Evolution* 229: 107–124.
LLEDÓ, M.D., CRESPO, M.B., FAY, M.F. & CHASE, M.W. 2005. Molecular phylogenetics of *Limonium* and related genera (Plumbaginaceae): Biogeographical and systematic implications. *American Journal of Botany* 92: 1189–1198.
WRIGHT, C.H. 1906. Plumbaginaceae. *Flora capensis* 4,1: 418–426.

PODOSTEMACEAE

(Order Malpighiales)

Compiled by Z.L. Magwaza

Spathella absent; perianth equally 3-partite, fused below; plants moss-like ..... **Tristicha**
Spathella present, enveloping bud, splitting irregularly, persistent; perianth consisting of 2 minute, subulate segments or absent..... **Sphaerothylax**

SPHAEROTHYLAX Bisch.

Species 2 or perhaps more, Madagascar and tropical Africa; 1 in sthn Afr., along the eastern escarpment from M to EC.

algiformis Bisch. ex C.Krauss

Perennial hydrophyte, 30–90 mm high; at first forming green or reddish thalloid body, later erect; stems absent, very short and hardly emerging from thalloid base, when present stems dichotomously branched, woody, ± leafless to densely leafy. **Leaves** filiform, up to 70 mm long, simple or forked. **Spathellas** spherical to obovoid, clustered in leaf axils, each subtended by 2 bracts, splitting irregularly at apex to form a wide-mouthed, funnel-shaped cup. **Flowers** single, borne on thalloid body or in fascicles in axils of leaves or bracts, becoming erect at anthesis. **Stamens** 2; filaments fused at apex; pollen 2-celled. **Ovary** ovoid, sessile with many ovules. **Flowering time** June–Oct. **Fruit** an ovoid capsule, 8–12-ribbed. Commonly found forming mats on rocks in swiftly flowing water; Sub-Escarpment Grassland, Sub-Escarpment Savanna (Matatiele to Mthatha).

TRISTICHA Thouars

Species 2, 1 in Australia, the other in tropical America, Africa and Mascarene Islands; 1 in sthn Afr., N, M, KZN, EC.

trifaria (Bory ex Willd.) Spreng.

Perennial, moss-like hydrophyte, 8–170 mm high; thalloid body narrowly ribbon-like, branched, bearing abbreviated flowering shoots and long leafy stem. **Leaves** becoming closely imbricate, tristichous, entire or divided, sessile, apex obtuse to rounded; main vein ± visible. **Bracts** ovate to narrowly lanceolate, leafy, longer and thinner in texture than leaves. **Flowers** solitary or in groups, each subtended by 2 bracts. **Tepals** 3, scarious, joined for ± $^1/_2$ their length. **Stamen** 1 or rarely 2; filament slender; anther introrse, oblong. **Ovary** sessile, ovoid to ellipsoid; styles 3, filiform. **Flowering time** June–Oct. **Fruit** a 9-ribbed capsule, dehiscing into 3 equal valves. Moss-like, forming low reddish brown mats, attached to rocks at water level in swift-flowing water or in continuous water spray; Indian Ocean Coastal Belt, Sub-Escarpment Savanna, Sub-Escarpment Grassland, Drakensberg Grassland (Ntafufu River to Alice and Cathcart).

COOK, C.D.K. 1990. *Aquatic plant book*. SPB Academic Publishing, The Hague.
CUSSET, C. 1997. Podostemaceae. *Flora zambesiaca* 9,2: 1–10.
HILL, A.W. 1912. Podostemaceae. *Flora capensis* 5,1: 482–484.
OBERMEYER, A.A. 1970. Podostemaceae. *Flora of southern Africa* 13: 205–211.
PHILBRICK, C.T. & NOVELO A.R. 1995. New world Podostemaceae: Ecological and evolutionary enigmas. *Brittonia* 47,2: 210–222.
TAYLOR, G. 1953. Notes on the Podostemaceae for the revision of the Flora of West Tropical Africa. *Bulletin of the British Museum (Natural History), Botany* 1,3: 53–79.

POLYGALACEAE

(Order Fabales)

Compiled by M.S. Mothogoane

Sepals unequal, laterals larger than others, often coloured and wing-like ..... **Polygala**
Sepals subequal..... **Muraltia**

MURALTIA DC.

(= *MUNDIA* Kunth, *NYLANDTIA* Dumort)

Species 117, Africa, 1 from Tanzania southwards; ±122 in sthn Afr., KZN, NC, WC, EC.

1a Leaves solitary; flowers on distinct pedicels; capsules obtuse or shortly toothed (subgenus Psiloclada*)*
2a Lateral branches not modified into spines

carnosa E.Mey. ex Harv.

Perennial, rounded, dwarf shrub, ± 0.3 m high. **Leaves** shortly petiolate, oblong, somewhat crowded near branch tips, fleshy, mucronate. **Flowers** 1 or 2 in axils, ± 4.5 mm long, pink; pedicels very short, cernuous. **Sepals** elliptical, ciliate. **Side petals** linear, ± as long as carina. **Flowering time** Oct., Nov. Rocky slopes, fynbos; Rainshadow Valley Karoo (WC, Swartberg Mts, northern side of Kolberg).

flanaganii Bolus

Perennial shrub, branches somewhat angled, minutely scabrous, 0.2–1.0 m high. **Leaves** acicular-linear, very shortly petiolate, obtuse or apiculate, usually somewhat revolute, rarely quite flat, glabrous. **Bracts** obtuse. **Flowers** pink, usually solitary; pedicels shorter than flowers. **Sepals** oblong, ciliate or non-ciliate. **Side petals** oblong, ± as long as carina. **Flowering time** Oct.–Dec. **Fruit** a glabrous, oblong capsule. **Seed** oblong, sparsely pubescent. Grassland; Drakensberg Grassland, Sub-Escarpment Grassland (Underberg to Matatiele and Kokstad Districts and S to Maclear).

juniperifolia (Poir.) DC.

Perennial, twiggy, dwarf shrub, 0.3–0.6 m high. **Leaves** sessile, rigid, needle-like, longer than internodes, spine-tipped. **Flowers** 1 or 2 in axils, pink or white; pedicels shorter than flowers. **Sepals** same colour as petals, broadly oblong. **Side petals** widest below middle, slightly longer than carina. **Flowering time** May–Oct. **Fruit** a glabrous capsule, with 4 short, acute teeth. **Seed** oblong. Rocky slopes, alt. 600–1 400 m; Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld, Indigenous Forests, Albany Thicket (Antoniesberg E to Willowmore, Baviaanskloof, Uitenhage and to Humansdorp).

rara Levyns

Perennial dwarf shrub, ± 0.3 m high, decumbent, glabrous; stems sharply angled. **Leaves** flat, sessile or nearly so, lanceolate, narrow cartilaginous margins, mucronate. **Bracts** obtuse, slightly hooded, ciliate. **Flowers** solitary in leaf axils, pink; pedicels ± as long as flower. **Sepals** oblong, ciliate in upper $^1/_2$. **Side petals** linear, slightly narrowed near middle, a little longer than carina. **Flowering time** Nov.? Sandstone, closed woodland; Indigenous Forests, Drakensberg Grassland (Stutterheim, Keiskammahoek District).

scoparia (Eckl. & Zeyh.) Levyns

[= *Nylandtia scoparia* (Eckl. & Zeyh.) Goldblatt & J.C.Manning]

Shrub, 0.1–4.0 m high, with branches prominently elongated, slender, inconspicuously spine-tipped, lateral branches not modified into spines. **Bark** green and deeply furrowed. **Leaves** alternate, small, glabrous, oblong, linear or elliptic, often absent. **Flowers** soli-

tary in upper axils, pinkish. **Flowering time** July, Aug. **Fruit** red and fleshy. Mountain slopes, rocky sandstone soil; Rainshadow Valley Karoo (Prince Albert District, Swartberg, Blesberg lower N slopes).

2b Lateral branches modified into spines

spinosa (L.) F.Forest & J.C.Manning
[= *Nylandtia spinosa* (L.) Dumort.]

Bokbessie, *duinebessie*, *skilpadbessie* (A)

Shrub or dwarf shrub, 0.1–1.5 m high, with branches short or slightly elongated, robust, conspicuously spine-tipped, lateral branches modified into spines. **Bark** greyish green to rusty brown and shallowly furrowed. **Leaves** alternate, small, glabrous, oblong, linear or elliptical, spine-tipped and in variable abundance. **Flowers** solitary in axils, purplish or pink and white. **Flowering time** June, July. **Fruit** red or orange and fleshy to yellow and leathery. Coastal hills and lower slopes, gravel, sandy soil, well drained; Eastern Fynbos-Renosterveld, Albany Thicket (Willowmore E to Jeffreys Bay, Grahamstown District and East London).

1b Leaves fascicled (sometimes solitary); flowers sessile on short pedicels (subgenus Muraltia*)*
3a Calyx small, less than half total length of corolla (crest excluded)
4a Capsules without horns or teeth at apex

squarrosa (L.f.) DC.

Perennial, erect or spreading, prickly, branched shrub, tomentose on young parts, 0.1–1.5 m high. **Leaves** in crowded fascicles, hairy when young, ovate to subulate, spine-tipped. **Flowers** axillary, pale to deep pink, sessile. **Sepals** glabrous, ciliate, outer pair ovate, concave, inner pair oblong. **Side petals** linear, ± as long as carina. **Flowering time** Oct.–May. **Fruit** a capsule without horns, obcordate. **Seed** broadly ellipsoidal. Sandstone slopes, grassland; Eastern Fynbos-Renosterveld, Indigenous Forests, Albany Thicket, Sub-Escarpment Savanna (Willowmore E to Port Elizabeth and Grahamstown, and to Humansdorp).

4b Capsules horned, in some cases horns reduced to small teeth
5a Side petals shorter than carina

alopecuroides (L.) DC.

Kleinboeldok (A)

Perennial, pubescent or glabrescent, dwarf shrub, 0.2–1.0 m high. **Leaves** sessile, fascicled, subulate to ovate, usually villous, spine-tipped, straight or up curved apically. **Flowers** pink or almost white, on short pedicels, axillary. **Sepals** glabrous, rarely ciliate, outer pair ovate, concave, inner pair elliptical. **Side petals** lanceolate, ± as long as carina. **Flowering time** Oct.–Dec. **Fruit** a capsule, often hispid, with long slender horns. **Seed** broadly ellipsoidal. Sandstone, clay slopes, flats; Sub-Escarpment Grassland, Upper Karoo, Dry Highveld Grassland, Albany Thicket, Drakensberg Grassland, Indigenous Forests, Eastern Fynbos-Renosterveld (Elliot SW, from Graaff-Reinet to Stutterheim, Willowmore to Grahamstown, and to Humansdorp).

alticola Schltr.

Ma Motuang (SS)

Perennial shrub or dwarf shrub, young branches puberulous, becoming glabrous, 0.1–1.5 m high. **Leaves** fasciculate, fascicles usually distinct, rarely crowded and concealing stem. **Bracts** ovate, concave, obtuse, glabrous. **Flowers** pink or white, very shortly

pedicellate. **Sepals** quite glabrous, outer pair ovate, concave, inner pair flat, elliptical. **Side petals** widest below middle, ± as long as carina. **Flowering time** Oct.–Jan. **Fruit** a sparsely hispid capsule, slender horns ± as long as capsule. **Seed** broadly ellipsoidal, sparsely pubescent. Sandstone, grassland, closed shrubland, high altitudes in midlands 1 200–2 130 m; Drakensberg Grassland, Dry Highveld Grassland, Sub-Escarpment Grassland, Albany Thicket, Indigenous Forests, Eastern Fynbos-Renosterveld (Lady Grey to Qacha's Neck S, from Molteno to Cala and Katberg Pass to Stutterheim).

lancifolia Harv.

Purple heath; *umahesaka-onsundu* (Z)

Perennial, dwarf shrub, young stems pubescent or hispid, 0.2–0.4 m high. **Leaves** fasciculate, flat, lanceolate, acute, spine-tipped, glabrous. **Bracts** ovate, slightly concave, obtuse or acute, shortly ciliate near tip. **Flowers** pink, sessile or nearly so. **Sepals** glabrous, ciliate, outer pair lanceolate, concave, inner pair elliptical, flat. **Side petals** linear, slightly shorter than carina. **Flowering time** Sept.–Mar. **Fruit** a shortly hispid capsule, ± as long as wide, with slender horns of ± its own length. **Seed** ellipsoidal with a few minute hairs. Grassland; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests (Kokstad S, Msikaba River Mouth, Port St Johns, Port Edward, Mkambati Nature Reserve).

saxicola Chodat

Perennial dwarf shrub, young stems hispid, 0.15–0.60 m high. **Leaves** fasciculate, crowded or somewhat distant, glabrous, setose along thickened margins, uncinate; primary leaves ovate to lanceolate and secondary leaves linear to lanceolate. **Bracts** oblong, obtuse, toothed at apex, scarcely concave. **Flowers** almost sessile, pink. **Sepals** glabrous, ciliate, outer pair ovate, concave, inner pair narrowly elliptical. **Side petals** linear, shorter than carina. **Flowering time** Sept.–Mar. **Fruit** a hispid capsule, rather broad. **Seed** almost globose, hispid. Fynbos, forest, karoo, grassland, generally confined to high altitudes 915–2 750 m; Drakensberg Grassland, Upper Karoo, Albany Thicket, Indigenous Forests, Eastern Fynbos-Renosterveld (Ramatseliso to Mount Currie and SW to Kompasberg, from Stutterheim to Pirie Mtn and from Uitenhage to Skoenmakerskop S of Port Elizabeth).

5b Side petals as long as or longer than carina

ericaefolia DC.

Perennial shrub or dwarf shrub, stems pubescent, leafy, 0.3–1.5 m high. **Leaves** fasciculate, crowded or somewhat distant; stiff, straight or reflexed, thick, linear, channelled, spine-tipped. **Bracts** concave, rotundate or broadly ovate, obtuse, ciliate, midrib evident, sometimes mucronate. **Flowers** sessile, pale pink or white. **Sepals** elliptical, ciliate, midrib prominent green, lateral veins evident. **Side petals** widest about fleshy middle, shorter than carina. **Flowering time** July–Oct. **Fruit** a broad capsule, with acute tapering horns, ± as long capsule. **Seed** ellipsoidal, hispid. Fynbos, grassland, forest, karoo; Eastern Fynbos-Renosterveld, Rainshadow Valley Karoo, Indigenous Forests, Albany Thicket (Witteberg Farm 'World's View' E, from Uitenhage to Suurberg, Port Elizabeth to Grahamstown, and to Humansdorp).

heisteria (L.) DC.

Spiny purple gorse; *skilpadbos*, *kastybos* (A)

Perennial, rigid, usually branched shrub, pubescent on young parts, 0.2–2.4 m high. **Leaves** sessile, fascicled, lanceolate-attenuate, channelled, often ciliate, pungent (sharply

spine-tipped). **Flowers** pink, purple or white, side petals sometimes white, on short pedicels, axillary. **Sepals** elliptical, ciliate, inner pair $^1/_2$ as long as side petals. **Side petals** spathulate, much longer than carina. **Flowering time** Oct.–Dec. **Fruit** a capsule, with elongate, slender horns. **Seed** almost globose. Rocky slopes, mainly on sandstone; Eastern Fynbos-Renosterveld, Albany Thicket (Uitenhage to Alexandria).

macroceras DC.

Perennial, spreading, much-branched shrub, 0.15–1.20 m high. **Leaves** sessile, fascicled, somewhat crowded, narrowly elliptic, hooked above and spine-tipped. **Flowers** axillary, sessile, white, sometimes pink. **Sepals** glabrous, acuminate, outer pair ovate, concave, inner pair elliptical, flat, $< {}^1/_2$ length of side petals. **Side petals** linear-lanceolate, longer than carina. **Flowering time** July–Dec. **Fruit** a capsule, slender horns slightly longer than capsule. Dry, rocky slopes, forests, fynbos, grassland, closed woodland; Drakensberg Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Amatole Mts to Kei River Mouth S, from Uitenhage to Port Elizabeth and East London, and to Humansdorp).

3b Calyx at least half length of corolla (crest excluded), often much longer

macrocarpa Eckl. & Zeyh.

Perennial shrub or dwarf shrub, stems rough, rarely villous, 0.4–1.2 m high. **Leaves** fasciculate or solitary, rigid, linear–narrowly elliptical, flat or slightly channelled, spine-tipped. **Bracts** concave, broadly oblong, apiculate, ciliolate. **Flowers** sessile, usually white, rarely pink. **Sepals** elliptical, apiculate, ciliate, midrib prominent, outer pair concave, inner pair almost flat, ± as long as side petals. **Side petals** widest near middle, shorter than carina. **Flowering time** Sept.–July. **Fruit** a broad capsule, tapering horns as long as or shorter than capsule. **Seed** oblong, hispid. Dry koppies and mountains, grassland, fynbos; Upper Karoo, Dry Highveld Grassland, Sub-Escarpment Grassland, Albany Thicket, Eastern Fynbos-Renosterveld (Henning Station, Queenstown and Indwe SW, from Graaff-Reinet to Cradock and Bedford, and to Willowmore).

vulnerans Levyns

Perennial shrub or dwarf shrub, 0.2–0.9 m high. **Leaves** fasciculate, usually with distinct internodes, linear, spine-tipped, minutely ciliolate near base. **Bracts** 1.5–2.0 mm. long, concave, broadly ovate or deltoid, obtuse, or somewhat acute and mucronate, minutely ciliolate, midrib and lateral veins evident. **Flowers** white; carina dark purple, sessile. **Sepals** elliptical, chaff-like, ciliolate, midrib conspicuous, outer pair concave, inner pair almost flat. **Side petals** widest near middle, shorter than carina. **Flowering time** May? **Fruit** a glabrous capsule. **Seed** ellipsoidal, hispid. Confined to dry koppies, alt. 600–1 220 m; Rainshadow Valley Karoo (Willowmore, Gwarriepoort area and Aasvoëlberg).

POLYGALA L.

Butterfly bush; *ertjieblom* (A)

Species ± 600, cosmopolitan in temperate and warm countries, 232 African and Madagascan taxa belong to 2 subgenera: *Chamaebuxus* and *Polygala*; ± 88 in sthn Afr., many in South WC, also N, B, LIM, NW, G, M, S, FS, KZN, L, EC.

1a Anterior sepals united for at least half their length, generally almost to apex

gracilenta Burtt Davy

Tuberous, rhizomatous herb, 0.1–0.3 m high. **Leaves** alternate, rarely opposite. **Inflorescences** terminal and pseudolateral, few-flowered (up to 10) racemes, short (35–50 mm

long). **Floral bud** acute or apiculate at apex. **Flowers** papilionaceous, wings ovate, 7–9 × 4.0–5.5 mm, conspicuously bigger than capsule with venations anastomosing, apiculate at apex; stigma with sterile branch much shorter than receptive one. **Flowering time** Oct.–Feb. Grassland and mountain slopes; Mesic Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Albany Thicket (Lady Grey E to Kokstad S, from Queenstown to Elliot, Mountain Zebra National Park to Katberg and Kentani, and Uitenhage to East London).

producta N.E.Br.

Perennial or annual, dwarf herb, erect, 0.3–1.0 m high. **Leaves** linear to lorate, sparsely minutely hairy. **Inflorescences** lax, up to 30 mm long. **Flowers** pink or purple, papilionaceous, in terminal racemes (generally very elongate), wings rounded at apex, with 3 veins from base, not anastomosing near margins. **Seed** with short hairs, not exceeding base of seed. Closed woodland; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests, Drakensberg Grassland (Mzimkhulu River and Mkambati Nature Reserve, SW to Fort Beaufort and Willowvale District).

uncinata E.Mey. ex Meisn.

Wild violet; *wildeviooltjie* (A)

Tuberous-rhizomatous dwarf shrub, decumbent or erect, 0.1–0.5 m high. **Leaves** alternate, ascending, linear, margins revolute, apex obtuse-apiculate and recurved. **Flowers** in terminal racemes, papilionaceous, wings obtuse or retuse at apex, 4.5–7.5 × 3.0–4.5 mm, multinerved from base, veins anastomosing. **Flowering time** Sept.–Apr. **Fruit** a membranous capsule, compressed. **Seed** with long hairs, amply exceeding base of seed. Sandstone slopes in grassy fynbos; Upper Karoo, Sub-Escarpment Grassland, Dry Highveld Grassland, Eastern Fynbos-Renosterveld, Albany Thicket (Gariep Dam E to Kokstad, Indwe on road to Elliot, from Graaff-Reinet to Somerset East, Uitenhage to Grahamstown, and to Humansdorp).

1b Anterior sepals free, or slightly united at base
2a Seeds without caruncle or with highly reduced caruncle (practically only a membranous appendage); capsule ellipsoid or subglobose, without wings

africana Chodat

Small, annual herb, glabrous stems, 0.07–0.11 m high. **Leaves** up to 5 × 0.5 mm, linear or filiform, with sharp, often uncinate apex. **Flowers** pink, in dense, terminal racemes, glabrous rachis and very small caducous bracts and bracteoles, wing sepals suborbicular, ciliate, upper petal oblong to lanceolate; pedicels very short. **Flowering time** Sept.? **Fruit** a membranous capsule, 1.2 × 1.2 mm. **Seed** with straight or glochidiate hairs (or at least some) or glabrous and always without caruncle. Roadsides; Albany Thicket (Addo to Port Elizabeth).

capillaris E.Mey.

Annual herb, filiform, glabrous, 0.07–0.15 m high. **Leaves** 3–7 × 0.5–1.0 mm, linear to lorate. **Flowers** in elongated, terminal racemes, lax or dense, greenish white or purplish with very short pedicels, glabrous rachis, caducous bracts and bracteoles, wings 1.5–2.0 × 0.7–1.0 mm. **Flowering time** Oct.–Jan. **Seed** 0.75–1.00 mm long, ellipsoid, with minute, white, appressed hairs, without caruncle. Wet area in coastal forest; Sub-

Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests (Uvongo River to Port Edward and Mkambati Nature Reserve).

2b Seeds with conspicuous caruncle; capsule ovoid to ellipsoid, margin ± winged

3a Shrubs or subshrubs; racemes terminal or with additional lateral racemes; caruncle very asymmetric, branch without appendage 3–5× larger than appendage; crests branched at base; upper petals entire and ± symmetrical at apex

ephedroides Burch.

Skaap-ertjie (A)

Perennial dwarf shrub, 0.5–2.0 m high; stems little or very sparsely foliose. **Leaves** linear, 1.0–1.5 mm wide. **Flowers** papilionaceous, bracts and bracteoles up to 1 mm long, crest up to 3 mm long. **Flowering time** July–Apr. **Seed** with rough or hard hairs exceeding base of seed up to 1.5 mm, caruncle quite asymmetrical, with the odd branch double or more the length of the others. Nama Karoo, closed woodland, grassland; Upper Karoo, Dry Highveld Grassland, Albany Thicket, Sub-Escarpment Grassland, Eastern Fynbos-Renosterveld (Gariep Dam to Aliwal North and to Middelburg, from Graaff-Reinet to Somerset East and Suurberg to Kasouga River Mouth).

gymnoclada MacOwan

Annual herb, 0.2–0.5 m high. **Flowers** papilionaceous; pedicels cylindrical, 2.5–3.0 mm long; wings 8 × 5 mm, elliptic, crest slightly fimbriate, not reaching margin of carina, 1.50–1.75 mm long, upper petal asymmetrically emarginate at apex. **Flowering time** Nov.–Mar. **Seed** pubescent, silky hairs, 4 × 1.50–1.75 mm long. Grasslands and closed woodlands; Dry Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Albany Thicket (Aliwal North E to Kokstad S, from Queenstown to Cala, Amatole Mts to Idutywa District and to East London).

hottentotta C.Presl

Small purple broom; *lehlokoa-la tsela* (SS); *umanqandi*, *uzekane* (Z)

Perennial, slender, wiry, pubescent or glabrous shrub, 0.15–0.50 m high. **Leaves** 0.5–2.0(4.0) mm wide. **Flowers** in long, terminal racemes (up to 0.2 m), papilionaceous, dull yellowish white, pale purple or pinkish; pedicels 1–2(3) mm long; bracts 1.0–1.5(3.0) mm long; carina 6 mm long, crest 2.5–3.0 mm long. **Flowering time** Aug.–May. **Fruit** a membranous capsule, obovate elliptic, with very narrowly winged margin, glabrous. **Seed** ellipsoid, with white silky hairs, caruncle oblique, appendages scarcely developed. Grasslands and open woodlands; Drakensberg Grassland, Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Albany Thicket (Naude's Neck to Kokstad S, from Queenstown to Mkambati Nature Reserve, Nico Malan Pass to Komga and to Swartkops Salt Pan).

houtboshiana Chodat

Perennial herb, up to 0.3 m high. **Flowers** papilionaceous; pedicels filiform, 3.5–4.0 mm long; wings 6–7 × 5 mm, obovate; crest much fimbriate and reaching margin of carina, 2 mm long, upper petal entire. **Flowering time** Nov., Dec. **Seed** 2.5–3.0 × 1.50–1.75 mm. Mountain slopes, grassland and woodland; Indian Ocean Coastal Belt, Drakensberg Grassland (Road between Lupatana and Lusikisiki and Amatole Mts, Gaika's Kop area).

leptophylla Burch.
Perennial dwarf shrub, generally crisped-pubescent, ± 0.2 m high. **Flowers** papilionaceous, in terminal racemes (up to 150 mm long); pedicels 1–2 mm long; carina 3 mm long, crest 1.0–2.5 mm long. **Flowering time** Oct.–Apr. Open woodland; Upper Karoo, Dry Highveld Grassland, Albany Thicket (Oviston S, from Kompasberg to Wapadsberg Pass and Graaff-Reinet E to Cradock).

rigens Burch.
Perennial, succulent herb, 0.10–0.15 m high. **Flowers** papilionaceous, subcylindric. **Flowering time** Oct.–Mar. **Seed** single lobe of caruncle exceptionally long, reaching base of seed. Rocky slopes; Lower Karoo, Dry Highveld Grassland (Graaff-Reinet to Cradock).

seminuda Harv.
Perennial, slender, greyish, crisped-pubescent dwarf shrub or herb, 0.15–0.50 m high. **Leaves** narrow, 0.5–1.5 mm wide, linear to linear-lanceolate, mucronate and recurved at apex. **Flowers** white, papilionaceous, in terminal racemes up to 100 mm long, with sparsely pubescent rhachis and caducous bracts and bracteoles; wings 4.5–5.0 × 2–3 mm, obovate-elliptic, with a conspicuous greenish midvein. **Flowering time** Sept.–Apr. **Fruit** a capsule, 4.5–5.0 × 2.5–3.0 mm, narrowly obovate in outline, glabrous, margins narrowly winged. **Seed** cylindrical, with dense, white, silky hairs, caruncular appendages ± 0.5 mm long. Karoo environment; Upper Karoo (Gariep Dam and Bethulie, S to Middelburg District).

virgata Thunb.
Purple broom; *persboom*, *bloukappie* (A); *hlokoa leleue* (SS); *umobopha* (X); *ithethe* (Z)

Perennial, dwarf shrub. **Stems** sparsely foliose or densely pubescent, rarely glabrous, 1.5–3.0 m high. **Leaves** linear or obovate-linear (2–20 mm wide). **Flowers** in terminal racemes on ultimate branchlets, papilionaceous; bracts and bracteoles 2–3 mm long. **Flowering time** Oct.–Feb. **Fruit** a laterally flattened capsule, with acute or narrowly winged margins, which open along top and bottom and expose a hairy seed in each locule. **Seed**: caruncle asymmetric, with odd branch less than double the length of others, silky short hairs never exceeding base of seed for > 1 mm long. Grassland, closed shrubland, forest, closed and open woodland.

Three varieties are recognised:

virgata Thunb. var. **decora** (Sond.) Harv.
Eastern and coastal parts of EC; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indigenous Forests, Indian Ocean Coastal Belt, Eastern Fynbos-Renosterveld, Albany Thicket (Griqualand East, Engcobo Mtn to Port St Johns, Stutterheim to Kentani, Uitenhage and East London).

virgata Thunb. var. **speciosa** (Sims) Harv.
Albany Thicket (Swartkops River).

virgata Thunb. var. **virgata**
Sub-Escarpment Savanna, Sub-Escarpment Grassland, Indigenous Forests, Upper Karoo, Lower Karoo, Albany Thicket, Eastern Fynbos-Renosterveld (road between Bizana and Kokstad southwards, from Queenstown to Engcobo, Graaff-Reinet to Gonubie, Willowmore to Uitenhage, Port Elizabeth, Grahamstown and Bathurst, and to Humansdorp).

POLYGALACEAE

3b Annual or perennial herbs; if shrubs or subshrubs, then with lateral racemes only; caruncle branches inappendiculate, same size or a little larger than appendage; crests pedunculate or entire at base; upper petals profoundly bilobed or emarginate or subentire with an asymmetric apex
4a Racemes lateral with ± patent peduncles

bowkerae Harv.
Annual dwarf shrub, 0.15–0.30 m high; branches short, 8–20 mm long. **Leaves** alternate, linear-lanceolate. **Flowers** papilionaceous, in lateral racemes, 4–12-flowered. **Flowering time** Oct., Nov. Mountain slopes; Upper Karoo, Eastern Fynbos-Renosterveld, Albany Thicket (Koueveld Mts S, from Kareedouw to Baviaanskloof and Grahamstown, and to Humansdorp).

ericaefolia DC.
Closely leafy dwarf shrub, 0.2–0.5 m high. **Leaves** alternate, ascending linear, channelled, acute, sparsely ciliate below. **Flowers** in short, terminal, subumbellate racemes, purple, side petals obtuse, with a short finger-like process below apex. **Flowering time** Aug.–Nov. **Fruit** a membranous capsule, obovate, with a marginal rim. **Seed** broadly ellipsoid, hairy. Sandy coastal slopes and flats; Eastern Fynbos-Renosterveld, Albany Thicket (Joubertina E to Port Elizabeth S, Slang River near Humansdorp and Skoenmakerskop).

garcinii DC.
Soft, dwarf shrub, woody base, 0.2–0.5 m high, with slender trailing branches. **Leaves** alternate, linear to acicular. **Flowers** in long, terminal racemes, purple; side petal obtuse, sparsely hairy below. **Flowering time** Sept.–Dec. **Fruit** a membranous capsule, oblong, bidentate. **Seed** narrowly ellipsoid, hairy, lobes of caruncle short. Sandy and clay slopes; Sub-Escarpment Grassland (Cathcart District).

pottebergensis Levyns
Closely leafy, dwarf shrub, 0.2–0.4 m high. **Leaves** alternate, ascending, linear, sparsely ciliate below. **Flowers** in short, terminal, subumbellate racemes, purple; outer sepal obtuse. **Flowering time** Sept., Oct. **Fruit** a membranous capsule, narrowly obovate, with a narrow marginal wing. **Seed** ellipsoid, hairy. Rocky sandstone slopes; Eastern Fynbos-Renosterveld (N slopes of Tsitsikamma State Forest near Joubertina and Longmore Forest Reserve S, Humansdorp and Cape St Francis).

refracta DC.
Slender herb, woody at base, glabrous, 0.16–0.50 m high. **Leaves** alternate, 6–25 mm long, linear, acute, often with narrow translucent margins, erect, sessile. **Flowers** papilionaceous; bracts ovate-lanceolate, acute, deciduous bracteoles; outer sepal ovate, glabrous, acute. **Flowering time** Sept.–Mar. **Fruit** a membranous capsule, broadly obovoid, glabrous, with a narrow marginal rim. **Seed** densely hairy, caruncle with short membranous lobes. Grassland, closed woodland; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Dry Highveld Grassland, Drakensberg Grassland, Eastern Fynbos-Renosterveld, Albany Thicket (Lusikisiki District, Ludonga Store to Mkambati Nature Reserve SW, from Mountain Zebra National Park to Alice, Willowmore to Port Elizabeth and Grahamstown, and to Humansdorp).

scabra L.
Sprawling, sparsely leafy, dwarf shrub, hairy on young parts, 0.3–0.4 m high. **Leaves** alternate, linear-lanceolate, margins slightly revolute, shortly hairy. **Flowers** few in slen-

der, axillary racemes, purple; outer sepals often shortly hairy; side petals shortly and equally lobed. **Flowering time** July–Oct. Rocky slopes; Upper Karoo, Dry Highveld Grassland, Rainshadow Valley Karoo (Middelburg District E to Onverwag, SE to Mountain Zebra National Park and to Gwarriepoort near Willowmore).

triquetra C.Presl

Scantily branched, erect, glabrous, dwarf shrub, ± 0.8 m high. **Leaves** alternate, narrowly lanceolate-elliptic, rigid, margins thickened and hyaline. **Flowers** in terminal racemes, papilionaceous, purple; side petals shortly, subequally bilobed. **Flowering time** June–Oct. or all year. **Fruit** a membranous capsule, obovate, with a marginal wing. **Seed** ellipsoid, hairy, lobes of caruncle short. Rocky sandstone slopes; Indigenous Forests, Eastern Fynbos-Renosterveld (Storms River, Ratelsbos, Joubertina, Assegaaibos and Witelsbos).

4b Racemes terminal or lateral, but never patent
5a Bracts and bracteoles persistent

erubescens E.Mey. ex Chodat

Perennial, prostrate herb, 0.1 m high. **Leaves** alternate, hairy, smaller towards base of stem, upper leaves elliptic to lanceolate, lower leaves ± suborbicular. **Flowers** purple, pink, mauve and yellow, in terminal compact racemes 10–20 mm long; pedicels up to 1 mm long; wings 3–5 × 2.0–2.5 mm. **Flowering time** summer. **Fruit**: membranous appendage of caruncle shorter than a quarter of length of seed. Mountain grassland slopes; Sub-Escarpment Grassland, Sub-Escarpment Savanna (Kokstad).

hispida Burch. ex DC.

Perennial, dwarf shrub or herb, 0.1–0.3 m high. **Leaves** ovate-lanceolate to ovate-elliptic, rarely suborbicular, slightly cuneate and rounded at base. **Flowers** in terminal, lax racemes, 40–120 mm long; wings elliptic to obovate, 4–5 × 2.5–3.0 mm. **Flowering time** Oct.–Apr. **Fruit** a membranous capsule, ± winged, wing 0.25–0.40 mm wide. Mountainous and moist eastern parts of EC, grassland, forest, fynbos; Drakensberg Grassland, Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Indigenous Forests, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Qacha's Neck to Barkly East, S to Queenstown and Mkambati Nature Reserve, from Seymour to Kentani, Greater Addo Elephant National Park to Grahamstown, and to Humansdorp).

macowaniana Paiva

uNgqengendlela (Z)

Perennial or annual herb. **Flowers** few-flowered (2–8 flowers) raceme, lax and zigzagging, 20–100 mm long. **Flowering time** Sept.–Apr. **Seed** pubescent, hairs short, not exceeding base of seed. Forest, closed woodland, grassland; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Drakensberg Grassland, Indigenous Forests (Griqualand East, Malowe Mtn, Queenstown and Lusikisiki Districts southwards, and from Katberg Pass to Kentani).

ohlendorfiana Eckl. & Zeyh.

Mahlakahlaka (SS); *uNgqengendlela* (Z)

Perennial, slender, crisped-pubescent and sparsely pilose herb, 0.1–0.3 m high. **Leaves** ovate to suborbicular, or elliptic to broadly elliptic, obtuse to rounded at apex. **Flowers** purple or pink, in terminal racemes with some additional pseudolateral racemes, sometimes streaked with yellow; bracts and bracteoles persistent. **Flowering time** Oct.–Jan.

Fruit a membranous capsule, suborbicular, narrowly winged. **Seed** with pilose caruncle, membranous appendage of caruncle exceptionally developed (ascending and descending), covering caruncle. Grassland, closed shrubland; Drakensberg Grassland, Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Indigenous Forests, Albany Thicket [Wodehouse District to Port St Johns S, from Winterberg (between Tarka and Katberg) across Amatole Mts to Stutterheim, and to Grahamstown].

rhinostigma Chodat

Annual herb, 0.10–0.15 m high. **Leaves** ± same size and shape, lanceolate or elliptic-lanceolate. **Flowers** in terminal, lax racemes, 50–150 mm long; pedicels 3.0–3.5 mm long; wings 6.5–7.0 × 3.5–4.0 mm. **Flowering time** Nov.–Mar. Grassland on steep mountain slopes, soil stony and waterlogged, on sandstone and basalt; Drakensberg Grassland, Upper Karoo (Barkly East, Naude's Neck, Ben McDhui and Rhodes, S to Ouberg near Graaff-Reinet).

5b Bracts and bracteoles caducous

amatymbica Eckl. & Zeyh.

Dwarf polygala; *mohlabeho-o-monyenyane*, *nkokolotsane* (SS); *thembu polygala* (X)

Perennial herb, 0.02–0.20 m high. **Leaves** polymorphic, lower ones smaller and suborbicular or ovate, upper elliptic to narrowly ovate. **Flowers** deep purple, solitary or in a few-flowered raceme, in axils of leaves. **Flowering time** Oct.–Mar. Grassland; Upper Karoo; Sub-Escarpment Grassland, Drakensberg Grassland, Sub-Escarpment Savanna (Aliwal North S, from Queenstown to Mthatha, and across Amatole Mts from Katberg to Stutterheim).

asbestina Burch.

Skaap-ertjie (A)

Perennial herb or dwarf shrub, softly woolly, rounded, 0.07–0.30 m high. **Leaves** coriaceous, leathery, oblong to obovate, obtuse, glabrescent with age. **Flowers** 1–3 in short axillary racemes, papilionaceous; pedicels 0.50–0.75 mm long; wings 4–5 × 1.5 mm, blue; side petals entire. **Flowering time** Sept.–Apr. **Fruit** a membranous capsule, elliptical in outline. **Seed** ellipsoid. Dry karroid slopes; Upper Karoo, Lower Karoo, Sub-Escarpment Savanna, Albany Thicket, Eastern Fynbos-Renosterveld (Middelburg S, from Graaff-Reinet to Keiskammahoek and from Suurberg in Greater Addo Elephant National Park to Port Elizabeth and Albany Division).

bracteolata L.

Woody at base, glabrous or sometimes slightly hairy, villous, decumbent dwarf shrub, 0.15–0.80 m high. **Leaves** alternate, lanceolate to elliptic, margins sometimes slightly thickened or revolute. **Flowers** many in terminal racemes, papilionaceous, magenta or rarely white, pink or purple; side petals unequally bilobed, lower lobe longest; floral bracts prominent. **Flowering time** Sept.–Apr. **Fruit** a membranous capsule, obovate, with a marginal rim. **Seed** broadly ellipsoid, hairy. Sandstone slopes and flats; Eastern Fynbos-Renosterveld (Kareedouw to Baviaanskloof S, Humansdorp District: Assegaaibos, Witelsbos and Clarkson).

fruticosa P.J.Bergius

Heart-leaved polygala, butterfly bush; *ertjiebos* (A); *ithethe* (Z)

Branched shrub, erect, pubescent or glabrous, 0.3–2.0 m high. **Leaves** opposite, subsessile, lanceolate to ovate, cordate at base. **Flowers** in short racemes at tips of branchlets,

papilionaceous, purple, inner sepals often green, side petals deeply unequally bilobed, lower lobe often longest. **Flowering time** Sept.–Nov. or all year. **Fruit** a membranous capsule, laterally compressed, 2 mm long, 2-celled with 1 ovule in each locule. **Seed** ellipsoid pubescent, with a well-developed caruncle. Rocky sandstone and clay slopes; Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Indigenous Forests, Dry-Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Queenstown to Hluleka S, from Somerset East to Kei River Mouth, Willowmore to Port Elizabeth and Grahamstown, and from Storms River to Humansdorp).

gazensis Baker f.

Ericoid shrub, erect or sprawling, crisped or spreading pubescent, sometimes tomentose, 1.0–2.5 m high. **Leaves** alternate, rarely opposite, narrowly elliptic, coriaceous, rather dark, shiny, nearly glabrous above, lighter in colour and somewhat pubescent below, apex rounded to pointed, margins usually revolute. **Flowers** papilionaceous, mauve, purple or violet or occasionally white and mauve. **Flowering time** July–Nov. **Fruit** a membranous capsule, suborbicular, margins winged. **Seed** oblong-ellipsoid, sparsely pilose. Grassland, closed woodland, forest; Indian Ocean Coastal Belt, Indigenous Forests (Port Edward, Msikaba River to Mkambati River).

illepida E.Mey. ex Harv.

Slender-stemmed, sparsely leafy, dwarf shrub, 0.1–0.2 m high. **Leaves** ascending, lanceolate-elliptic. **Flowers** in lax, axillary racemes, purple; side petals entire, spathulate. **Flowering time** Oct.–Apr. Rocky slopes in grassland; Sub-Escarpment Savanna, Albany Thicket (King William's Town to Komga and Nahoon near East London SW, from Suurberg in Greater Addo Elephant National Park to Port Elizabeth and Grahamstown).

levynsiana Paiva

Annual, sparsely branched herb, ± 0.2 m high. **Leaves** alternate, linear-lanceolate. **Flowers** papilionaceous, pink, dark mauve, white, tip of carina purple, sepals veined with green-brown on backs. **Flowering time** July–Nov. Mountain slopes, grassy flats, fynbos, closed shrubland, closed woodland; Sub-Escarpment Savanna, Indigenous Forests, Eastern Fynbos-Renosterveld, Albany Thicket (King William's Town SW, from Studtis District to Uitenhage, Port Elizabeth and Alexandria, and from Humansdorp to Cape St Francis and Jeffreys Bay).

microlopha DC.

Small, sparsely leafy, glabrous, dwarf shrub, 0.1–0.7 m high. **Leaves** alternate, usually 2–6 mm long, linear or elliptic, thick, flat or grooved above, ciliate or scabrous. **Flowers** papilionaceous, glabrous or pubescent, pink, magenta or white. **Flowering time** Aug.–Dec. or all year. **Fruit** a membranous capsule, oblong, narrowed at base, with a narrow, compressed rim. **Seed** oblong, hairy. Open woodland, fynbos, grassland, closed shrubland; Sub-Escarpment Grassland, Eastern Fynbos-Renosterveld, Albany Thicket (Fort Beaufort SW to Willowmore and E to Baviaanskloof, Uitenhage, Port Elizabeth, Ecca River and Grahamstown).

myrtifolia L.

September bush; *bloukeurboom*, *blou-ertjieblom* (*-boom)*, *langelier* (A); *ulopesi* (X)

Branched shrub, erect, densely leafy, glabrous or pubescent, 0.3–2.0 m high. **Leaves** alternate, shortly petioled, erect, sometimes glabrous; blade spreading-ascending, variable in size and shape, oblong, elliptic, linear or acicular, usually not reducing in size

towards apex of twigs, margins in broad leaves slightly recurved, in narrow leaves strongly revolute, apex acute, obtuse, broadly rounded or subtruncate. **Flowers** large, papilionaceous, in short terminal racemes, magenta and green, varying somewhat in size, often 20 mm long. **Flowering time** all year. **Fruit** a laterally compressed, membranous capsule. **Seed** oblong-cylindric, pubescent, caruncle large, white with 2 dorsal claws reaching beyond middle of seed and one ventral claw $< {}^{1}/_{2}$ as long as seed. Karoo, closed woodland; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indigenous Forests, Indian Ocean Coastal Belt, Drakensberg Grassland, Rainshadow Valley Karoo, Albany Thicket, Eastern Fynbos-Renosterveld (Queenstown to Port Edward SW, from Seymour to Cathcart and Gonubie Nature Reserve, from Willowmore to Steytlerville, Baviaanskloof, Uitenhage, Port Elizabeth and Grahamstown, and to Humansdorp).

myrtifolia L. var. **pinifolia** (Lam. ex Poir.) Paiva

Rainshadow Valley Karoo (Willowmore District, Gwarriepoort area).

serpentaria Eckl. & Zeyh.

Slangwortel (A); *unqangendlela* (Z)

Perennial, slender, semi-erect, woody herb, 0.07–0.30 m high. **Leaves** alternate or opposite, pale green and linear-ovate. **Flowers** papilionaceous, pink to purple, magenta, in axillary racemes; sepals green; corolla with wings, dark green carina and white at base. **Flowering time** Oct.–Mar. **Seed** membranous appendage of caruncle decurrent to base of seed. Valley woodland, black sandy soil, forest; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests, Albany Thicket (Mount Ayliff District SW, from Queenstown to Msikaba River, Hogsback to Kentani and from Enon to Grahamstown and East London).

transvaalensis Chodat

Perennial herb, slender crisped-pubescent, 0.10–0.15 m high. **Leaves** 10–30 × 2.9–12.0 mm, lanceolate to broadly obovate, glabrous or minutely pubescent, secondary and reticulate venation of leaf inconspicuous. **Flowers** papilionaceous, crimson or purple; wings small 4–5(6) × 2–3 mm. **Flowering time** Dec., Mar. **Fruit** a membranous capsule, suborbicular in outline, notched at apex, with marginal wing. **Seed** cylindric, sericeous-pubescent. Well-drained, recently burnt grassland; Indian Ocean Coastal Belt (Mkambati Nature Reserve).

umbellata L.

Slender, dwarf shrub, woody at base, glabrous, erect or decumbent, 0.3–0.4 m high. **Leaves** alternate, linear to narrowly elliptic, up to 18 mm long, acute, flat or channelled above, ciliate. **Flowers** papilionaceous, pink or magenta, in dense, terminal, umbel-like clusters, purple, entire, obtuse. **Flowering time** Aug.–Nov. **Fruit** a membranous capsule, narrowly obovate, with a small marginal rim. **Seed** ellipsoid, hairy. Sandy and clay flats and lower slopes; Albany Thicket, Eastern Fynbos-Renosterveld (Uitenhage, Port Elizabeth and Humansdorp).

wittebergensis Compton

Erect or decumbent dwarf shrub, 0.15–1.00 m high. **Leaves** alternate, erect or spreading, sessile, 4–12 mm long, linear, linear-lanceolate or elliptical, flat or channelled above, acute or somewhat obtuse, apiculate, midrib sometimes prominent below, scabrous, pubescent or glabrous. **Flowers** papilionaceous, magenta, pink or white; side petals entire, obtuse, with a shortly hairy zone below. **Flowering time** Aug.–Oct. or all year.

Fruit a membranous capsule, obovate with a marginal rim. **Seed** ellipsoid, hairy. Rocky sandstone slopes; Eastern Fynbos-Renosterveld (Uitenhage, Port Elizabeth and Humansdorp).
Species insufficiently known: *P. empetrifolia* Houtt.

BULLOCK, A.A. 1965. *Mundia* Kunth. *Kew Bulletin* 19: 202.
DUMORTIER, B.C.J. 1822. *Nylandtia. Commentationes botanicae*. Casterman-Dien, Tournay.
EXELL, A.W. 1960. Polygalaceae. *Flora zambesiaca* 1: 303–336.
FOREST, F. & MANNING, J.C. 2006. Evidence for inclusion of South African endemic *Nylandtia* in *Muraltia* (Polygalaceae). *Systematic Botany* 31: 525–532.
HARVEY, W.H. 1860. Polygaleae Juss. *Flora capensis* 1: 79–113.
JOHNSON, C.T. & WEITZ, F.M. 1991. A re-evaluation of *Nylandtia* (Polygalaceae). *South African Journal of Botany* 57: 229–233.
LEVYNS, M.R. 1954. The genus *Muraltia*. *Journal of South African Botany*, Suppl. vol. 2.
LEVYNS, M.R. 1955. The species of *Polygala* in the south-western Cape Province. *Journal of South African Botany* 21: 9–49.
PAIVA, J.A.R. 1998. A revision of the African and Malagassy species of the genus *Polygala* L. (Polygalaceae), and a synopsis of the genus *Heterosamara* Kuntze, segregated from the former one and extending throughout Africa and Asia. *Fontqueria* 50: 1–346.

POLYGONACEAE

(Order Caryophyllales)

Compiled by C.L. Bredenkamp

1a Outer perianth segments bearing short sharp spines:
2a Spines forming at the tip of the outer perianth segments; flowers unisexual; female flowers sessile in axillary clusters ..... **Emex**
2b Spines forming at base of the outer perianth segments; flowers bisexual, in fascicles forming a lax thyrse ..... **Oxygonum**
1b Outer perianth segments without spines:
3a Perianth segments usually 6; inner 3 segments accrescent (increasing in size), conspicuous in fruiting stage as 'fruiting valves' with margins entire, dentate or wavy ..... **Rumex**
3b Perianth segments 4 or 5, not accrescent:
4a Soft annual herbs with hollow stems; nut at least twice as long as the perianth ..... ***Fagopyrum**
4b Coarse herbs, climbers or rhizomatous perennials; nut included in the perianth or protruding for less than half its length:
5a Perianth constricted above ovary and persistent at apex of fruit; heterostylous ..... **Oxygonum**
5b Perianth not constricted above ovary, enclosing fruit; not heterostylous:
6a Outer perianth segments winged or keeled in fruit; leaves conspicuously cordate ..... ***Fallopia**
6b Outer perianth segments not winged or keeled in fruit; leaves distinctly longer than wide, rarely cordate:
7a Ocrea silvery hyaline, lacerating ..... **Polygonum**
7b Ocrea brown, membranous, truncate, fringed with cilia or bristles or entire ..... **Persicaria**

EMEX Campd.

Species 2, Mediterranean region and Australia; 1 in sthn Afr., N, LIM, NW, G, M, S?, FS, KZN, L, NC, WC, EC.

australis Steinh.

Spiny emex, devil's thorn; *emex-dubbeltjie*, *duiweldoring* (A)

Annual, herbaceous weed, 0.15–0.60 m high; monoecious. **Leaves** petiolate, ovate-oblong; ocrea soon lacerating, deciduous. **Flowers** in axillary fascicles. **Male flowers** pedicellate; perianth segments 5 or 6, equal, spreading; stamens 4–6. **Female flowers** sessile; perianth 6-lobed, enlarged and hardened in fruit; tube ovoid, 3- or 6-angled

in fruit and ± transversely ribbed between angles; lobes in 2 series, outer 3 spiny in fruit and inner obtuse or aristate. **Ovary** 3-angled; styles 3, short; stigmas dilated, fimbriate. **Flowering time** all year. **Fruit** a triquetrous nut enclosed within persistent perianth tube. **Seed** subterete. Gardens, road- or railway sides, common; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Albany Thicket, Lower Karoo, Eastern Fynbos-Renosterveld (Queenstown E to Port St Johns, southwards from Graaff-Reinet to Komga and Suurberg in Greater Addo Elephant National Park to East London).

*FAGOPYRUM Mill.

Species 8, Europe and Asia, widely cultivated; 1 occasionally found as an escape in sthn Afr., B, NW?, G, FS, KZN, NC, EC.

esculentum Moench

Buckwheat; *bokwiet* (A)

Twining or erect, perennial or annual herb, with hollow stems up to 0.6 m high. **Leaves** triangular-sagittate, cordate; ocrea short, truncate, entire. **Inflorescence** branched or flowers in axillary clusters. **Flowers** unisexual, heterostylous; male flowers in narrow, terminal and axillary, raceme-like panicles; pedicels articulated above middle, equalling perianth in length. **Perianth** campanulate, with 5 segments, not accrescent. **Stamens** 8, alternating with yellow nectaries on disc. **Ovary** 3-angled; styles 3, long and slender; stigmas capitate, small. **Flowering time** summer. **Fruit** a triquetrous nut, greatly exceeding perianth. Cultivated for agriculture, river valleys, roadsides; Sub-Escarpment Savanna, Albany Thicket (Mzimkhulu River, Mthatha, Grahamstown).

*FALLOPIA Adans.

Species ± 9, in temperate regions of northern hemisphere; 1 naturalised in sthn Afr., a cosmopolitan weed, LIM, NW, G, M, FS, L, NC?, EC.

convolvulus (L.) Holub

Black knot; *katdoringbos* (A)

Procumbent, twining or climbing, annual herb, up to 10 m high. **Leaves** long-petiolate, deltate or ovate, acuminate at apex, sagittate at base with a broad basal sinus; ocrea brown, membranous, truncate, glabrous or shortly pubescent, sometimes glandular at base, readily tearing. **Inflorescence** paniculate. **Flowers** long-stalked. **Perianth** (5)6-lobed or -partite, persistent; lobes or segments oblong, with inner 2(3) flat and outer 3 keeled or slightly winged. **Stamens** 8, arising near base of perianth. **Ovary** 3-angled with 3 styles; stigmas capitate or peltate. **Flowering time** Nov.–Apr. **Fruit** a trigonous nut, enclosed in persistent perianth. Cultivated land, grassland, roadsides; Upper Karoo, Sub-Escarpment Grassland, Drakensberg Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Middelburg southwards, from Cathcart to King William's Town, Heatherbrae E to Grahamstown, and to Hofmansbosch).

OXYGONUM Burch. ex Campd.

Species ± 32, mostly confined to Africa, except for 2, one of which is an endemic to Madagascar; 6 in sthn Afr., KZN, EC.

dregeanum Meisn. subsp. **dregeanum**

Perennial herb, 0.2–0.3 m high. **Leaves** ± oblanceolate, not or weakly lobed, base attenuate, apex acute; surfaces glandular-punctate, glutinous; ocrea fringed with termi-

nal rigid setae. **Inflorescence** a terminal or axillary thyrse, fascicles up to 4-flowered in axils of brown, cup-shaped bracts. **Flowers** bisexual or unisexual, heterostylous. **Perianth** white, flushed pink, 5-lobed, long-persistent in bisexual flowers; outer segments keeled at apex; tube constricted above ovary. **Stamens** 8, filaments with a ring of brown cilia close to base; anthers bluish. **Ovary** 3-angled; styles 3, stigmas capitate. **Flowering time** Aug.–May. **Fruit** a 3-angled nut, without prickles, teeth or wings, transversely wrinkled. Riverbanks (in water), grassland, sandy soil, roadsides; Drakensberg Grassland, Indian Ocean Coastal Belt, Indigenous Forests (Rhodes E to Weza State Forest, Mkambati Nature Reserve, Port Edward).

PERSICARIA (L.) Mill.

Species ± 150, cosmopolitan in temperate regions; 10 in sthn Afr., including some introductions, widespread.

1a Peduncles with stalked glands
2a Styles 2

hystricula (J.Schust.) Soják

Slender, annual herb, 0.3–0.5 m high; stems dark red, glabrous. **Ocreae** truncate, membranous, up to 19 mm long, white-strigose with long hairs at upper margin. **Leaves** shortly petiolate, narrowly elliptic, base cuneate, apex acute; upper surface white-strigose, lower surface with midvein and margins coarsely white-strigose. **Inflorescence** a short thyrse, total length (peduncle + flowering axes) up to 105 mm, 1–3 from upper ocreae. **Bracts** triangular, sheathing, brownish pink. **Perianth** 5-lobed, deep pink. **Stamens** 6 or 7. **Ovary** lenticular; styles 2, exserted. **Flowering time** Nov.–Apr. **Fruit** a lenticular nut. Wet places, banks of rivers, streams; Upper Karoo, Sub-Escarpment Grassland (Albert District, Queenstown).

***lapathifolia** (L.) Gray

Spotted knotweed; *hanekam* (A); *khamane-ea-noka* (SS); *idolo-lenkonyane* (Z)

Robust, erect, annual herb, hydrophyte or helophyte, up to 0.1–3.0 m high; stems cylindrical, reddish, swollen at nodes. **Ocreae** tubular, membranous, up to 30 mm long, brown, conspicuously veined. **Leaves** shortly petiolate, lanceolate, base cuneate, apex acute; lower surface glandular-punctate with midvein and margins coarsely white-strigose. **Inflorescence** a terminal thyrse, total length up to 105 mm, 4 or 5 from upper ocreae. **Bracts** ovate, ciliate or not. **Perianth** 4- or 5-lobed, red, pink, greenish or white. **Stamens** 6, exserted. **Ovary** 2-angular; styles 2, exserted. **Flowering time** Sept.–May. **Fruit** a lenticular nut with dimpled faces, dark brown, shiny. Troublesome weed, waste places, roadsides, streams; Upper Karoo, Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Albany Thicket, Eastern Fynbos-Renosterveld (Oviston E to Umtamvuna Nature Reserve southwards, from Middelburg to Mthatha, Cradock across Amatole Mts to Kentani and from Suurberg to Grahamstown and East London).

2b Styles 3

meisneriana (Cham. & Schltdl.) M.Gómez

Slender, erect, annual herb, hydrophyte or helophyte (growing in swamps), 0.2–0.7 m high; stems longitudinally grooved. **Ocreae** truncate, brownish, membranous, up to 20 mm long, longitudinally veined, upper margin ciliate. **Leaves** petiolate, lanceolate, base rounded, apex acuminate; glabrous, midvein and margins strigose. **Inflorescence** a lax, slender, ± dichotomously branched thyrse, total length up to 115 mm. **Bracts**

small, glandular, shortly ciliate. **Flowers** 1–3 per bract. **Perianth** 5-lobed, rose pink or white. **Stamens** 5, included. **Ovary** 3-angled, styles 3-partite; stigmas capitate. **Flowering time** Jan.–Apr. **Fruit** a trigonous, smooth, shiny nut. Stony loam soil, wetlands, riverbanks, often growing in water; Drakensberg Grassland (Amatole Mts, Hogsback).

1b Peduncles without stalked glands
3a Inflorescence a slender thyrse; leaves long and narrow, linear lanceolate to linear elliptic, basally attenuate

decipiens (R.Br.) K.L.Wilson

Slender, annual herb, helophyte, 0.2–1.0 m high; stems longitudinally grooved. **Ocreae** tubular, brownish, membranous, ± 20 mm long, with ascending bristly hairs, upper margin fringed with patent bristles. **Leaves** petiolate, apex acuminate; glabrous, midvein and margins strigose. **Inflorescence** zigzag when immature, total length up to 155 mm, 2–5 from upper ocreae. **Bracts** truncate-rounded, terminal margins fimbriate. **Flowers** 1–3 per bract. **Perianth** 5-lobed, rose pink. **Stamens** 6–8, included. **Ovary** 3-angled. **Flowering time** Oct.–May. **Fruit** a trigonous, glossy nut. Riverbanks and streams, marshes, vlei areas; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Eastern Fynbos-Renosterveld, Albany Thicket (Rhodes SE to Port Edward, southwards across Amatole Mts from Seymour to Kentani, Willowmore to Grahamstown, and to Humansdorp).

3b Inflorescence a dense, ± stout, elongated or short thyrse; leaves ovate, elliptic or oblong-lanceolate, basally attenuate or rounded
4a Nut lenticular with dimpled faces

senegalensis (Meisn.) Soják forma **albotomentosa** (R.A.Graham) K.L.Wilson

Robust, erect, perennial herb, hydrophyte, 0.65–3.00 m high; plants thickly covered by white tomentum, stems thick, cylindrical. **Ocreae** truncate, reddish brown, membranous, conspicuously veined, up to 35 mm long, apex shortly ciliate. **Leaves** petiolate, up to 320 × 65 mm, apex acuminate. **Inflorescence** densely flowered, total length up to 150 mm, 1–several from cup-like upper ocreae. **Bracts** broadly ovate, truncate, brown. **Flowers** up to 7 per bract. **Perianth** 4-lobed, rose pink, greenish or white. **Stamens** 6, sometimes exserted. **Ovary** lenticular. **Flowering time** Sept.–Apr. **Fruit** a dark brown, shiny nut. Sides of rivers and streams, often growing in water; Indian Ocean Coastal Belt (Port St Johns S to Coffee Bay).

4b Nut lenticular with convex faces, or trigonous or obscurely so
5a Leaves basally rounded to cordate

amphibia (L.) Gray

Robust, erect, spreading, perennial herb, hydrophyte or helophyte, ± 0.6 m high, up to 3 m long floating in water; rhizomes slender; stems creeping, greenish brown, rooting at nodes. **Ocreae** tubular, membranous, up to 22 mm long, glabrous, entire, not ciliate. **Leaves** slender stalked, oblong, up to 140 × 50 mm, apex rounded or acute. **Inflorescence** a short, terminal, erect, dense thyrse, total length up to 75 mm, usually simple. **Bracts** inconspicuous, membranous. **Flowers** mostly single. **Perianth** 5-lobed, red to deep pink. **Stamens** 5, exserted. **Ovary** lenticular. **Flowering time** Sept.–May. **Fruit** a circular in outline, dark brown, shiny nut. Ponds, ditches, dams, waterways, cultivated weed in terrestrial habitat; Sub-Escarpment Grassland (between Rhodes and Elliot).

5b Leaves basally attenuate, never rounded

attenuata (R.Br.) Soják subsp. **africana** K.L.Wilson

Robust, perennial herb, hydrophyte or helophyte, 0.5–2.2 m high; stems long, floating, rooting at nodes. **Ocreae** tubular, membranous, up to 25 mm long, coarsely villous, margins with rigid hairs, up to 14 mm long. **Leaves** oblong-lanceolate, up to 250 × 50 mm, apex acute or acuminate; petioles short, up to 7 mm long. **Inflorescence** a robust, erect, rigid, dense thyrse, total length up to 125 mm, 2 or 3 on stout peduncles from upper ocreae. **Bracts** ovate, truncate, terminally fringed. **Flowers** mostly 3 per bract. **Perianth** 5-lobed, pink or white. **Stamens** 6–8, included. **Flowering time** Nov.–Mar. **Fruit** a broad ellipsoid nut. Large patches on and beside water, in grassland, marshy places; Indian Ocean Coastal Belt, Sub-Escarpment Savanna, Albany Thicket, Eastern Fynbos-Renosterveld (Port Edward SW to Komga, Port Elizabeth, Grahamstown and Humansdorp).

POLYGONUM L.

Knotgrass

Species 200+ (sometimes split and then *Persicaria* 150), temperate regions of the northern hemisphere; 5 in sthn Afr., including some introductions; widespread, except S.

Nut lenticular; perianth segments 4

undulatum (L.) P.J.Bergius

Low woody, evergreen undershrub, 0.2–0.4 m high; stems erect, nodes swollen. **Ocreae** silvery, hyaline, nearly as long as short internodes, lacerating easily. **Leaves** crowded on branches, small, ± ovate, up to 18 × 9 mm, apex acute, margins undulate, punctate-glandular below. **Bracts** membranous. **Flowers** fascicled in axils of leaves, 1–5 flowers per bract. **Perianth** white or creamish. **Stamens** 6, included. **Flowering time** Dec.–Mar. **Fruit** a brown, shiny nut. Dry hill slopes near sea; Eastern Fynbos-Renosterveld, Albany Thicket (Willowmore, Assegaaibos, Alexandria, Grahamstown and to Humansdorp).

Nut trigonous; perianth segments 5

***aviculare** L.

(Bird) knotgrass, hogweed; (*voël-*)*duisendknoop*, *varkgras* (A); *lira-ha-li-bonoe* (SS)

Decumbent, annual herb, 0.15–1.00 m high; much branched, internodes of main stems > 15 mm long. **Ocreae** basally brownish red, lacerated margins silvery, hyaline. **Leaves** scattered or close together, linear-oblong to narrowly elliptic, up to 50 × 18 mm, base cuneate, apex acute, margins sometimes revolute, surfaces punctate glandular. **Bracts** silvery hyaline. **Flowers** fascicled in axils of leaves, 1–5 flowers per bract. **Perianth** pink, white or greenish. **Stamens** 7 or 8, included. **Flowering time** Oct.–Apr. **Fruit** a dark brown to black nut, matt. Weed of cultivation along roadsides, disturbed soils, waste ground; Upper Karoo, Dry Highveld Grassland, Mesic Highveld Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Bethulie E to Kokstad, southwards, from Middelburg to Mthatha, Graaff-Reinet to Kentani and Greater Addo Elephant National Park to Port Elizabeth, Grahamstown and East London).

plebeium R.Br.

Prostrate, closely leaved, annual herb, 0.05–0.45 m high; taproot well developed; stems much branched from base, longitudinally grooved, internodes on main stems < 12 mm long. **Ocreae** silvery, hyaline, fringed with laciniae. **Leaves** small, linear-oblong to narrowly elliptic, up to 25 × 5 mm, apex rounded, narrowing at base, margins revolute, surfaces punctate glandular. **Bracts** silvery hyaline. **Flowers** fascicled in axils of leaves, 1–5 flowers per bract. **Perianth** pink, white or greenish. **Stamens** 6–8, included. **Flowering time** Oct.–May. **Fruit** a black, shiny, smooth nut. Dried riverbeds, drying mud, turf flats beside pans and lakes, disturbed areas, waste ground; Upper Karoo, Albany Thicket (Zastron, Graaff-Reinet, Grahamstown).

RUMEX L.

Sorrel

Species over 200, cosmopolitan, mainly in temperate regions; ± 18 in sthn Afr., including several introduced species, widespread.

1a Flowers unisexual, plants dioecious; ocreae silvery hyaline, lacerating; bracts silvery hyaline; fruiting valves small, not longer than nut, often adnate to nut

acetosella L. subsp. **angiocarpus** (Murb.) Murb.

Sheep sorrel; *boksuring* (A)

Perennial, extremely polymorphic, up to 0.5 m high; erect or ascendant. **Leaves** basally long-petiolate, hastate, lobes acute, upper leaf segment narrowly to broadly lanceolate; cauline leaves smaller, shortly petiolate; tinged purple-red. **Inflorescences** repeatedly branched, leafless. **Flowers** in 5–8-flowered whorls; pedicels equaling flowers in length. **Perianth** yellowish, drying reddish. **Flowering time** June–Apr. **Fruit** a nut, up to 1.5 mm long. Wet bogs, rocky grassland, slopes and hills, cultivated land, roadsides; Drakensberg Grassland, Sub-Escarpment Grassland, Dry Highveld Grassland, Albany Thicket, Eastern Fynbos-Renosterveld (Naude's Neck E to Weza State Forest southwards, from Cala to Maclear, Somerset East across Amatole Mts to Stutterheim, Kareedouw to Grahamstown, and to Humansdorp).

1b Flowers hermaphrodite; ocreae brown, membranous, usually caducous; bracts brown, membranous; fruiting valves distinctly overtopping nut
2a Fruiting valves ovate-orbicular to suborbicular, obviously reticulately veined, entire, without a well-developed callosity (leathery or hard thickening)
3a Leaves sagittate, cordate or hastate

cordatus Poir.

Maksuring, *tongblaar* (A)

Annual, occasionally perennial, rhizomatous herb, 0.15–0.50 m high; stems erect. **Leaves** herbaceous, lower leaves rosulate, long-petiolate ovate-cordate with blunt basal lobes; cauline leaves smaller. **Inflorescences** branched, leafless. **Flowers** in 2–5-flowered whorls; pedicels filiform, equaling flowers in length, articulated below middle. **Flowering time** July–Sept. **Fruiting valves** up to 5 × 6 mm, red, often with white scales in the centre. **Fruit** a nut, up to 2.5 mm long. Wet bogs, sandy flats and slopes; Eastern Fynbos-Renosterveld (Port Elizabeth).

dregeanus Meisn. subsp. **dregeanus**

Vigorous, herbaceous annual, 0.6–1.0 m high; stems with thick tuberous base, nodes and internodes conspicuous. **Leaves** flaccid, lower nodes shorter, up to 4 per whorl,

long-petiolate, ovate-sagittate with blunt basal lobes; cauline leaves smaller. **Inflorescences** branched, leafless. **Flowers** in 6–12-flowered, distant whorls; pedicels filiform, articulated below middle, maroon, equaling flowers in length. **Flowering time** Nov.–May. **Fruiting valves** up to 8 × 8 mm, red, fading pinkish. **Fruit** a shiny nut, up to 3.5 mm long, brown with lighter margins. Moist grassland, streams/gullies; Drakensberg Grassland, Sub-Escarpment Savanna, Albany Thicket (Maclear southwards across Amatole Mts to King William's Town and East London).

lativalvis Meisn.

Veldsuring (A)

Slender, perennial herb, 0.15–0.20(0.30) m high; rhizomes slender, with fibrous, swollen, napiform tubers up to 35 mm long. **Leaves** mostly basal, long-petiolate, sagittate-hastate, with long, narrow, hastate lobes, upper leaf segment narrowly lanceolate. **Inflorescences** leafless. **Flowers** in few-flowered whorls; pedicels short, articulated in lower quarter. **Flowering time** Aug.–Oct. **Fruiting valves** circular-cordate, 3–4 × 5 mm. **Fruit** a brown nut, 2 mm long. Open veld, limestone; Eastern Fynbos-Renosterveld (Redhouse and Witteklip near Port Elizabeth).

sagittatus Thunb.

Climbing (red) sorrel; (*klim-*, *rooi-*)*ranksuring* (A); *bolila-bo-boholo* (SS); *umdende* (Z)

Perennial herb or climber, 0.3–5.0 m high; roots with thick tubers, stems long, flexuose. **Ocreae** with conspicuous venation. **Leaves** long-petiolate, hastate, basal lobes divergent with acute apex; upper leaf segment widely ovate, up to 100 × 50 mm, apex acuminate. **Inflorescences** wide, open, primary branches at right angles to axis, repeatedly branched. **Flowers** in few-flowered whorls. **Flowering time** July–Apr. **Fruiting pedicels** filiform, articulate in lower $^1/_3$. **Fruiting valves** up to 7 × 9 mm, from a cordate base, thin, membranous, pink tinged purple. **Fruit** a pale brown nut. Sandbanks in riverbeds, river mouths, forests and forest margins, disturbed areas; Indian Ocean Coastal Belt, Indigenous Forests, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Umtamvuna Nature Reserve across Amatole Mts, from Mpofu Game Reserve to Kentani, Suurberg to Grahamstown, and to Humansdorp).

3b Leaves lanceolate, narrowed at base, without lobes

woodii N.E.Br.

Paper hearts; *tongblaar* (A); *bolila-ba-likhomo* (SS)

Erect, annual herb, 0.3–0.7 m high; rhizomes fibrous with swollen, fusiform tubers; basal internodes short. **Leaves** coriaceous; lower leaves with petioles dilated, lamina up to 100 × 40 mm, apex acute; cauline leaves shorter, ovate, with long attenuate apex. **Inflorescences** leafless. **Flowers** in few-flowered whorls. **Flowering time** Oct.–Apr. **Fruiting pedicels** filiform, arcuate, articulate below middle. **Fruiting valves** widely cordate, up to 10 × 12 mm, brownish, flushed with purple. **Fruit** a dull brown nut, 5 mm long. Mountain slopes, dry banks of marshes, forests, grassland, disturbed places; Sub-Escarpment Grassland, Drakensberg Grassland, Indigenous Forests, Albany Thicket (uMzimkhulu District across Amatole Mts to Hogsback and Stutterheim and from Alexandria District to Port Alfred and junction of Kap and Fish Rivers).

2b Fruiting valves narrowly and broadly ovate, entire or toothed, with or without a large well-developed callosity
4a Fruiting valves with a large callosity

conglomeratus Murb.

Dock; (*mak-*)*suring*, *tongblaar* (A)

Perennial herb, 0.2–1.0 m high; ± erect, branching below middle, branches arcuate-divaricate. **Leaves**: petioles of basal leaves as long as lamina; lamina narrowly oblong-ovate up to 60 × 13 mm, apex obtuse; cauline leaves becoming gradually smaller. **Inflorescences** open with divaricate branches, flower whorls distant, nearly all subtended by a leaf. **Flowers** in many-flowered whorls. **Flowering time** Jan.–Mar.? **Fruiting pedicels** ± same length as valves, articulate ± at middle or just below. **Fruiting valves** oblong-ovate, entire, callosity large, sometimes occupying almost whole surface of valve. **Fruit** a dark brown nut, up to 1.7 mm long. Central and southern Europe, introduced into extratropical parts of world; irrigation furrows, shade of rock faces; Sub-Escarpment Savanna, Albany Thicket (King William's Town, Baviaanskloof).

***crispus** L.

Curly (narrow-leaved, sour, yellow) dock/rumex; *beesslaai*, *weeblaar*, *wildespinasie* (A); *iDololenkonyane*, *ubuklunga* (X, Z)

Perennial herb, 0.2–2.4 m high; erect. **Leaves**: petioles shorter than lamina; lamina of basal leaves up to 300 × 60 mm, margins wavy, attenuate at both ends; upper cauline leaves smaller. **Inflorescences** erect, branches slightly patent, ± compact in fruit. **Flowers** in many-flowered whorls. **Flowering time** Aug.–Mar. **Fruiting pedicels** longer than valves. **Fruiting valves** orbicular-cordate, green, drying brown; callosity relatively small, basal on main vein of each valve, ovoid, apex long attenuate. **Fruit** a dark brown nut, up to 3.5 mm long. Most common of European species, extratropical parts of world; riverine bush, riverbeds and mouths, disturbed places, roadsides; Upper Karoo, Drakensberg Grassland, Sub-Escarpment Grassland, Albany Thicket, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld (Oviston Nature Reserve E to Mount Currie and S to Queenstown, from Graaff-Reinet to East London District, Bloukrans River to Grahamstown and to Humansdorp).

lanceolatus Thunb.

Smooth (common, smaller) dock; *gladdetongblaar* (A); *khamane*, *molokoli* (SS); *idolonjana* (X); *iDololenkonyane* (Z)

Perennial herb, 0.15–0.50 m long; arcuate-ascending. **Leaves** lanceolate, 6× longer than wide, base attenuate, apex acute to acuminate, margins undulate; petioles shorter than lamina; upper cauline leaves smaller. **Inflorescences** condensed, branches arcuate-erect. **Flowers** in leafless, many-flowered whorls, lower whorls subtended by a leaf. **Flowering time** Aug.–Apr. **Fruiting pedicels** longer than valves. **Fruiting valves** cordate, apex acute, margins subdenticulate; subcoriaceous, pale brown; callosity basal on main vein of each valve, fusiform, ± $^{3}/_{4}$ as long as wings, apex long attenuate, subrugose. **Fruit** a yellowish brown nut, up to 2.5 mm long. Gravelly soil, mud, stream- and riverbanks, roadsides; Upper Karoo, Drakensberg Grassland, Sub-Escarpment Grassland, Albany Thicket, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld (Bethulie E to Frere-Cedarville Districts southwards, from Middelburg to Maclear, Graaff-Reinet to Willowvale District and from Uitenhage to Grahamstown and East London).

***pulcher** L.

Perennial herb, up to 0.6 m long; stems ± angular-flexuose, branching from below middle. **Leaves** ovate-oblong, base cordate, apex acute, margins ± subdenticulate; petioles shorter than lamina; upper cauline leaves few, smaller. **Inflorescences** branched, angularly reflexed or arcuate-divaricate. **Flowers** in many-flowered whorls, nearly all subtended by a leaf, uppermost whorls leafless; greenish; inner perianth segments toothed. **Flowering time** Aug.–Apr. **Fruiting pedicels** ± as long as valves. **Fruiting valves** leathery, narrowly or broadly ovate, apex ligulate or broadly acuminate, reticulation foveolate, margins grossly dentate, pale brown; callosity basal on main vein of each valve, fusiform, > $^1/_2$ as long as wings, apex long attenuate. **Fruit** a nut, up to 4 mm long. Mediterranean region, SW Asia; weed of pastures, mountain slopes; Sub-Escarpment Grassland (Amatole Mts, Hogsback).

rhodesius Rech.f.

Robust, perennial herb, up to 0.6 m high; stems greenish. **Leaves** with stout petioles, lanceolate, up to 250 × 50 mm, base attenuate, apex acute; upper cauline leaves few, smaller. **Inflorescences** amply branched. **Flowers** in many-flowered whorls, not subtended by a leaf; with inner perianth segments toothed. **Flowering time** Oct.? **Fruiting pedicels** stout, articulated below middle, often arcuate, as long as or longer than valves. **Fruiting valves** leathery, narrowly or broadly cordate, apex ligulate or acute, reticulation subfoveolate, margins grossly dentate; callosity yellowish brown, basal on main vein of each valve, ovoid, > $^1/_2$ as long as wings, sculpturing reticulate, apex long attenuate. **Fruit** a brown nut, up to 2.5 mm long. Moist areas; Indian Ocean Coastal Belt (Sea View).

4b Fruiting valves without a large callosity

***brownii** Campd.

Perennial herb, up to 0.5 m high; stems slender, ascending. **Leaves** with lamina lanceolate, oblong or panduriform (fiddle-shaped), up to 170 × 50 mm, base lobed or attenuate, apex acute or rounded; upper cauline leaves fewer, smaller; petioles up to 65 mm long. **Inflorescences** loose with few, elongate, slender branches. **Flowers** in up to 8-flowered, distant whorls, leafless. **Flowering time** Dec.–Apr. **Fruiting pedicels** thin, articulated in lower $^1/_3$, as long as or longer than valves. **Fruiting valves** leathery, oblong-trullate, venation strongly reticulate, margins grossly dentate, teeth 3–5 on each side, all teeth and apex hooked. **Fruit** a tan nut, ± 2 mm long. Australia, New Zealand, Timor, New Guinea, Java; garden weed, street verges; Sub-Escarpment Savanna (Grahamstown).

steudelii Hochst. ex A.Rich.

Perennial herb, 0.6–1.2 m high; stems stout. **Leaves** with lamina lanceolate to oblong, up to 90 × 30 mm, base rounded to cuneate, apex acute; upper cauline leaves fewer, smaller; petioles stout, up to 25 mm long. **Inflorescences**: branches basally as thick as stems, stiff or arcuate. **Flowers** in distant whorls, basally ± 8-flowered, subtended by single leaves, few-flowered and leafless towards ends of axes. **Flowering time** Nov.–Apr. **Fruiting pedicels** thin, articulated below middle, gradually thickening towards base of outer perianth. **Fruiting valves** leathery, ovate-cordate, ± 5 mm long, venation reticulate-foveolate, margins grossly dentate, apex broadly acuminate, teeth up to 6 on each side, apex flexuose, hooked or coiled. **Fruit** a dark brown nut, 3.5 mm long. Stony, rocky soil, open shrubland, dry riverbeds; Drakensberg Grassland, Albany Thicket (Barkly East, Rhodes, Amatole Mts, Stutterheim).

BRANDBYGE, J. 1993. Polygonaceae. In K. Kubitzki, J.G. Rohwer and V. Bittrich, *The families and genera of vascular plants — dicotyledons* 2. Springer-Verlag, Berlin.
GERMISHUIZEN, G. 1983. *A morphological-taxonomical study of the genera* Polygonum, Reynoutria *and* Bilderdykia *in southern Africa*. M.Sc. thesis, University of Pretoria.
GERMISHUIZEN, G. 1986. Polygonaceae: raising the rank of *Polygonum senegalense* forma *albotomentosum* to subsp. *albotomentosum*. *Bothalia* 16: 232, 233.
GERMISHUIZEN, G. 1988. The *Oxygonum dregeanum* complex (Polygonaceae). *Bothalia* 18: 173–181.
GRAHAM, R.A. 1957. A revision of *Oxygonum* (Polygonaceae–Polygoneae). *Kew Bulletin* 1: 145–172.
GRAHAM, R.A. 1958. *Flora of tropical East Africa.* Polygonaceae: 1–38.
HARALDSON, K. 1978. Anatomy and taxonomy in Polygonaceae subfam. Polygonoideae Meissn. emend. Jaretzky. *Symbolae Botanicae Upsaliensis* 22,2: 70–75.
RECHINGER, K.H. 1954. Monograph of the genus *Rumex* in Africa. *Botaniska Notiser Supplement* 3,3: 3–114.
RECHINGER, K.H. 1964. *Rumex*. *Flora europaea* 1: 82–89.
RECHINGER, K.H. 1984. *Rumex* (Polygonaceae) in Australia: a reconsideration. *Nuytsia* 5,1: 75–122.
RONSE DECRAENE, L.-P. & AKEROYD, J.R. 1988. Generic limits in *Polygonum* and related genera (Polygonaceae) on the basis of floral characters. *Botanical Journal of the Linnean Society* 98: 321–371.
RONSE DECRAENE, L.-P., HONG, S.-P. & SMETS, E. 2000. Systematic significance of fruit morphology and anatomy in tribes Persicarieae and Polygoneae (Polygonaceae). *Botanical Journal of the Linnean Society* 134: 301–337.
TUTIN, T.G. 1964. *Emex*. *Flora europaea* 1: 89.
WEBB, D.A. 1964. *Bilderdykia*, *Polygonum*, *Reynoutria*, *Fagopyrum*. *Flora europaea* 1: 76–82.
WILSON, K.L. 1988. *Polygonum* sensu lato (Polygonaceae) in Australia. *Telopea* 3: 177–182.
WILSON, K.L. 1990. Some widespread species of *Persicaria* (Polygonaceae) and their allies. *Kew Bulletin* 45: 621–636.
WRIGHT, C.H. 1912. Polygonaceae. *Flora capensis* 5,1: 459–482.

PORTULACACEAE

(Order Caryophyllales)

Compiled by C.L. Bredenkamp

ANACAMPSEROS L. (= *AVONIA*) see ANACAMPSEROTACEAE

PORTULACA L.

Species ± 40, cosmopolitan but mostly in warmer climates; 8 in sthn Afr., widespread, mainly in arid areas.

*oleracea L.

Common purslane; *rooipootjieporslein*, *varkslaai*, *misbredie* (A); *selatsi* (SS); *igwanitsha* (X); *lenjana* (Z)

Annual, glabrous, ± fleshy herb, branches prostrate, up to 0.30 m long. **Leaves** ± crowded towards ends of branches, obovate-spathulate, up to 30 × 12 mm, apex rounded, venation reticulate, petiolate; stipular hairs few, ± 1 mm long, caducous. **Flowers** terminal, up to 5, surrounded by subverticillate leaves. **Sepals** with tube ± 2 mm long. **Petals** 4, yellow, ± 8 mm long, obovate-oblong. **Flowering time** Jan.? **Fruit** an obovoid capsule, enveloped in corolla remains. **Seeds** many, ± 0.5 mm in diam., black, reniform, verrucose-granulate. Cosmopolitan weed of temperate and tropical regions, gardens, railway tracks and roadsides, disturbed areas; Mesic Highveld Grassland, Drakensberg Grassland, Upper Karoo, Indigenous Forests (Lady Grey, Rhodes, Middelburg, Tsitsikamma).

quadrifida L.

Wild purslane; *kannidood*, *porselein* (A)

Prostrate, annual herb; stems reddish, rooting at nodes, up to 0.25 m long; taproot stout. **Leaves** fleshy, elliptic, up to 10 × 4 mm, apex acute, both surfaces ± flattened, venation reticulate, petiolate; stipular hairs light, yellowish brown, many, up to 10 mm long. **Flowers** mostly solitary at ends of branches, surrounded by 4 relatively large leaves and many hairs. **Sepals** ± triangular, united at base. **Petals** 4(5), yellow, orange or pink, 5 × 3 mm, ± elliptic. **Flowering time** Mar., Apr.? **Fruit** a conical-ovoid capsule. **Seeds** many, ± 1 mm in diam., greyish, reniform, verrucose with blunt tubercles. Tropic and subtropic, cosmopolitan weeds, cultivated land, sandy soil, closed woodland; Upper Karoo, Sub-Escarpment Grassland, Albany Thicket (Middelburg District, Queenstown, Jansenville and Wolwefontein).

PORTULACARIA Jacq. see DIDIEREACEAE

TALINUM Adans. see TALINACEAE

CAROLIN, R.C. 1987. A review of the family Portulacaceae. *Australian Journal of Botany* 35: 383–412.
CAROLIN, R.C. 1993. Portulacaceae. In K. Kubitzki, J.G. Rohwer & V. Bittrich, *The families and genera of vascular plants — dicotyledons* 2. Springer-Verlag, Berlin.
MCNEILL, J. 1974. Synopsis of a revised classification of the Portulacaceae. *Taxon* 23: 725–728.
NYANANYO, B.L. 1987. Taxonomic studies in the genus *Portulaca* L. (Portulacaceae). *Feddes Repertorium* 98: 399–402.
NYANANYO, B.L. 1989. Taxonomy of the endemic African genera of the Portulacaceae (Centrospermae). *Feddes Repertorium* 100: 235–239.
NYANANYO, B.L. 1990. Tribal and generic relationship in the Portulacaceae (Centrospermae). *Feddes Repertorium* 101: 237–241.
POELLNITZ, K. VON. 1934. Versuch zu einer Monographie der Gattung *Portulaca* L. *Feddes Repertorium* 37: 240–320.
SONDER, O.W. 1862. Portulacaceae. *Flora capensis* 2: 381–386.
WALTERS, S.M. 1964. Portulacaceae. *Flora europaea* 1: 114, 115.
WILD, H. 1961. Portulacaceae. *Flora zambesiaca* 1: 361–372.
WILD, H. & DINIZ, M.A. 1973. Portulacaceae. *Flora de Moçambique* 21: 1–13.

PRIMULACEAE

(Order Ericales)

Compiled by C.L. Bredenkamp & M.M.H. Matiapoto

According to Stevens (2007, 2012) the genera *Anagallis* and *Lysimachia* belong in the family Myrsinaceae. Current account follows APG (2003).

Leaves opposite; inflorescence reduced to solitary, axillary flowers; filaments bearded.....**Anagallis**
Leaves basal and cauline; inflorescence a raceme or panicle; filaments glabrous..... **Lysimachia**

ANAGALLIS L.

Pimpernel

Species 20–30, fairly cosmopolitan, mostly under relatively moist conditions; 4 in sthn Afr., LIM, G, M, S, FS, KZN, L, NC, WC, EC.

*arvensis L.

Scarlet pimpernel; *blouselblommetjie* (A)

Annual herb, freely branched, 0.04–0.40 m high. **Leaves** opposite, rarely ternate, ovate, sessile and almost stem-clasping at times. **Flowers** axillary, solitary; peduncles longer than leaves. **Sepals** lanceolate, keeled, nearly as long as corolla. **Corolla** blue or red, 5-partite; segments obtuse, denticulate and often glandular-ciliate at apex. **Flowering time** July–Jan. **Fruit** a circumscissile capsule. **Seeds** triangular in cross section, minutely honeycombed. Cosmopolitan weed from Europe, widespread in SA, cultivated land, pasture, roadsides; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indigenous Forests, Eastern Fynbos-Renosterveld, Albany Thicket (Mthatha southwards, from Mpofu Game Reserve to Stutterheim, Greater Addo Elephant National Park to East London, and from Tsitsikamma to Humansdorp and Jeffreys Bay).

huttonii Harv.

Perennial herb, prostrate or decumbent, rarely suberect, branches 0.3–0.6 m long; stems rarely branched, 4-angled. **Leaves** opposite or occasionally 3 together, ovate, up to 25 mm long; petioles 1–3 mm long. **Flowers** axillary; pedicels longer than leaves. **Calyx** 5 segments, linear-lanceolate, keeled, shorter than corolla. **Corolla** 5-lobed, free, alternate to sepals, with longitudinal veins, white or pale pink, 6–8 mm long, rotate, with lobes obtuse. **Stamens** with subulate, setose filaments. **Style** slender and long. **Flowering time** Aug.–Feb. **Fruit** a circumscissile capsule on recurving pedicle. Grassland, abandoned land, plantation; Drakensberg Grassland, Sub-Escarpment Grassland, Eastern Fynbos-Renosterveld, Albany Thicket (Lady Grey S, from Engcobo to Maclear, Fort Beaufort to Stutterheim, and to Greater Addo Elephant National Park).

LYSIMACHIA L.

Loosestrife

Species 150–200, chiefly in Europe, Asia and North America; 2 in sthn Afr., LIM, M, S, KZN, EC.

[E]nutans Nees

Perennial herb, branched from base, rarely above, erect, up to 0.25–0.75 m high, glabrous. **Leaves** opposite, lanceolate, narrowed to base into a short petiole, pale on lower surface and minutely gland-dotted, with slightly revolute margins. **Inflorescence** a terminal raceme, sometimes slightly nodding, bracts linear-lanceolate, shorter or longer than slender ascending pedicels. **Calyx** with oblong segments, persistent. **Corolla** 2.0–2.5× length of calyx, dark red to purple, bell-shaped in lower $^1/_2$, lobes oblanceolate, erosodenticulate at apex or nearly entire. **Stamens** well exserted from corolla; anthers versatile, apiculate. **Ovary** globose; style persistent. **Flowering time** Nov., Dec. Grassland, roadsides, rare in moist places; Eastern Fynbos-Renosterveld, Albany Thicket, Indigenous Forests, Sub-Escarpment Savanna (Fort Beaufort to Stutterheim SW to Grahamstown).

ruhmeriana Vatke

Perennial herb, sparsely branched, up to 1 m high. **Leaves** opposite, lanceolate, sessile, slightly sheathing at base, glabrous. **Inflorescence** racemose, glabrous, with few lateral branches from axils of uppermost leaves; rhachis often ribbed; bracts linear lanceolate, longer than pedicels. **Calyx** glabrous outside, divided nearly to base, segments oblong, slightly keeled towards base. **Corolla** dirty-white, tubular at base, lobes oblong, irregularly, minutely toothed around apex, slightly hooded. **Stamens** with very short filaments,

inserted on corolla at base of lobes, forming a thickening around large corolla tube; anthers versatile, apiculate. **Ovary** globose; style persistent, slender, slightly elongated in fruit. **Flowering time** Jan.–Mar. Rocky hill slopes; Albany Thicket, Sub-Escarpment Savanna, Drakensberg Grassland, Indigenous Forests [Maclear District, Katkop S, from Alice to Stutterheim (Dohne Hill)].

SAMOLUS L. see THEOPHRASTACEAE

ANDERBERG, A.A., MANS, U. & KÄLLERSJÖ, M. 2007. Phylogeny and floral evolution of the Lysimachieae (Ericales, Myrsinaceae): evidence from *ndh*F sequence data. *Willdenowia* 37: 407–419.
ANGIOSPERM PHYLOGENY GROUP [APG]. 2003. An update of the Angiosperm Phylogeny Group classification for the orders and families of flowering plants: APG II. *Botanical Journal of the Linnean Society* 141: 399–436.
DYER, R.A. 1963. Primulaceae. *Flora of southern Africa* 26: 9–15.
STEVENS, P.F. 2007. Angiosperm Phylogeny Website. Version 7. Internet. http://www.mobot.org/MOBOT/research/APweb/ (accessed July 2007).
STEVENS, P.F. 2012. Angiosperm Phylogeny Website. Version 9. Internet. http://www.mobot.org/MOBOT/research/APweb/ (accessed May 2012).

PROTEACEAE

(Order Proteales)

Compiled by G.J. Bredenkamp & C.L. Bredenkamp

Classification of Proteaceae

According to Weston & Barker (2006), Mast et al. (2008) and Stevens (2010) the Proteaceae can be divided into 5 subfamilies: Bellendioideae P.H.Weston (Australia, Tasmania); Persoonioideae L.A.S.Johnson & B.G.Briggs (Australia, New Caledonia and New Zealand); Grevilleoideae Engl. [Australia and SE Pacific to Southeast Asia, S India, and Sri Lanka, South America, South Africa (*Brabejum*) and Madagascar (*Madagascaria*)]; Symphionematoideae P.H.Weston & N.P.Barker (Australia, Tasmania); Proteoideae Eaton (Africa S of the Sahara, especially Cape region and Australia. Only South African subfamilies are further discussed below:

I. Subfamily **Grevilleoideae**

Floral bract subtending a pair of flowers; ovary with one or mostly two ovules: *Brabejum*, **Grevillea*, **Hakea*, **Macadamia*.

II. Subfamily **Proteoideae**

Floral bract subtending a single flower; ovary with a single ovule: *Aulax*, *Diastella* (not in EC), *Faurea*, *Leucadendron*, *Leucospermum*, *Mimetes*, *Orothamnus* (not in EC), *Paranomus*, *Protea*, *Serruria* (not in EC), *Sorocephalus* (not in EC), *Spatalla*, *Vexatorella* (not in EC).

1a Flowers paired in axil of a bract; ovules (1)2:
2a Leaves in whorls of 3 ..... ***Macadamia**
2b Leaves alternate:
3a Leaves usually terete; if flattened, then both surfaces similar; mature follicles hard and woody .... ***Hakea**
3b Leaves pinnately or bipinnately divided, upper and lower surfaces different; follicles thin to coriaceous ..... ***Grevillea**
1b Flowers solitary in axil of a bract; ovule 1:
4a Flowers unisexual:
5a Female flowers in cones formed by woody, imbricate bracts; male flowers sessile in densely congested, globose or conic inflorescences, rarely spicate ..... **Leucadendron**
5b Female flowers in densely involucrate, foliaceous heads, arranged racemosely on a central cone of tissue; male flowers in lax racemes, pedicellate ..... **Aulax**

4b Flowers bisexual:
6a Leaves pinnately or bipinnately divided, or at least divided at some stage; leaflets usually terete or subterete ..... **Paranomus**
6b Leaves entire, or with apical teeth:
7a Inflorescence a lax spike or raceme or condensed raceme:
8a Broad-leaved trees; flowers, slightly irregular ..... **Faurea**
8b Terete-leaved shrubs; flowers irregular or at least abaxially curved in bud ..... **Spatalla**
7b Inflorescence a 3–many-flowered capitulum; capitula terminal and solitary, or axillary and often many towards apex of a flowering shoot, or a terminal panicle of capitula:
9a Capitula solitary and terminal or a terminal panicle of capitula, capitula surrounded by large, highly coloured, involucral bracts; perianth separated to base into two parts, an adaxial sheath of 3 fused perianth segments and a free abaxial perianth segment ..... **Protea**
9b Capitula axillary:
10a Involucral bracts large, conspicuous, usually brightly coloured, but occasionally brown:
11a Perianth separating to base into 2 parts, an adaxial sheath of 3 fused perianth segments and a free, abaxial segment ..... **Protea**
11b Perianth fused into a tube at base, capitula sessile ..... **Mimetes**
10b Involucral bracts small, green or brown, cartilaginous, papyraceous or woody, not brightly coloured:
12a Capitula usually pedunculate or narrowed to a peduncular region, globose or ovoid with > 15 flowers per capitulum..... **Leucospermum**
12b Capitula sessile, massed among upper leaves on shoot and partly hidden by them, with 3–15 flowers per capitulum..... **Mimetes**

AULAX P.J.Bergius

Subfamily Proteoideae

Species 3, sthn Afr., WC, EC.

cancellata (L.) Druce

Channel-leaf featherbush

Shrub, erect to sprawling, 0.5–2.5 m high, dioecious. **Leaves** needle-like to spathulate, 45–100 × 1–3 mm. **Male inflorescence** lax, terminal, stalked, spike-like raceme, 30–50 mm long, in axillary clusters of 5–15. **Female inflorescence** terminal, stalked, dense, involucrate foliaceous head, formed by 8–15 axillary branches bearing female flowers. **Male flowers**: perianth glabrous, tubular, straight; segments free; linear-acute; anthers subsessile; filaments from base of perianth; style straight, terete, thickened towards apex forming a pollen presenter. **Female flowers**: ovary ovoid, densely pubescent; style terete, 6–8 mm long, tip bilobed; perianth glabrous, widened proximally, tapering distally; limbs linear-lanceolate, recurved at anthesis; staminodes filiform-linear. **Flowering time** Nov.–Feb. **Fruit** a pubescent achene, 4-ridged, dense, white cilia on 2 median ridges. Sandstone of Kouga Mts; Eastern Fynbos-Renosterveld (Joubertina District).

FAUREA Harv.

Subfamily Proteoideae

Species ± 15, Africa and Madagascar; 4 in sthn Afr., LIM, NW, G, M, S, KZN, WC, EC.

Leaves broad, 25–60 mm wide; spike drooping, 160 mm long

macnaughtonii E.Phillips

Terblanch beechwood; *terblans*, *bosboekenhout* (A); *isafu*, *inKhumbane* (X); *isefu*, *isiqalaba* (Z)

Evergreen tree, up to 25 m high. **Leaves** alternate, entire and wavy, broadly elliptic to obovate, 70–170 × 25–60 mm, glabrous, thinly coriaceous; petioles 10 mm long,

often red. **Inflorescence** a hanging spike, 170 mm long, 30 mm wide, white or pale pink, covered with grey velvety hairs, sweetly scented. **Flowers** bisexual, sessile, slightly irregular, each subtended by an ovate floral bract. **Perianth** 3 adaxial segments fused into a sheath; abaxial segment separated, limbs lanceolate-elliptic. **Flowering time** Feb.–Apr. **Fruit** a nutlet covered with long, yellow-white hairs. Forest and forest margins; Indigenous Forests (Port Edward SE to Stutterheim).

Leaves narrow, 13–20 mm wide; spike drooping, 120–150 mm long

saligna Harv.

Transvaal beechwood; *Transvaal boekenhout* (A); *incuba lethole* (X); *umcalathole* (Z)

Evergreen tree, 7–20 m high. **Leaves** alternate, entire and wavy, lanceolate-elliptic, slightly sickle-shaped, drooping, waxy, 65–125 × 13–20 mm, glabrous, thinly coriaceous, pale green turning red; petioles 20 mm long, pink. **Inflorescence** a slender hanging spike, 150 mm long, 30 mm wide, green to creamy white, densely covered with grey appressed hairs, honey-scented. **Flowers** bisexual, sessile, slightly irregular, each subtended by an ovate floral bract. **Perianth**: 3 adaxial segments fused into a sheath; abaxial segment separated, limbs lanceolate-elliptic. **Flowering time** Aug.–Feb. **Fruit** a nutlet covered with long hairs. Sour woodland; Sub-Escarpment Savanna (Port Edward District).

*GREVILLEA R.Br. ex Knight

Subfamily Grevilleoideae

Species ± 340, largely Australian, several cultivated as ornamentals and at least 1 naturalised in sthn Afr., mostly in LIM, M, KZN, EC.

robusta A.Cunn ex R.Br.

Australian silky oak; *Australiese silwereik* (A)

Evergreen tree, 18–35 m high, shoots slightly hairy when young, glabrous later. **Leaves** pinnately divided, 150–300 mm long, dark green above, greyish white beneath, leaflet margins recurved. **Inflorescence** terminal racemes, 80–150 mm long. **Flowers** pedicellate; perianth lobes 20–30 mm long, golden-orange. **Flowering time** Sept.–Nov. **Fruit** a leathery follicle, brownish black. Forest margins, riverbanks; Indigenous Forests (Port St Johns SW to Stutterheim).

*HAKEA Schrad.

Subfamily Grevilleoideae

Species ± 110, Australian, several cultivated as ornamentals, at least 3 naturalised in sthn Afr., as weeds mainly S, KZN, WC, EC.

1a Leaves pinnately divided

drupacea (C.F.Gaertn.) Roem & Schult.

Sweet hakea, sweet needlebush; *soethakea*, *soet speldebos* (A)

Shrub or small tree, up to 6 m high, shoots slightly hairy when young, glabrous later. **Leaves** pinnately divided, 70–100 mm long, many rigid needles, spine-tipped, 30–50 mm long, grey-green to dark green, silky hairs when young, glabrous when mature. **Flowers** borne in elongated, axillary clusters, pedicellate, fragrant, cream-coloured. **Flowering time** June–Sept. **Fruit** a hard, woody follicle, yellowish brown with dark warts, glossy, smooth, opening into 2 valves. Sandstone slopes; declared weed (Category 1); Eastern Fynbos-Renosterveld (Willowmore E to Grahamstown).

1b Leaves not pinnately divided
2a Leaves needle-shaped

gibbosa (Sm.) Cav.

Rock hakea; *harige hakea* (A)

Shrub, much branched, up to 4 m high, shoots markedly hairy when young, glabrous later. **Leaves** needle-shaped, 80 mm long, sharp-pointed, grey-green to dark green, densely hairy when young, glabrous when mature. **Flowers** in leaf axils, pedicellate, cream-coloured. **Flowering time** June–Sept. **Fruit** a hard woody follicle, grey, 2 apical horns, rough, opening into 2 valves. Sandstone slopes; declared weed (Category 1); Eastern Fynbos-Renosterveld (Grahamstown District).

sericea Schrad. & J.C.Wendl.

Silky hakea, silky needlebush; *syerige hakea*, *harige speldebos* (A)

Shrub or small tree, up to 5 m high, shoots with fine hairs when young, later glabrous. **Leaves** needle-shaped, 30–40 × 1 mm, sharp-pointed, hairy when young, hairless when mature. **Flowers** in axillary clusters, fragrant, white; pedicels hairy. **Flowering time** June–Sept. **Fruit** a hard, woody, warty follicle, purplish brown with paler markings, 2 apical horns, smooth. Sandstone and shale soils; declared weed (Category 1); Indian Ocean Coastal Belt, Drakensberg Grassland, Eastern Fynbos-Renosterveld, Sub-Escarpment Savanna, Albany Thicket (Mkambati Nature Reserve to Port St Johns SW, from Van Stadens Mts to Grahamstown and from Storms River to Joubertina and Humansdorp).

2b Leaves lanceolate

salicifolia (Vent.) B.L.Burtt

Hedge hakea, willow hakea; *heining hakea*, *wilgerhakea*, *groenkanker* (A)

Shrub or small tree, 2.5–5.5 m high, shoots silky when young, glabrous later. **Leaves** entire, linear to lanceolate, 50–100 × 15–20 mm, coriaceous, dark green, glabrous, young leaves reddish. **Flowers** in dense, axillary clusters, pedicellate, fragrant, white. **Flowering time** Sept., Oct. **Fruit** a hard, woody follicle, grey with dark warts, opening into 2 valves. Sandstone slopes; Drakensberg Grassland (Hogsback area).

LEUCADENDRON R.Br.

Subfamily Proteoideae

Species 83, sthn Afr., KZN, NC, WC, EC.

1a Fruit flattened, retained in cones (section Alatosperma*)*
2a Fruit < 5 mm wide (subsection Trigona*)*

conicum (Lam.) I.Williams

Garden route conebush, grey conebush; *vaaltolbos* (A)

Tree or shrub, erect, 3–6 m high, dioecious, young stems reddish. **Leaves** narrowly oblanceolate, softly hairy when young, glabrous when mature, 38 × 5.5 mm in male plants and 49 × 6 mm in female ones, narrowed to apex with fine red point; involucral leaves spreading, reddish. **Male flowers** in terminal, globose capitula, 15 mm in diam. **Involucral bracts** 9, linear, yellow or purplish, softly hairy outside, edges rolled inward. **Female flowers** in solitary, terminal, ellipsoid capitula, 18 × 12 mm; perianth 2.5 mm long. **Mature capitulum** a globose cone, 33 × 29 mm, sparsely covered with hair; bracts in 2 spirals. **Flowering time** Oct., Nov. **Fruit** triangular in cross section, hairy, sharply edged. Damp valleys, kloofs and streams; Eastern Fynbos-Renosterveld (Joubertina E to Port Elizabeth).

loeriense I.Williams

Loerie conebush; *loerietolbos* (A)

Dwarf shrub, densely branched from base, 0.5–2.5 m high, dioecious. **Leaves** narrowly oblong, 30–35 × 3–6 mm, erect velvety hairs, flushed red, apex a fine point; involucral leaves 16, crowded, lanceolate, green-white, hairless above, forming a star-like cup. **Male flowers** in solitary, terminal, conical capitula, 15 × 12 mm. **Involucral bracts** 6, ovate with hairy margins. **Female flowers** in terminal ellipsoid capitula, 13 × 10 mm. **Mature capitulum** a globose cone, 25 × 20 mm, bracts reddened, hairless above, densely hairy across middle. **Flowering time** Dec., Jan. **Fruit** broadly winged. Sandstone slopes; Eastern Fynbos-Renosterveld (Baviaanskloof E to Port Elizabeth).

pondoense A.E.van Wyk

Pondoland conebush; *Pondo-tolbos* (A)

Tree or shrub, 3–6 m high, dioecious. **Leaves** narrowly oblong, 35–60 × 2.5–4.0 mm in male plants, 50–70 × 3–4 mm in female ones, coriaceous, silver-hairy, hairless when mature, slightly sickle-shaped, apex a fine red point; involucral leaves absent. **Male flowers** in terminal, globose capitula, 10 mm in diam., covered with silver hairs. **Involucral bracts** 8, linear, inconspicuous with soft hairs on outer surface. **Female flowers** in terminal, ellipsoid capitula, 12–15 × 8–9 mm; perianth 3.0–3.5 mm long. **Mature capitulum** a globose cone, 25–35 × 15–20 mm, hairless at tip, dense hairs below. **Flowering time** Sept.–Dec. **Fruit** sharply edged, released after 12 months. Riverbeds; Indian Ocean Coastal Belt (Port St Johns E to Port Edward).

rourkei I.Williams

Uniondale conebush; *Uniondale tolbos* (A)

Shrub, up to 5 m high, dioecious, bushy below, slender above. **Leaves** oblanceolate, narrow and twisted at base, hairy when young, later hairless, 18 × 3.5 mm in male plants, 24 × 4.5 mm in female ones; involucral leaves inconspicuous, crowded, green. **Male flowers** in terminal, globose-elongate capitula, 12 × 9 mm. **Involucral bracts** few, lanceolate, brown, soft white-hairy outside, edges rolled inward. **Female flowers** in solitary, terminal, globose capitula, 10 × 9 mm; perianth 3.5 mm long. **Mature capitulum** a globose cone, 19–27 × 16–21 mm; bracts broad, pale and thin above, hairy across middle. **Flowering time** Dec., Jan. **Fruit** narrowly winged. Steep southern slopes on stony soil; Eastern Fynbos-Renosterveld (Baviaanskloof E to Uitenhage).

uliginosum R.Br.

Tsitsikamma conebush; *duineknoppiesbos*, *duine tolbos* (A)

Shrub, 1.2–4.0 m high, dioecious, bushy below. **Leaves** linear to oblong, silvery silky or glabrescent, 20–35 × 4 mm in male plants, 26 × 4 mm in female ones, base narrow, twisted, apex with sunken fine point; involucral leaves slightly larger, ivory-coloured to pale yellow. **Male flowers** in terminal, globose capitula, 9–10 mm in diam. **Involucral bracts** few, lanceolate, brown, soft white-hairy outside. **Female flowers** in terminal, ovoid capitula, 14 × 11 mm; perianth green-yellow. **Mature capitulum** a globose cone, 16–24 × 16–20 mm; bracts hairless. **Flowering time** Nov., Dec. **Fruit** narrowly winged, retained. Sandstone slopes; Eastern Fynbos-Renosterveld (Joubertina E to Uitenhage and to Humansdorp).

2b Fruit > 5 mm wide
3a Leaves flat; cone bracts curled upwards and overlapping (subsection Alata*)*

eucalyptifolium H.Buek ex Meisn.
Gum-leaf conebush; *groot geelbos* (A)

Shrub or tree, 2–5 m high, dioecious. **Leaves** linear-lanceolate, 105 × 8 mm, glabrescent, apex with blunt, fine point, narrowed to base twisted; involucral leaves few, longer, yellow. **Male flowers** in terminal, conical capitula, 24 × 16 mm. **Involucral bracts** broadly lanceolate, edges rolled inwards, hairy above, hairless below, yellow, forming a cup around capitulum. **Female flowers** in terminal, ovoid capitula, 23 × 12 mm, silvery green; flowers yellow. **Mature capitulum** an ovoid cone, up to 45 × 20 mm; bracts broad, hairy across middle, margins hairless, transparent. **Flowering time** July–Oct. **Fruit** retained. Forest margins and open sandstone slopes; Eastern Fynbos-Renosterveld (Joubertina E to Port Elizabeth and a doubtful record from Grahamstown).

salignum P.J.Bergius
Common sunshine conebush; *knoppiesgeelbos* (A)

Shrub, sprawling or erect, lignotuberous, 0.5–2.0 m high, dioecious. **Leaves** linear-oblanceolate, glabrescent, 20–47 × 3–5 mm in male plants, 48–58 × 4–6 mm in females ones, base twisted, apex with fine point; involucral leaves few, longer, yellow or red. **Male flowers** in terminal, globose capitula, 10–16 × 10–14 mm. **Female flowers** in terminal, ovoid capitula, 9–15 × 9–12 mm. **Mature capitulum** a globose cone, up to 17–23 mm in diam.; bracts with soft hair, swollen in middle. **Flowering time** Apr.–Nov. **Fruit** retained. Wide range of soil types; Eastern Fynbos-Renosterveld (Joubertina E to Port Elizabeth and Grahamstown).

spissifolium (Salisb. ex Knight) I.Williams
Spearleaf conebush; *vleigeelbos* (A)

Shrub, sprawling or erect, lignotuberous, 0.5–1.5 m high, dioecious. **Leaves** oblanceolate or linear-oblanceolate, 25–63 × 15–64 mm in male plants, 27–81 × 3–17 mm in female ones, hairless, shiny, base twisted, apex with fine red point; involucral leaves crowded, broader, ivory-white to pale green. **Male flowers** in terminal, globose capitula, 18 × 20 mm. **Involucral bracts** lanceolate, brown hairless, margins hairy, recurved. **Female flowers** in terminal, ovoid capitula, 16–20 × 13–15 mm. **Mature capitulum** a globose cone, up to 36 × 26 mm, hairless, red when exposed swollen in middle. **Flowering time** Aug.–Oct. **Fruit** retained. Damp sandstone soils on southern slopes.

Three subsp. in EC:

spissifolium subsp. **natalense** (Thode & Gilg) I.Williams
Indian Ocean Coastal Belt (Port St Johns E to Port Edward).

spissifolium subsp. **orbinum** I.Williams
Indian Ocean Coastal Belt (Umtamvuna River to Port Edward).

spissifolium subsp. **phillipsii** (Hutch.) I.Williams
Eastern Fynbos-Renosterveld (Joubertina E to Uitenhage).

xanthoconus (Kuntze) K.Schum.
Sickle-leaf conebush; *blinkblaartolbos* (A)

Dense shrub, erect, 1–2 m high, dioecious. **Leaves** oblong-falcate, somewhat sickle-shaped, 65 × 6 mm, silver-hairy when young, hairless when old, base twisted, apex with fine point; involucral leaves variable, crowded, exceeding the capitulum, yellow.

Male flowers in terminal, ellipsoid capitula, 13 × 10 mm, topmost bracts barren. **Involucral bracts** ovate, brown, fringed. **Female flowers** in terminal, ovoid capitula, 18 × 11 mm. **Mature capitulum** an ovoid cone, 30 × 22 mm; bracts bilobed, hairy. **Flowering time** Aug. **Fruit** triangular in cross section, winged, retained. Lower sandstone slopes; Eastern Fynbos-Renosterveld (Suurberg E to Grahamstown).

3b Leaves needle-like on young plants, may become flattened on older plants; cone bracts flat, not overlapping at tips and sealed at tips (subsection Compressa*)*

comosum (Thunb.) R.Br. subsp. **comosum**

Ridge-cone conebush

Shrub, erect, up to 1.7 m high, dioecious. **Leaves** dimorphic, lower leaves needle-shaped, curved inwards, shallow upper groove, hairless, 38 × 1 mm in male plants, 44 × 1 mm in female ones, upper leaves broadened, narrowly oblanceolate, apex with sharp point, 35 × 3.5 mm in male plants, 40 × 5 mm in female ones; involucral leaves crowded, pale green to yellow, not concealing capitula. **Male flowers** in terminal, globose capitula, 11 × 13 mm; bracts hairless; flowers dark red. **Female flowers** in terminal, ovoid capitula, 35 × 16 mm; flowers dark red. **Mature capitulum** tapering towards base, 100 × 45 mm; bracts brown, spreading. **Flowering time** Oct., Nov. **Fruit** compressed, retained. Sandstone mountain slopes; Eastern Fynbos-Renosterveld (Joubertina District, Kouga Mts).

nobile I.Williams

Karoo conebush; *naaldblaar tolbos* (A)

Shrub, erect, branching from base, 2–4 m high, dioecious. **Leaves** needle-shaped, shallow upper groove, hairless, 41 × 1.2 mm, in males, 58 × 1.5 mm in females, apex with fine point; involucral leaves slightly crowded, pale green to ivory-coloured, not concealing capitula. **Male flowers** in terminal spike, 40 × 10 mm, unpleasant odour. **Female flowers** in terminal, elongate-ovoid capitula, 28 × 12 mm. **Involucral bracts** > 30. **Mature capitulum** 40–90 × 24–40 mm; bracts hairless, in 3 abutting spirals. **Flowering time** Oct.–Mar. **Fruit** retained. Gravelly to sandy soils, Eastern Fynbos-Renosterveld, Rainshadow Valley Karoo (Willowmore, Baviaanskloof and Steytlerville E to Humansdorp).

1b Fruit a nut, rounded, at least one side (section Leucadendron*)*
4a Nuts biconvex, hairless; fruits released when ripe (subsection Nucifera*)*

[E]**orientale** I.Williams

Van Staden's sunbush; *goue-roset tolbos* (A)

Shrub, erect, few stout branches, 0.5–1.5 m high, dioecious. **Leaves** lanceolate to oblanceolate, erect, 90 × 18 mm in male plants, 100 × 23 mm in female ones, hairless, glaucous, apex with recurved dark red point, margins red, cartilaginous; involucral leaves crowded, overlapping, yellow when flowering. **Male flowers** in terminal, cylindrical capitula with flowers on upper surface, pleasant smell, 30 × 35 mm. **Involucral bracts** red, recurved, oily. **Female flowers** in terminal, cylindrical capitula, 20 × 30 mm, surrounded by involucral leaves. **Involucral bracts** ± 94, oblanceolate, recurved, outer bracts hairy, inner bracts oily. **Mature capitulum** 50 × 40 mm; bracts hairless above, densely hairy below. **Flowering time** June, July. **Fruit** released. Clayey sandstone soils; Eastern Fynbos-Renosterveld, Albany Thicket (Baviaanskloof E to Port Elizabeth).

pubibracteolatum I.Williams

Purple-leaf conebush; *persblaar tolbos* (A)

Shrub, erect, few branches, 1.0–1.3 m high, dioecious. **Leaves** oblanceolate-elliptic, hairless, hanging, apex curving upwards, 64 × 21 mm in male plants, 74 × 24 mm in female ones, glaucous, purplish grey, apex with sunken, fine, point; involucral leaves similar to leaves, denser, spreading, yellow. **Male flowers** in terminal, cylindrical capitula with flowers on upper surface, sweet smelling, 35 × 35 mm; bracts hairy. **Female flowers** in terminal, cylindrical capitula, 35 × 35 mm, surrounded by involucral leaves. **Involucral bracts** ± 89, reddish, recurved, not oily. **Mature capitulum** 50 × 44 mm, globose; bracts recurved, quadrangular, tip pointed, densely hairy below. **Flowering time** July, Aug. **Fruit** with ridged perimeter, released. Stony sandstone slopes; Eastern Fynbos-Renosterveld (Joubertina E to Baviaanskloof).

4b Nuts with hairs
5a Soft-haired nut; perianth segments in female flower fused into tube with plume of hairs at tip, perianth persistent on style; style remains on fruit forming parachute (subsection Leucadendron*)*

album (Thunb.) Fourc.

Linear-leaf conebush; *aarbeisilwertolbos* (A)

Shrub, erect, 1–2 m high, dioecious. **Leaves** linear-oblanceolate, silvery hairs, 28–42 × 2–3 mm in male plants, 45–59 × 2–4 mm in female ones, glaucous, purplish grey, apex with sunken, fine point; involucral leaves larger than foliage leaves. **Male flowers** in terminal, turban-shaped capitula, pleasant smelling, 8 × 15 mm, greenish yellow; posterior floral segment base fleshy. **Female flowers** in terminal, globose capitula, 26 × 26 mm, surrounded by involucral leaves but not hidden; perianth segments fused with short plumes. **Mature capitulum** 33–41 × 28–34 mm, ovoid, silvery pink. **Flowering time** Dec. **Fruit** released. Stony sandstone slopes; Eastern Fynbos-Renosterveld (Joubertina E to Baviaanskloof).

rubrum Burm.f.

Spinning top; *tolletjiesbos*, *dikkopeierbos* (A)

Shrub, erect, 1.0–2.5 m high, dioecious. **Leaves** oblanceolate, softly hairy when young, hairless when mature, 34 × 5 mm in male plants, 70 × 8 mm in female ones, green, narrowed and twisted at base. **Male flowers** up to 16 in terminal, narrow capitula, without involucral leaves, 11 × 5 mm, yellow. **Female flowers** in terminal, ovoid capitula, 40 × 20 mm, purplish green, each with a pointed tip from where floral stigmas are exserted. **Mature capitulum** 55 × 35 mm, top-shaped with colourful bracts. **Flowering time** Aug., Sept. **Fruit** with persistent style, released. Dry sandstone or granite slopes; Eastern Fynbos-Renosterveld (Joubertina E to Baviaanskloof).

5b Nut obovoid with short hairs; perianth segments in female flower fused into tube; style shed from fruit (subsection Aliena*)*

sorocephalodes E.Phillips & Hutch.

Woolly conebush

Low shrub, spreading, 0.2–0.4 m high, dioecious. **Leaves** narrowly linear, ericoid, thick, fleshy, 12 × 1.5 mm in male plants, 18 × 1.5 mm in female ones, hairless. **Involucral bracts** many, lanceolate, apex acute, brown. **Male flowers** in terminal, depressed-

globose capitula, wooly, creamy white, 12 × 20 mm, sweetly scented. **Female flowers** in terminal, globose capitula, 17 × 13 mm, with woolly cream-coloured flowers at tip, sweetly scented. **Mature capitulum** 15 × 15 mm, globose, hidden by involucral bracts. **Flowering time** Aug., Sept. **Fruit** club-shaped, released. Among sandstone rocks; Eastern Fynbos-Renosterveld (Willowmore E to Baviaanskloof).

LEUCOSPERMUM R.Br.

Subfamily Proteoideae

Species 48, mainly southwestern and southern region of WC, extending to EC, KZN and Zimbabwe.

1a Style < 35 mm long
2a Inflorescence small (10–20 mm in diam., rarely more) and globose with conical receptacle, in clusters of 2–6; perianth segments separate at tip, curling back; leaves hairy with 1 glandular tooth (rarely more) at tip (section Diastelloidea*)*

calligerum (Salisb. ex Knight) Rourke

Arid pincushion; *rooi luisiebossie* (A)

Shrub, erect, 1–2 m high. **Leaves** grey, hairy, lanceolate to elliptic, apex pointed, 12–36 × 4–8 mm, sessile. **Inflorescence** globose, 20–35 mm in diam., in clusters of 2–6. **Involucral bracts** lanceolate, cartilaginous, not conspicuous. **Perianth** 15–17 mm long, cream-coloured with carmine, silky hairs, tube 5 mm long; style 21–25 mm long, curved, tapering, yellow turning carmine; pollen presenter conical-ovoid, yellow. **Flowering time** July–Jan. Dry flats and northern slopes; Eastern Fynbos-Renosterveld (Kouga Mts E to Baviaanskloof).

royenifolium (Salisb. ex Knight) Stapf

Eastern pincushion

Shrub, semi-erect, much branched, sprawling to prostrate, 0.1–0.5 m high. **Leaves** hairy when young, glabrous when mature, elliptic, 15–22 × 4–6 mm, apex pointed with one glandular tooth. **Inflorescence** globose, 10–20 mm in diam., in clusters of 3–5, rarely more. **Involucral bracts** ovate, cartilaginous. **Perianth** 15 mm long, cream-coloured to green but turning pale carmine with long hairs, tube 4 mm long; style 13–16 mm long, tapering, creamy green turning pink-carmine; pollen presenter cylindrical, tip rounded. **Flowering time** July–Dec. Hot northern sandstone and quartzite slopes; Eastern Fynbos-Renosterveld (Willowmore E to Baviaanskloof).

wittebergense Compton

Swartberg pincushion

Dwarf shrub, erect, much branched, 0.5–1.5 m high. **Leaves** crowded and overlapping, elliptic-lanceolate, 15–25 × 3–6 mm, densely hairy, silver, apex pointed with one glandular tooth. **Inflorescence** globose, 20 mm in diam., solitary. **Involucral bracts** lanceolate, cartilaginous. **Perianth** 15 mm long, cream-coloured but turning carmine with long hairs, tube 3 mm long; style 12–19 mm long, straight to slightly curving, pink or carmine; pollen presenter club-shaped to cylindrical, tip rounded, yellow. **Flowering time** Aug.–Jan. Arid rocky northern sandstone and quartzite slopes; Eastern Fynbos-Renosterveld (Kouga Mts E to Baviaanskloof).

2b Inflorescence larger (> 20 mm in diam.) and globose with conical or conical-flattened receptacle, in clusters of 2–4; perianth tube narrow at base and wider at upper end; leaves hairless when mature, with > 3 glandular teeth at tip (section Tumiditubus*)*

muirii E.Phillips

Albertinia pincushion; *bloukoolhout* (A)

Shrub, erect, 1.0–1.5 m high. **Leaves** oblanceolate-cuneate, 40–60 × 4–10 mm, softly hairy when young, hairless when mature, apex with 3–7 glandular teeth. **Inflorescence** globose, 20–30 mm in diam., in groups of 1–4. **Perianth** 12–15 mm long, tube 5 mm long, lobes widening and sparsely hairy at apex, pale yellow; style 13–22 mm long, straight; pollen presenter club-shaped to cylindrical. **Flowering time** Sept.–Dec. Sandy sandstone soils; Eastern Fynbos-Renosterveld (Baviaanskloof E to Uitenhage).

truncatum (H.Buek ex Meisn.) Rourke

Limestone pincushion

Shrub, erect, 1–2 m high. **Leaves** oblanceolate-cuneate, 45–90 × 8–15 mm, softly hairy when young, hairless when mature, apex with 3 glandular teeth. **Inflorescence** globose, 30–40 mm in diam., in groups of 2 or 3. **Perianth** 12–18 mm long, tube 5 mm long, lobes hairy, yellow to orange; style 18–35 mm long, straight or slightly curved; pollen presenter club-shaped to cylindrical with rounded tip. **Flowering time** Aug.–Dec. Limestone soils; Eastern Fynbos-Renosterveld (Jeffreys Bay E to Suurberg and Port Elizabeth).

1b Style > 35 mm long (section Crassicaudex*)*

cuneiforme (Burm.f.) Rourke

Wart-stemmed pincushion; *gewone luisiesbos* (A); *isiqwane* (X)

Lignotuberous, resprouting shrub, erect, much branched; stems warty below, 1–3 m high. **Leaves** cuneate, variable, 45–110 × 6–30 mm, with 3–10 glandular teeth. **Inflorescence** ovoid, 50–90 mm in diam., solitary. **Perianth** 25–40 mm long, yellow but turning red; style 38–55 mm long, yellow to orange; pollen presenter conical. **Flowering time** Aug.–Feb. Sandstone and quartzite slopes and flats; Upper Karoo, Indian Ocean Coastal Belt, Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld, Albany Thicket (Qolora River, Kentani and Kei River Mouth S, from Willowmore E to Port Alfred and from Tsitsikamma to Humansdorp).

innovans Rourke

Transkei pincushion

Lignotuberous, resprouting shrub, erect, much branched with slender stems, 0.5–1.0 m high. **Leaves** wedge-shaped to obovate, 70–100 × 30–50 mm, with 5–10 glandular teeth. **Inflorescence** globose, 80–90 mm in diam., solitary. **Perianth** 10–12 mm long, swollen at base, yellow; style 50 mm long, slender, yellow; pollen presenter narrowly conical, tip pointed. **Flowering time** Sept.–Dec. Rocky sandstone soils, Indian Ocean Coastal Belt (Lusikisiki E to Port Edward).

*MACADAMIA F.Muell.

Subfamily Grevilleoideae

Species 8, 7 endemic to eastern Australia and 1 endemic to Sulawesi, Indonesia; 1 naturalised in sthn Afr., M, KZN, EC.

integrifolia Maiden & Betche
[= *M. ternifolia* var. *integrifolia* (Maiden & Betche) Maiden & Betche]

Tree, 6–18 m high. **Leaves** in whorls of 3; lamina ovate to obovate, 65–140 × 20–65 mm, glossy above, paler below, stiffly coriaceous, glabrescent, base very shortly attenuate, apex acute to obtuse, tip rounded, ± mucronate, margins weakly undulate, entire to spinose; midrib prominent below; petioles 6–18 mm long. **Inflorescence**: rachis 85–250 mm long with flowers in regular, sessile or shortly pedicellate pairs. **Tepals** 5–10 mm long, cream-coloured. **Filaments** up to 7 mm long. **Anthers** 0.7–2.2 mm long. **Ovary** up to 2 mm long; style up to 11 mm long, tip swollen, functioning as pollen presenter. **Fruit** a globose follicle, 30–40 × 20–45 mm; pericarp leathery, up to 6 mm thick. Origin from remnant rainforest in northern and south-eastern Queensland, locally cultivated especially in subtropical areas along coast; Albany Thicket (Grahamstown Botanic Garden).

MIMETES Salisb.

Subfamily Proteoideae

Species 13, sthn Afr., Porterville to Kouga Mts, WC, EC.

1a Involucral bracts brightly coloured, longer than inflorescence leaves

pauciflorus R.Br.
Three-flowered pagoda; *slankevlambos* (A)

Shrub, erect, sparsely branched, 2–4 m high. **Leaves** ovate, hairy when young, hairy margins when older, 25–40 × 8–20 mm. **Inflorescence** cylindrical, 100–400 × 50–55 mm, topped by little coma of leaves. **Axillary capitula** 40–120, densely clustered, each with 3 or 4 flowers, subtended by inconspicuous green leaf. **Involucral bracts** 4 or 5, orange-yellow, 10–25 × 5–8 mm. **Flowers** cream-coloured; style 45–50 mm long, orange; pollen presenter 3–4 mm long, thread-like with pointed tip, slightly thickened ring at style junction, orange red. **Flowering time** Aug.–Nov. Moist southern slopes; Eastern Fynbos-Renosterveld (Joubertina District, Kareedouw Pass).

1b Involucral bracts much smaller than the brightly coloured inflorescence leaves
2a Leaves glabrous

cucullatus (L.) R.Br.
Common pagoda; *rooistompie* (A)

Lignotuberous shrub, 1–2 m high, many erect stems from underground rootstock. **Leaves** oblong-elliptic, hairless, 25–55 × 5–20 mm. **Inflorescence** cylindrical, 60–100 × 40–70 mm, topped by coma of flat, red, reduced leaves. **Axillary capitula** 4–7-flowered, subtended by cucullate (hood-shaped), red-orange leaf. **Flowers** white; style 40–50 mm long, red; pollen presenter 5–7 mm long, narrowly spindle-shaped, thickened at base. **Flowering time** all year, mainly Aug.–Mar. Sandstone slopes and flats; Eastern Fynbos-Renosterveld (Kouga Mts).

2b Leaves with silver hairs

splendidus Salisb. ex Knight
Splendid pagoda; *pragstompie* (A)

Shrub, erect, sparsely branched, 2.5–3.0 m high. **Leaves** lanceolate to elliptic, silver hairs, 40–55 × 12–25 mm, 3 or 4 glandular teeth. **Inflorescence** cylindrical,

80–120 × 60–80 mm, topped by little coma of leaves. **Axillary capitula** each with 10–14 flowers, subtended by silvery, pink-flushed leaf. **Involucral bracts** ovate, papery, hairless, yellow. **Flowers** white; style 45–55 mm long, yellow; pollen presenter 5–7 mm long, linear, ring at style junction, orange red, tip pointed. **Flowering time** May–July. Moist southern slopes on peaty soils; Eastern Fynbos-Renosterveld (Joubertina District, Tsitsikamma Mts).

PARANOMUS Salisb.

Subfamily Proteoideae

Species 18, sthn Afr., WC: Cederberg to southern EC: Uitenhage.

Leaves all dissected (or almost so)

dregei (H.Buek ex Meisn.) Kuntze

Scented sceptre

Shrub, erect, branched, 0.8–1.7 m high. **Leaves** dissected, up to 50 mm long, apex rounded and reddish, few leaves below inflorescence entire. **Inflorescence** a dense, spike-like, double raceme, 25–50 × 20–25 mm, with sessile axillary racemes, each with 4 flowers, sweetly scented. **Flowers**: perianth 14 mm long, cream-coloured, covered with long, shaggy hairs; style glabrous; pollen presenter 2 mm long, broader than style, with 8 longitudinal ridges. **Flowering time** May–Oct. Dry upper sandstone slopes; Eastern Fynbos-Renosterveld (Kouga Mts).

esterhuyseniae Levyns

Kouga sceptre

Small shrub, erect, branched, 0.6–0.8 m high. **Leaves** dissected, 20–50 mm long, apex rounded, few leaves below inflorescence entire. **Inflorescence** a globose, double raceme, velvety, 15–30 mm in diam., with sessile, axillary racemes, each with 4 flowers. **Flowers**: perianth 8 mm long, cream-coloured, covered with long hairs; style hairless; pollen presenter 1.2 mm long, yellow, slightly bent. **Flowering time** Aug.–Nov. Sandstone soils; Eastern Fynbos-Renosterveld (Willowmore and Joubertina Districts, Kouga Mts).

Leaved distinctly dimorphic, the lower dissected, the upper obovate and entire

[E]**reflexus** (E.Phillips & Hutch.) Fourc.

Van Staden's sceptre, yellow paranomus; *geel paranomus* (A)

Small shrub, erect, branched, 0.8–1.5 m high. **Leaves** dimorphic, lower leaves dissected, 40–80 mm long, hairless, lobes slender with red pointed apex; upper leaves entire, petiolate, ovate to spathulate, glabrous, 35 mm long. **Inflorescence** an elongate, double raceme, velvety, 80–140 × 50–70 mm, with sessile, axillary racemes, each with 4 flowers. **Flowers**: perianth 30–35 mm long, green-yellow, covered with short pale hairs; flowers reflexed as bud opens; style hairless, pointing downwards; pollen presenter 5 mm long, green, spindle-shaped, bent at base. **Flowering time** June–Aug. Sandstone soils; Eastern Fynbos-Renosterveld (Baviaanskloof to Van Stadens Mts and Elandsberg).

PROTEA L.

Subfamily Proteoideae

Species ± 112, Africa, ± 83 in sthn Afr., mainly WC and usually at higher altitudes elsewhere.

1a Stems prostrate or underground rhizomatous
2a Involucral bracts covered or edged with dense white-woolly indumentum outside, but not bearded, acuminate with long thin tip; flower heads borne at ground level (section Paracynaroides*)*

pruinosa Rourke

Frosted sugarbush

Dwarf shrub, 0.4–0.5 m high, prostrate, branches creeping. **Leaves** petiolate, elliptic to oblanceolate, folded lengthwise, 200–450 × 40–80 mm, coriaceous, margins horny. **Flower head** deeply cup-shaped, 100–120 × 80–120 mm, with loose, brown lanceolate-acuminate basal bracts. **Involucral bracts** 6–8-seriate; outer series ovate-acute, 20–35 × 5–20 mm, outer surface glabrous, crimson at base, very dense, white, woolly indumentum on upper part; inner series linear-lanceolate, acuminate, 40–45 × 4–6 mm, inner surface glabrous, crimson, outer surface with dense, white, woolly indumentum. **Flowers**: perianth white, 55–65 mm long, slightly curved, tube 38–40 mm long, glabrous; style 55–60 mm long, white; pollen presenter 10 mm long, linear. **Flowering time** Jan., Feb. High altitude mountain summits; Eastern Fynbos-Renosterveld (Willowmore District, Swartberg Mts, Blesberg).

scolopendriifolia (Salisb. ex Knight) Rourke

Hart's tongue-fern sugarbush; *tongblaarprotea* (A)

Dwarf shrub, rhizomatous, with subterranean stems with black scales, resprouting, 0.5–1.0 m high. **Leaves** petiolate, oblanceolate to spathulate, folded lengthwise, 200–600 × 20–85 mm, rough, coriaceous, hairless when mature, margins horny. **Flower head** cup-shaped, 60–120 mm in diam., with loose, dark brown, lanceolate, basal bracts. **Involucral bracts** 5- or 6-seriate; outer series lanceolate, acute, 15–25 × 5–15 mm, loosely arranged, carmine becoming papyraceous, hairless with hairy margins; inner series lanceolate, acuminate, 35–50 × 5–7 mm, densely covered with woolly hairs. **Flowers**: perianth white, 35–45 mm long, straight, tube 10 mm long, glabrous but tomentose distally with shaggy hairs; style 30–35 mm long, carmine; pollen presenter 10 mm long, linear. **Flowering time** Sept.–Dec. Shale slopes, clayey soils; Eastern Fynbos-Renosterveld (Willowmore, eastern Swartberg, Kouga Mts).

2b Involucral bracts green, flushed pink to carmine, glabrescent but margins with silky hairs; flower heads borne on tips of stems raised up from ground level (section Crinitae*)*

[E]**foliosa** Rourke

Leafy sugarbush

Shrub, lignotuberous, with many, erect stems, 0.7–1.5 m high. **Leaves** petiolate, lanceolate to elliptic, narrowing towards petiole, 90–160 × 15–70 mm, slightly granulate, coriaceous, hairless when mature, margins wavy. **Flower head** ovoid to globose, cyathiform, 30–40 mm in diam., hidden by large overtopping leaves. **Involucral bracts** 4- or 5-seriate; outer series ovate, obtuse, 7–15 × 7–12 mm, green-yellow, flushed carmine, fine hairs on outer surface; inner series oblong-spathulate, obtuse, 30–35 × 10 mm. **Flowers** white, 25–30 mm long, straight, tube 8–10 mm long, glabrous, tips with white or brown woolly hairs; style 25 mm long, straight or curved, carmine; pollen presenter 5 mm long, linear. **Flowering time** May, June. Table Mountain Sandstone; Eastern Fynbos-Renosterveld (Antoniesberg E, from Suurberg to Uitenhage, Port Elizabeth and Grahamstown).

intonsa Rourke

Tufted sugarbush

Dwarf shrub, lignotuberous, subterranean stems with brown scales, 0.2–0.3 m high. **Leaves** petiolate, needle-like to linear, 150–400 × 2–5 mm, smooth to slightly scabrous, coriaceous, hairless. **Flower head** globose, cyathiform, 20–50 mm in diam. **Involucral bracts** 4- or 5-seriate; outer series ovate, obtuse, 10–15 × 10–15 mm, green, becoming carmine with age, fine hairs on outer surface; inner series oblong-spathulate, obtuse, 20–25 × 10 mm. **Flowers**: perianth white, 25–30 mm long, straight, tube 8–10 mm long, glabrous, tips with white-woolly hairs; style 25–30 mm long, curved inwards; pollen presenter 5–6 mm long, linear. **Flowering time** Sept.–Nov. Dry, rugged, sandstone mountain slopes; Eastern Fynbos-Renosterveld (Antoniesberg E, from Willowmore to Baviaanskloof District: Bosrug and Scholtzberg).

montana E.Mey. ex Meisn.

Swartberg sugarbush

Dwarf shrub, much branched, spreading, dense prostrate mats, ± 0.2 m high. **Leaves** pointing vertically, petiolate, needle-like to linear-spathulate, 40–100 × 1–4 mm, silky hairs, hairless when mature, acute. **Flower head** ovate to globose, cyathiform, 30–50 mm in diam., overtopped by leaves. **Involucral bracts** 4- or 5-seriate; outer series oblong-ovate, obtuse to acute, 10–20 × 10–15 mm, green flushed carmine, fine hairs on outer surface, outermost bracts with leaf-like extensions; inner series oblong-spathulate, rounded, 35–40 × 6–10 mm. **Flowers** white, 30–40 mm long, straight, tube 7–10 mm long, glabrous, tips with white-woolly hairs; style 25–35 mm long, straight to curved; pollen presenter 5–6 mm long, linear. **Flowering time** Feb.–June. Steep rocky slopes and summits; Eastern Fynbos-Renosterveld (southern slopes of Blesberg, west of Willowmore).

tenax (Salisb.) R.Br.

Tenacious sugarbush

Dwarf shrub, lignotuberous sparsely branched, spreading, 0.5–0.9 m high. **Leaves** pointing vertically from horizontal stems, petiolate, linear to lanceolate, 80–180 × 2–28 mm, midrib prominent, hairless when mature, acute to obtuse. **Flower head** bowl-shaped, 40–60 mm in diam., overtopped by surrounding leaves. **Involucral bracts** 4- or 5-seriate; outer series broadly ovate, obtuse to rounded, 10–20 × 10–20 mm, green-yellow flushed carmine, fine hairs on outer surface, outermost bracts with leaf-like extensions; inner series oblong, rounded, 35–40 × 10–15 mm. **Flowers** 25–30 mm long, straight, tube 8 mm long, glabrous, tips with white-woolly hairs; style 25–30 mm long, straight to slightly curved; pollen presenter 5 mm long, linear. **Flowering time** May–Sept. Mountain slopes; Eastern Fynbos-Renosterveld (Tsitsikamma, Baviaanskloof, Kouga, Winterhoek and Kareedouw Mts to Humansdorp).

vogtsiae Rourke

Kouga sugarbush; *Marie-se-roos* (A)

Dwarf shrub, rhizomatous, subterranean stems with brown scales, 0.2–0.3 m high. **Leaves**: petioles tinted carmine; lamina oblanceolate to spathulate, 120–250 × 8–30 mm, base tapering, glaucous, granulate, obtuse. **Flower head** ovoid to globose, 35–40 mm in diam. **Involucral bracts** 4- or 5-seriate; outer series ovate, obtuse, 7–15 × 7–10 mm, green-yellow to carmine, softly hairy, hairless when mature; inner series oblong-spathulate, rounded, 30–35 × 5–10 mm. **Flowers** 30–35 mm long, straight, tube

8 mm long, glabrous, tips with white-woolly hairs; style 25–30 mm long, curved; pollen presenter 5–6 mm long, linear. **Flowering time** Aug.–Nov. Steep, rocky southern sandstone slopes; Eastern Fynbos-Renosterveld [Baviaanskloof and Kouga Mts (near summit, Saptoukop and Smutsberg)].

1b Stems mainly aerial, erect to sprawling
3a Styles long, protruding above or as high as inner involucral bracts
4a Flower heads oblong to obconic (section Exsertae*)*

aurea (Burm.f.) Rourke subsp. **aurea**

Common shuttlecock sugarbush; *geelsuikerkan* (A)

Large shrub or small tree, erect, single main trunk, 3–5 m high. **Leaves** oblong to ovate, 40–90 × 15–40 mm, glabrous, base cordate, apex acute to obtuse. **Flower head** cylindric in bud, obconic when mature, 90–120 mm long. **Involucral bracts** 5–8-seriate; outer series ovate, acute, 15 × 15 mm, creamy green to crimson, outer surface with silky hairs; inner series oblong, obtuse, 40–90 × 5–14 mm, margins with long hairs. **Flowers** 90–110 mm long, straight, tube 10 mm long, glabrous, tips with white hairs; style 85–105 mm long, straight; pollen presenter 17 mm long, thread-like. **Flowering time** Jan.–June. Cool moist southern slopes; Eastern Fynbos-Renosterveld (Joubertina District).

mundii Klotzsch

Forest sugarbush; *witsuikerbos* (A)

Large shrub or small tree, erect, single trunk, 3–8 m high. **Leaves** elliptic to elliptic-lanceolate, 60–120 × 18–40 mm, acute, sparsely hairy, glabrous when mature. **Flower head** oblong-obconic, 60–80 × 40–65 mm. **Involucral bracts** 5- or 6-seriate, greenish cream-coloured or pink, densely covered with silky hairs, tips with white to tawny silky fringes; outer series ovate, acute, 8–10 × 10–12 mm; inner series oblong, rounded, 35–40 × 8–15 mm, imbricate. **Flowers** 50–70 mm long, straight, tube 12–15 mm long, glabrous, tips wavy with silky white-tawny hairs; style 55–65 mm long, straight; pollen presenter 8–10 mm long, thread-like, tip a large knob. **Flowering time** Feb.–Apr. Moist southern slopes and forest margins; Eastern Fynbos-Renosterveld (Kouga, Tsitsikamma and Winterhoek Mts, from Willowmore E to Port Elizabeth and from Storms River Bridge to Humansdorp).

punctata Meisn.

Water sugarbush; *water witsuikerbos* (A)

Shrub, erect, single trunk, 2–4 m high. **Leaves** curved upwards, ovate to elliptic, 35–80 × 20–45 mm, glabrous when mature, glaucous, apex rounded to acute. **Flower head** cylindric in bud, 35–60 × 20–25 mm, later obconic, 60–90 mm in diam. **Involucral bracts** 4- or 5-seriate, spreading outwards horizontally, overlapping, pink to white, outer surface hairy, patches glabrous, white to tawny silky fringes; outer series ovate, acute, 8–10 × 10–12 mm; inner series oblong, rounded, 25–40 × 10–15 mm. **Flowers** 35–55 mm long, straight, tube 10 mm long, glabrous, tips hairless; style 45–50 mm long, straight; pollen presenter 10–15 mm long, thread-like, curving later. **Flowering time** Mar., Apr. Dry rocky shale slopes; Eastern Fynbos-Renosterveld (Willowmore E to Baviaanskloof, Kouga Mts).

subvestita N.E.Br.

Waterlily sugarbush; *lippeblom suikerbos* (A); *igwanishe* (X); *isiqalaba* (Z)

Shrub, erect, single trunk, 2–5 m high. **Leaves** curved upwards, elliptic to lanceolate, 50–110 × 15–35 mm, woolly hairs, later glabrous, acute. **Flower head** oblong, 55–70 mm long, 30–40 mm in diam. **Involucral bracts** 5- or 6-seriate, pink to white, imbricate, outer surface hairy, margins hairy; outer series ovate, acute, 10–15 × 7–10 mm; inner series oblong, rounded, 35–40 × 8–12 mm, apex bending outwards, bearded. **Flowers** 50–60 mm long, straight, tube 8–10 mm long, tips hairy; style 55–60 mm long, straight, tip bending outwards, pink; pollen presenter 8–10 mm long, thread-like, bent at base. **Flowering time** Jan.–Mar. High altitude on basalt, sandstone; Drakensberg Grassland, Sub-Escarpment Grassland; Eastern Fynbos-Renosterveld (EC escarpment, from Quacha's Neck E to Kokstad, Somerset East to Stutterheim and to Baviaanskloof).

4b Flower heads globose to ovoid, open and bowl-shaped (section Leiocephalae*)*

caffra Meisn.

Common sugarbush; *gewone suikerbos* (A); *segwapi* (NS); *isadlunge* (X); *uhlinkihane* (Z)

Small tree, erect, single trunk, 3–8 m high, or multi-stemmed, branched shrub, 1–3 m high. **Leaves** linear-oblanceolate to elliptic, 70–170 × 13–30 mm, glabrous, glaucous, coriaceous, acute or obtuse. **Flower head** globose to ovoid, 55–70 × 40–70 mm, solitary or clustered. **Involucral bracts** 6–8-seriate, pink to cream-coloured, imbricate, glabrous to hairy; outer series ovate to triangular, acute, 5–7 × 10–20 mm; inner series oblong to spathulate, rounded, 30–50 × 10–20 mm. **Flowers** 45–60 mm long, tube 10–14 mm long, hairy or glabrous; style 40–60 mm long, curved; pollen presenter 7–12 mm long, thread-like, bent at base. **Flowering time** Oct.–Jan. Southern slopes, sandy quartzite soils; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Ramatseliso's Neck, Matatiele and Kokstad S, from Maclear to Mkambati Nature Reserve and Katberg to Kentani).

dracomontana Beard

Drakensberg sugarbush; *Drakensberg suikerbos* (A)

Shrub, lignotuberous erect, 0.5–1.0 m high. **Leaves** oblong to oblanceolate, 80–140 × 25–45 mm, glabrous, glaucous, coriaceous, acute or obtuse, margins horny. **Flower head** cup-shaped, 40–60 mm in diam., solitary or clustered. **Involucral bracts** 5- or 6-seriate, carmine to cream-coloured, margins hairy; outer series ovate, rounded, 7–10 × 10–15 mm; inner series oblong, rounded, 30–40 × 7–15 mm. **Flowers** 40–45 mm long, tube 10 mm long, hairless at base, tips with white or pink hairs; style 45–60 mm long, white, curved; pollen presenter 8–10 mm long, thread-like. **Flowering time** Jan.–Mar. Subalpine *Themeda* grassland, on basalt, alt. 1 600–2 600 m; Drakensberg Grassland, Sub-Escarpment Grassland (Ramatseliso's Neck, Matatiele E to Kokstad).

nitida Mill.

Wagon tree; *waboom* (A)

Small tree, erect, single trunk, 2–10 m high. **Leaves** oblong to elliptic, 80–180 × 15–60 mm, glabrous, glaucescent, coriaceous, acute or obtuse. **Flower head** globose, 80–160 mm in diam., perianth projecting beyond involucral bracts. **Involucral bracts** 5- or 6-seriate, pink to cream-coloured, glabrous to hairy, imbricate; outer series ovate, acute to obtuse, 10–15 × 10–15 mm; inner series widely spread, oblong, rounded,

30–45 × 10–20 mm. **Flowers** 60–75 mm long, tube 10–15 mm long, hairy or glabrous; style 60–80 mm long, curved, cream-coloured; pollen presenter 10–12 mm long, thread-like, bent at base. **Flowering time** May–Aug. Dry lower slopes on talus; Eastern Fynbos-Renosterveld (Joubertina E to Uitenhage).

rupicola Mund ex Meisn.

Krantz sugarbush; *kranssuikerbos* (A)

Shrub, much branched, single trunk, 0.5–2.0 m high. **Leaves** curved upwards, linear-spathulate to oblanceolate, 35–60 × 5–20 mm, rounded to obtuse, glaucous, coriaceous, glabrous. **Flower head** ovoid, 40–100 mm in diam., perianth projecting beyond involucral bracts. **Involucral bracts** 5- or 6-seriate, reddish brown, sparsely hairy; outer series imbricate, ovate-oblong, rounded, 8–10 × 6–8 mm; inner series widely spread, oblong to linear spathulate, rounded, 20–35 × 3–10 mm. **Flowers** 35–45 mm long, tube 5–10 mm long, glabrous at base, hairy at tips; style 45–55 mm long, curved, pink; pollen presenter 5–10 mm long, linear, swollen at base. **Flowering time** Sept.–Feb. High altitude, rocky, sandstone ridges; Eastern Fynbos-Renosterveld (mountain ranges from Willowmore E to Uitenhage).

simplex E.Phillips

Dwarf grassland sugarbush; *slanksuikerbos* (A)

Shrub, lignotuberous, multiple stems, erect, not branched, 0.3–1.0 m high. **Leaves** oblong to oblanceolate, 60–120 × 7–30 mm, acute or obtuse, glabrous. **Flower head** obconic to globose, 30–60 mm in diam. **Involucral bracts** 4- or 5-seriate, carmine, pink to cream-coloured, glabrous; outer series ovate, acute to obtuse, 5–10 × 10–15 mm; inner series oblong, rounded, 25–30 × 5–10 mm. **Flowers** 20–40 mm long, tube 4–8 mm long, tips with white or brown hairs; style 20–40 mm long, straight; pollen presenter 3–10 mm long, thread-like. **Flowering time** Nov., Dec. In grassland; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Drakensberg Grassland (Maclear E to Kokstad S, from Cala to Port Edward, Stockenström to Gonubie and to East London).

3b Styles shorter than inner involucral bracts
5a Inner involucral bracts with distinct beard (section Speciosae*)*

coronata Lam.

Green sugarbush; *groenhofiesuikerbos* (A)

Shrub, erect, single trunk, 2–3 m high, stems very hairy. **Leaves** sessile, curved upwards, lanceolate, 60–90 × 8–28 mm, glabrous or with silver hairs, acute. **Flower head** oblong, 90–100 × 50–60 mm. **Involucral bracts** 4- or 5-seriate, green, glaucous, glabrous, imbricate; outer series ovate, acute to obtuse, 15–20 × 15 mm, tips elongated to long-haired appendages 50–100 mm long; inner series oblong to spathulate, rounded, 60–70 × 10–20 mm, tip curved inwards with silky-haired margins. **Flowers** 70–90 mm long, tube 40–45 mm long, awns black, white-woolly hairs protruding above bracts; style 60–65 mm long, straight; pollen presenter 10 mm long, thread-like, straight. **Flowering time** May, June. Moist clay soils; Eastern Fynbos-Renosterveld (eastern Tsitsikamma Mts to Suurberg; Willowmore to Steytlerville District S, from Kareedouw Pass to Storms River Mouth, Witelsbos and Humansdorp).

grandiceps Tratt.

Red sugarbush; *rooi suikerkan* (A)

Shrub, erect, single trunk, 1.3–2.0 m high. **Leaves** sessile, curved upwards, oval to broadly obovate, 80–130 × 30–85 mm, rounded, margins wavy, glaucous, coriaceous, glabrous. **Flower head** broadly oblong, 100–140 × 60–80 mm. **Involucral bracts** 7- or 8-seriate, coral-pink, glabrous to downy, imbricate; outer series ovate, rounded, 15–25 × 15–20 mm, margins hairy; inner series oblong-spathulate, rounded, 70–80 × 15–20 mm, tip curved inwards with white to purple beard 10–15 mm long. **Flowers** 75–85 mm long, tube 10 mm long, awns 10–15 mm long; style 65–75 mm long, slightly curved; pollen presenter thread-like, curved. **Flowering time** Dec., Jan. Dry, high altitude, rocky, sandstone slopes; Eastern Fynbos-Renosterveld (Willowmore E to Uitenhage, Groendal, Wilderness, Cockscomb Peak).

lorifolia (Salisb. ex Knight) Fourc.

Strap-leaf sugarbush; *riemblaarsuikerbos* (A)

Shrub, erect, single trunk, 1.5–3.5 m high. **Leaves** petioled, curved upwards, broadly oblanceolate, 120–250 × 20–50 mm, rounded, glaucous, coriaceous, later glabrous, margins horny, yellow to red hairy. **Flower head** oblong-obconic, 70–130 × 25–50 mm. **Involucral bracts** 5- or 6-seriate, pale pink, imbricate, silky hairs, margins with dense cream-coloured to pink hairs, tips with white or purple-brown beard; outer series ovate-acute, 10–30 × 3–10 mm; inner series oblong, rounded, 60–100 × 3–10 mm, tip spathulate. **Flowers** 65–90 mm long, tube 12 mm long, awns with white and purple-black hairs; style 55–65 mm long, straight, base hairy; pollen presenter 7–12 mm long, thread-like, bent at base. **Flowering time** Apr.–June. Dry sandstone slopes; Eastern Fynbos-Renosterveld, Albany Thicket (Willowmore E to Uitenhage and Grahamstown District).

neriifolia R.Br.

Narrow-leaf sugarbush; *blousuikerbos* (A)

Shrub, erect, single trunk, branching near ground, 1.5–3.0 m high. **Leaves** subsessile, curved upwards, oblong, 100–180 × 14–30 mm, acute to obtuse, hairy, later glabrous. **Flower head** oblong to obconic, 100–130 × 60–80 mm. **Involucral bracts** 6- or 7-seriate, cream-coloured to carmine, imbricate; outer series ovate-oblong, 10–15 × 10–12 mm, glaucous, sparsely hairy, margins horny, brown, recurved; inner series oblong to spathulate, rounded, 90–110, hairy, tip rounded with white or black beard, 8–10 mm long, silver-hairy below beard. **Flowers** 70–100 mm long, tube 8–10 mm with woolly, brown awns; style 55–70 mm long, straight, base hairy; pollen presenter 7–10 mm long, thread-like, bent at base. **Flowering time** Feb.–Nov. Moist, southern, sandstone slopes; Eastern Fynbos-Renosterveld (Kouga Mts E to Joubertina, Baviaanskloof, Great Winterhoek Mts, Uitenhage District and Port Elizabeth, and to Humansdorp).

5b Inner involucral bracts without a beard
6a Flower heads > 120–300 mm in diam.; inner involucral bracts lanceolate; leaves with distinct petioles, leaf blade oval to round (section Cynaroideae*)*

cynaroides (L.) L.

King protea; *koningsuikerbos* (A)

Shrub, lignotuberous, multiple stems, erect, not branched, 0.3–2.0 m high. **Leaves** petiolate, round, oval or elliptic, 120–300 × 20–130 mm, coriaceous, glabrous. **Flower head** conical to bowl-shaped, 120–200 × 120–300 mm. **Involucral bracts** 5–10-seriate, cream-coloured to crimson, imbricate, glabrous to hairy; outer series

lanceolate-acuminate, 20–40 × 7–25 mm; inner series lanceolate, acute, 80–120 × 10–35 mm. **Flowers** 70–100 mm long, yellow with white awns; style 55–70 mm long, straight, base hairy; pollen presenter 7–10 mm long, thread-like, bent at base. **Flowering time** all year. Sandstone and granite; Eastern Fynbos-Renosterveld (Joubertina E to Baviaanskloof, Uitenhage, Port Elizabeth and Grahamstown, and to Blueliliesbush, Humansdorp and Lovemore Hill).

6b Flower heads up to 120 mm in diam.
7a Inner involucral bracts spathulate (section Ligulatae*)*

eximia (Salisb. ex Knight) Fourc.

Broad-leaf sugarbush; *breëblaarsuikerbos* (A)

Shrub, erect, sparsely branched, 2–5 m high. **Leaves** horizontal, ovate to oblong, 60–100 × 30–65 mm cordate at base, coriaceous, glaucous, glabrous. **Flower head** obconic, 100–140 × 80–120 mm in diam. **Involucral bracts** 5- or 6-seriate, pink to orange-brown, silky hairs outside, margins hairy; outer series ovate, imbricate, 10–15 × 10–15 mm, margins brown, rounded to acute; inner series widely splayed, oblong to spathulate, 40–100 × 8–15 mm, apex crinite, acute. **Flowers** 85–100 mm long, tube 10 mm long, awns extended with purple-black hairs; style 60–75 mm long, straight, base hairy; pollen presenter 6–8 mm long, linear, bent at base. **Flowering time** Aug.–Nov. Sandstone and quartzite soils; Eastern Fynbos-Renosterveld (Joubertina E to Kareedouw Pass, Uitenhage, Port Elizabeth and Grahamstown, and to Tsitsikamma and Humansdorp).

roupelliae Meisn. subsp. **roupelliae**

Silver sugarbush; *silwerblaarsuikerbos* (A); *segwapi* (NS); *isiqalaba* (X); *uqhambathi* (Z)

Small tree, erect, single trunk, 3–8 m high. **Leaves** curved upwards, linear-lanceolate to obovate, 60–170 × 15–50 mm, rounded to acute, glabrous or hairy. **Flower head** oblong-obconic, 80–120 × 80–100 mm. **Involucral bracts** 5- or 6-seriate, pink to brown, covered with silky hairs, margins hairy; outer series ovate-oblong, imbricate, 10–15 × 8–12 mm, margins papery, brown, recurved; inner series widely spaced, spathulate, 50–100 × 6–10 mm, acute. **Flowers** 60–80 mm long, tube 15 mm long, awns extended with cream-coloured, brown-red or purple-black hairs; style 50–65 mm long, curved, base hairy; pollen presenter linear, bent at base. **Flowering time** Feb.–Apr. Habitat varied; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Qacha's Neck to Mtamvuna Falls S, from Maclear E to Engcobo and Port St Johns).

7b Inner involucral bracts linear-oblong to oblong (section Melliferae*)*

repens (L.) L.

Common sugarbush; *mebos*, *suikerbos* (A); *isiquane* (X)

Shrub, erect, branched, 0.7–4.5 m high. **Leaves** ascending, linear-spathulate to oblanceolate, 50–150 × 5–18 mm, acute to rounded, glabrous. **Flower head** oblong to obconic, 100–160 × 70–90 mm. **Involucral bracts** 5- or 6-seriate, imbricate, cream-coloured to pink to red, glabrous, outer surface with sticky nectar, acute; outer series ovate, 10–20 × 10–12 mm; inner series lanceolate, 80–110 × 6–20 mm. **Flowers** 70–100 mm long, tube 10 mm long, awns with beard; style 70–90 mm long, slightly bent, base hairy; pollen presenter 20 mm long, linear. **Flowering time** Sept.–Mar. Habitat varied; Eastern Fynbos-Renosterveld (Kouga Mts E to Baviaanskloof, Uitenhage, Port Elizabeth, Grahamstown and Bathurst, and to Elands River Mouth).

SPATALLA Salisb.

Subfamily Proteoideae

Species 20, sthn Afr., WC, EC.

confusa (E.Phillips) Rourke

Long-tube spoon; *wolbos* (A)

Small shrub, spreading to erect, branched, forming mats, 0.5–1.0 m high. **Leaves** linear to needle-like, upper surface grooved, 6–14 mm long, green with red tint, hairless when mature. **Inflorescence** a terminal, lax raceme, 10–25 × 10 mm, with 3-flowered, axillary racemes. **Flowers**: perianth 8 mm long with thin hairs on claws, curved forward in bud, tube 4–5 mm long, pink; style curved forward at tip, 6–7 mm long, hairless, pointing downwards; pollen presenter asymmetrically ovoid, tip conical. **Flowering time** Aug.–Mar. Rock crevices on mountain summits; Eastern Fynbos-Renosterveld (Swartberg Mts, Willowmore).

GROSS, C.L. 1995. *Macadamia*. *Flora of Australia* 16: 419–425.

LEVYNS, M.R. 1970. A revision of the genus *Paranomus* (Proteaceae). *Contributions from the Bolus Herbarium* 2: 3–48.

MAST, A.R., WILLIS, C.L., JONES, E.H., DOWNS, K.M. & WESTON, P.H. 2008. A smaller *Macadamia* from a more vagile tribe: inference and phylogenetic relationships, divergence times, and diaspore evolution in *Macadamia* and relatives (Tribe Macadamieae; Proteaceae). *American Journal of Botany* 95,7: 843–870.

REBELO, T. 2001. SASOL *Proteas*, 2nd ed. Fernwood Press, Cape Town.

ROURKE, J.P. 1969. Taxonomic studies on *Sorocephalus* R.Br. and *Spatalla* Salisb. *Journal of South African Botany* Suppl. 7.

ROURKE, J.P. 1972. Taxonomic studies on *Leucospermum* R.Br. *Journal of South African Botany* Suppl. 8.

ROURKE, J.P. 1976. A revision of *Diastella* (Proteaceae). *Journal of South African Botany* 42: 185–210.

ROURKE, J.P. 1980. *The proteas of southern Africa*. Purnell, Cape Town.

ROURKE, J.P. 1984a. A revision of the genus *Mimetes* Salisb. (Proteaceae). *Journal of South African Botany* 50: 171–236.

ROURKE, J.P. 1984b. *Vexatorella* Rourke, a new genus of the Proteaceae from Southern Africa. *Journal of South African Botany* 50: 373–391.

ROURKE, J.P. 1987. The inflorescence morphology and systematics of *Aulax*. *South African Journal of Botany* 53: 464–480.

ROURKE, J.P. & LINCOLN, T. 1982. Mimetes, *an illustrated account of* Mimetes *Salisb. and* Orothamnus *Pappe*. Tiyan, Cape Town.

STAPF, O., PHILLIPS, E.P. & HUTCHINSON, J. 1912. Proteaceae. *Flora capensis* 5,1: 502–744.

STEVENS, P.F. 2010. Angiosperm Phylogeny Website. Version 9. Internet. http://www.mobot.org/MOBOT/research/APweb/ (accessed Aug. 2010).

VAN WYK, A.E. 1990. A new *Leucadendron* (Proteaceae) from Pondoland with a discussion of its biogeography. *South African Journal of Botany* 56: 458–466.

WESTON, P.H. & BARKER, N.P. 2006. A new supragenic classification of the Proteaceae, with an annotated checklist of genera. *Telopea* 11,3: 314–344.

WILLIAMS, I. 1972. A revision of the genus *Leucadendron* (Proteaceae). *Contributions from the Bolus Herbarium* 3: 1–425.

PUTRANJIVACEAE

(previously placed under EUPHORBIACEAE)

(Order Malpighiales)

Compiled by R.H. Archer, C.L. Bredenkamp, N. Ngoepe & F.N. Nonyane

Distribution pantropical, mainly Old World, genera 3, species 210: species in *Drypetes* ± 200; *Putranjiva* 4, restricted to Asia (India to Ryukyu Islands, in the south to New Guinea); the African genus *Sibangea* (3 species) closely resembles *Drypetes* and is of questionable generic distinctiveness (Heywood et al. 2007).

Family description (adapted from Stevens 2010)

Evergreen trees, dioecious; containing cucurbitacins, glucosinolates, biflavonoids. **Cork**? **Wood** vessel elements with scalariform perforation plates. **Leaves** 2-ranked, veins running into opaque, deciduous teeth or spines; often rather coriaceous, asymmetric at base, drying greyish; taste peppery (mustard oils). **Inflorescence** fasciculate. **Staminate flowers**: disc intrastaminal or absent; stamens (2)3–20(–many); anthers extrorse. **Carpellate flowers**: carpels [1–4(–9)]; ovule with outer integument 3–8 cells and inner 6–14 cells in diam., exotegmen cells cuboidal, tegmen ± multiplicative. **Fruit** a single-seeded drupe, often crowned by persistent, flap-like stigmas. **Seed** ecarunculate.

Bayesian and parsimony analyses of DNA sequence data suggest a separate familial placement of the Lophopyxidaceae and Putranjivaceae within the Malpighiales as sister to the Oxalidales + Huaceae group (Wurdack & Davis 2009).

For key to the families segregated from the Euphorbiaceae *s.l.*, see **EUPHORBIACEAE** (p. 898).

DRYPETES Vahl

Species ± 200; 20 in Americas, remainder in Africa (± 70), Asia and Australasia (± 100); 5 in sthn Afr., LIM, M, S, KZN, EC.

arguta (Müll.Arg.) Hutch.

African oak, water ironplum; *waterysterpruim* (A); *umhlagela* (X); *umhlwakela* (Z)

Perennial tree, 1–8 m high; bark smooth or longitudinally fissured; buds perulate (covered with scales); perulae broadly ovate, subscarious, ciliolate, persistent. **Leaves** obliquely lanceolate to oblong-lanceolate, acuminate, base rounded to cordate, margins spinulose-serrate, thinly coriaceous, quite glabrous when mature. **Stipules** linear-lanceolate, faintly striate, sparingly fimbriate, glabrous, soon falling. **Flowers** axillary, solitary. **Male flowers**: pedicels pubescent; sepals suborbicular, margins strongly crisped-convolute. **Female flowers**: pedicels sparingly pubescent; calyx lobes 4 or 5, reflexed then inflexed, suborbicular-ovate, closely longitudinally striate, ciliate; disc annular, thick, tomentose; ovary 2-locular, 2-lobed to subglobose, densely fulvous-tomentose; styles 2, united at base, glabrous, papillose. **Fruit** 2-lobed to subglobose, slightly laterally compressed, evenly pubescent and sparingly hirsute; endocarp firmly corky. **Seeds** ellipsoid-subglobose. Understorey tree, forest, coastal mixed deciduous woodland, alt. 10–700 m; Indian Ocean Coastal Belt, Indigenous Forests (Pondoland, Lusikisiki District).

gerrardii Hutch.

Forest ironplum; *bosysterpruim* (A); *umhlakela* (X); *umhlwakele* (Z)

Perennial tree; 0.2–20.0 m high; much branched; branches in one plane forming narrow dense crown; bark smooth. **Leaves** obliquely ovate to rhombic-elliptic or lance-

olate, acute, subacute or obtuse, base asymmetrical, apex acuminate, margins shallowly crenate-serrate to subentire; blades thinly coriaceous. **Stipules** triangular, soon falling. **Flowers** axillary. **Male flowers**: few-flowered glomerules; pedicels 3–4 mm long; sepals yellow-green; anthers 4-lobed. **Female flowers** solitary; pedicels 1–2 mm long; sepals suborbicular; disc shallowly cupular, subentire, glabrous; ovary 2-locular, subglobose, densely sericeous-tomentose; styles 2, free, reflexed, persistent; stigmas linear. **Fruit** obovoid-subglobose, shallowly bilobed, evenly tomentose. **Seeds** compressed-ovoid. Forest, sandy soil, alt. 5–1 370 m; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests (Eastern Pondoland, Egoso Forest; Ntafufu, Ngqeleni District, Port St Johns, Gcato, Hole-in-the-Wall).

DAVIS, C.C., WEBB, C.O., WURDACK, K.J., JARAMILLO, C.A. & DONOGHUE, M.J. 2005. Explosive radiation of Malpighiales supports a Mid-Cretaceous origin of modern tropical rain forests. *American Naturalist* 165: E36–E65.
HEYWOOD, V.H., BRUMMITT, R.K., CULHAM, A. & SEBERG, O. 2007. *Flowering plant families of the world*. Royal Botanic Gardens, Kew.
HUTCHINSON, J. 1915. Euphorbiaceae [in part]. *Flora capensis* 5,2: 403–405.
PAX, F. & HOFFMANN, K. 1931. Euphorbiaceae. *Die natürlichen Pflanzenfamilien*, edn 2, 19c: 11–233.
RADCLIFFE-SMITH, A. 1987a. *Flora of tropical East Africa*. Euphorbiaceae Part 1: 1–407.
RADCLIFFE-SMITH, A. 1987b. Segregate families from the Euphorbiaceae. *Botanical Journal of the Linnean Society* 94: 47–66.
RADCLIFFE-SMITH, A. 1996. Euphorbiaceae. *Flora zambesiaca* 9,4: 1–337.
RADCLIFFE-SMITH, A. 2001. *Genera Euphorbiacearum*. Royal Botanic Gardens Kew, Kew.
SOLTIS, D.E., GITZENDANNER, M.A. & SOLTIS, P.S. 2007. A 567-taxon data set for angiosperms: The challenges posed by Bayesian analyses of large data sets. *International Journal of Plant Science* 168: 137–157.
STEVENS, P.F. 2010. Angiosperm Phylogeny Website. Version 9. Internet. http://www.mobot.org/MOBOT/research/APweb/ (accessed Aug. 2010).
TOKUOKA, T. & TOBE, H. 1999. Embryology of tribe Dripeteae, an enigmatic taxon of Euphorbiaceae. *Plant Systematics and Evolution* 215: 189–208.
WEBSTER, G.L. 1994a. Classification of the Euphorbiaceae. *Annals of the Missouri Botanical Garden* 81: 3–32.
WEBSTER, G.L. 1994b. Synopsis of the genera and suprageneric taxa of Euphorbiaceae. *Annals of the Missouri Botanical Garden* 81: 33–144.
WURDACK, K.J. & DAVIS, C.C. 2009. Malpighiales phylogenetics: Gaining ground on one of the most recalcitrant clades in the angiosperm tree of life. *American Journal of Botany* 96: 1551–1570.

RANUNCULACEAE

(Order Ranunculales)

Compiled by C.L. Bredenkamp

1a Leaves opposite; carpels with feathery persistent styles..... **Clematis**
1b Leaves alternate, often radical; carpels mostly ending in a beak:
2a True petals present, clearly different from sepals, usually with nectaries..... **Ranunculus**
2b True petals absent; sepals/tepals all ± similar, without nectaries:
3a Inflorescence 1–3-flowered; flowering stems mostly with 1 or more whorls of partially united leaves..... **Anemone**
3b Inflorescence usually with > 3 flowers; flowering stems without whorls of partially united leaves..... **Thalictrum**

Five subfamilies are recognised within the Ranunculaceae (Stevens 2012) of which the Ranunculoideae (genera *Anemone*, *Clematis*, *Delphinium*, *Ranunculus*) and Thalictroideae

(genus *Thalictrum*) are represented in tropical and southern Africa. In conclusion of molecular studies on *Anemone* (Hoot et al. 1994; Schuettpeltz et al. 2002), the latter author states that the available data support a northern hemisphere origin of the genus and two major clades: subgenus *Anemone* (x = 8) and subgenus *Anemonidium* (x = 7). The combined sequence data support the close affinities of *A. caffra* and *A. knowltonia* (SA) with the Tasmanian *A. crassifolia*, verifying the taxonomic placement of these taxa into the informal sect. *Pulsatilloides*. According to Manning et al. (2009), the species of *Knowltonia* are most properly interpreted as constituting a lineage within *Anemone* sect. *Pulsatilloides* that has radiated in southern Africa.

ANEMONE L.

(= *KNOWLTONIA* Salisb.)

Anemone, wind flower; *anemoon* (A)

Species ± 190, cosmopolitan but not tropical; 3 in sthn Afr., FS, KZN, L, NC, WC, EC.

*1a Peduncles 1-flowered, fruit dry (*Anemone *section* Pulsatilloides *DC. series* Pulsatilloides*)*

caffra (Eckl. & Zeyh.) Harv.

Syblom (A); *iYesa elimnyama* (X); *inTingwe* (Z)

Perennial herb, 0.15–0.45 m high; rootstock short, covered by remains of old leaf bases. **Leaves** palmately 5- or 6-lobed, up to 50 mm in diam., glabrous; nerves reticulate; petioles up to 40 mm long, velutinous. **Inflorescences** scapes, up to 150 mm long, 1-flowered. **Flowers** white tinged pink; pedicels up to 100 mm long. **Tepals** narrowly elliptic. **Carpels** many. **Fruit** clustered achenes. Sandy, loamy soil, recently burned grassland, valleys spreading up slopes, mountain tops; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna (Ramatseliso's Gate, Elliot, Ugie, southwards across Amatole Mts to Katberg and to Grahamstown).

fanninii Harv. ex Mast.

Wild anemone; *syblom* (A); *uManzamnyama* (Z)

Perennial herb, 0.3–1.0 m high; rootstock strong, woody. **Leaves** palmately 5–7-lobed, up to 350 mm in diam., velutinous above, villous below, nerves prominent below; petioles up to 700 mm long, villous. **Inflorescences** scapes, up to 800 mm long, 2- or 3-flowered. **Flowers** creamish white tinged violet, fragrant; pedicels up to 420 mm long. **Tepals** narrowly elliptic, ± cucullate. **Carpels** many; ovary villous; style hooked, glabrous. **Fruit** clustered achenes. Moist sites, valleys, moderate slopes, alt. high; Mesic Highveld Grassland, Sub-Escarpment Grassland (Barkly East, Insizwa, Maclear).

1b Peduncles several-flowered; fruit ± fleshy [Anemone *section* Pulsatilloides *DC. series* Knowltonia *(Salisb.) J.C. Manning & Goldblatt*]

2a Leaves simple to ternate, rarely biternate

cordata (H.Rasm.) J.C.Manning & Goldblatt
(= *Knowltonia cordata* H.Rasm.)

Erect, perennial herb, up to 0.7 m high; mostly thinly sericeous; rhizome vertical. **Leaves** simple to ternate, rarely biternate. **Leaflets** cordate, apices acute to obtuse and mucronate, margins thickened, acutely serrate. **Scape** exceeding leaves. **Inflorescences** 7–22(–38)-flowered umbels, greenish to pale yellow. **Ovaries** shorter or as long as styles. **Receptacle** semi-globular. **Flowering time** Sept.–Jan. **Fruit** fleshy drupelets, dark brown, glabrous. Rocky outcrops and forest margins, moderate slopes in fynbos; Sub-

Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Komga S, Greater Addo Elephant National Park E to Groendal, Wilderness and Grahamstown).

2b Leaves ternate, bi- to triternate
3a Rhizome horizontal or horizontal to ascending

bracteata (Harv. ex J.Zahlbr.) J.C.Manning & Goldblatt
(= *Knowltonia bracteata* Harv. ex J.Zahlbr.)

Blistering leaves; *brandblaar* (A); *umvathuza* (X, Z)

Erect, perennial herb, 0.3–0.9 m high; hirsute to densely hirsute; rhizome horizontal to ascending. **Leaves** bi- to triternate. **Leaflets** ovate, apices acute to mucronate; hirsute to glabrate above, densely to sparsely hirsute below, margins not thickened, conspicuously ciliate, serrate, teeth mucronate. **Scape** as long as or exceeding leaves. **Inflorescences** 20–200-flowered umbels, white to greenish white. **Ovaries** longer or as long as styles. **Receptacle** semi-globular to clavate. **Flowering time** Oct.–Mar. **Fruit** brown to black, fleshy drupelets. Shrubby woodland, mountain forest and grassy forest margins; Sub-Escarpment Savanna (Bizana District, Komga).

brevistylis (Szyszyl.) J.C.Manning & Goldblatt
(= *Knowltonia brevistylis* Szyszyl.)

Erect, perennial herb, 0.50–1.25 m high; mostly sparsely pilose to glabrate; rhizome horizontal to ascending. **Leaves** bi- to triternate. **Leaflets** large, long, ovate, apices acute to attenuate; sparsely hirsute to glabrate above, sparsely hairy to glabrate below, margins thickened, not ciliate, acutely to attenuately serrate. **Scape** shorter than or hardly exceeding leaves. **Inflorescences** 12–75-flowered umbels, relatively small, white to cream-coloured. **Ovaries** longer or as long as styles. **Receptacle** clavate. **Flowering time** Sept.–Feb. **Fruit** black, fleshy drupelets. In forest, on rocky slopes and ravines; Indigenous Forests (Port Edward, Port St Johns, Greater Addo Elephant National Park).

vesicatoria (L.f.) Prantl
[= *Knowltonia vesicatoria* (L.f.) Sims]

Prostrate, trailing or erect herb, 0.1–0.4 m high; indumentum sparse; rhizome horizontal. **Leaves** ternate to triternate. **Leaflets** ovate to broadly ovate, apices acute to obtuse and mucronate, margins thickened, acutely serrate. **Scape** not or slightly exceeding leaves. **Inflorescences** 3–24-flowered umbels, light yellow to green to brownish. **Ovaries** longer or as long as styles. **Receptacle** semi-globular, forming pronounced carpophores. **Flowering time** May–Oct. **Fruit** fleshy drupelets, borne on carpophores, black, glabrous. Shadowy wooded patches, moist ravines, dunes, coastal bush, fynbos; Eastern Fynbos-Renosterveld, Albany Thicket, Sub-Escarpment Savanna (Tsitsikamma E to Humansdorp, Port Elizabeth, East London and Kentani).

3b Rhizome ascending to vertical

filia (L.f.) J.C.Manning & Goldblatt
[= *Knowltonia filia* (L.f.) T.Durand & Schinz]

Erect, perennial herb, 0.5–1.4 m high; mostly sparsely pilose. **Leaves** bi- or triternate. **Leaflets** ovate or broadly trullate, simple or 1× or 2× pinnately lacerate, apices acute to attenuate, margins thickened, acutely serrate. **Scape** exceeding leaves. **Inflorescences** 14–58(–200)-flowered umbels, cream-coloured to greenish white. **Ovaries** shorter or as long as styles. **Receptacle** steeply conical to globular. **Flowering time** Oct.–Feb.

Fruit fleshy drupelets, black when ripe, glabrous to pilose. Marshy slopes, moist ravines in fynbos; Eastern Fynbos-Renosterveld (Willowmore, Knysna, Joubertina).

CLEMATIS L.

Traveller's joy

Species ± 250, north temperate, south temperate and tropical Africa; 5 in sthn Afr., N, B, LIM, NW, G, M, S, FS, KZN, L, WC, EC.

Leaves mostly once-pinnate, leaflets broadly ovate

hirsuta Perr. & Guill. var. **junodii** (Burtt Davy) W.T.Wang

Woody vine, 0.5–6.1 m high; branches shallowly 6–8-sulcate, densely puberulous. **Leaves** 5–7-foliolate; leaflets thinly papery, base subcordate, apex acute, mucronate, margins usually 3-lobed, dentate, upper surface appressed-puberulous, lower surface velutinous, not reticulate. **Inflorescences** axillary and terminal cymes, 5–many-flowered. **Flowers** fragrant. **Tepals** white, oblong-lanceolate, inside and outside densely puberulous, margins velutinous. **Filaments** linear, sericeous puberulous near base. **Anthers** oblong (1.0–)1.5–2.0(–2.5) mm long. **Ovaries** densely puberulous. **Styles** up to 11 mm long, densely villous. **Flowering time** Feb.–Dec. **Fruit** broadly elliptic achenes, puberulous, persistent styles up to 35 mm long, plumose. Tropical woodland, savanna, forests; Sub-Escarpment Grassland, Upper Karoo, Sub-Escarpment Savanna, Albany Thicket, Indigenous Forests (Steynsburg District E to Kokstad District, southwards to Middelburg, Kentani, Baviaanskloof and Alexandria).

Leaves mostly twice-pinnate, leaflets narrow, deeply lobed

[E?]**bowkeri** Burtt Davy ex W.T.Wang

Woody vine, 0.5–6.0 m high; branches shallowly 4-sulcate, glabrous. **Leaflets** papery, ovate to rhombic, base cuneate to broadly so, apex acute or attenuate, margins usually 2- or 3-lobed, dentate, upper surface glabrous, lower surface sparsely pubescent. **Inflorescences** axillary cymes, 3(4)-flowered. **Flowers** musk-scented. **Tepals** cream-coloured, narrowly ovate, inside densely appressed-puberulous, outside glabrous, margins velutinous. **Filaments** linear, pubescent near base. **Anthers** narrowly oblong, (1.0–)2.0–2.4 mm long. **Ovaries** puberulous. **Styles** ± 10 mm long, densely villous. **Flowering time** July. **Fruit** ovoid achenes, pubescent, reddish brown, margins tan; persistent styles up to 40 mm long, plumose. In low forests, dune bush; Indigenous Forests, Albany Thicket (Port Elizabeth to East London).

brachiata Thunb.

Old man's beard; *lemoenbloeisels*, *roosmaryn* (A); *morarana-oa-mafehlo* (SS); *ityolo* (X), *leziduli* (Z)

Woody vine, 0.5–6.1 m high; branches ± 8-sulcate, ± glabrous. **Leaflets** subcoriaceous, ovate, base broadly cuneate, apex acute to acuminate, margins usually 3-lobed, dentate, both surfaces subglabrous, lower surface not reticulate. **Inflorescences** axillary and terminal cymes, (3–)5–20-flowered. **Flowers** fragrant. **Tepals** cream-coloured, oblong-lanceolate, inside and outside appressed-puberulous, margins velutinous. **Filaments** linear, pubescent. **Anthers** ± oblong, 1.5–3.2 mm long. **Ovaries** densely puberulous. **Styles** up to 7 mm long, densely villous. **Flowering time** Jan.–July. **Fruit** ellipsoid achenes, puberulous, reddish brown, margins tan; persistent styles up to 25 mm long, plumose. Temperate to subtropical grassland of sthn Afr., watercourses, forest margins; all bioregions, except Lower Karoo, Rainshadow Valley Karoo (Bethulie

E to uMzimkhulu District southwards, from Steynsburg to Lusikisiki District, Graaff-Reinet to Qora River Mouth and from Studtis to Port Elizabeth, Grahamstown and East London).

Species excluded – C. massoniana DC. poorly known, probably conspecific with **C. brachiata**.

KNOWLTONIA Salisb. see **ANEMONE** L.

RANUNCULUS L.

Buttercup, crowfoot

Species ± 400, cosmopolitan, mainly temperate; 7 in sthn Afr., widespread.

1a Leaf lamina divided into fine linear segments; petals 5, white, claw yellow

rionii Lagger

Water buttercup, water crowfoot; *waterblommetjie* (A)

Annual, occasionally perennial, hydrophyte, spreading, up to 1.2 m long, shorter when terrestrial. **Leaves** dark green when submerged, pale green when aerial; petioles up to 20 mm long. **Stipules** ovate, united with petiole, apical $^1/_3$ free. **Peduncles** 30–50 mm long in fruit. **Flowers** solitary, leaf opposed. **Sepals** up to 2.5 mm long, spreading, caducous. **Petals** ± obovate, basal nectariferous pits moon-shaped. **Stamens** 10–25. **Carpels** many, in several series. **Receptacle** hairy, elongating in fruit. **Flowering time** Sept.–May. **Fruit** 60–90 nutlets, almost spherical, up to 1 mm long (style excluded); puberulent at base of persistent subterminal style. Still or flowing water, turf-forming on land; Upper Karoo, Drakensberg Grassland, Dry Highveld Grassland, Sub-Escarpment Grassland (Oviston E to Barkly East, southwards to Middelburg, Queenstown and Graaff-Reinet).

1b Leaf laminas simple or compound, laminas of leaves or leaflets flattened; petals 5 or more, yellow
2a Laminas simple, peltate, almost circular, cordate or reniform

baurii MacOwan

Qojoana (SS)

Perennial herb, up to 0.6 m high; plant ± glabrous; stems condensed, covered with old leaf fibres. **Leaves** 3 or 4; laminas peltate, margins serrate, cartilaginous with guttation gland at tip of serrations; petioles up to 450 mm long. **Stipules** sheathing, fused to petiole. **Peduncles** extending above leaves. **Flowers** axillary in simple or compound cymes. **Sepals** 4 or 5, ovate, caducous. **Petals** 13–15, narrowly obovate, veins brownish, dichotomously branched below. **Stamens** many in 2 or 3 series. **Receptacle** glabrous, not elongating in fruit. **Flowering time** Sept.–Dec. **Fruit** many nutlets, ovoid, apex acute, up to 3 mm long, markedly ridged, glabrous, style short. Moist places, along streams, flanking waterfalls, alt. above 1 500 m; Drakensberg Grassland, Sub-Escarpment Grassland, Indigenous Forests (Ramatseliso's Beacon and Barkly East District southwards to Maclear, Elliot, Ugie and Amatole Mts).

meyeri Harv.

Bolila-ba-linkuba-metsi (SS)

Perennial helophyte, 0.07–0.25 m high; stems short, with prostrate, spreading runners. **Leaves** in rosettes; laminas almost circular, cordate or reniform; petioles up to 20 mm long, bases conspicuously dilated. **Stipules** triangular, almost free. **Peduncles** ± as long as petioles of subtending leaves. **Flowers** solitary in leaf axils. **Sepals** broadly

ovate to deltate, reflexed. **Petals** 7–11, linear-lanceolate, basal nectariferous pits absent. **Stamens** many. **Receptacle** glabrous, not elongating in fruit. **Flowering time** Sept.–Feb. **Fruit** ± 20 nutlets, ovoid, ± 2.5 mm long, keeled, glabrous, subterminally beaked. In marshes, poorly drained soils, hollows, near streams, periodic flooding; Drakensberg Grassland, Sub-Escarpment Grassland (Barkly East E to uMzimkhulu, southwards to Queenstown, Amatole Mts and Hogsback).

2b Laminas trifoliolate or compound, ± triangular in outline

multifidus Forssk.

Buttercup; (*geel*)*botterblom* (A); *hlapi* (SS); *uXhaphozi* (Z)

Perennial herb, stems erect, 0.05–0.90 m high; indumentum appressed-hairy to hirsute. **Leaves** in rosettes and cauline; laminas compound, coarsely and irregularly toothed; petioles of basal leaves up to 300 mm long. **Stipules** sheathing, fused to petiole. **Peduncles** up to 90 mm long. **Flowers** leaf-opposed in simple or compound cymes. **Sepals** ovate, hirsute on outside. **Petals** 5, obovate, basal nectariferous pits cup-like. **Stamens** many. **Receptacle** hairy, elongating in fruit. **Flowering time** Aug.–Apr. **Fruit** ± 50 nutlets, obovoid, ± 1.5 mm long, keeled, glabrous, subterminally beaked. Poorly drained, moist, damp soils, stream- and riverbanks; widespread in all bioregions, except Mesic Highveld Grassland, Lower Karoo, Rainshadow Valley Karoo (Oviston E to Alfred District southwards, from Middelburg to Port St Johns, across Amatole Mts from Cradock to Morgan Bay, Uitenhage to Grahamstown and East London, and to Knysna and Humansdorp).

*__plebeius__ R.Br. ex DC.

Perennial herb, 0.05–0.90 m high; roots fibrous; indumentum hirsute or appressed. **Leaves** mostly basal; laminas ± deltate, trifoliolate, leaflets ternately lobed with acute teeth; petioles of basal leaves up to 280 mm long. **Stipules** sheathing, fused to petiole. **Peduncles** up to 800 mm high. **Flowers** 2–16. **Sepals** 5, reflexed, elliptic to ovate. **Petals** 5, obovate, golden-yellow, basal nectary 1-lobed, rounded, free for most of its length. **Stamens** 9–25. **Carpels** 25–60. **Receptacle** glabrous at base, sparingly hirsute above. **Fruit** lenticular nutlets, obovate cuneate, up to 2.8 mm long, smooth, keel hairy, beak slender, recurved. Origin Australia, cultivated, moist places at streams, alt. 0–50 m; Indigenous Forests, Albany Thicket (East London).

THALICTRUM L.

Species ± 85, north temperate and tropical America, tropical and sthn Afr.; 2 in sthn Afr., in cool, sheltered localities, LIM, NW, G, M, FS, L, KZN, NC, EC.

minus L.

Freely branched, perennial herb, 0.15–1.50 m high. **Leaves** alternate, tripinnate or quadripinnate; leaflets ± wedge-shaped, variously cleft; glaucous beneath. **Inflorescences** pseudo-paniculate, diffuse, much branched, many flowered. **Flowers** generally small, yellowish green to purplish. **Stamens** on hair-like filaments; anthers large, linear, yellow. **Carpels** 6–8, sessile, oval, strongly ribbed. **Stigmas** thickened, stigmatic papillae present. **Flowering time** Nov.–Jan. **Fruit** clustered achenes, asymmetric, flattened-fusiform, longitudinally striate, glabrous, with persistent stigma forming a beak. Grassland, N-facing, steep mountain slopes, stony soil, well-drained sand, full sun; Dry Highveld Grassland, Drakensberg Grassland, Upper Karoo (Aliwal North, E to Rhodes and Barkly East districts, S to Richmond).

rhynchocarpum Quart.-Dill. & A.Rich.

False maidenhair

Freely branched, perennial herb, 0.6–1.5 m high, sometimes semi-scandent. **Leaves** alternate, tripinnate or quadripinnate, up to 400 mm long, with sheathing bases, leaflets elliptic to oblate, with coarse, rounded teeth (resembling fern fronds). **Inflorescences** pseudo-paniculate, lax, many-flowered. **Flowers** bisexual or male, generally small. **Tepals** 3–10, green to purplish. **Stamens** 3–13, filaments strongly twined; anther thecae up to 1.7 mm long. **Carpels** 1–4. **Stigmas** linear, with stigmatic papillae. **Flowering time** Jan.? **Fruit** clustered achenes, asymmetric, flattened-fusiform, longitudinally striate, glabrous, with persistent stigma forming a beak; pedicels elongating, 60–110 mm long, hair-like (nesting for birds). Undergrowth of evergreen forests; Indigenous Forests (Insizwa, Maclear, Hogsback, Pirie Forest).

BRUMMITT, R.K. 1976. Notes arising from the Wye College expedition to Malawi. A reconsideration of *Clematopsis* (Ranunculaceae) in Africa. *Kew Bulletin* 31: 156–162.
BRUMMITT, R.K. 2000. Inclusion of *Clematopsis* Hutch. in *Clematis* L. (Ranunculaceae). *Kew Bulletin* 55: 97–108.
COOK, C.D.K. 2004. *Aquatic and wetland plants of southern Africa*. Backhuys Publishers, Leiden.
ESSIG, B.F. 2004. A preliminary analysis of *Clematis* (Ranunculaceae) in Sub-Saharan Africa. *Sida* 21: 861–877.
EXELL, A.W. & MILNE-REDHEAD, E. 1960. Ranunculaceae. *Flora zambesiaca* 1: 89–101.
HARVEY, W.H. 1860. Ranunculaceae. *Flora capensis* 1: 1–7.
HOOT, S.B., REZNICEK, A.A. & PALMER, J.D. 1994. Phylogenetic relationships in *Anemone* (Ranunculaceae) based on morphology and chloroplast DNA. *Systematic Botany* 19: 169–200.
MANNING, J.C., GOLDBLATT, P. & HOOT, S.B. 2009. Ranunculaceae: The genus *Knowltonia* subsumed within *Anemone*. *Bothalia* 39: 217–240.
RASMUSSEN, H. 1979. The genus *Knowltonia* (Ranunculaceae). *Opera Botanica* 53: 3–43.
SCHUETTPELTZ, E., HOOT, S.B., SAMUEL, R. & EHRENDORFER, F. 2002. Multiple origins of Southern Hemisphere *Anemone* (Ranunculaceae) based on plastid and nuclear data. *Plant Systematics and Evolution* 231: 143–151.
STEVENS, P.F. 2007. Angiosperm Phylogeny Website. Version 7. Internet. http://www.mobot.org/MOBOT/research/APweb/ (accessed Nov. 2007).
STEVENS, P.F. 2012. Angiosperm Phylogeny Website. Version 9. Internet. http://www.mobot.org/MOBOT/research/APweb/ (accessed June 2012).
TAMURA, M. 1993. Ranunculaceae. In K. Kubitzki, J.G. Rohwer & V. Bittrich, *The families and genera of vascular plants — dicotyledons* 2. Springer-Verlag, Berlin.
TUTIN, T.G. 1964. Ranunculaceae. *Flora europaea* 1: 206–242.
WANG, W-T. 2004. A revision of *Clematis* sect. *Brachiatae* (Ranunculaceae). *Acta Phytotaxonomica Sinica* 42: 289–332.

RESEDACEAE

(Order Brassicales)

Compiled by C.L. Bredenkamp

Flowers on long pedicels; petals (5)6; stamens > 15; disc present ..... ***Reseda**
Flowers sessile; petals 2(4); stamens < 15; disc ± absent ..... **Oligomeris**

OLIGOMERIS Cambess.

Species 3, mainly Canary Islands, but also SW North America, N and NE Africa, SW Asia to W India; 2 endemic to sthn Afr., N, B, NW, G, FS, KZN, L, NC, WC, EC.

Stamens (5–)8–10(–12), surrounding ovary; flowers sometimes unisexual (female) or plants polygamous (having unisexual and bisexual flowers on the same or on different individuals)

dipetala (Aiton) Turcz.

Bitteraarbossie (A)

Erect suffrutex, woody at base, 0.2–0.7 m high; glabrous. **Leaves** crowded at nodes, linear to obovate. **Inflorescences** elongating racemes, up to 250 mm long; peduncles finely ribbed. **Flowers** white, rarely pinkish; pedicels wanting; bracts shorter than flowers. **Petals** 2, narrow, exceeding sepals, tardily deciduous. **Ovary** subglobose to obovoid, ± 3.5 mm long; shallowly sulcate, carpels 4 or 5, not completely fused at top, with 4 or 5 apical, conical teeth bearing stigmatic surfaces; ovules 6 per placenta, in 2(3) rows. **Flowering time** Dec.? **Fruit** a sessile capsule, (sub)globose to (ob)ovoid, bladdery, mouth contracted between cuspidate teeth. **Seeds** many, ovoid-globular, brown-black; testa glossy. Drier western parts of sthn Afr., alkaline, ± calcareous soils, limestone outcrops, riverbeds, margins of pans; Albany Thicket, Dry Highveld Grassland (Graaff-Reinet, Somerset East, Uitenhage).

Stamens 3(4), adaxial; flowers bisexual

dregeana (Müll.Arg.) Müll.Arg.

Bergaarbossie, (*sandveld*)(*sand*)*bitteraar*(*bossie*) (A)

Erect, often decumbent-ascending, perennial herb, 0.1–0.27 m high; glabrous to scabrid, branching, internodes tubular. **Leaves** crowded at nodes, linear to spathulate. **Inflorescences** elongating racemes, up to 100 mm long; peduncles strongly ribbed. **Flowers** white; bracts longer than flowers. **Petals** 2, as long as sepals, deciduous. **Ovary** ovoid, ± 3 mm long; carpels 4 or 5, not completely fused at top, with 4 or 5 apical, conical teeth bearing stigmatic surfaces; ovules 7–9 per placenta, in 2(3) rows. **Fruit** an ovoid-oblong capsule, membranous, gaping at top. **Seeds** many, ovoid-globular, black; testa glossy. Sandy, loamy soil, open or disturbed vegetation; Upper Karoo, Sub-Escarpment Grassland, Albany Thicket (Oviston E to Transkei, southwards to Middelburg and Port Elizabeth).

*RESEDA L.

Species ± 68; Mediterranean region, the Macronesian Islands, NE and E Africa, Arabian Peninsula and eastwards to NW India, also introduced in various temperate regions; 1 introduced into sthn Afr., NW, G, FS, KZN, L, WC, EC.

lutea L.

Dyer's rocket, Dyer's weed, weld, wild mignonette, wild rocket; *katstert*(*bossie*) (A)

Annual to perennial herb, 0.25–1.80 m high; scabrid-papillose to glabrous. **Leaves** simple, trifid or pinnatifid; pinnae 2–4 pairs, segments ± linear-lanceolate. **Inflorescences** spike-like racemes, up to 140 mm long, many-flowered. **Flowers** bisexual, pedicelled. **Sepals** 5 or 6. **Petals** 6, yellow, basal portion with papillose margins, upper portion 3-lobed, lateral lobes finely lunate, centre lobe linear. **Disc** long papillose. **Stamens** ± 20. **Ovary** of 2–5 carpels, 1-locular, open at top, with 2–5 apical, conical points bearing stigmatic surfaces; ovules many, arranged in rows. **Fruit** leathery, indehiscent capsules, gaping at apex. **Seeds** many, ± reniform, yellow, smooth. Weed of cultivation, roadsides, slopes, riverine bush, stony, rocky soil; Upper Karoo, Drakensberg Grassland, Sub-Escarpment Grassland, Albany Thicket (Aliwal North E to Mount Currie District S, from Sterkstroom to Queenstown and along Amatole Mts to Paterson and Grahamstown).

ABDALLAH, M.S. 1967. The Resedaceae. A taxonomical revision of the family. *Mededelingen Landbouwhogeschool Wageningen*, *Nederland* 67-8: 1–98.
ABDALLAH, M.S. & DE WIT, H.C.D. 1978. The Resedaceae. A taxonomical revision of the family. *Mededelingen Landbouwhogeschool Wageningen*, *Nederland* 78-14: 99–416.
BOLLE, F. 1936. Resedaceae. *Die natürlichen Pflanzenfamilien*, edn 2,17b: 659–692.
BURTT DAVY, J. 1926. Resedaceae. *A manual of the flowering plants and ferns of the Transvaal with Swaziland* 1. Longmans, Green & Co., London.
ELFFERS, J. & TAYLOR, P. 1958. *Flora of tropical East Africa*. Resedaceae: 1–6.
HARVEY, W.H. 1860. Resedaceae. *Flora capensis* 1: 63–65.
LEISTNER, O.A. 1970. Resedaceae. *Flora of southern Africa* 13: 177–184.
OLIVER, D. 1868. Resedaceae. *Flora of tropical Africa* 1: 102–104.
TAYLOR, P. 1960. Resedaceae. *Flora zambesiaca* 1: 245.
YEO, P.F. 1964. Resedaceae. *Flora europaea* 1: 346–349.

RHAMNACEAE

(Order Rhamnales)

Compiled by C.L. Bredenkamp

1a Climbers with tendrils ..... **Helinus**
1b Small trees, shrubs, or undershrubs:
2a Fruit a fleshy or dry drupe:
3a Leaves alternate:
4a Leaves palmately veined ..... **Ziziphus**
4b Leaves pinnately veined ..... **Rhamnus**
3b Leaves opposite or approximately in pairs:
5a Inflorescence a short, axillary umbel; spines usually present ..... **Scutia**
5b Inflorescence an axillary raceme or cyme; spines absent ..... **Rhamnus**
2b Fruit a capsule:
6a Disc inconspicuous; flowers in lax, terminal and axillary panicles ..... **Noltea**
6b Disc evident; flowers solitary, in cymes or racemes, spikes or heads:
7a Flowers in racemes, spikes or heads; rarely solitary; style simple ..... **Phylica**
7b Flowers axillary, solitary or in few-flowered peduncled cymes; style 3-partite:
8a Leaf lamina 40–100 mm long, ± crenate, elliptic to elliptic-ovate ..... **Colubrina**
8b Leaf lamina ± 15 mm long, entire, ± ovate-cordate ..... **Helinus**

COLUBRINA Rich. ex Brongn.

Species 31, warm tropical, especially America; 1 in sthn Afr., 3 small populations, 2 in Pondoland (EC) and 1 in KZN.

nicholsonii A.E.van Wyk & Schrire

Pondo weeping thorn; *Pondo-treurdoring* (A)

Evergreen, scandent shrub to lax tree, 2–8 m high; branchlets terete, often reduced to axillary spines. **Leaves** alternate, petiolate; eglandular, ± elliptic-ovate; stipules conspicuous. **Inflorescences** cymose, few-flowered; bracts minute, deltoid, caducous. **Flowers** 5-merous, cream-coloured. **Receptacle** hemispherical with calyx and androecium borne at rim. **Sepals** deltoid, spreading. **Petals** absent. **Stamens** erect, incurved. **Disc** thick and fleshy. **Ovary** 3-locular, immersed in and adnate to disc and receptacle; ovules 1 per locule, subsessile, placentas basal; styles 3, free, stigma indistinct. **Flowering time** summer. **Fruit** a faintly 3-coccous capsule, with stipe and basal part (receptacle) persistent. **Seeds** 1 per locule, oblong-obovate; testa hard and shiny; embryo flat, with fleshy, broadly elliptical cotyledons; endosperm abundant. Riverine forest; Indigenous Forests (Daza and Mtentu River populations in Mkambati Nature Reserve).

HELINUS E.Mey. ex Endl.

Species 6, Africa, Madagascar to India; 2 in sthn Afr., N, B, LIM, NW, G, M, S, FS, KZN, WC, EC.

integrifolius (Lam.) Kuntze

Soap creeper; *seepbos* (A); *ityolo* (X); *uBhubhubhu* (Z)

Climbing shrub with tendrils, 0.2–6.0 m high. **Leaves** alternate, petioled, ± ovate-cordate; stipules linear, deciduous. **Flowers** in axillary, peduncled cymes. **Calyx** 5-lobed; tube campanulate; lobes slightly keeled on inner face. **Petals** 5, ± as long as calyx lobes, cucullate, inserted on margin of disc. **Disc** epigynous, flat, completely filling calyx tube. **Stamens** 5, equalling petals. **Ovary** inferior, 3-locular; style short, 3-fid. **Flowering time** Nov.–Mar. **Fruit** an obovate-globose capsule, areolate at apex, 3-coccous; cocci at length dehiscent, with a 3-partite, central axis. **Seeds** black, somewhat planoconvex, with keel on flat face. Stream- and riverbanks, valleys, undergrowth in forest; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indigenous Forests; Eastern Fynbos-Renosterveld, Albany Thicket (Clydesdale southwards across Amatole Mts to Greater Addo Elephant National Park, Grahamstown and East London).

NOLTEA Rchb.f.

Species 1, sthn Afr., KZN, WC, EC.

africana (L.) Rchb.f.

Soap glossy-leaf; *seep-blinkblaar* (A); *umkuthuhla* (X)

Glabrous shrub, 1–4 m high. **Leaves** discolorous, alternate, petioled, elliptic or oblong, margins serrated. **Flowers** in terminal and axillary panicles, white. **Calyx** 5-lobed; tube broadly campanulate; lobes ovate, ± as long as tube. **Petals** 5, shorter than calyx, cucullate, embracing stamens. **Disc** inconspicuous. **Stamens** 5. **Ovary** partly adnate to calyx tube, 3-locular; style shortly 3-lobed. **Flowering time** July–Nov. **Fruit** a round capsule, calyx cup persistent, valves with a keel on upper portion, separating septicidally from a 3-partite, central axis. **Seeds** convex on one face, flattened and with keel on the other. Stream- and riverbanks, damp areas, valleys, forest margins; Sub-Escarpment Savanna, Drakensberg Grassland, Indigenous Forests; Eastern Fynbos-Renosterveld, Albany Thicket (Amatole Mts E to Stutterheim and Kentani, southwards to Port Elizabeth, Uitenhage and Grahamstown).

PHYLICA L.

Phylica; *hardebos* (A)

Species ± 188, Madagascar, 1 on Tristan da Cunha; ± 150 in sthn Afr., especially WC, but also LIM, NW, G, M, S, FS, KZN, L, KZN, NC, WC, EC.

1a Flowers in spikes or racemes
2a Leaves linear to linear-lanceolate, margins closely revolute

axillaris Lam.

Much-branched, tomentose shrub, up to 0.8 m high. **Leaves** 5–15 mm long, base subacute, apex apiculate, upper surface rounded, smooth. **Inflorescences** of lax, axillary racemes, well below branch tips. **Flowers** 2.5–3.0 mm long, whitish; pedicels 1.5–2.0 mm long. **Petals**: lamina orbicular, cucullate. **Flowering time** Dec.–Apr. Rocky slopes, mountain crests and peaks, coastal bush or forest margins; Drakensberg Grassland, Indigenous

Forests, Eastern Fynbos-Renosterveld, Albany Thicket (Katberg E to Keiskammahoek, southwards from Agulhas Coast to Willowmore, Uitenhage, Port Elizabeth, Grahamstown and Bathurst, and to Humansdorp and Skoenmakerskop).

willdenowiana Eckl. & Zeyh.

Densely leafy shrub, 0.3–0.6 m high. **Leaves** 5–15 mm long, base rounded, apex mucronulate. **Inflorescences** of crowded racemes below branch tips. **Flowers** 3.5–5.0 mm long, white; pedicels 1–3 mm long. **Petals**: lamina cucullate. **Flowering time** May–July. **Fruit** 5–6 mm long, widely ellipsoid, blackish, with 10 vertical ridges. Sandstone slopes, river mouths and gullies; Eastern Fynbos-Renosterveld, Indigenous Forests (Outeniqua Mts to Steytlerville, Baviaanskloof, Winterhoek Mts Catchment Basin, Uitenhage and Port Elizabeth).

2b Leaves lanceolate to ovate or broadly elliptic, ± open-backed (also in shaded forms of P. axillaris*), margins slightly or strongly revolute*

paniculata Willd.

Common hard-leaf; *gewone hardeblaar*, *hardebos*, *luisboom*(*bos*) (A); *umdidi* (Z)

Grey-tomentose shrub or small tree, 1.5–3.0(–6.0) m high. **Leaves** lanceolate to ovate, mostly 10–15 mm long, base rounded or subcordate, apex acute, margins revolute, canescent beneath. **Inflorescences** spicate, forming compound panicles. **Flowers** 1.5–2.5 mm long, shortly stipitate, whitish. **Petals**: lamina cucullate, orbicular. **Flowering time** May, June. **Fruit** 6–7 mm long, obovoid, dark chestnut-brown, crowned with persistent base of calyx. Moist slopes and gullies, bush and forest margins; Sub-Escarpment Grassland, Indigenous Forests, Albany Thicket, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld (from Cala District E to Port St Johns and Mkambati Nature Reserve southwestwards, from Graaff-Reinet to Keiskammahoek, Willowmore to Uitenhage and Grahamstown, and to Humansdorp).

pinea Thunb.

Closely leafy, much-branched shrub, ± 0.9 m high. **Leaves** lanceolate, ± 12 mm long, cordate at base, apex acute, margins revolute, white-felted beneath. **Inflorescences** of short, mostly terminal racemes. **Flowers** 2.5–4.0 mm long, distinctly constricted between calyx and ovary, white; pedicels 2–7 mm long. **Petals**: lamina orbicular or reniform, cucullate. **Flowering time** Dec.–Aug. **Fruit** 6–7 mm long, with 3 longitudinal sulcae, chestnut-brown, crowned with narrow, persistent calyx base. Sandstone slopes, coastal forest, river mouths and -banks; Indigenous Forests, Eastern Fynbos-Renosterveld (Tsitsikamma Forest, Storms River, Humansdorp District, Port Elizabeth).

1b Flowers in capitula
3a Proliferating growth (inflorescence apex growing out and returning to vegetative growth) common; capitula terminal and solitary on vegetative branchlets
4a Capitula surrounded by leaves and leafy bracts, ciliate but without ornamental indumentum

ericoides L.

Closely leafy, compact shrublet, up to 1 m high. **Leaves** needle-like, mostly 5–8 mm long, often rough, margins closely revolute. **Inflorescence** a small capitula, 4–7 mm wide, rounded above, solitary (seldom clustered). **Flowers** 1.5–2.0 mm long, densely canescent. **Petals**: lamina elliptic and incurved-cucullate**. Flowering time** all year. **Fruit** 4 mm long, obovoid, glabrous, purple-brown. Coastal slopes and deep sand; Eastern Fynbos-Renosterveld, Albany Thicket (Uitenhage District, Port Elizabeth, Bushman's and Kariega River Mouths).

[E]galpinii Pillans

Much-branched, dwarf shrub, 0.45–0.70 m high; branches slender. **Leaves** 5–8 mm long, lanceolate, base narrowed, apex acute, rounded, sparsely villous, margins revolute; petioles ± 1 mm long. **Inflorescence** a few-flowered capitula, 5–7 mm wide. **Flowers** 2.5 mm long, grey-white, tomentose. **Petals**: lamina incurved, cucullate. **Flowering time** Nov.–Apr. Mountain summits and peaks, alt. ± 1 950 m; Drakensberg Grassland, Indigenous Forests (Amatole Mts, Katberg, Gaika's Kop, Stutterheim, Mount Kemp).

karroica Pillans

Much-branched, wiry, dwarf shrub, ± 0.4 m high. **Leaves** needle-like, 5–8 mm long, linear, base subcordate, apex subacute, margins closely revolute, without tubercles and hairy when young, becoming smooth over entire surface; petioles ± 0.50–0.75 mm long. **Inflorescence** a widely hemispheric capitula, 4–6 mm wide. **Flowers** 1.75–2.00 mm long, densely white-tomentose. **Petals**: lamina widely elliptic, ± cucullate. **Flowering time** Sept., Oct., also Jan. **Fruit** 5–6 mm long, obovoid, red-brown, with small, persistent calyx base. Rocky sandstone slopes, valley floors; Eastern Fynbos-Renosterveld (Langeberg Mts to Langkloof; Kouga Mts, Uniondale District).

Close to *P. parviflora*, distinguished by absence of tubercles on leaves and by pubescence over entire upper surface of leaves.

[E]simii Pillans

Dwarf, partly procumbent, moderately branched shrub, up to 0.3 m high; branches wiry. **Leaves** 8–12 mm long, narrowly linear, base rounded, apex acute, margins revolute, upper surface pilose; petioles ± 1.5 mm long. **Inflorescence** a hemispheric capitula, ± 10 mm wide, solitary (seldom clustered). **Flowers** up to 5 mm long, white-tomentose; sepals 3 mm long, oblong-lanceolate, attenuate. **Petals**: lamina linear, acute. **Flowering time** May? **Fruit** ± 5 mm long, widely ellipsoid, dark purple-brown, small persistent calyx-area at apex. Mountain- and hilltops, shallow soil on rocks or flat rocks, closed *Protea lacticolor* shrubland; Drakensberg Grassland (Stutterheim District, Kologha Mts).

tysonii Pillans

Much-branched shrub, up to 0.4 m high; branches wiry. **Leaves** 6–10 mm long, linear, apex subacute, base rounded, margins closely revolute, upper surface pubescent, becoming glabrous, minutely tuberculate-scabrid; petioles 1.5–2.0 mm long. **Inflorescence** a hemispheric capitula, 6–8 mm wide, subtended by leaves with enlarged petioles. **Flowers** 2.75–3.50 mm long, tomentose. **Petals**: lamina incurved cucullate. **Flowering time** Jan., July? **Fruit** 4–5 mm long, widely ellipsoid, subtrigonous; small, persistent calyx-area at apex. Mountain summit plateau; Sub-Escarpment Grassland, Drakensberg Grassland (Ingeli Mts, KZN; Maclear District, Wildebeest Mts).

4b Capitula surrounded by leaves and/or bracts that can be long-petioled or up to twice as long as flowers, ornamental indumentum silky to white-plumose

debilis Eckl. & Zeyh.

Twiggy shrublet, 0.3–0.6 m high; grey-tomentose on young parts. **Leaves** 2.5–5.0 mm long, cordate-ovate, apex apiculate, laterally compressed, incurved, margins laxly revolute, apparently smooth; petioles 0.75–1.00 mm long. **Inflorescence** a flattened capitula, 6–8 mm wide, surrounded by leaves with long petioles. **Flowers** 2.75–3.00 mm long, white-tomentose. **Petals**: lamina setaceous to linear-lanceolate. **Flowering time** Nov.–Jan. Mountain slopes, crests, peaks; Eastern Fynbos-Renosterveld (Kouga- and Baviaanskloof Mts, Cockscomb, Humansdorp District, Witelsbos).

keetii Pillans
Much-branched, wiry shrub, 0.4–1.2 m high; silky to greyish villous. **Leaves** ± 5 mm long, narrowly linear, upper leaves falcate, apex obtuse to rounded, ventrally compressed, base rounded, margins closely revolute, upper surface glabrous, tuberculate, pilose at margins; petioles ± 1 mm long. **Inflorescence** a capitula, 5–8 mm wide, upper surface widely rounded, surrounded by leaves with long petioles, outer foliaceous bracts with upper surface villous, exposed lower surface white canescent, apex plumose. **Flowers** ± 3 mm long, white-tomentose. **Petal**: lamina rotund, cucullate. **Flowering time** Nov.–Feb. **Fruit** 3 mm long, obovate, sparsely pubescent, red-brown. Rocky sandstone slopes; Eastern Fynbos-Renosterveld (Tsitsikamma Mts, Louterwater).

meyeri Sond.
Sparingly branched dwarf shrub, up to 0.95 m high; villous with grey, silky hairs. **Leaves** linear, 8–12 mm long, base rounded, apex obtuse, margins closely revolute; petioles ± 1.5 mm long. **Inflorescence** a rounded capitula, 15–20 mm wide, with long white-plumose bracts, twice as long as flowers. **Flowers** 4.0–4.5 mm long, silky, white-villous. **Petals**: lamina widely elliptic, cucullate. **Flowering time** Oct.–Feb. Northern slopes, ridge tops at high elevations, alt. 1 790–1 820 m; Eastern Fynbos-Renosterveld (most eastern part of Swartberg Mts, just extending into EC).

3b Proliferating growth (inflorescence apex growing out and returning to vegetative growth) less common; terminal, solitary capitula present but additionally arranged into either clusters or pseudo-inflorescences resembling panicles, cymes or corymbs
5a Solitary capitula present but additionally arranged into clusters

abietina Eckl. & Zeyh.
Much-branched, closely leafy shrub, 0.5–1.5 m high; pubescence short, appressed, grey. **Leaves** 4–6 mm long, linear-lanceolate, base rounded, smooth above, apex laterally compressed, truncate, mucronulate, margins closely revolute; petioles ± 1 mm long. **Inflorescence** a rounded capitula, ± 10 mm wide, surrounded by many leaves with enlarged petioles. **Flowers** 6–8 mm long, densely white or pinkish tomentose, subsessile. **Calyx**: tube 3–4 mm deep. **Petals**: lamina cordate, somewhat cucullate at apex. **Flowering time** Apr.–Oct. **Fruit** ± 5 mm long, widely ellipsoid, velvety pubescent, persistent calyx in small area at apex. Closed shrubland, fynbos; Eastern Fynbos-Renosterveld (Willowmore, Baviaanskloof, Joubertina, Groot Winterhoek Mts, Uitenhage, Humansdorp).

alba Pillans
Virgate shrub, up to 0.6 m high; branchlets with spreading, grey pubescence. **Leaves** ± 6 mm long, linear-lanceolate, cordate at base, apex obtuse to acute, margins revolute, lower surface almost hidden; petioles up to 1 mm long. **Inflorescence** a many-flowered capitula, 5–8 mm wide, flattened, surrounded by several leaves and leafy bracts. **Flowers** 2.5–3.5 mm long, densely white-tomentose, subsessile. **Calyx**: tube up to 1 mm deep. **Petals**: lamina orbicular cucullate. **Flowering time** Mar.–June. Moist sandstone slopes; Eastern Fynbos-Renosterveld (Joubertina, N foot of Tsitsikamma Mts, Louterwater).

ericoides L. (see 4a above)

litoralis (Eckl. & Zeyh.) D.Dietr.
Closely leafy, much-branched shrublet, up to 0.3–1.0 m high; branchlets wiry, shortly velvety pubescent. **Leaves** 7–15 mm long, lanceolate, cordate at base, apex obtuse to acute, margins revolute, ± half of lower surface exposed, white-pubescent; petioles up

to 2 mm long. **Inflorescence** a hemispheric, many-flowered capitula, ± 10 mm wide, surrounded by a few reduced leaves and outer bracts. **Flowers** 3–4 mm long, white-velutinous, subsessile. **Calyx**: tube up to 0.5 mm deep. **Petals**: lamina orbicular, cucullate. **Flowering time** Nov.–Apr. **Fruit** ± 5 mm long, obovoid, chestnut-brown, with small depression at apex. Coastal dunes; Eastern Fynbos-Renosterveld, Albany Thicket (Knysna to East London).

E simii Pillans (see 4a above)

5b Solitary capitula present but additionally arranged into pseudo-inflorescences resembling either panicles, cymes or corymbs

callosa L.f.

Closely leafy, much-branched shrub, up to 1.2 m high; branchlets with grey tomentum interspersed with silky hairs. **Leaves** 5–15 mm long, ovate-lanceolate, base cordate, rough, apex acute to apiculate, margins revolute, lower surface exposed, white-pubescent; petioles up to 1.75 mm long. **Inflorescence** a hemispheric capitula, 5–10 mm wide, surrounded by modified leaves and leafy bracts; solitary or with cyme-like arrangement (oldest capitulum centred) with lower branchlets up to 70 mm long. **Flowers** 3–4 mm long, white-velutinous, subsessile. **Calyx**: tube up to 0.75 mm deep. **Petals**: lamina incurved-cucullate. **Flowering time** Aug.? **Fruit** 5 mm long, obovoid, blackish with 3 longitudinal furrows. Sandveld near sea; Eastern Fynbos-Renosterveld (Humansdorp District, Cape St Francis).

confusa Pillans

Closely leafy, much-branched shrub, up to 1 m high; branchlets slender, often virgate, villous or shortly grey-pubescent. **Leaves** 5–15 mm long, ± linear, cordate at base, apex ± acute, margins revolute, lower surface ± exposed, white-pubescent; petioles up to 1 mm long. **Inflorescence** a hemispheric capitula, 3–5 mm wide, surrounded by several leaves and leafy bracts; solitary or with panicle-like arrangement. **Flowers** up to 2.5 mm long, white-tomentose, sessile. **Calyx**: tube 1.7 mm deep, filled with fleshy disc. **Petals**: lamina orbicular, cucullate. **Flowering time** Mar.–May, Aug.? **Fruit** 5–6 mm long, obovoid, blackish, persistent calyx in small area at apex. Sandstone slopes and peaks; Eastern Fynbos-Renosterveld (Great Winterhoek Mts, Uitenhage District, Humansdorp and Kareedouw).

costata Pillans

Much-branched, dense shrublet, ± 0.35 m high. **Leaves** 7–10 mm long, linear, base rounded, apex acute, margins closely revolute; petioles up to 3 mm long. **Inflorescence** a capitula, 5–7 mm wide, solitary at ends of branchlets, or with panicle-like arrangement, surrounded and overtopped by several leaves. **Flowers** ± 5 mm long, grey-tomentose, stipitate. **Calyx**: tube 2.5–3.0 mm deep. **Petals**: lamina obovate-cucullate. **Flowering time** Dec., Jan. **Fruit** 5 mm long, widely ellipsoid, pale brown, remnants of persistent calyx at apex. Mountain peaks; Eastern Fynbos-Renosterveld (Swartberg Mts, mostly eastern ridge extending into EC).

Like *P. willdenowiana* but more densely branched.

fourcadei Pillans

Much-branched shrub, ± 0.45 m high; branchlets slender, shortly tawny-pubescent. **Leaves** 5–7 mm long, linear-lanceolate, rounded at base, apex mucronulate laterally compressed, margins closely revolute, upper surface smooth; petioles up to 1 mm long.

Inflorescence an obovoid capitula, ± 10 mm wide, surrounded by several leaves; solitary or with corymb-like arrangement (youngest capitulum centred). **Flowers** up to 13 mm long, white-tomentose, stipitate. **Calyx**: tube up to 8 mm deep, infundibuliform-tubular. **Petals**: lamina elliptic-ovate, cucullate. **Flowering time** Jan.–Mar. **Fruit** ± 5 mm long, widely elliptic, velvety pubescent, green, persistent calyx in small area at apex. Sandstone slopes; Eastern Fynbos-Renosterveld (Langkloof to Humansdorp).

gnidioides Eckl. & Zeyh.

Closely leafy, erect or spreading shrub, up to 1 m high; branchlets slender, appressed, grey-pubescent. **Leaves** 8–10 mm long, linear, rounded at base, apex mucronulate, margins closely revolute, upper surface smooth; petioles up to 1 mm long. **Inflorescence** a hemispheric capitula, up to 20 mm wide, surrounded at base by many ciliate leaves with enlarged petioles; solitary or with cyme-like arrangement (oldest capitulum centred). **Flowers** 8–11 mm long, pinkish, grey-tomentose, stipitate. **Calyx**: tube up to 5 mm deep, oblong-tubular. **Petals**: lamina widely ovate, cucullate. **Flowering time** Mar.–Sept. **Fruit** 10–11 mm long, widely elliptic, velvety pubescent, with a small depression at apex. Dunes and grassy fynbos, mountain slopes, foothills; Eastern Fynbos-Renosterveld (Joubertina District E to Uitenhage, Port Elizabeth and Grahamstown, and to Slang River and Humansdorp).

lachneaeoides Pillans

Much-branched, wiry shrub, 0.5–1.0 m high; branchlets slender, appressed-pubescent. **Leaves** 5–8 mm long, linear-lanceolate, rounded at base, apex apiculate, margins closely revolute, upper surface smooth; petioles up to 1 mm long. **Inflorescence** a hemispheric capitula, 8–12 mm wide, surrounded at base by several leaves and foliaceous bracts; solitary or with corymb-like arrangement. **Flowers** 6–8 mm long, constricted between tube and ovary, pinkish, white-tomentose, stipitate. **Calyx**: tube 4.0–4.5 mm deep. **Petals**: lamina cordate, cucullate. **Flowering time** May–Sept. **Fruit** ± 6 mm long, widely elliptic, greenish velvety pubescent, persistent calyx at apex very small. Sandstone slopes; Eastern Fynbos-Renosterveld (Uniondale to Humansdorp District and Port Elizabeth).

purpurea Sond.

Silky-fruited hard-leaf; *fluweelvrug-hardeblaar* (A)

Closely leafy shrub or small tree, up to 2(3) m high; branchlets slender, appressed, grey-pubescent. **Leaves** 5–10 mm long, lanceolate, rounded to cordate at base, apex obtuse or acute, margins revolute covering ± half of canescent lower surface, upper surface tubercled white-hirsute; petioles up to 1 mm long. **Inflorescence** a hemispheric or orbicular capitula, 7–10 mm wide, surrounded by white-velutinous, foliaceous bracts; solitary or with cyme-like arrangement. **Flowers** 3–4 mm long, white-velutinous. **Calyx**: tube 0.5 mm deep, almost filled with fleshy disc. **Petals**: lamina orbicular, cucullate. **Flowering time** Apr.–Oct. **Fruit** ± 6 mm long, widely elliptic, silky, white-villous with a small depression at apex. Sandstone slopes, often on forest margins; Indigenous Forests, Eastern Fynbos-Renosterveld (Keurboomsrivier to Uitenhage, and to Tsitsikamma Mts, Storms River Forest Reserve and Humansdorp).

RHAMNUS L.

Species ± 125, cosmopolitan; 1 in sthn Afr., LIM, NW, G, M, S, FS, KZN, L, NC, WC, EC.

prinoides L'Hér.

Glossy leaf; *blinkblaar* (A); *mofifi* (NS); *umglindi* (X); *umnyenye* (Z)

Shrub or small tree, 1–8 m high. **Leaves** alternate or opposite, simple, petioled, toothed; stipules small, deciduous. **Flowers** mostly bisexual, in axillary cymes or racemes. **Calyx** urceolate or flat; lobes 5, deltate, erect or spreading. **Petals** 5, cucullate or flat. **Disc** inconspicuous, lining calyx tube. **Stamens** 4 or 5, shorter than calyx lobes. **Ovary** superior, sometimes immersed in disc, 3- or 4-locular; styles 3- or 4-fid. **Fruit** a slightly fleshy drupe, red to purple-black when ripe, turbinate. **Seed** 3 or 4, obovoid. Riverbanks, mountain slopes, forests and forest margins; widespread in all bioregions, except Lower Karoo and Rainshadow Valley Karoo (Albert E to Ngeli District southwards, from Middelburg to Port St Johns, Graaff-Reinet, across Amatole Mts to Kentani, from Baviaanskloof to Port Elizabeth, Grahamstown and Alexandria, and to Witelsbos near Humansdorp).

SCUTIA (DC.) Brongn.

Species 17, fairly cosmopolitan in tropical parts; 1 in sthn Afr., LIM, M, FS, S, KZN, WC, EC.

myrtina (Burm.f.) Kurz

Cat-thorn; *katdoring* (A); *isiphingo* (X); *isiphingo* (Z)

Scandent shrub or liana, 1–8 m high; unarmed or with straight or recurved axillary thorns. **Leaves** opposite or subopposite, shortly petioled, entire or toothed; stipules minute, deciduous. **Flowers** in simple, axillary umbels, yellowish green; pedicels slightly longer than petioles. **Calyx** 5-lobed, somewhat fleshy; tube ± urceolate. **Petals** 5, shorter than calyx, shortly clawed. **Disc** inconspicuous, lining calyx tube. **Stamens** 5, subequalling petals. **Ovary** superior. **Fruit** a ± ovoid drupe, dry or somewhat fleshy, black. **Seeds** usually solitary. Mostly in scrub bush or closed woodland; Sub-Escarpment Savanna, Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Indigenous Forests, Albany Thicket (Kokstad District E to Pondoland Coast southwards, from Bosberg near Somerset East to Kei River Mouth, Melkhoutboom to Port Elizabeth, Grahamstown and East London, and to Humansdorp and Jeffreys Bay).

ZIZIPHUS Mill.

Species 100–170, mostly in E Asia and East Indies; 6 in sthn Afr., N, B, LIM, NW, G, M, S, FS, KZN, NC, EC.

mucronata Willd.

Buffalo thorn; *blinkblaar-wag-'n-bietjie* (A); *mokgalwa* (NS); *mokgalo* (T); *umphafa* (X); *umphafa* (Z)

Tree or shrub, 1–20 m high; sometimes decumbent or with rhizomes, often spinescent. **Leaves** alternate, petioled, entire or toothed, palmately veined. **Flowers** small, in short, axillary cymes. **Calyx** 5-fid; lobes keeled within. **Petals** 5(0), shorter than sepals, spathulate, usually clawed. **Disc** flat, adhering to calyx tube. **Stamens** 5, inserted outside disc, reflexed. **Ovary** superior, immersed in disc; styles 2-fid, stigmas papillose. **Fruit** a drupe, sometimes the size of a cherry. **Seeds** usually solitary, ± suborbicular, compressed. Riverbanks, closed woodland, valleys, mountain slopes; Sub-Escarpment Savanna, Sub-Escarpment Grassland, Drakensberg Grassland, Indigenous Forests, Albany Thicket (Clydesdale District southwards, from Queenstown to Port St Johns, Somerset East to Kentani District and Grahamstown to East London).

DRUMMOND, R.B. 1966. Rhamnaceae. *Flora zambesiaca* 2: 419–439.
JOHNSTON, M.C. 1972. *Flora of tropical East Africa*. Rhamnaceae: 1–40.
PILLANS, N.S. 1942. The genus *Phylica* Linn. *Journal of South African Botany* 8: 1–164.
RICHARDSON, J.E., WEITZ, F.M., FAY, M.F., CRONK, Q.C.B., LINDER, P., REEVES, G. & CHASE, M.W. 2001. Rapid and recent origin of species richness in the Cape Flora of South Africa. *Nature* 412: 181–183.
SONDER, O.W. 1860. Rhamneae R.Br. *Flora capensis* 1: 475–502.
VAN WYK, A.E. & SCHRIRE, B.D. 1986. A remarkable new species of *Colubrina* (Rhamnaceae) from Pondoland. *South African Journal of Botany* 52: 379–381.

RHIZOPHORACEAE

(Order Malpighiales)

Compiled by M. Kotze

1a Plants of inland forest and coastal bush; fruit a capsule; seeds arillate, not germinating while on the plant..... **Cassipourea**
1b Plants of mangrove habitat (in estuaries); fruit a leathery berry usually germinating on the plant; seeds without aril:
2a Calyx lobes 8–15; flowers solitary, ± 15 mm long..... **Bruguiera**
2b Calyx lobes 4 or 5(6); flowers usually in cymes, up to 10 mm long..... **Rhizophora**

BRUGUIERA Lam.

Species 6, Africa to Asia and Australia; 1 in sthn Afr., KZN, EC.

gymnorrhiza (L.) Lam.

Black mangrove; *swart-wortelboom* (A); *isikhangathi* (X); *isihlobane* (Z)

Evergreen, mangrove tree or shrub, 7–15 m high. **Leaves** opposite, oblong to elliptic, leathery. **Flowers** axillary, solitary. **Calyx** 8–15-lobed, leathery; tube turbinate; lobes linear-lanceolate. **Petals** as many as calyx lobes, oblong, concave, bifid, lobe and midrib produced into awns. **Stamens** twice as many as petals; filaments shorter than petals; anthers linear, hooked at apex. **Ovary** inferior, 2–4-locular, 2 ovules per locule. **Flowering time** Aug.–May. **Fruit** a turbinate, leathery berry, crowned with persistent calyx; 1-seeded by abortion. **Seed** pendulous, germinating before fruit-fall, developing a hypocotyl with longitudinal ridges. Riverbanks and mouths, estuaries and lagoons, mangrove swamp forests; Indian Ocean Coastal Belt, Indigenous Forests (Umtamvuna River S to Port St Johns, Elliotdale, Kentani and Willowvale Districts, including Xora and Mbashe river mouths and junction of Nxaxo and Nqusi rivers).

CASSIPOUREA Aubl.

Species ± 70, mainly tropical and sthn Afr., also tropical America and India; 5 in sthn Afr., LIM, M, S, KZN, EC.

Trees medium to large; leaves relatively large, mostly > 70 mm long, opposite or 3-whorled, margins entire or shallowly serrated in upper half; occurring near water

gummiflua Tul.

Large-leaved onionwood; *grootblaar-uiehout* (A); *umkhanga* (X); *isinuka* (Z)

Tree, 3–25 m high, evergreen; branches terete; bark brownish, smooth, lenticels scattered, raised. **Leaves** decussate, nodes thick; ± 140 × 75 mm, elliptic-lanceolate, leathery, glabrous, base tapering, apex broadly tapering, margins entire; petioles short, thick. **Inflorescences** dense and congested fascicles. **Flowers** 4–6-merous; pedicels short, articulate at or above middle. **Calyx** glabrous; tube elongate-campanulate; lobes

semi-circular to deltate. **Corolla**: lobes linear-spathulate, laciniate at apex, white. **Disc** tubulous-campanulate, lobed. **Stamens** 8–12, inserted along and below disc margin; filaments 4.5–7.0 mm long; anthers ellipsoid. **Ovary** ± obovoid 2- or 3-locular; style longer than ovary; stigma slightly 2(3)-lobed. **Flowering time** Dec.–July. **Fruit** a round to ovoid capsule, up to 7 mm long, velvety or smooth, dehiscent. **Seeds** small, aril yellow. Humid forests, streambanks; Indian Ocean Coastal Belt, Indigenous Forests (Umtamvuna River S to Lusikisiki, Port Edward and Willowvale District).

Shrubs or relatively small trees, often tall and slender in forests; leaves relatively small, usually < 70 mm long, opposite, margins entire or deeply serrated; not associated with watercourses

flanaganii (Schinz) Alston

Cape onionwood; *Kaapse uiehout* (A); *ummemezi* (X)

Small tree, 7(–11 m) high; branchlets dark, hairy, brittle, bark dark grey, wrinkled. **Leaves** obovate to oblong, < 40 mm long, glossy dark green, hairless, midrib and lateral veins translucent-green, conspicuous on undersurface, base tapering, apex broadly tapering to rounded, notched, asymmetric, margins widely toothed; petioles 2–4 mm long. **Flowers** white to cream-coloured, solitary on short stalks, up to 5 mm long, inconspicuous. **Flowering time** Oct.–Dec. **Fruit** a capsule, ± 10 × 6 mm, sharply tipped with remains of old style and with persistent sepals around base. **Seeds** arillate. Forests, hill slopes, sandstone, partial shade; Indian Ocean Coastal Belt, Indigenous Forests (Ngeli Forest to Port St Johns S, from Stutterheim and Kologha Forest to East London).

This species could be mistaken for *C. malosana*, but the latter has bigger leaves, > 40 mm long.

malosana (Baker) Alston

Onionwood; *uiehout* (A); *umemezi* (X); *umkhathane* (Z)

Shrub or tree, up to 6 m high; bark greyish brown; branches hairy when young. **Leaves** variable in size and shape, margins serrate; upper surface shining, glabrous, venation conspicuous; lower surface mat, sparsely appressed-pubescent, venation prominent; petioles 2–7 mm long. **Stipules** truncate to subrounded at base; caducous. **Inflorescences** 1–6-flowered, lax to ± congested. **Flowers** yellowish, greenish, cream-coloured; 4–6-merous; pedicels 2–9 mm long. **Calyx** pubescent outside, glabrous inside; tube and lobes ± ovate-lanceolate. **Corolla**: lobes 4–8 mm long, spathulate, laciniate above, glabrous. **Stamens** 15–20; anthers ± ellipsoid-oblong. **Ovary** ovoid, 3- or 4-locular; style longer than ovary. **Flowering time** Aug.–Apr. **Fruit** an ± ellipsoid capsule. **Seeds** dark brown, aril reddish. Moist forest, streambanks, waterfalls; Indian Ocean Coastal Belt, Indigenous Forests (Oribi Gorge to Port Edward S, from Port St Johns to Mbashe River Mouth).

RHIZOPHORA L.

Species ± 8, cosmopolitan on shores of tropical Africa, Asia and America; 1 in sthn Afr., KZN, EC.

mucronata Lam.

Red mangrove; *rooiwortelboom* (A); *isikhangathi*, *umhluma* (X); *umhlume* (Z)

Evergreen, mangrove tree or shrub, 10–18 m high. **Leaves** opposite, ovate or elliptic, acuminate, leathery, midrib produced into a caducous mucro; stipules lanceolate. **Flowers** in axillary 1–3-flowered, pedunculate cymes. **Calyx** 4- or 5(6)-lobed, leathery; tube short; lobes oblong or ovate. **Petals** 4(5), arising at base of fleshy disc, lanceolate with

inflexed margins, entire, sometimes woolly, sometimes with stalked gland at apex; pedicels long, thick. **Stamens** 4 opposite to sepals, 4 opposite to petals; filaments short; anthers lanceolate, apiculate, many-thecous. **Ovary** half-inferior, 2-locular, with 2 pendulous ovules per locule; style conical. **Flowering time** Aug.? **Fruit** a leathery, ovoid, obconic, or cylindric berry, surrounded by persistent calyx at base. **Seed** 1 by abortion; embryo germinating on plant, hypocotyl of germinating seed not ridged. Estuaries, lagoons, riverbanks and -mouths, mangrove swamp forests in sand or mud; Indian Ocean Coastal Belt, Indigenous Forests (Umtamvuna and Mntafufu River Mouths S to Port St Johns and Mtata River).

ALSTON, A.H.G. 1925. Revision of the genus *Cassipourea*. *Kew Bulletin* 1925: 241–276.
BOON, R. 2010. *Pooley's trees of eastern South Africa: a complete guide*. Flora & Fauna Publications Trust, Durban.
SONDER, O.W. 1862. Rhizophoreae. *Flora capensis* 2: 513, 514.
TOBE, H., & RAVEN, P.H. 1988. Seed morphology and anatomy of Rhizophoraceae, inter- and intrafamilial relationships. *Annals of the Missouri Botanical Garden* 75: 1319–1342.
TORRE, A.R. & GONÇALVES, A.E. 1978. Rhizophoraceae. *Flora zambesiaca* 4: 81–99.

RHYNCHOCALYCACEAE

(Order Myrtales)

Compiled by M. Kotze

Rhynchocalycaceae is a monotypic family proposed by Johnson & Briggs (1984).

RHYNCHOCALYX Oliv.

Rhynchocalyx lawsonioides Oliv. is a rare, but locally quite common, evergreen tree endemic to sandstone region (Natal Group; previously known as Table Mountain Sandstone) of S KZN and Pondoland (EC). First collected in 1884, it was only rediscovered in 1966 (Strey & Leistner 1968).

lawsonioides Oliv.

False-waterberry, mock umdoni; *valswaterbessie*, *vals-umdoni* (A)

Small, erect tree, 3–6 m high; bark pale grey, tinged pinkish; upper branchlets opposite or 3–5-whorled. **Leaves** decussate, narrowly elliptic-ovate; blades 25–70 × 10–30 mm, margins recurved, apex sometimes notched; upper leaf surface dark green, slightly shiny, venation fairly prominent, lower surface pale grey-green, midrib prominent; petioles 1.5–3.0 mm long. **Inflorescence** a many-flowered panicle. **Flowers** small, creamy white. **Calyx** 6-lobed, fused in lower $^1/_3$, lobes narrowly ovate-triangular. **Corolla** white, lobes 6, narrowly clawed. **Stamens** 6, antipetalous; anthers broadly elliptic, 2-thecous. **Ovary** 2-chambered. **Flowering time** Mar.–May. **Fruit** a 2-lobed capsule, dorsiventrally compressed, reddish brown, 5–8 × 6–9 mm. **Seeds** 11–17 per loculus, horizontally orientated, tightly packed in ± vertical row, alternately originating from one of 2 axile placentae; depressed-ovoid, winged on micropylar side; testa lignified. Coastal riverine forest; Indian Ocean Coastal Belt, Indigenous Forests (Umtamvuna Nature Reserve, Port Edward, Lusikisiki, Mkambati Nature Reserve).

BOON, R. 2010. *Pooley's trees of eastern South Africa: a complete guide*. Flora & Fauna Publications Trust, Durban.
DAHLGREN, R. & VAN WYK, A.E. 1988. Structures and relationships of families endemic to or centered in southern Africa. *Monographs in Systematic Botany from the Missouri Botanical Garden* 25: 1–94.

HIROSHI, T. & RAVEN, P.H. 1984. The embryology and relationships of *Rhynchocalyx* Oliv. (Rhynchocalycaceae). *Annals of the Missouri Botanical Garden* 71: 836–843.
JOHNSON, L.A.S. & BRIGGS, B.G. 1984. Myrtales and Myrtaceae—a phylogenetic analysis. *Annals Missouri Botanical Garden* 71: 700–756.
OLIVER, D. 1895. *Rhynchocalyx lawsonioides* Oliv. *Hooker's Icones Plantarum* Ser. 4, 24,1: t. 2348.
STREY, R.G. & LEISTNER, O.A. 1968. The rediscovery of *Rhynchocalyx lawsonioides* Oliv. *Journal of South African Botany* 34: 9–13.
TOBE, H., & RAVEN, P.H. 1984. The embryology and relationships of *Rhynchocalyx* Oliv. (Rhynchocalycaceae). *Annals of the Missouri Botanical Garden* 71: 836-843.

ROSACEAE

(Order Rosales)

Compiled by C.L. Bredenkamp & C.M. Makgakga

The classification of the Rosaceae is adapted from Heywood et al. 2007, Mabberley (2008) and Stevens (2010, 2018).

Classification of Rosaceae

1. Tribe Sanguisorbeae: trees to herbs; leaves imparipinnate; stipules adnate to petiole; achenes present. *Agrimonia*, *Cliffortia*, *Leucosidea*, **Sanguisorba*.
2. Tribe Potentilleae: unarmed; leaves compound, stipules adnate to petiole; epicalyx usually present; achenes present. *Alchemilla*, **Duchesnea*, **Fragaria*.
3. Tribe Colurieae: unarmed herbs; leaves imparipinnate; stipules usually adnate to petiole; epicalyx present; corolla usually yellow; stamens many; ovule 1, basal; achenes present. *Geum*.
4. Tribe Rubeae: stipules free; epicalyx absent; ovules 2, pendulous; head of drupelets. *Rubus* (only).
5. Tribe Roseae: woody; leaves pinnate; stipules adnate to petiole; epicalyx absent; anthers many; achenes present. **Rosa* (only).
6. Tribe Pruneae: woody; leaves simple; epicalyx absent; drupes. *Prunus*.
7. Tribe Crataegeae: fruit a fleshy hypanthium. **Cotoneaster*, **Crataegus*, **Pyracantha*.

1a Low or tall perennial herbs or unarmed low shrubs:
2a Flowers with distinct petals:
3a Carpels 2, rarely 3 ..... **Agrimonia**
3b Carpels several to many:
4a Styles persistent, long, hooked at fruiting; carpels in dense hairy cluster ..... **Geum**
4b Styles deciduous, short, not hooked at fruiting; carpels not forming a hairy cluster:
5a Petals yellow; receptacle not pulpy ..... ***Duchesnea**
5b Petals white or pink; receptacle pulpy (strawberry) ..... ***Fragaria**
2b Flowers apetalous:
6a Flowers in leafy cymes; epicalyx present ..... **Alchemilla**
6b Flowers stalkless in long-stalked, leafless heads or spikes; epicalyx absent ..... ***Sanguisorba**
1b Trees, shrubs or scramblers:
7a Stems and/or branches and/or leaves armed with prickles or thorns:
8a Leaves compound, imparipinnate; leaflets 3–7; shrubs or scramblers armed with prickles:
9a Ovary (carpels) superior; calyx tube not becoming fleshy; fruit succulent, collection of many 1-seeded drupelets ..... **Rubus**

9b Ovary (carpels) usually inferior; the calyx tube becoming fleshy; fruit dry; achenes present, free within enlarged receptacle ..... ***Rosa**
8b Leaves simple, not divided; shrubs branched with thorns in axils of leaves, prickles absent:
10a Deciduous; leaves irregularly serrate; seeds 1 or 2 ..... ***Crataegus**
10b Evergreen; leaves entire or nearly so; seeds 5 ..... ***Pyracantha**
7b Stems, branches and leaves unarmed:
11a Leaves imparipinnate, trifoliolate or unifoliolate, but then petals absent and flowers wind-pollinated:
12a Leaves trifoliolate or unifoliolate; ericoid shrubs; flowers solitary; petals absent; stigmas plumose ..... **Cliffortia**
12b Leaves imparipinnate; flowers in erect racemes; petals present; stigmas channelled, hooked ..... **Leucosidea**
11b Leaves simple, not divided; petals present; flowers insect-pollinated:
13a Leaf margins crenate or serrate; inflorescences racemose, fasciculate or umbellate ..... **Prunus**
13b Leaf margins entire; inflorescences cymose or flowers solitary ..... ***Cotoneaster**

AGRIMONIA L.

Species ± 15, northern hemisphere, temperate regions, tropical mountains, mainly North America, Europe and Asia; 2 in tropical and sthn Afr., LIM, NW, G, M, S, FS, KZN, L, WC, EC.

bracteata E.Mey. ex C.A.Mey.

Rhizomatous, perennial herb; 0.6–2.0 m high. **Leaves** alternate, sessile, ovate-oblong to obovate, base coarsely and acutely serrate; imparipinnate; main leaflet pairs 3 or 4, alternating with 1 or 2(3) pairs of minute leaflets reduced to 1–3(5) teeth; upper surface sparsely pilose with sparse, sessile glands, lower surface tomentose-pubescent and densely glandular. **Stipules** foliaceous, broadly ensiform, dentate. **Inflorescence** terminal racemes; pedicels short, bracteate at base, bracteolate at articulation; bracts and bracteoles usually 3-fid. **Flowers**: calyx tube turbinate, densely hirsute outside, armed with hooked spinules below calyx lobes, lobes triangular, 3-nerved; petals oblong to obovate, deciduous; stamens 10–15, arising from margin of annular thickened disc; carpels 2; styles ± 2.5 mm long, filiform, exserted; stigma dilated. **Flowering time** Dec.–Mar. **Fruit**: achenes (1)2, enclosed in hardened calyx tube. Recently burned grassland; Sub-Escarpment Grassland (Maclear District).

procera Wallr.

Erect, pubescent perennial, up to 1.5 m high; stems clothed only with long, glandular hairs; glands on lower leaf surface easily visible. **Flowers** orange-yellow; pedicels very short, extending to 1–3 mm in fruit; bracts 3-lobed; petals golden-yellow, 5–8 mm, often notched; perigynous zone rather rounded to base, scarcely grooved or with shallow grooves for up to half its length, outermost bristles of perigynous zone ultimately slightly deflexed. **Mature hypanthium** grooved for $^1/_2$ its length, lowest bristles distinctly deflexed. **Flowering time** Jan.–May. Roadsides, recently burned grassland; Drakensberg Grassland, Sub-Escarpment Grassland, Indigenous Forests, Sub-Escarpment Savanna, Albany Thicket (Ongeluksnek to Mount Frere S, from Queenstown to Ngqeleni, Mpofu Game Reserve to Komga and from Suurberg to Grahamstown).

ALCHEMILLA L.

Species ± 250, South America, temperate areas and tropical mountains, also in Africa, India and Australia; 16 in sthn Afr., mainly eastern summer rainfall regions, LIM, M, S, FS, KZN, L, WC, EC.

1a Stipules ovate or orbicular, broader than long, patent or reflexed; leaves glabrous or variously hairy above

[E]bicarpellata Rothm.

Differs from *A. capensis* by more robust stems that are densely foliate. **Leaves** frequently 5-lobed, lobe length $^1/_6$–$^1/_7$ of radius; sharply incised, teeth larger and more acute. **Stipules** wider, 8–9 × 8–9 mm. **Carpels** 2, styles 2, stigmas globose. Upper Karoo, Eastern Fynbos-Renosterveld, Indigenous Forests [Steynsburg, Bontjes River, 'Zuurberg', *Schönland 3240* (PRE, iso.)].

A doubtful taxon, specimens at PRE not matching the original description well.

[E]bolusii De Wild.

Perennial herb; stems repent up to 0.6 m long, pilose when young. **Leaves** petiolate, velutinous; lamina subreniform, sinus large, 5-lobed, lobes rounded, dentate, emarginate, sparsely pilose above, velutinous below. **Stipules** connate at base, lobes free; bilobed with lobes ± recurved and 5-dentate. **Inflorescence**: axillary racemes, branches subdichotomous, up to 140 mm long; peduncles not velutinous; bracts vaginate, ± 6 mm long. **Flowers** pedicellate; perianth ± 4 mm long; style solitary. **Flowering time** Nov., Dec. Damp places, alt. up to 1 525 m; Sub-Escarpment Grassland, Drakensberg Grassland (Katberg Pass).

capensis Thunb.

Perennial herb; stem trailing 0.3–0.6 m long, filiform, villous, hairs patent. **Leaves** with petioles 1–12 mm long; lamina hirsute-pilose on both sides, incised to $^1/_6$–$^1/_8$ of radius, incompletely 3–5-lobed. **Inflorescence**: lateral racemes. **Flowers**: carpel 1; episepals at least half length of sepals, lobes incised to ± half of radius. **Flowering time** Jan.–Oct. Damp places, N-facing slopes; Sub-Escarpment Grassland, Drakensberg Grassland, Indigenous Forests, Eastern Fynbos-Renosterveld, Albany Thicket, Lower Karoo (Barkly East District S, from Queenstown to Baziya Mtn, Seymour to King William's Town, Suurberg to Grahamstown and to Humansdorp).

schlechteriana Rothm.

Perennial herb; stem trailing 0.3–0.6 m long; filiform and villous, hairs patent. **Leaves**: petioles 10–12 mm long; lamina 15 × 20 mm, glabrous above, sericeous below, 5-lobed. **Stipules** 6–7 × 3–4 mm, lobes truncate, 3-toothed on both sides. **Inflorescence** 50–100 mm long, simple or somewhat branched, bracteate. **Flowers** solitary in axils of bracts, 3 mm long, densely hairy outside; episepals 4, at least $^1/_2$ length of sepals, lobes incised to $^1/_7$–$^1/_2$ the length; sepals 0.50–0.75 mm long; hypanthium 1.25 mm long; stamens 4; style 1, stigma globose; carpel 1. **Flowering time** Dec.–Apr. Rocks near cliff bases; Sub-Escarpment Grassland, Drakensberg Grassland (Queenstown, Lesseyton Mtn and Gaika's Kop).

woodii Kuntze

Upright to decumbent herb; stem 50 mm high, rhizomatous; hirsute, hairs patent. **Leaves** with petioles short to sessile; lamina 3-lobed, incised up to $^2/_3$ of radius, crenations oblong; upper surface glabrescent, lower surface hirsute. **Stipules** broad, basally joined to stem for a few millimeters. **Inflorescence** hirsute, dichotomously branched. **Flowers** yellow and minute; episepals minute. **Flowering time** Sept.–Apr. Grazed grassland, on rolling hills and mountain summits, damp places, sandstone slopes, road-/railway sides; Drakensberg Grassland, Sub-Escarpment Grassland (Ntsikeni Nature Reserve to Gxwaleni S, from Elliot-Maclear District to Ntywenka Escarpment Summit and from Katberg Pass to King William's Town).

1b Stipules linear or lanceolate, longer than wide, appressed to stem; leaves glabrous above

hirsuto-petiolata (De Wild.) Rothm.

Perennial herb; stem patently hirsute. **Leaves** with petioles 5–7 mm long; lamina villous-pilose below, incised to $^1/_4$ radius, lobes truncate. **Flowers**: male with stamens ± 25; female with episepals shorter than sepals; receptacle 6-ribbed, style 1. **Flowering time** Nov., Dec. Recently burned grassland, humus-rich soil; Drakensberg Grassland, Sub-Escarpment Grassland (Ben Macdhui to Naude's Neck S, from Maclear District across Amatole Mts to Elandsberg and Keiskammahoek).

natalensis Engl.

Procumbent, perennial herb, 0.4 m long; stem lax, patently hirsute with appressed hairs or glabrescent. **Leaves** with petioles 3–4 mm long, finely strigose to pilose below; lamina reniform, 5-lobed, 25 × 20 mm, margins crenate, internodes as long as leaves. **Stipules** 7 × 4 mm, margins crenate. **Inflorescences** as long as leaves, often longer; much-branched cymes. **Flowers** sparsely pilose; episepals $^1/_2$–$^3/_4$ length of sepals; sepals ovate, tube 1.5× shorter than sepals. **Flowering time** Nov.–Mar. Sandstone slopes; Sub-Escarpment Grassland, Drakensberg Grassland, Albany Thicket, Indigenous Forests, Sub-Escarpment Savanna (Suurberg, Amatole Mts and Thomas Mtn).

schlechteriana Rothm. (see 1a above)

1c Stipules oblong; longer than wide with apex strongly dentate; leaves appressed-pilose above

colura Hilliard

Perennial herb; stems prostrate and decumbent, ± partly patent-pilose when young. **Leaves** with petioles (10–)20–30 mm long; lamina 15 × 30 mm, 5-lobed; lobes not rounded but almost truncate; median tooth considerably shorter than remaining teeth, 3–4 mm long, roughly oblong. **Stipules** ± 10 × 7 mm. **Inflorescences** of axillary panicles, ± 100 mm long, flowering parts 30 mm long. **Flowers** subsessile, in axils of bracts; hypanthium 1.5 mm long; episepals 0.50–0.75 mm long, linear or elliptic, pilose; sepals 1.25 mm long, deltoid; stamens 4; styles solitary; stigma capitate. **Flowering time** Nov.–Feb. Sandstone slopes; Drakensberg Grassland, Sub-Escarpment Grassland (Maclear District, Naude's Neck and Ngeli Mtn).

CLIFFORTIA L.

Species ± 115; sthn Afr. (mostly WC) with 2 extending into tropical Africa, LIM, M, S, FS, KZN, L, NC, WC, EC.

Subgenus **Monographidium**

Monoecious or dioecious. **Male flowers**: sepals 3(4), stamens 3 to ± 50. **Female flowers**: sepals 3(4), achene 1, style 1.

1a Leaves 3-foliolate (sometimes 2-foliolate or simple) (sections Petiolatae, Costatae *only)*

arcuata Weim.

Monoecious or dioecious shrub, up to 1 m high. **Leaves** petiolate, trifoliolate; leaflets narrow, linear, flat, falcate, apiculate, 5–10 mm long, margins revolute. **Male flowers** unknown. **Female flowers**: sepals revolute; receptacle walls thin, membranous, semi-transparent. **Flowering time** Sept.–Nov. Sandstone slopes; Eastern Fynbos-Renosterveld (Uniondale District: Langkloof, Upper Keurbooms River, Kouga Mts).

browniana Burtt Davy

Perennial shrub, 0.3–1.5 m high; stems and branches densely pilose with short, spreading, dark-coloured hairs. **Leaves** densely fascicled, 3-foliolate; leaflets similar, elliptic,

2–4 mm long, green, often with 2 pale stripes on either side of midrib beneath; juvenile leaves toothed. **Inflorescence**: bracteoles with ciliate margins. **Flowers** solitary in axils of undifferentiated leaves; sepals 4, glabrous. **Female flowers**: sepals ovate, 0.9–1.4 × 0.4–0.7 mm, recurved; receptacle ± prominently ridged, ovoid-oblong; carpels 1 or 2; stigma 0.9–1.3 mm long, red, feathery and hidden by leaves. **Flowering time** Nov.–May. **Fruit** an achene, glabrous, ribbed. Quartzitic sandstone-derived soils, alt. 1 050–2 500 m; Drakensberg Grassland (Barkly East District, Ben Macdhui; Thaba Chitja District and Marshall Clarke).

burchellii Stapf

Monoecious or dioecious shrub, 1.8–4.0 m high. Leaves trifoliolate, leaflets 15–20 mm long, needle-shaped, margins finely toothed. **Inflorescence**: bracteoles clasping. **Male flowers**: stamens 12. **Female flowers**: sepals connate at base, fleshy, erect, persistent after maturation of fruit; receptacle 6 mm long, ovoid, shallowly ribbed to smooth; style ± 1 mm long, hidden. **Flowering time** Mar.–Dec. Coastal districts at low altitudes, humus-rich soils, streamsides on sandstone slopes; Eastern Fynbos-Renosterveld, Indigenous Forests (Humansdorp District, Van Stadens Mts and Port Elizabeth).

dispar Weim.

Monoecious or dioecious shrub, 0.3–0.9 m high. **Leaves** trifoliolate sometimes unifoliolate; leaflets flat, margins revolute, 4–12 × 1–2 mm. **Male flowers**: stamens 9. **Female flowers**: receptacle obscurely ribbed. **Flowering time** Nov.–Jan. High sandstone slopes, fynbos; Eastern Fynbos-Renosterveld (Uniondale District, Hoopsberg, Baviaanskloof Mts).

drepanoides Eckl. & Zeyh.

Monoecious or dioecious shrub, 0.2–1.0 m high. **Leaves** trifoliolate; leaflets linear-lanceolate, somewhat falcate, subacute, 10–18 mm long. **Male flowers**: stamens ± 25. **Female flowers** with 6-ribbed receptacle. **Flowering time** Mar.–Dec. Sandstone slopes; Albany Thicket, Eastern Fynbos-Renosterveld (Great Winterhoek and Baviaanskloof Mts to Joubertina and Uitenhage).

filicaulis Schltdl.

Monoecious or dioecious shrub, 0.3–0.9 m high; sprawling to erect. **Leaves** trifoliolate; leaflets flat, hairy, central leaflet 2–4 × 2–3 mm, obcordate to obovate, apex trilobed, lateral leaflets 2–4 × 1–3 mm, obtuse. **Stipules** large and leaf-like. **Male flowers**: tetramerous, stamens 8. **Female flowers**: sepals 4; receptacle ovoid, 1.0–1.5 mm long, not ridged. **Flowering time**. Aug.–Dec. Lower sandstone slopes, coastal; Eastern Fynbos-Renosterveld (Humansdorp, Assegaai Bos, Witelsbos).

linearifolia Eckl. & Zeyh.

Monoecious or dioecious shrub, 0.5–3.0 m high; stem and branches rigid, erect, densely antrorsely villous when young, outer bark tending to flake off. **Leaves** trifoliolate (unifoliolate by suppression of the lateral leaflets), usually densely arranged on short-shoots; leaflets linear, 5–10 mm long, margins revolute, midribs prominent. **Male flowers**: sepals 4; stamens 4. **Female flowers**: receptacle reddish brown, smooth, shiny, striate; stigma white to pinkish. **Flowering time** Oct.–May. Unifoliolate form in wetter areas, trifoliolate form on rocky outcrops and drier slopes; Sub-Escarpment Grassland, Drakensberg Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket, Lower Karoo (Satansnek S, across Amatole Mts to Katberg and Kentani districts, from Kouga to Uitenhage, Grahamstown and East London, and to Humansdorp).

nitidula (Engl.) R.E.Fr. & T.C.E.Fr. subsp. **pilosa** Weim.

Starry rice bush; *sterretjie-rysbos* (A); *untswabantswaba* (X); *umhlahlahla* (Z)

Monoecious or dioecious shrub, 0.3–5.0 m high; branches rigid, erect, densely antrorsely villous when young, outer bark flaking off. **Leaves**: needle-shaped in mature foliage; juvenile foliage densely arranged on short-shoots, trifoliolate, middle leaflet similar to outer leaflets, all toothed; hairy throughout. **Stipules** triangular, scarious, glabrescent except at margins and apex. **Male flowers**: stamens 6–8. **Flowering time** Sept.–July. Along streambanks in upland grassland, on rocky slopes in *Widdringtonia* forest; Mesic Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland, Indigenous Forests, Dry Highveld Grassland (Barkly East to Maclear, S along Drakensberg Mts from Kompasberg to Baziya Mts, and from Somerset East to Keiskammahoek).

paucistaminea Weim.

Monoecious or dioecious shrub, 0.6–2.0 m high; stems densely branched, forming closely overlapping brachyblasts; upwardly appressed-hairy. **Leaves** trifoliolate; leaflets linear, curved, pungent, 5–10 mm long, margins minutely toothed. **Flowers** solitary in axils of undifferentiated leaves; sepals 4, or very rarely 3, glabrous; bracteoles hairy, margins serrate to shortly ciliate. **Male flowers**: stamens 4(–6). **Female flowers**: receptacle yellowish green, shiny, oblique obovate-oblong, with 12–16 conspicuous ribs. **Flowering time** Sept.–Feb. **Fruit** an achene, glabrous; ribs rounded to acute. Lower mountain slopes; Mesic Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland, Indigenous Forests, Eastern Fynbos-Renosterveld, Albany Thicket (Baziya Mtn to Mkambati Nature Reserve S, from Katberg Mts to Kologha Mts, Tsitsikamma to Port Elizabeth and to Humansdorp).

polita Weim.

Monoecious or dioecious shrub, 0.2–0.6 m high. **Leaves** trifoliolate; leaflets linear, shiny, 3–6 mm long. **Male flowers**: stamens 6. **Female flowers**: receptacle cylindrical, straight to slightly curved, irregularly 6-ribbed. **Flowering time** Nov.–Jan. Dry, rocky, upper slopes, short fynbos; Eastern Fynbos-Renosterveld (Great Swartberg and Kouga Mts, Joubertina, Baviaanskloof, Uitenhage).

ramosissima Schltr.

Monoecious or dioecious shrub, 0.4–1.8 m high; ramification close. **Leaves** trifoliolate; leaflets nearly flat, 4–6 × 0.5–1.0 mm, midvein raised abaxially. **Flowers** trimerous. **Male flowers**: stamens 6. **Female flowers**: receptacle ± 3 mm long, often 6-ribbed, green with a lilac tinge, walls membranous and semi-transparent. **Flowering time** Aug.–Jan. Mountain slopes and peaks, dolerite; Sub-Escarpment Grassland, Mesic Highveld Grassland, Dry Highveld Grassland, Drakensberg Grassland, Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld, Albany Thicket [Queenstown, Dordrecht, Graaff-Reinet, Hogsback, Eastern Swartberg (Blesberg), Grahamstown and Humansdorp].

serpyllifolia Cham. & Schltdl.

Monoecious or dioecious shrub, up to 2 m high. **Leaves** trifoliolate; leaflets flat, 3–6 × 5.0–1.5 mm, narrowly elliptic to obovate, margins subrevolute, apex rounded to obtuse, sometimes obtusely tridentate. **Male flowers**: sepals 4, partly coherent; stamens 4–6. **Female flowers**: receptacle up to 2 mm long, slightly ribbed. **Flowering time** Nov.–May. **Fruit**: achenes, clearly ribbed. Middle to upper slopes, rocky loam soil, sometimes marshy, alt. 0–1 600 m; Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Drakensberg Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld,

Albany Thicket (Bizana to Mkambati Nature Reserve S, from Keiskammahoek to Kentani, Suurberg to Uitenhage and Grahamstown, and to Humansdorp).

stricta Weim.

Monoecious or dioecious shrub, 0.5–1.5 m high. **Leaves** trifoliolate, sheath and stipules large and prominent; leaflets linear, 4–8 mm long, mucronate, appressed-hairy to almost glabrous. **Male flowers**: stamens 6. **Female flowers**: receptacle 12-veined, smooth. **Flowering time** July–Dec. Coastal flats, lower slopes, alt. below 833 m; Eastern Fynbos-Renosterveld (Witteberg, Kouga and Great Winterhoek Mts, Humansdorp).

tuberculata (Harv.) Weim. var. **tuberculata**

Perennial shrub, 0.3–2.0 m high; monoecious or dioecious. **Leaves** trifoliolate; leaflets linear, 5–10 mm long, margins finely scabrous. **Male flowers**: stamens 12. **Female flowers**: receptacle reddish brown, coarsely tuberculate. **Flowering time** Aug.–Dec. High peaks, S-facing slopes; Eastern Fynbos-Renosterveld, Albany Thicket (Kouga and Great Winterhoek Mts to Uitenhage).

1b Leaves simple (sometimes several 2- or 3-foliolate)
2a Lamina broad from base, 3- to many-nerved (section Multinerviae*)*

graminea L.f. var. **graminea**

Vleirooigras, *wilde-ertjie* (A)

Monoecious or dioecious shrub, 0.3–2.0 m high. **Leaves** linear-lanceolate, 50–150 × 3–6 mm; simple, grass-like with clasping sheath 30–60 mm long. **Stipules** narrowly triangular, 4–10 mm long. **Male flowers**: stamens ± 30. **Female flowers**: receptacle 4–5 mm long, oblong, greenish, sulcate. **Flowering time** Aug.–Mar. Damp flats and slopes, moist fynbos; Eastern Fynbos-Renosterveld (Uniondale and Humansdorp, Clarkson).

ilicifolia L.

Doringtee, *rysbos*, *vleirysbos* (A)

Monoecious or dioecious shrub, 0.3–2.0 m high. **Leaves** simple, ovate, 15–25 mm long, margins coarsely toothed. **Male flowers**: stamens ± 40. **Female flowers**: sepals 1.5–2.5 mm long, acute, upright, receptacle 7–9 × 4–5 mm, ovoid, with ± 20 reddish ribs. **Flowering time** Nov., Dec. Sandstone slopes; Eastern Fynbos-Renosterveld, Albany Thicket (Uniondale to Tsitsikamma Mts, Louterwater, Port Elizabeth, Uitenhage and Humansdorp).

ruscifolia L. var. **ruscifolia**

Climber's friend; *steekbos* (A)

Monoecious or dioecious shrub, 0.3–2.0 m high. **Leaves** simple, pungent, vegetative leaves oblong-lanceolate, channelled, sparsely hairy, 10–12 mm long, fertile leaves shorter, tridentate, densely hairy. **Male flowers**: pedicels 1–2 mm long; stamens ± 12; **Female flowers**: receptacle 3–4 mm long, ovoid, brownish, sulcate. **Flowering time** Aug.–Oct. Rocky sandstone soils, S-facing slopes, alt. 6–1 373 m; Eastern Fynbos-Renosterveld (Joubertina and Humansdorp).

2b Lamina narrow from base, uninerved (section Simplices*)*

erectisepala Weim.

Monoecious or dioecious shrub, 0.5–2.0 m high. **Leaves** simple, narrowly linear, 5–7 mm long, bright green, glossy. **Female flowers**: sepals erect, margins coherent; receptacle

± 2.5 mm long, cylindrical, brown. False macchia, alt. 305–1 373 m; Eastern Fynbos-Renosterveld (Albany District, Grahamstown).

ferruginea L.f.

Glastee, *pypsteelbos* (A)

Monoecious or dioecious shrub, 0.3–2.0 m high. **Leaves** simple, linear-lanceolate to obovate, margins finely dentate, apex coarsely toothed and curved to one side. **Male flowers**: stamens 15. **Female flowers**: receptacle 3 mm long, ovoid to ovoid-oblong. **Flowering time** Feb.–Sept. Near water, on lower slopes, alt. 30–1 220 m; Eastern Fynbos-Renosterveld, Indigenous Forests (Tsitsikamma to Uitenhage, Port Elizabeth and Humansdorp).

neglecta Schltr.

Monoecious or dioecious shrub, 0.2–1.2 m high; bark at least on young branches pilose. **Leaves** simple, needle-shaped, pungent, 5–10 mm long. **Male flowers**: stamens 6(7). **Female flowers**: receptacle ovoid. **Flowering time** July, Aug. High rocky slopes, alt. 567–2 100 m; Lower Karoo, Albany Thicket, Eastern Fynbos-Renosterveld, Rain-shadow Valley Karoo (eastern Swartberg Mts to Willowmore, Antoniesberg, Saptoukop in Kouga Mts).

odorata L.f.

Wildewingerd (A)

Monoecious or dioecious shrub, 0.9–2.0 m high; older stems glabrous, rust-brown, younger stems tomentose, flushed pink. **Leaves** simple, alternate, stipulate, shortly petiolate, 30–60 × 20–50 mm, toothed. **Stipules** triangular, 4–7 mm long, faintly aromatic, glabrous dark green above, densely pubescent, grey-green on lower surface, leathery. **Flowers** small, borne separately in dense fascicles in axils of leaves. **Male flowers**: stamens 15–20. **Female flowers**: receptacle 2.5 mm long, ovoid. **Flowering time** July–Feb. Damp places at rivers, low-lying ground, alt. 30–795 m; Indigenous Forests, Indian Ocean Coastal Belt, Eastern Fynbos-Renosterveld, Albany Thicket (Pondoland, Port Grosvenor SW, Joubertina to Kouga Mts, Port Elizabeth and Humansdorp).

repens Schltr.

Monoecious or dioecious shrub, 0.5–2.0 m high. **Leaves** simple, linear-lanceolate, 6–15 mm long, margins scabrid. **Male flowers**: stamens 6. **Female flowers**: receptacle 3 mm long, oblong, 9-ribbed, brownish. **Flowering time** Feb.–Apr. Eastern Fynbos-Renosterveld, Sub-Escarpment Grassland (Insizwa and Suurberg in Greater Addo Elephant National Park).

strobilifera L.

Bog rice bush; *kammiebos*, *pypsteelbos*, *vleibos* (A); *unwele* (X)

Monoecious or dioecious shrub, 1.5–15.0 m high. **Leaves** simple, linear, acute, 10–15 mm long, sheath 3–9 mm long. **Male flowers**: stamens 15–20. **Female flowers**: receptacle ± 1.5 mm long, subcylindrical, obscurely striate, apical opening as wide as receptacle. **Flowering time** Oct.–Mar. **Fruit** smooth, apex concave. Moist sandstone flats and lower slopes, alt 6–1 980 m; Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Alice to Komga S, from Joubertina to Uitenhage, Port Elizabeth, Grahamstown and Humansdorp).

*COTONEASTER Medik.

Species ± 70, north temperate regions of Europe and Asia, abundant in W China and Himalaya region; several species ornamental because of decorative berries; 2 naturalised in sthn Afr., G, FS, KZN, EC.

pannosus Franch.

Silverleaf cotoneaster, velvet cotoneaster

Perennial shrub, 2–5 m high; branches arched; branchlets thin, dark brown; initially covered with short, dense hairs shedding at maturity. **Leaves** simple, blades elliptic, 15–30 × 8–16 mm, apex mucronulate, glabrous above, whitish tomentose beneath; petioles 5–8 mm long. **Flowers** terminal corymbs, 8 mm in diam.; petals white, broadly ovate or subglobose, 3.0–3.5 mm long, base short, claw-bearing, apex obtuse; calyx bell-shaped and triangular, sepals apically short-acuminate or acute; petals and sepals glabrous inside and densely hairy outside. **Bracts** linear and caducous. **Flowering time** June, July. **Fruit** subglobose to ellipsoid**. Seeds** 2–5, 4–5 mm long. Mountainous scrubland, rocky areas, alt. 1 200–2 150 m; declared invader (Category 3); Drakensberg Grassland, Sub-Escarpment Grassland (Maclear, Woodcliffs).

*CRATAEGUS L.

Species ± 180, north temperate regions of Old World, North America ± 900; 2 escapes from cultivation in sthn Afr.: **Crataegus* × *lavallei* Henrique and **C. monogyna* Jacq., FS, EC.

monogyna Jacq.

Perennial shrub or tree, 2–10 m; branches thorny, glabrous or with few short hairs, thorns 20–25 mm long. **Leaves** 30–50 mm with 3–7 deeply cut lobes, whitish green beneath, hairy. **Stipules** entire. **Inflorescences** umbellate panicles. **Flowers**: calyx lobes oblong; corolla 8–15 mm in diam., white; stamens 20, anthers red. **Flowering time** Sept. **Fruit** rounded to ovoid, bright red. **Seed** solitary. Roadsides and surroundings, alt. 1 200–1 550 m; Drakensberg Grassland, Indigenous Forests (Jamestown, Hogsback).

*DUCHESNEA Sm.

Species 6, Indo-Malayan region and Far East (China and Japan); 1 in sthn Afr., KZN, G, M, S, EC.

indica (Andrews) Focke

Yellow or Indian strawberry

Perennial herb, 0.05–0.20 m high; stems short, leaves in rosettes and on long runners rooting at nodes and tips to form a new rosette. **Leaves** with 3 leaflets, hairy, leaflets obovate to angular-ovate, margins coarsely toothed, terminal leaflet 10–30 × 7–25 mm, lateral leaflets slightly smaller. **Flowers**: stalks 25–100 mm, slightly longer than subtending leaves; episepals and sepals hairy, persistent in fruit; petals bright yellow. **Flowering time** Apr.–June. **Fruit** a false fruit or pseudocarp, achenes embedded along the surface of a bright red, swollen receptacle, up to 20 mm in diam., insipid to taste. Forest, closed woodland, occurs as an escape under damp conditions, becoming fairly widespread, alt. 550–2 150 m; Sub-Escarpment Grassland, Indigenous Forests, Drakensberg Grassland (Insizwa S, from Seymour to Hogsback).

*FRAGARIA L.

Species ± 12, northern temperate and subtropical regions, also in Central and South America, Hawaii and Himalayas; 1 in sthn. Afr., occasionally occurring as a garden escape, LIM, M, WC, EC.

vesca L.

Wild strawberry

Perennial, stoloniferous herb, 0.1–0.2 m high; branches decumbent, plant parts sericeous. **Leaves**: cauline ones in a rosette, 3-foliolate, pinnae ovate, obovate or rhombic, coarsely serrate, margins deeply crenate-serrate, chartaceous or subcoriaceous, sparsely hairy on upper surface, lower surface sparsely sericeous; distal leaves 3-foliolate or rarely simple and reduced. **Stipules** scarious, reddish brown. **Inflorescence** with 2–7 or rarely solitary flowers; floral bracts 3–7 mm long. **Flowers**: hypanthium patelliform; episepal narrowly ovate, entire or bifid; sepals ovate; petals broadly obovate to suborbicular, apex rounded, glabrous; stamens 20–25; anthers ovate-oblong; carpels 100; ovary glabrous; style 0.8–1.0 mm long, stigma 0.1–0.2 mm in diam. **Flowering time** Apr. **Fruit**: receptacle ovoid-globose; achenes hemispheric to slightly ovoid. **Seeds** hemispheric-ovoid. Rocky soil; Drakensberg Grassland (Stutterheim Commonage).

GEUM L.

Species ± 40, mainly temperate and cold areas of the northern hemisphere, a few species in the mountains of South America; 1 in sthn Afr., eastern regions, M, KZN, L, EC.

capense Thunb.

Erect, rhizomatous, perennial herb, 0.13–0.50 m high; roots fascicled, aromatic. **Leaves** radical, imparipinnate, lateral pinnae depauperate, terminal pinna largest, cordate-ovate or subrotund; cauline leaves few, often trifoliolate or bract-like; stipules adnate to petiole. **Inflorescence** a lax, terminal, 2–12-flowered cyme. **Flowers** erect or nodding, bright yellow. **Calyx**: tube saucer-shaped, persistent, with 5 bracteoles above its base; lobes 5. **Petals** 5, circular or obovate, longer than calyx, bright yellow. **Stamens** many, perigynous. **Disc** smooth, lining receptacle. **Gynoecium** of many free carpels on a columnar receptacle; ovules solitary per carpel; style filiform; stigma punctiform. **Flowering time** Sept.–Mar. **Fruit** 50–250 achenes borne on dry receptacle. Mountain slopes on rocky soil; Drakensberg Grassland, Sub-Escarpment Grassland, Upper Karoo, Albany Thicket (Barkly East District to Ntsikeni Nature Reserve S to Andriesberg, from Rondeveldberge near Graaff-Reinet to Seymour, Amatole Mts and King William's Town, and to Grahamstown).

LEUCOSIDEA Eckl. & Zeyh.

Monotypic, Zimbabwe and sthn Afr., usually confined to streambanks and kloofs at high altitudes, sometimes invades overgrazed and disturbed areas, LIM, G, M, FS, KZN, L, EC.

sericea Eckl. & Zeyh.

Oldwood; *ouhout* (A)

Shrub or small tree, densely leafy, silky-villous, 2–4 m high. **Leaves** alternate, grey-green, aromatic, petiolate, imparipinnate; leaflets 3 or 4 pairs, incised, toothed, sessile; stipules adnate to petiole. **Inflorescence** a dense, terminal spike. **Flowers** shortly pedicellate, yellowish green or yellow. **Calyx**: tube obconic, villous, ± constricted

in throat, persistent; lobes 10–12 in 2 rows. **Petals** 5(6), ± obovate, deciduous. **Disc** lining calyx tube annular, villous at mouth. **Stamens** 10–12, inserted on disc; anthers didymous, almost versatile. **Gynoecium** of 2–4 free carpels; ovules solitary per carpel; styles terete, exserted; stigmas lateral. **Flowering time** Sept.–Jan. **Fruit**: membranous achenes enclosed in receptacle. River- or streambanks on sandstone; Mesic Highveld Grassland, Drakensberg Grassland, Indigenous Forests, Sub-Escarpment Grassland, Albany Thicket (Lady Grey to Cedarville S, from Queenstown to Tsolo District and from Somerset East to Amatole Mts and Hogsback).

PRUNUS L.

Species ± 200, fairly cosmopolitan in temperate regions, abundant in North America, E Asia, and S Europe, containing many important fruit trees, like plum, peach, apricot, etc.; 1 indigenous in sthn Afr., from tropical Afr., Zimbabwe to LIM, M, S, KZN, L, EC.

africana (Hook.f.) Kalkman

African cherry, red stinkwood

Tree or shrub, up to 25 m high; much branched. **Leaves** elliptic, lanceolate-elliptic or oblong-lanceolate, glabrous, coriaceous or subcoriaceous, base broadly cuneate to rarely rounded, apex obtuse to subacuminate, margins coarsely crenate-serrate to subentire with dark glandular dots; petioles channelled. **Stipules** linear, caducous. **Inflorescence**: solitary racemes, 7–15-flowered; bracts triangular; perianth (4)5(6)-merous; calyx tube cyathiform, fleshy, glabrous outside, usually hairy inside; calyx lobes triangular; petals elliptic to oblong, reflexed, hairy abaxially especially towards their margins and sometimes adaxially also; stamens 25–35; filaments glabrous; anthers didymous; ovary ovoid, sparsely long-haired; style sparsely hairy; stigma peltate, slightly 2- or 3-lobed. **Flowering time** Apr.–Nov. **Fruit** transversely ellipsoid, slightly 2-lobed. Rainforest, riverine forest; Indigenous Forests, Indian Ocean Coastal Belt, Drakensberg Grassland (Bizana Commonage S to Qokama, from Fort Cunynghame E to Kentani District).

*PYRACANTHA M.Roem.

Species ± 9, native to SE Europe, Caucasia, NW Iran and China; cultivated for its ornamental berries; 3 naturalised in sthn Afr., G, FS, KZN, EC.

angustifolia (Franch.) C.K.Schneid.

Yellow-, narrowleaf fire-thorn; *geelbranddoring* (A)

Evergreen shrub 1.5–3.0 m high; usually spiny; buds small, softly hairy. **Leaves** alternate, simple, entire, shortly petiolate; stipules minute, caducous. **Inflorescence** a compound corymb. **Flowers** white or cream-coloured, bisexual, small. **Calyx**: tube short; lobes 5, triangular. **Petals** suborbicular, often with a notched apex. **Stamens** 20; anthers yellow. **Ovary** half-inferior; carpels 5, free on central axis, joined on dorsal side for ± $^1/_2$ their length to calyx tube; ovules 2 per carpel; styles free. **Fruit** small, globose, red, orange or yellow berries, crowned by persistent calyx lobes; pyrenes 5. Declared invader (Category 3); Drakensberg Grassland (Maclear District, Little Pot River).

*ROSA L.

Species ± 100, mainly in temperate but also in subtropical areas of the northern hemisphere; some species and many cultivars are grown as ornamentals; 2 occur widely as escapees in sthn Afr., NW, M, FS, KZN, L, EC.

× **odorata** Sweet

Perennial shrub, scrambler, 1.0–1.5 m high; climbing stems; with stout, scattered, uniform, hooked prickles. **Leaves** evergreen or semi-evergreen; leaflets 5–7, elliptic to ovate, acuminate, glossy above, margins with simple, often glandular teeth; glabrous on both sides. **Stipules** narrow. **Inflorescence**: bracts present; receptacle smooth. **Flowers** single or double, 100(–150) mm in diam., fragrant, buds slender, pale yellow; sepals entire, smooth on back, reflexed; petals white or cream-coloured, pale pink or yellowish; styles free; stigmas downy. **Flowering time** Oct. **Fruit** a hip (an aggregation of achenes surrounded by an urceolate receptacle and hypanthium) spherical or pear-shaped, red or yellow, flushed with red. Garden escapee in grassland; Sub-Escarpment Grassland (Cala).

rubiginosa L.

Sweet briar, eglantine rose; *wilde roos* (A)

Perennial shrub, scrambler, 1–3 m high; dense, much branched; branchlets armed with stout, hooked thorns. **Leaves** aromatic, imparipinnate; leaflets 5–9, dark green, ovate, obtuse to acute, glabrous above, glandular beneath, margins toothed. **Stipules** broad. **Flowers** in groups of 1–3, occasionally more, pink to white; sepals glandular-bristly on back, erect and persistent in fruit; styles free; stigmas woolly. **Flowering time** Nov. **Fruit** ovoid to spherical, up to 20 mm long, smooth or glandular-bristly, somewhat fleshy, orange to bright red. Invading high-altitude grassland; origin Europe and Asia, declared weed (Category 1); Mesic Highveld Grassland, Drakensberg Grassland (Joubert Pass to Barkly East, S to Dordrecht and Jamestown).

RUBUS L.

Species ± 250, mainly cooler areas of the northern hemisphere; 17 in sthn Afr., some introduced and naturalised, fruit edible, B, LIM, G, M, S, FS, KZN, L, WC, EC.

apetalus Poir. var. **apetalus**

Perennial, scrambling shrub 0.5–2.0 m high; stems thorny and covered with shiny hairs. **Leaves** ovate-acute or elliptic-acute, with finely to coarsely serrate margins; petiole and rachis villous and aculeate like stems; lateral leaflets subsessile, terminal one with petiolule. **Stipules** narrowly linear. **Inflorescences** terminal and axillary, broadly pyramidal to cylindrical, usually much longer than leaves, branches spreading, villous and aculeate; calyx greyish tomentose, divided into narrowly triangular segments; petals absent, when present narrow, shorter than sepals, fugaceous. **Flowering time** Feb.–Nov. **Fruit** an aggregation of 1-seeded, succulent drupelets crowded upon a globose receptacle (drupecetum). Thicket, shrubby zone at forest margins, riparian fringes; Sub-Escarpment Grassland, Indigenous Forests, Sub-Escarpment Savanna, Drakensberg Grassland (Insizwa S, from Mbololwa Forest to King William's Town).

***cuneifolius** Pursh

Perennial shrub, up to 4 m high. **Leaves** green. **Flowers** white and inconspicuous. **Flowering time** Dec.–Mar. **Fruit** conspicuous, red maturing to black. Road-/railway sides; Sub-Escarpment Grassland, Drakensberg Grassland (Whittlesea, Seymour).

fruticosus L.

Sand blackberry, dewberry

Perennial shrub, up to 2 m high; stem arching, villose-pubescent or glabrate; prickles slender, straightish or hooked, pale. **Leaves** ovate or rhomboid, digitately 3–5-foliolate, glabrous or thinly pubescent above, naked or tomentose beneath; sharply serrate, medial

largest. **Inflorescence** a panicle of fastigiate corymbs. **Flowers**: calyx segments ovate, acuminate, tomentose. **Flowering time** Nov.–Mar. **Fruit** succulent drupelets crowded upon a juicy, black, enlarged receptacle. Sub-Escarpment Grassland, Dry Highveld Grassland, Drakensberg Grassland, Eastern Fynbos-Renosterveld [Knowsley (between Tarkastad and Fort Beaufort) to Amatole Mts S, from Baviaanskloof Wilderness area to Humansdorp District, Rosenhof].

immixtus Gust.

Perennial shrub, 0.7–2.0 m high; stem reddish and reclinate. **Leaves** dark green above, tannish white beneath. **Flowers** purple; petals light purple. **Flowering time** Nov.–Feb. Forests and forest margins; Sub-Escarpment Grassland, Indigenous Forests, Drakensberg Grassland, Sub-Escarpment Savanna (Amatole Mts, Katberg and Hogsback Forest Reserve E to King William's Town and Mount Kemp).

ludwigii Eckl. & Zeyh.

Perennial shrub, 0.5–1.0 m high; slender, densely covered in stiff patent or recurving prickles. **Leaves** 7-partite on the first season's shoots (primocanes), 5(–7)-partite on flowering shoots (floricanes). **Stipules** persistent, linear-lanceolate. **Inflorescence** a 5–13-flowered, bracteate thyrse; rachis glabrous, prominently armed with robust, hooked prickles. **Flowers**: pedicels densely pubescent, armed with narrow prickles; hypanthium saucer-shaped, pubescent at base; sepals 5 or 6; petals narrowly elliptic to broadly ovate, margins ciliate and erose; stamens 100–120, filaments in 2 rows; pistils 40–45, pubescent; stigma bilobed. **Flowering time** Nov.–June. **Fruit** densely pubescent. Rocky outcrops on grassy hillsides; Mesic Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland, Upper Karoo, Dry Highveld Grassland (Lady Grey E to Kokstad District S, from Kompasberg to Maclear District and to Hogsback).

*__niveus__ Thunb.

Ceylon raspberry, hill raspberry, mysore raspberry

Perennial shrub, up to 2 m high; stems dense, intertwined, eglandular, glabrous. **Leaves** 3–5-partite on floricanes, mostly 7-partite on primocanes; elliptic to ovate-acute, terminal one broader than laterals, somewhat cordate at base, cuspidate at apex, margins shallowly singly or doubly serrate; upper surface thinly hairy, nerves furrowed, lower surface armed with small recurved prickles. **Stipules** lanceolate. **Inflorescence** terminal and axillary, often few-flowered; peduncles and pedicels pale greyish tomentose. **Flowers**: calyx deeply divided into narrowly ovate, shortly acuminate lobes; petals shorter than sepals, claw narrow, limb subcircular, caducous. **Flowering time** Jan.–Apr. Woodlands, forest edges, riparian habitats, and disturbed sites; Dry Highveld Grassland, Drakensberg Grassland, Indigenous Forests (Tarkastad, Fort Beaufort, Hogsback).

pinnatus Willd.

Cape bramble, South African raspberry

Perennial shrub or scrambler, up to 6 m high. **Leaves** 2–4-jugate or uppermost ones ternate, thinly membranous; lateral leaflets shortly petiolulate, terminal one with petiolule; ovate-acute to oblong-acuminate, margins serrate; glabrous. **Stipules** narrowly linear, occasionally with a few stipitate glands. **Inflorescences** terminal and axillary, narrowly pyramidal. **Flowers**: calyx occasionally glandular-hairy, divided into lanceolate-acuminate lobes; petals usually present although inconspicuous, narrow. **Flowering time** Aug.–Feb. **Fruit** globose, glabrous. Grassland, forest margins, alt. 1 100–2 230 m; Sub-Escarpment Grassland, Indigenous Forests, Indian Ocean Coastal Belt, Drakensberg

Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Ngeli Forest SW to Amatole Mts, Hogsback, Stutterheim and Butterworth, Suurberg to Grahamstown and to Humansdorp).

rigidus Sm.

African bramble

Perennial, scrambling shrub, 1–5 m high; moderately prickly; prickles straight to decurved. **Leaves** ovate-acute, margins once-serrate; predominantly ternate, sometimes pinnate (2-jugate) below, or uppermost simple; lateral leaflets subsessile, terminal one with petiolule; petiole and rachis tomentose and aculeate. **Stipules** narrowly linear. **Inflorescences** terminal and axillary, many-flowered. **Flowers**: calyx deeply divided; lobes broadly ovate-acute, apex caudate; petals broadly spathulate or suborbicular with narrow claw. **Flowering time** all year. **Fruit** globose; carpels glabrous or pubescent. Invasive, rocky outcrops and mountain slopes in grassland, forests, streambanks and roadsides; all bioregions on eastern side of province, not occurring in Upper Karoo, Lower Karoo and Rainshadow Valley Karoo (Lady Grey District E to Ngeli Forest southwards, from Dordrecht to Port St Johns, Somerset East to Butterworth, Keerom to Grahamstown and to Humansdorp).

***SANGUISORBA** L.

Species ± 10, mainly temperate regions of the northern hemisphere; 1 partly naturalised in sthn Afr., G, M, FS, EC.

minor Scop.

Salad-, garden-, small burnet

Perennial herb, 0.2–0.4 m high; stems and petioles angled and striate, villous to scarcely pubescent from base upwards with white multicellular and glandular hairs. **Leaves** alternate; leaflets ovate to obovate-oblong, sessile or with a petiolule, bases cuneate-rounded, apices blunt, glabrous above. **Stipules** half-lunate, deeply-toothed, sparsely hairy at base. **Inflorescence** a globose-ovoid head, axis hairy; bracts rhomboid-ovate; bracteoles obovate-orbicular, hairy on outer surface and margins. **Flowers** subsessile, actinomorphic; floral tube ellipsoid, glabrous; sepals ovate-elliptic, concave on inner surface, glabrous; stamens 18; filaments filiform; carpels 2; styles 2; stigma penicillate. **Flowering time** May–July. **Fruit** 4-angled, ellipsoid. Introduced weed, gardens, dry grassland rocky ground, roadsides; Drakensberg Grassland (Dohne Station, Campagna).

BAILEY, L.H. & BAILEY, E.Z. 1977. *Cotoneaster, Crataegus, Cydonia, Duchesnea, Fragaria, Potentilla, Prunus, Pyracantha, Pyrus, Rosa* & *Sanguisorba* (= *Poterium*). *Hortus Third, a concise dictionary of plants cultivated in the United States and Canada*. Macmillan, New York.
BALL, P.W. 1968. Rosaceae (*Pyracantha*). *Flora europaea* 2: 73.
BROWICZ, K. 1968. Rosaceae (*Cotoneaster*). *Flora europaea* 2: 72, 73.
FOCKE, W.O. 1906. Species andinae generis *Geum*. *Botanische Jahrbücher* 37: 539–541.
FRANCO, J. DO AMARAL. 1968. Rosaceae (*Crataegus*). *Flora europaea* 2: 73–77.
FRYER, J. & HYLMÖ. 1995. *Cotoneaster. The European garden flora* 4. Cambridge University Press, Cambridge.
GRAHAM, R.A. 1960. *Flora of tropical East Africa*. Rosaceae: 1–58.
HARVEY, W.H. 1862. Rosaceae. *Flora capensis* 2: 285–305.
HAUMAN, L.L. & BALLE, S. 1936. Les *Alchemilla* de l'Afrique Australe. *Memoires de l'Académie Royal de Belgique. Classe des Sciences Collection* Ser. II, Vol. 16, Fascicle 3, 20: 1–28.
HESLOP-HARRISON, Y. 1968. Rosaceae (*Rubus*). *Flora europaea* 2: 7–25.
HEYWOOD, R.K., BRUMMIT, R.K., CULHAM, A. & SEBERG, O. 2007. *Flowering plant families of the world*. Royal Botanic Gardens, Kew.

KILLICK, D.J.B. 1969. *Leucosidea sericea*. *Flowering Plants of Africa* 40, t. 1566.
KLOTZ, G. 1982. Synopsis der Gattung *Cotoneaster* Medik. *Beiträge zur Phytotaxonomie* 10: 7–81.
KNEES, S.G. 1995. *Pyracantha* and *Pyrus*. *The European garden flora* 4. Cambridge University Press, Cambridge.
KNEES, S.G. & WARWICK, M.C. 1995. *Crataegus*. *The European garden flora* 4. Cambridge University Press, Cambridge.
KUPICHA, F.K. 1978. *Rubus*. *Flora zambesiaca* 4: 7–33.
MABBERLEY, D.J. 2008. *Mabberley's plant-book*, 3rd edn. Cambridge University Press, Cambridge, U.K.
MENDES, E.J. 1978. Rosaceae. *Flora zambesiaca* 4: 7–33.
NILSSON, Ö. 1989. Rosaceae (*Rosa*). *Flora of Ethiopia* 3: 34–36.
NORDBORG, G. 1966. *Sanguisorba* L., *Sarcopoterium* Spach, and *Bencomia* Webb & Berth. Delimitation and subdivision of the genera. *Opera Botanica* 11,2: 5–103.
NORDBORG, G. 1967. The genus *Sanguisorba* section *Poterium*. Experimental studies and taxonomy. *Opera Botanica* 16: 1–166.
ROTHMALER, W. 1937. Systematische Vorarbeiten zu einer Monographie der Gattung *Alchemilla* (L.) Scop. *Feddes Repertorium* 42: 111^{23}–125^{37}.
SMITH, J.E. 1811. A description of *Duchesnea fragiformis*, constituting a new genus of the Natural Order of Senticosae of Linnaeus, Rosaceae of Jussieu. *The Transactions of the Linnean Society of London* 10: 371–374.
STEVENS, P.F. 2010. Angiosperm Phylogeny Website. Version 9. Internet. http://www.mobot.org/MOBOT/research/APweb/ (accessed July 2010).
STEVENS, P.F. 2018. Angiosperm Phylogeny Website. Version 14. Internet. http://www.mobot.org/MOBOT/research/APweb/ (accessed August 2018).
STIRTON, C.H. 1981. New records of naturalized *Rubus* in southern Africa. *Bothalia* 13: 333–337.
STIRTON, C.H. 1984. Notes on the genus *Rubus* in southern Africa. *Bothalia* 15: 101–106.
TUTIN, T.G. 1968. Rosaceae (*Fragaria*). *Flora europaea* 2: 47, 48.
VALENTINE, D.H. 1968. Rosaceae (*Duchesnea*). *Flora europaea* 2: 48.
WEIMARCK, H. 1934. *Monograph of the genus* Cliffortia. Gleerupska Universitet Bokhandeln, Lund.
WEIMARCK, H. 1946. Further notes on the genus *Cliffortia*. *Botaniska Notiser* 80: 407–420.
WEIMARCK, H. 1948. The genus *Cliffortia*, a taxonomic survey. *Botaniska Notiser* 1948(2): 167–203.

RUBIACEAE

(Order Rubiales)

Compiled by C.L. Bredenkamp, N. Madlokazi & P.P.J. Herman (*Pavetta*)

Genera comprising plants of different habit have been included in more than one key—adapted from Bridson (1998).

1a Herbs or subshrubs (if climbing or scandent see Key 3); corolla lobes always valvate; raphides present (if raphides absent and inflorescences clearly axillary, go to Key 2)..... **Key 1**
1b Plants woody, or sometimes with ± herbaceous shoots from a woody rootstock (pyrophytes); corolla lobes valvate, contorted or sometimes imbricate; raphides present or absent:
2a Climbing and/or scandent plants ..... **Key 3**
2b Plants not climbing, but sometimes scrambling:
3a Plants subshrubby to shrubby, or occasionally with ± herbaceous shoots from a woody or rhizomatous rootstock, with herbaceous shoots 0.05–2.00 m high and mostly burnt off by annual fires (pyrophytes) ..... **Key 2**
3b Shrubs or trees (0.75–)2.00–20.00 m high ..... **Key 4**

Key 1 — Herbaceous

1a Leaves and stipules similar, in whorls of 4–8; corollas ± rotate (but tubular in **Sherardia*); ovules solitary in each locule; fruit bilobed, indehiscent; plants often adhesive due to prickles and harsh hairs (tribe **Rubieae**):

2a Calyx with 4–6 distinct teeth; flowers in small, terminal, involucrate heads; corolla tube cylindrical.... ..... ***Sherardia**

2b Calyx limb reduced to a rim; inflorescence not involucrate; corolla rotate:

3a Petioles very well developed, 10–80 mm long; corolla usually 5-lobed ..... **Rubia**

3b Petioles very short or leaves sessile; corolla usually 4-lobed..... **Galium**

1b Leaves clearly different from stipules, opposite, or less often in whorls of 3(5); corolla mostly clearly tubular; ovules variously arranged in locules; fruit various; plants usually not adhesive, sometimes with quite broad sheathing stipules with very short processes or stipules with longer processes:

4a Ovules (or seeds) 2–many in each locule:

5a Anthers and stigmas included, the latter always overtopped by the former; corolla tube narrowly cylindrical ..... **Kohautia**

5b Anthers and/or stigmas exserted, or if included, then anthers overtopped by stigmas; corolla tube cylindrical or funnel-shaped:

6a Corolla tube at least 15–20 mm long, cylindrical; anthers included and style exserted; flowers not heterostylous..... **Conostomium**

6b Corolla tube always < 20 mm long, cylindrical or funnel-shaped, sometimes with included anthers and exserted style, but then usually heterostylous ..... **Oldenlandia**

4b Ovules (or seeds) solitary in each locule, or flowers male:

7a Style topped by a globose pollen presenter, cylindrical or mitriform, often ridged and 2–several-lobed at apex when mature; flowers never heterostylous; fruit with 2–several woody pyrenes ....Tribe **Vanguerieae** (go to Key 5)

7b Style lacking a pollen presenter; flowers frequently heterostylous; fruit occasionally with pyrenes (but then inflorescence terminal) or sometimes with 1–many-seeded stone (putamen):

8a Style ± absent; stigmas 2 or 1, feathery, long-exserted; flowers wind-pollinated:

9a Fertile carpel and feathery stigma usually 1, calyx lobes mostly large and leaf-like .....**Carpacoce**

9b Fertile carpels and feathery stigmas 2; calyx lobes mostly smaller than leaves to subobsolete:

10a Inflorescence made up of axillary, sessile flower clusters; fruit supported by a carpophore .... **Anthospermum**

10b Inflorescence terminal, paniculate to thyrso-paniculate; fruit never supported by a carpophore .... **Galopina**

8b Style well developed, ending in 2 style arms:

11a Corolla blue to purple; ovules pendulous from near apex of locule.....**Pentanisia**

11b Corolla white to pinkish; ovule erect from locule base, or attached near middle of septum:

12a Ovary 3(4)-locular; stigma 3(4)-lobed; fruit with 3(4) cocci ..... ***Richardia**

12b Ovary 2-locular; stigmas 2-lobed or capitate; fruit indehiscent, capsular with 2 valves, 2 cocci or circumscissile:

13a Succulent creeping plant of the seashore with imbricate leaves; stipules quite broad, sheathing, with very short processes; stems rooting at nodes; fruit indehiscent; seeds not lobed..... **Phylohydrax**

13b Plant not a littoral succulent, leaves not imbricate; stipules with longer processes; stems not rooting at nodes; fruit dividing into cocci, or capsular; seeds lobed:

14a Fruit separating into 2 indehiscent mericarps..... ***Diodia**

14b Fruit a 2-valved capsule..... **Spermacoce**

Key 2 — Perennial herbs, sometimes woody at base, with woody rootstock (pyrophytes or geofrutices)

1a Style ± absent; stigmas 2 or sometimes 1, long, feathery; flowers wind-pollinated:

2a Fertile carpel and feathery stigma usually 1; calyx lobes mostly large and leaf-like .....**Carpacoce**

2b Fertile carpels and feathery stigmas usually 2; calyx lobes mostly smaller than leaves to subobsolete:

3a Inflorescence terminal, thyrso-paniculate; leaves relatively large, petiolate..... **Galopina**

3b Inflorescence of axillary, ± sessile flower clusters; leaves often ± ericoid, often without distinct petiole:

4a Distinctly woody, many-stemmed, dioecious, dwarf shrubs; leaves needle-like, mostly decussate; inflorescence few-flowered, reduced ..... **Nenax**

4b Tall shrubs to perennial herbs, similar to above but not in same combination ..... **Anthospermum**

1b Style well developed, ending in 2 style arms or a pollen presenter:

5a Style divided into 2 lobes:

6a Corolla blue to purple .....**Pentanisia**

6b Corolla white to yellow to reddish ..... **Psychotria**
5b Style topped with a globose, cylindrical or mitriform (like bishop's cap), often ridged pollen presenter:
7a Ovary 2-locular ..... **Eriosemopsis**
7b Ovary 3–8-locular, a few flowers sometimes with 2-locular ovaries ..... **Pachystigma**

Key 3 — Climbing or scandent (herbaceous or woody)

1a Leaves and stipules similar, in whorls of 4–8; herbaceous climbers, often adhesive due to prickles or rough hairs:
2a Leaves petiolate; corolla mostly 5-merous; fruit fleshy, glabrous ..... **Rubia**
2b Leaves ± sessile; corolla mostly 4-merous; fruit dry, glabrous or hairy ..... **Galium**
1b Leaves clearly different from stipules, opposite or in whorls of 3:
3a Inflorescences axillary; pollen presenter ovoid, narrowly winged ..... **Keetia**
3b Inflorescence terminal, sometimes with additional axillary inflorescences near apex of main stem; pollen presenter narrowly spindle-shaped to ellipsoid ..... **Tarenna**

Key 4 — Shrubs or trees

1a Flowers in globose or capitate cymes:
2a Corolla white; style ± twice as long as corolla ..... **Pavetta**
2b Corolla orange to red; style only slightly longer than corolla ..... **Burchellia**
1b Flowers solitary or in lax to compact or spike-like inflorescences:
3a Calyx lobes (at least 2) strongly accrescent and brightly coloured in fruit ..... **Alberta**
3b Calyx lobes less markedly and more equally accrescent and less strikingly coloured:
4a Style usually absent; stigmas 2 or 1, feathery, long-exserted; flowers wind-pollinated:
5a Fertile carpel and feathery stigma usually 1; calyx lobes mostly large and leaf-like ..... **Carpacoce**
5b Fertile carpels and feathery stigmas usually 2; calyx lobes mostly smaller than leaves to subobsolete:
6a Distinctly woody, many-stemmed, dioecious dwarf shrubs; leaves needle-like, mostly decussate; inflorescence few-flowered, reduced ..... **Nenax**
6b Tall shrubs to perennial herbs, similar to above but not in the same combination ..... **Anthospermum**
4b Style well developed, ending in 2 style arms or a pollen presenter:
7a Style 0.6–3.0 mm long, ending in 2 arms or lobes 0.3–1.0 mm long; flowers heterostylous; fruit fleshy, subglobose, 5–7 mm long ..... **Psychotria**
7b Style apex mostly thickened or otherwise adapted to secondary pollen presentation; flowers mostly homostylous; combination of characters not as above:
8a Corolla lobes valvate; style topped with a globose, cylindrical or mitriform pollen presenter, often ridged; pollen presenter 2- to several-lobed at apex when mature, hollow with style attached internally or occasionally with style attached at base; flowers never heterostylous; locules 2–10; pyrene walls woody or sometimes crustaceous; inflorescences always axillary (with flower(s) in both axils of a node) ..... Tribe **Vanguerieae** (go to Key 5)
8b Corolla lobes contorted or imbricate, or if valvate, then pollen presenter not as above or flowers heterostylous; locules (1)2, rarely several to many; if fruit a pyrene, then walls scarious to crustaceous; inflorescences terminal, lateral or axillary:
9a Spines present; corolla showy; fruit large ..... **Hyperacanthus**
9b Spines absent; corolla and fruit as above or not:
10a Inflorescences axillary with flower(s) in both axils of a node or supra-axillary, pedunculate or sessile, if on brachyblasts (contracted lateral spurs) see contrast 17b; corolla lobes always contorted:
11a Inflorescences pedunculate, distinctly and rather laxly branched; flowers always pedicellate:
12a Stipules often blackening when dry; corolla tube cylindrical, ± equal to lobes in length; seeds with a small ± circular excavation, or a partly ruminate endosperm ..... **Tarenna**
12b Stipules not tending to blacken when dry; corolla tube and seeds not as above; corolla funnel-shaped to campanulate; endosperm entire ..... **Kraussia**
11b Inflorescences 1–few-flowered, or congested glomerules, sometimes shortly pedunculate; flowers often pedicellate:
13a Calyx tube short, lobes well developed and often overlapping; corolla throat densely bearded; anther connective protruding in conspicuous ribbon-like appendages ..... **Empogona**
13b Calyx tube well developed, lobes none, triangular or linear or with minute teeth; corolla throat glabrous or hairy; anther connective protruding in short triangle or apical appendage ..... **Tricalysia**
10b Inflorescences terminal on main and lateral branches (occasionally appearing axillary by extreme reduction of lateral branches in which case bacterial nodules are present in leaves), or lateral (i.e.

alternate, with inflorescence in only one axil at each node); sometimes with a few axillary inflorescences in addition to terminal one, or borne on brachyblasts (contracted lateral spurs); corolla lobes contorted, valvate or sometimes imbricate:

14a Inflorescences strictly lateral; stipules green, moderately conspicuous, triangular or ovate, scarcely sheathing; seeds not held together by pulpy tissue, seed surface with a fingerprint-like pattern of striations:

15a Shrub or small tree, seldom < 1 m high; corolla tube narrowly cylindrical..... **Oxyanthus**

15b Small shrub, or less often a tree, 0.3–1.8(–5.0) m high; corolla tube cylindrical at base and funnel-shaped above ..... **Mitriostigma**

14b Inflorescences and stipules not as above; seeds 1 or few to many, often held together by pulpy tissue; seed surface lacking a fingerprint-like pattern:

16a Plants with brachyblasts or cushion shoots:

17a Corolla tube usually at least 15 mm long; calyx lobes narrowly triangular to lanceolate ..... **Gardenia**

17b Corolla tube up to 7 mm long; calyx lobes ovate, often spathulate, separated by broad sinuses .... **Coddia**

16b Plants without brachyblasts or cushion shoots, lateral branches often short but with leaves clearly spaced:

18a Inflorescence usually borne on a very short shoot above a single leaf; corolla tube variously shaped; flowers markedly showy; fruit ± ovoid, 18–85 mm long; ovules many; seeds many in pulpy tissue; testa present ..... **Rothmannia**

18b Inflorescence essentially terminal, sometimes overtopped by growing apex, or pseudo-axillary (due to suppression of lateral branches); corolla tube mostly cylindrical to narrowly funnel-shaped:

19a Flowers 1 or up to 3 on a common peduncle, markedly showy, sometimes overtopped by stem apex; fruit large; seeds many in pulpy tissue:

20a Branches and leaves often ternate; stipules sheathing, often truncate but sometimes triangular, with sticky exudate when young; flowers solitary; calyx limb-tube truncate or often with decurrent lobes; corolla lobes contorted to the left; fruit thick-walled..... **Gardenia**

20b Branches and leaves not ternate; stipules ovate, tightly inrolled at apex and readily falling, lacking a sticky exudate; flowers 1–3; calyx lobes not decurrent; corolla lobes contorted to the right; fruit fairly thin-walled ..... **Hyperacanthus**

19b Flowers if showy, then > 3, never overtopped by stem apex; fruit mostly small to moderately large; seeds 1–few, or if many, then seeds free:

21a Flowers 5(6)-merous; fruit 1–several-seeded; seeds variously shaped, entire or ruminate; stipules often with central area darkened (dark green when fresh, or black when dry) but difficult to observe in taxa with reduced branches..... **Tarenna**

21b Flowers 4-merous; fruit 2-seeded; seeds ± hemispherical with an excavation on the ventral face; stipules never with central area darkened; bacterial nodules usually present in leaf blades, either scattered or arranged along midrib ..... **Pavetta**

Key 5 — Tribe Vanguerieae (from couplet 7 in Key 1 and couplet 8 in Key 4)

1a Spines present..... **Canthium**

1b Spines absent:

2a Climbers and/or scandent shrubs ..... **Keetia**

2b Trees, shrubs (sometimes subscandent), herbs or subshrubby herbs:

3a Subshrubby herbs or single-stemmed shrubs from a woody rootstock:

4a Ovary (or fruit) 2-locular; pollen presenter 2-lobed at tip ..... **Eriosemopsis**

4b Ovary (or fruit) (2)3–8-locular; pollen presenter 3–8-lobed at tip ..... **Pachystigma**

3b Shrubs or trees (1–)2–20 m high:

5a Ovary or fruit 2(3 or 4)-locular; pollen presenter 2(3)-lobed at tip:

6a Style ± as long as corolla tube; pollen presenter ± as wide as long or wider:

7a Style sometimes slightly exceeding corolla tube, rarely up to twice as long; pollen presenter ± as wide as long or wider, 2(3)-lobed..... **Canthium**

7b Style shortly exceeding corolla tube, or rarely somewhat longer; pollen presenter ± spherical, 2-lobed ..... **Afrocanthium**

6b Style ± twice as long as corolla tube or often longer; pollen presenter distinctly longer than wide:

8a Trees, shrubs or lianas; leaves typically subcoriaceous to coriaceous and drying light green or occasionally chartaceous; pyrene cartilaginous to woody with shallow apical crest; endosperm entire ....**Psydrax**

8b Lianas or scandent bushes with perpendicular lateral branches, often subtended by rotund leaves; leaves chartaceous to subcoriaceous (rarely coriaceous); pyrene woody with lid-like area surrounding crest; endosperm frequently streaked with resinous areas ..... **Keetia**

5b Ovary or fruit (2)3–5-locular; pollen presenter 3–5-lobed at tip:

9a Inflorescence a dichasial cyme with flowers scattered along arms, usually lax and many-flowered; fruit large and globose, 14–50 mm in diam. (when dry); pollen presenter cylindrical, furrowed .... **Vangueria**

9b Inflorescence varying from solitary flowers to fascicles or dichasial cymes, but mostly condensed; fruit often small, not over 30 mm in diam. when dry; pollen presenter broadly cylindrical ..... **Pachystigma**

AFROCANTHIUM (Bridson) Lantz & B.Bremer

Species 22, confined to tropical and sthn Afr., LIM, G, M, S, KZN, EC.

mundianum (Cham. & Schltdl.) Lantz

(= *Canthium mundianum* Cham. & Schltdl.)

Rock alder; *klipels* (A); *umsantulane* (X); *isandulane* (Z)

Perennial tree or shrub, 2–6 m high. **Leaves** broadly elliptic to ovate, softly hairy beneath, domatia with white tuft of hairs, apex acute, margins curved, wavy; petioles up to 10 mm long; stipules triangular, 2–6 mm long. **Flowers** many in axillary cymes, small, faintly scented. **Calyx**: lobes reduced to a rim. **Corolla** 4- or 5-lobed, white or yellowish, glabrous. **Ovary**: style shortly exceeding corolla tube, or rarely somewhat longer, exserted; pollen presenter ± spherical, 2-lobed. **Flowering time** Sept.–Nov. **Fruit** ovoid, ± 10 × 11 mm, black, edible, pyrenes appearing as 2 fruit stuck together. Forest margins, thicket, river valleys; Eastern Fynbos-Renosterveld, Albany Thicket, Sub-Escarpment Grassland, Indigenous Forests (Matatiele southwards to Queenstown, Uitenhage, Alexandria, Grahamstown and East London).

ALBERTA E.Mey.

Species ± 5, 4 in Madagascar; 1 in sthn Afr., KZN, EC.

magna E.Mey.

Natal flame bush; *breekhout* (A); *isiqalaba* (X); *igibampondo* (Z)

Perennial tree, 5–10 m high. **Leaves** opposite, elliptic to elliptic obovate, shiny above, glabrous, leathery, base narrowly tapering, apex acute, margins entire, wavy; petioles stout, 2–4 mm long; stipules hairy, cup-shaped. **Flowers** in opposite panicles, bright red. **Calyx**: tube short, unequal 5-lobed, strongly accrescent. **Corolla** tubular, up to 30 mm long, 5-lobed, curved. **Stamens** 5, arising in upper part of corolla tube; anthers included, sessile, linear, with apical tail and obtuse, sagittate base, hairy on back. **Disc** annular. **Ovary** 2-locular, 10-ribbed; style long-exserted, stigma lobes 2, minute, filiform to elliptic. **Flowering time** Oct.–Mar. **Fruit** ovoid, 5 × 3 mm, crowned with 2 bright red, enlarged calyx lobes (wings). Forest margins, rocky outcrops; Indigenous Forests, Sub-Escarpment Savanna (Port Shepstone southwards to Lusikisiki).

ANTHOSPERMUM L.

Species 39, Africa and Madagascar; 21 in sthn Afr., widespread.

1a Flowers in distinct terminal thyrsic or thyrso-paniculate inflorescences

paniculatum Cruse

Perennial dwarf shrub, 0.50–0.75 m high. **Leaves** linear to narrowly obovate, glabrous to ± papillate above and midrib below; petioles ± 0.5 mm long; stipules with 3-angular to subulate seta. **Inflorescence** narrowly cylindrical. **Flowers** in terminal thyrsoid panicles. **Corolla** glabrous, creamy yellow. **Bisexual** and **male flowers**: tube ± 0.8–1.7 mm

long; anthers ± 2.2 mm long; stigma rudimentary. **Female flowers**: tube ± 0.3 mm long; style absent or up to 0.6 mm long, stigma ± 8 mm long, reddish purple. **Ovary** with conspicuous calyx lobes, ± 2.4 × 1.6 mm. **Flowering time** Aug.–Apr. **Fruit** brown, mericarps ± 4 × 2 mm, oblong. Forests, streambanks, rivers; Eastern Fynbos-Renosterveld, Indigenous Forests, Sub-Escarpment Grassland (Queenstown E to Butterworth, southwards to Stutterheim, Grahamstown and Port Alfred).

1b Flowers in few to many clusters at nodes
2a Plants occurring on coastal sand dunes, at least lower parts of stem usually buried in sand; mericarps covered with white hairs

littoreum L.Bolus

Perennial shrub, 0.3–1.5 m high, dioecious. **Leaves** obovate to oblong, glabrous, vein prominent below; petioles absent or up to 0.5 mm long; stipular sheath with small seta. **Female inflorescence**: very conspicuous. **Flowers** axillary, few or several clusters at nodes. **Calyx** creamy yellow, pubescent near base or glabrous**. Bisexual** and **male flowers**: corolla tube up to 0.8 mm long; anthers yellowish, minute, 1.7–2.0 mm long. **Female flowers**: corolla tube 0.3–1.0 mm long. **Ovary** 0.8–1.2 mm long, densely hairy; style ± 1 mm long, stigma 2–10 mm long. **Flowering time** Jan.–Aug. **Fruit** greyish brown, oblong, mericarps up to 3.5 × 1.8 mm, covered with white hairs. Forests, on coastal sand dunes; Indigenous Forests, Indian Ocean Coastal Belt, Albany Thicket (Port Edward southwards to East London and Grahamstown).

2b Habitat not as above; mericarps glabrous or variously hairy, but not as above
3a Often scrambling, straggling or trailing perennial herbs

herbaceum L.f.

Low cushion or mat-forming, perennial herb or ± erect and tufted subshrub, 0.1–0.6 m high. **Leaves** lanceolate, shortly hairy, base cuneate; petioles ± 0.7–6.1 mm long; stipular sheath with filiform setae, 0.3–6.1 mm long. **Flowers** on short lateral branches, elongated clusters at nodes. **Corolla** papillate near apex. **Bisexual** and **male flowers**: tube 2.0–3.7 mm long, cylindrical; anthers 1.5–2.5 mm long. **Female flowers**: tube 0.3–1.2 mm long. **Ovary** 1.2 × 0.7 mm long; style ± 0.8 mm long, stigma 2.0–10.2 mm long. **Flowering time** all year. **Fruit** yellowish brown, oblong to obovate, mericarps with conspicuous longitudinal grooves between mericarps, up to 2.8 × 1.6 mm, densely covered with tuberculate structures. Thicket, forests, coastal; Indigenous Forests, Indian Ocean Coastal Belt, Albany Thicket, Sub-Escarpment Grassland (Kokstad southwards to Lusikisiki, Hogsback, Grahamstown and Uitenhage).

3b Shrub or subshubs, erect mat or cushion-forming herbs
4a Leaves densely covered with spreading hairs

basuticum Puff

Cushion or mat-forming dwarf shrub, 0.3–0.6 m high, dioecious. **Leaves** decussate, narrowly lanceolate, curved upwards, pubescent above, glabrous below except midrib; petioles subobsolete; stipular sheath with hairy seta. **Flowers** paired at nodes. **Corolla** yellowish green, usually pubescent outside. **Male flowers**: tube 0.7–1.0 mm long, broadly funnel-shaped to subcampanulate, lobed; anthers 1.0–1.6 mm long. **Female flowers**: tube ± 0.3 mm long; style absent, stigma up to 7.5 mm long. **Ovary** 1.2 × 0.8 mm, densely hairy, with 4 calyx lobes. **Flowering time** Nov. **Fruit** greyish brown, pubescent, subobovate, mericarps up to 2.5 × 1.5 mm. Grasslands, high Drakensberg, alt. 2 300–3 600 m; Drakensberg Grassland, Sub-Escarpment Grassland (Lady Grey southwards to Maclear District).

hispidulum E.Mey. ex Sond.

Perennial, dwarf shrub, 0.05–1.00 m high; not dioecious. **Leaves** oblanceolate, hispid both sides, margins revolute; petioles subobsolete; stipular sheath with seta, hairy, ± 1.4 mm long. **Flowers** clusters at node. **Bisexual** and **male flowers**: tube 1.6–2.4 mm long; stigma up to 1.9 mm long; ovary ± 1.2 × 0.9 mm; anthers 1.9 mm long. **Female flowers**: tube 0.3–0.7 mm long; ovary ± 1.2 × 0.9 mm long; style absent or up to 0.8 mm long, stigma 2.0–6.5 mm long. **Flowering time** Nov.–Mar. **Fruit** reddish brown, oblong, mericarps up to 2 × 1 mm, densely covered with white hairs. Forests, seashores, rivers, alt. not above 2 300 m; Indigenous Forests, Indian Ocean Coastal Belt (Port Edward southwards to Lusikisiki District).

4b Leaves glabrous, hairs on margins and/or midrib only
5a Low, cushion-forming (if browsed excessively) dwarf shrub, rooting at nodes, occurring at high altitudes (above 2 400 m)

monticola Puff

Few to several-stemmed shrub, 0.5–2.0 m high; dioecious. **Leaves** obovate to obovate-lanceolate, glabrous; petioles subobsolete; stipular sheath with small seta. **Flowers** in clusters of 2–6 at nodes. **Corolla** glabrous, yellowish to greenish. **Male flowers**: tube up to 0.5 mm long; anthers 1–2 mm long. **Female flowers**: tube 0.4–0.5 mm long. **Ovary** up to 1.8–1.0 mm long, with 4 conspicuous calyx lobes; style absent, stigma 2–5 mm long. **Flowering time** Dec.–Feb. **Fruit** greyish brown to reddish, oblong to elliptic, mericarps up to 3 × 2 mm. Mountainsides; Drakensberg Grassland (Barkly East District southwards to Maclear).

5b Growth form different, plants not rooting at nodes, confined to lower altitudes, or if at high altitudes, then perennial herbs
6a Rounded dwarf shrubs, low subshrubs or perennial herbs; mericarps roundish in side view; plants not dioecious

rigidum Eckl. & Zeyh.

Subshrub with many unbranched stems or ± robust dwarf shrub, 0.15–0.30 m high. **Leaves** narrowly ovate, tough and thick, glabrous, margins entire, papillate; stipular sheath with or without a minute seta. **Flowers** in clusters of 2–6 at nodes. **Bisexual** and **male flowers**: tube ± 0.5–1.9 mm long; anthers ± 1.5–2.5 mm long; small rudimentary ovary with rudimentary stigma; bisexual flowers shorter than in females. **Female flowers**: tube ± 0.2–0.5 mm long; style up to 1 mm long, stigma up to 7.5 mm long. **Ovary** ± 0.9 × 0.7 mm. **Flowering time** Nov.–Mar. **Fruit** mericarps ± 2.8 × 1.5 mm, curved, glabrous or covered with whitish hairs. Rivers, Karoo, grassland; Drakensberg Grassland, Upper Karoo, Sub-Escarpment Grassland, Dry Highveld Grassland (*A. rigidum* Eckl. & Zeyh. subsp. *pumilum* (Sond.) Puff: Aliwal North E to Ongeluksnek, from Dordrecht to near Elliot and to Mpofu Game Reserve; *A. rigidum* Eckl. & Zeyh. subsp. *rigidum*: Bethulie SE to Tsolo, Queenstown southwards to Stutterheim).

streyi Puff

Often mat- or cushion-forming, very densely leafy, dwarf shrub, ± 0.4 m high. **Leaves** linear to linear-lanceolate, needle-like, midrib reddish brown, margins revolute; petioles subobsolete; stipular sheath with seta, up to 1 mm long. **Flowers** in clusters of 2–6 at nodes. **Corolla** yellowish, pubescent. **Bisexual flowers**: tube ± 1.0–1.3 mm long; anthers ± 1.3–2.0 mm long; style absent, stigma up to 5 mm long, ovary 1.2 ± 1.0 mm long, with indistinct calyx lobes. **Female flowers**: tube ± 0.5 mm long; gynoecium as in bisexual flowers. **Flowering time** Jan. **Fruit** reddish brown, heart-shaped, mericarps ± 2.5 × 1.5 mm, ovate. Forest edges; Indigenous Forests (Port Edward District).

6b Single to several-stemmed, mostly erect shrubs up to 3 m high; mericarps elongated in side view; dioecious

aethiopicum L.

Perennial shrub, 0.6–2.0 m high; dioecious. **Leaves** narrowly lanceolate to linear, in whorls of 3, glabrous, hairy at base, apex acute, stipular sheath with small triangular to subulate seta. **Inflorescences** dimorphic; male: in many clusters; female: contracted, ± cylindrical. **Flowers** in axillary clusters. **Calyx** lobes large, conspicuous. **Male flowers**: corolla with tube cylindrical, broadly funnel-shaped, lobed; anthers yellowish white, filaments filiform, 1.0–1.8 mm long. **Female flowers**: corolla smaller than in male flowers; tube up to 0.4–1.2 mm long, lobed. **Ovary** small rudimentary; style up to 0.7 mm long, stigma up to 6.3 mm long. **Flowering time** Aug.–Feb. **Fruit** oblong, mericarps up to 2.7 × 1.2 mm. River mouths, forests, mountains; Indigenous Forests, Sub-Escarpment Savanna, Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld (Willowmore E to Keiskammahoek, southwards from Uitenhage and Humansdorp to Alexandria).

comptonii Puff

Low, dwarf shrub, 0.1–0.3 m high. **Leaves** narrowly ovate-lanceolate to linear-lanceolate, thick, shiny above, midrib prominent and broad below, margins revolute, papillate; petioles subobsolete; stipular sheath with indistinct minute seta. **Flowers** single or paired at nodes. **Corolla** greenish yellow, glabrous. **Male flowers**: tube 1.0–1.7 mm long; buds up to 4.2 mm long; anthers ± 1.9–2.4 mm long; small rudimentary ovary. **Female flowers**: tube ± 0.1–0.2 mm long or absent; style up to 0.7 mm long, stigma ± 5.6 mm long; ovary ± 1.4 × 0.9 mm; indistinct calyx lobes. **Flowering time** Aug.–Oct. **Fruit** shiny, reddish brown, mericarps ± 3 × 1.7 mm, ± obovate. Rocky slopes, karroid valleys; Rainshadow Valley Karoo (Willowmore District).

galioides Rchb.f.

Perennial, dwarf shrub, up to 0.3 m high; younger parts of stems with short, whitish hairs. **Leaves** decussate, lanceolate, ± distinctly discolorous, margins revolute, ciliate; petioles ± 1 mm long; stipules up to 2 mm long. **Flowers** axillary, clusters at nodes, yellowish. **Bisexual** and **male flowers**: tube 0.7–2.0 mm long; anthers ± 2.1 mm long; stigma shorter than female flower. **Female flowers**: tube ± 0.5 mm long, lobed; style up to 0.6 mm long; stigma ± 8.1 mm long, purplish. Ovary often with 4 ± distinct calyx lobes, ± 0.7 × 0.5 mm. **Flowering time** July–Jan. **Fruit** shiny, mericarps ± 2.4 × 1.5 mm, elliptic to obovate, glabrous, distinctly papillate or shortly hairy. Forests, rivers; Eastern Fynbos-Renosterveld, Indigenous Forests, Albany Thicket (Humansdorp to Alexandria and Albany District).

galpinii Schltr.

Perennial shrub, 0.6–2.5 m high. **Leaves** in whorls of 3 or decussate, linear-lanceolate, glabrous, sometimes midrib below hairy; petioles subobsolete; stipular sheath with small seta. **Inflorescence** ± contracted, conspicuous. **Flowers** in clusters of few to many at nodes. **Corolla** greenish yellow, glabrous to puberulent. **Male flowers**: tube up to 0.4–1.0 mm long, subcampanulate; anthers ± 2 mm long; minute rudimentary ovary. **Female flowers**: tube ± 0.5–0.8 mm long; style absent or up to 0.4 mm long, stigma ± 7 mm long. **Ovary** with small 4-lobed calyx, ± 1 × 0.8 mm. **Flowering time** July–Dec. **Fruit** reddish brown to greyish, papillate, mericarps ± 3 × 1.2 mm, elliptic to oblong, covered with straight hairs. Rivers, streambanks; Indian Ocean Coastal Belt (Port Shepstone southwards to Lusikisiki).

prostratum Sond.

Prostrate, not mat-forming, dwarf shrub, 0.25–0.50 m high; trailing stems radiating from common base, rooting at nodes; dioecious. **Leaves** oblanceolate, glabrous, margins papillate; petioles subobsolete; stipules with small broadly triangular seta. **Flowers** in axillary pairs or single at nodes. **Corolla** greenish yellow, reddish purple outside. **Male flowers**: tube ± 1.2–2.3 mm long; anthers ± 1.5–2.2 mm long; small rudimentary ovary. **Female flowers**: tube ± 1.1 mm long, style absent to ± 1.3 mm long, stigma up to 8–10 mm long. **Ovary** ± 1.4 × 1 mm, without conspicuous calyx lobes. **Flowering time** Aug.–Oct. **Fruit** reddish, mericarps ± 2.3 × 2.9 mm, obovate. Only in coastal sand dunes; Albany Thicket, Sub-Escarpment Savanna (from West Coast to Port Elizabeth and Grahamstown).

[E]spathulatum Spreng.

Perennial shrub or dwarf shrub, 0.3–1.5 m high. **Leaves** strictly decussate, lanceolate, glabrous, glossy, margins entire; stipular sheath with small seta. **Inflorescence** ± condensed. **Flowers** in axillary clusters. **Corolla** pale whitish yellow, glabrous. **Male flowers**: tube ± 0.5–1.2 mm long; anthers ± 1.2–2.5 mm long; minute rudimentary ovary. **Female flowers**: tube ± 1.2–0.4 mm long, style absent or up to 0.5 mm long, stigma up to 7.6 mm long. **Ovary** ± 0.9 × 1.5 mm. **Flowering time** July–Mar. **Fruit** reddish brown to dull greyish brown, mericarps ± 4.2 × 2.2 mm, obovate to oblong, not or distinctly 3-ribbed. Mountains, Karoo, grassland; Mesic Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland, Upper Karoo, Lower Karoo, Eastern Fynbos-Renosterveld, Albany Thicket (Lady Grey to Barkly East southwards, Koue-Bokkeveld Mts to Hogsback, Great Winterhoek Mts to Kowie and to Humansdorp).

spathulatum Spreng. subsp. **spathulatum**

(Lady Grey to Barkly East S, Koue-Bokkeveld Mts to Hogsback, Great Winterhoek Mts to Kowie and to Humansdorp).

spathulatum Spreng. subsp. **uitenhagense**

[Baviaanskloof Mts, Uitenhage District (Swartkops River) to Alexandria, Grahamstown and Humansdorp].

BURCHELLIA R.Br.

Species 1, endemic to sthn Afr., M, S, KZN, EC.

bubalina (L.f.) Sims

Wild pomegranate; *wilde-granaat* (A); *umficane* (X); *isigolwane* (Z)

Perennial tree or shrub, 2–5 m high. **Leaves** opposite, simple, broadly ovate, glossy above, lateral veins indented, dull green below, base rounded, apex acute, margins entire, wavy; petioles up to 20 mm long, stipules leathery. **Flowers** few in terminal heads, orange to dark red. **Calyx**: tube short, terminal. **Corolla** tubular, up to 25 mm long, 5-lobed. **Stamens** 5, arising in upper part of corolla tube; filaments absent. **Ovary** 2-locular; style terete, stigma ribbed. **Flowering time** all year. **Fruit** 10–15 mm long, reddish green to brown, crowned with 5-persistent calyx. Forest margins, grasslands, rivers, thicket; Eastern Fynbos-Renosterveld, Indigenous Forests, Sub-Escarpment Savanna, Sub-Escarpment Grassland, Albany Thicket (Port Shepstone southwards to Fort Beaufort and Butterworth, Willowmore, Grahamstown, and to Humansdorp).

CANTHIUM Lam.

Klipels (A)

Species 100, Africa, Seychelles, Madagascar, Asia, Malesia; 13 in sthn Afr., widespread.

ciliatum (Klotzsch) Kuntze

Hairy turkey-berry; *harige bokdrol* (A); *umnyushulube* (X); *umevane* (Z)

Perennial tree or shrub, 1.0–2.5 m high; often armed with slender, straight spines. **Leaves** opposite, ovate to elliptic, thinly hairy and ciliate at midrib on both sides, base rounded, apex acute, margins entire; petioles up to 3 mm long, stipules triangular, hairy. **Flowers** small, green, 1 or 2 in leaf axils. **Corolla** 4- or 5-lobed, ± 4 mm long, constricted below mouth. **Stamens** 4 or 5, arising in corolla mouth; filaments usually shorter than anthers. **Ovary**: style slender, shortly exceeding corolla tube, pollen presenter ± as wide as long or wider, 2(3)-lobed. **Flowering time** June–Dec. **Fruit** a drupe, ovoid, 13 mm long, blackish. Forests, grassland; Indigenous Forests, Sub-Escarpment Savanna, Sub-Escarpment Grassland, Eastern Fynbos-Renosterveld (Kokstad southwards to Butterworth, King William's Town and Uitenhage).

inerme (L.f.) Kuntze

Turkey-berry; *bokdrol* (A); *umnyushulube* (X); *umvuthwamini* (Z)

Perennial tree or shrub, 1–7 m high. **Leaves** elliptic, softly leathery, glabrous, glossy above, domatia with or without hairs, apex subacuminate, margins wavy; petioles up to 12 mm long; stipules triangular, 2–4 mm long. **Flowers** in axillary cymes; peduncle up to 7 mm long; pedicels 3–7 mm long. **Calyx** 1.00–1.25 mm long, glabrous. **Corolla** cream-coloured to yellowish; tube 2–3 mm long. **Ovary**: style short, exserted. **Flowering time** Oct.–Jan. **Fruit** oblong-ovoid, ± 15 × 10 mm, dark brown; pyrene rugulose. Forests, river valleys, thicket; Eastern Fynbos-Renosterveld, Albany Thicket, Sub-Escarpment Savanna (Port Shepstone southwards to East London, Grahamstown and to Humansdorp).

kuntzeanum Bridson

Mountain turkey-berry; *berg-bokdrol* (A); *ubuchopho* (X)

Perennial shrub, 2–10 m high. **Leaves** broadly elliptic, softly hairy on both sides, domatia as ciliate pits, base cuneate, apex obtuse to acute, margins wavy; petioles 3–6 mm long; stipules 2–3 mm long, few hairs inside. **Flowers** solitary, inconspicuous, greenish; peduncle 10–14 mm long. **Calyx**: tube 1 mm long, shortly dentate. **Corolla** greenish white; tube up to 4 mm long, pubescent. **Stamens**: anthers set at throat. **Ovary**: style scarcely exserted. **Flowering time** Oct.–Jan. **Fruit** obcordate, ± 15 × 15 mm, black; pyrene 10 × 5 mm, rugulose. Forests, mountain margins; Sub-Escarpment Grassland, Indigenous Forests (Hogsback southwards to Stutterheim District).

spinosum (Klotzsch) Kuntze

Thorny turkey-berry; *doring-bokdrol* (A); *umnyushulube* (X); *umvuthwamini* (Z)

Perennial shrub, 1.5–4.0 m high; branchlets with pairs of pale, straight spines. **Leaves** ovate to elliptic, softly hairy when young, becoming glabrous, domatia small, base rounded, apex acute, margins entire; petioles up to 2 mm long; stipules triangular, with a long point. **Flowers** several in axillary cymes, small, white, inconspicuous. **Calyx** 4 or 5 teeth, saucer- or basin-shaped. **Ovary**: style slender, shortly exceeding corolla tube, stigmatic knob ± spherical. **Flowering time** July–Dec. **Fruit** ovoid, 13 × 10 mm, bluish black,

1- or 2-seeded. Coastal forests, thicket, rivers; Indigenous Forests, Indian Ocean Coastal Belt, Albany Thicket (Port St Johns southwards to Port Elizabeth and East London).

suberosum Codd

Corky turkey-berry; *kurk-bokdrol* (A)

Perennial shrub, 3–4 m high. **Leaves** erect, elliptic to oblanceolate, leathery, glossy above, glabrous to short softly hairy, domatia absent, apex acute, margins entire, with fringe of fine hairs; petioles up to 5 mm long; stipules falling early. **Flowers** axillary, in few clusters, small. **Calyx** lobes reduced to a rim. **Corolla** 4- or 5-lobed, white or yellowish, glabrous. **Ovary**: style short, exserted. **Flowering time** Sept.–Nov. **Fruit** ovoid to almost round, ± 10 mm long, black, with 2 or 3 lobes, crowned with circular scar. Forest edges, karroid valleys; Rainshadow Valley Karoo, Indigenous Forests (Port Edward and Steytlerville).

vanwykii Tilney & Kok

Pondo turkey-berry; *Pondo-bokdrol* (A)

Perennial shrub, 1.2–7.0 m high; armed or unarmed with axillary, short, spinescent branchlets. **Leaves** decussate, ovate, domatia present at axils with tuft of hairs, puberulent at midrib below, base bluntly attenuate, apex usually obtuse or ± acute, margins entire; petioles up to 8 mm long; stipules large, deltoid, up to 4 mm long. **Flowers** many in axillary cymes, bracts inconspicuous; peduncle up to 12 mm long. **Calyx** green, shortly toothed. **Corolla** greenish yellow, tube up to 1.8 mm long, puberulent. **Stamens** alternipetalous; anthers 0.7 mm long. **Ovary** 3-locular; style short, ± 2.5 mm long, stigma 3-lobed. **Flowering time** Oct.–Jan. **Fruit** ovoid, ± 10 mm long, dark brown to blackish. Sandstone, river valleys; Indian Ocean Coastal Belt (Port Edward District).

CARPACOCE Sond.

Species 7, endemic to WC, 2 extending to EC.

spermacocea (Rchb.f.) Sond.

Perennial herb, 0.3–1.0 m high. **Leaves** narrowly ovate-lanceolate to linear-lanceolate, glabrous, margins faintly scabrid, apex acute; stipular sheath cup-shaped, with 3–5 bristles, up to 2.5 mm long. **Flowers**: bisexual or female, 1 or in groups of few, lateral or terminal branches; fruiting pedicels up to 20 mm long. **Calyx** 4–6-lobed, often unequal in size. **Corolla** 4–6-lobed, greenish to black. **Ovary** 1.5–2.0 mm long. **Flowering time** July–Sept. **Fruit** green to dark brown, ± 4 × 1.5 mm, obovate to cylindrical, often ± ribbed; 1-seeded. Mountains, rocky slopes, moist, shade; Eastern Fynbos-Renosterveld (Humansdorp E to Uitenhage and Port Elizabeth).

vaginellata Salter

Perennial, dwarf shrub, 0.12–0.40 m high. **Leaves** linear, leaf pairs distinctly connate, margins scabrid or with stiff whitish hairs, ± 0.2 mm long, stipular sheath long and funnel-shaped. **Flowers**: bisexual or female, mostly solitary, lateral or terminal on branches, subsessile or shortly pedicellate. **Calyx** 5(6)-lobed, subequal. **Corolla** greenish yellow to dark purplish brown. **Ovary** 2–4 mm long. **Flowering time** July–May. **Fruit** green turning dark grey-brown, ± 7.5 × 3 mm, obovate, 1-seeded. Coastal and mountain fynbos; Eastern Fynbos-Renosterveld (Humansdorp).

CODDIA Verdc.

Species 1, endemic to sthn Afr., LIM, M, S, KZN, EC.

rudis (E.Mey. ex Harv.) Verdc.

Perennial shrub, 0.4–3.0 m high. **Leaves** simple, densely clustered on dwarf spur-branchlets along stem, broadly obovate, base narrowly obtuse, apex obtuse, margins entire; petioles up to 3 mm long; stipule ovate-triangular. **Flowers** solitary, white ageing to yellow. **Calyx** with 5 ovate lobes, separated by broad sinuses; tube short. **Corolla** 5-lobed, upper part funnel-shaped. **Stamens** arising in corolla tube, not protruding; anthers linear, sessile. **Ovary** 2-locular, ovules ± 5–8 on thin, broadly attached placenta on fleshy locule septum; style narrowly clavate, winged at apex. **Flowering time** Oct.–Mar. **Fruit** almost round, greenish brown, crowned with persistent calyx lobes, 5–8 mm in diam. River valleys, coastal, thickets; Indian Ocean Coastal Belt, Albany Thicket, Sub-Escarpment Grassland (Port Shepstone southwards to Butterworth, Port Elizabeth, Grahamstown and East London).

CONOSTOMIUM (Stapf) Cufod.

Species 9, tropical East Africa; 2 in sthn Afr., LIM, M, S, KZN, EC.

natalense (Hochst.) Bremek.

Perennial herb, 0.3–1.0 m high. **Leaves** lanceolate, upper surface scabrid, apex acute, margins entire, wavy; petioles up to 3 mm long; stipule sheath ± 2 mm long, with 2 short fimbriae, 0.5–2.0 mm long. **Flowers** in condensed, terminal inflorescence; pedicels up to 2 mm long in fruit. **Calyx tube** subglobose, glabrous to sparsely pubescent, lobed. **Corolla** pale blue to purple pink; tube up to 20 mm long, cylindrical or funnel-shaped, sparsely pilose. **Stamens** with anthers included or shortly exserted. **Ovary** 2-locular, with many ovules in each locule, sparsely pubescent; style glabrous or papillose, exserted; stigmas linear-oblong, densely papillate. **Flowering time** Nov.–Mar. **Fruit** ovoid-globose, up to 7 × 6 mm; calyx lobes ± persistent. Forests, rivers; Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Port Edward southwards to Lusikisiki District).

*DIODIA L.

Species ± 30, tropical and warm regions of America and Africa; 1 in sthn Afr., a roadside weed in EC.

dasycephala Cham. & Schltdl.

Annual herb, often diffusely branched with slender, angled branches. **Leaves**: blades linear to ovate; stipules with 3–6 setose lobes and sheathing at base. **Flowers** axillary, small, solitary or verticillate. **Calyx**: tube ovoid to obovoid. **Corolla** usually 4-lobed, white; lobes short, valvate; tube funnel-shaped, membranous. **Stamens** usually 4, arising in throat of corolla tube, exserted; anthers dorsifixed. **Ovary** usually 2-locular, with 1 ovule in each locule attached at ± middle of septum; style slender, exserted, bidentate at apex; stigma subcapitate. **Fruit** separating into indehiscent mericarps, with pericarp not adnate to seed. Habitat and distribution data not recorded.

EMPOGONA Hook.f.

TRICALYSIA subgen. *Empogona* (Hook.f.) Robbr.

Species 29, sthn Afr. 3, LIM, NW, G, M, S, KZN, EC.

Results obtained by Tosh et al. (2009) on the circumscription of the tribe Coffeeae, indicate that *Tricalysia* sensu Robbrecht is not monophyletic. The genus name *Tricalysia*

should be restricted to taxa from subgenus *Tricalysia*; subgenus *Empogona* (Hook.f.) Robbr. is sister to the genus *Diplospora* and is recognised at the generic level. The authors published a checklist of all known taxa of *Empogona*. The checklist includes 29 species and three modifications of infraspecific status, totalling 34 new combinations.

1a Flowers 4-merous; calyx lobes narrowly triangular, acute at tip

[E]africana (Sim) J.Tosh & Robbr.
[= *Diplospora africana* Sim (basionym), *Tricalysia africana* (Sim) Robbr.]

Pondo jackal-coffee; *Pondo jakkalskoffie* (A); *isiceza* (X)

Shrub or small tree, 1.5–3.0 m high. **Leaves** ovate or elliptic, up to 45 × 25 mm, base tapering to rounded, apex acuminate; sparsely hairy on midrib below; hair tuft domatia in axils of principal lateral veins below; petioles hairy. **Stipules** hairy, awn ± 4 mm long. **Flowers** axillary, in 3-flowered cymes, white. **Corolla**: cylindrical tube ± 3 mm long. **Flowering time** Aug.–Nov. **Fruit** drupaceous, globose, ± 5 mm in diam., crowned with 4 lobes of persistent calyx. Forests, forest margins, riverine vegetation, Msikaba Formation sandstone in Pondoland; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests (Msikaba River, Ntsubane, Egoso, Lusikisiki, Port St Johns).

1b Flowers 5-merous; calyx lobes broadly triangular to rounded
2a Bracteoles of most flowers fused into a cup, if free, then opposite

lanceolata (Sond.) J.Tosh & Robbr.
[= *Kraussia lanceolata* Sond. (basionym), *Tricalysia lanceolata* (Sond.) Burtt Davy]

Jackal-coffee; *jakkalskoffie* (A); *umdlesa* (X); *umdleza* (Z)

Evergreen shrub, scrambler or tree, up to 6 m high. **Leaves** lanceolate to narrowly elliptic, up to 120 × 40 mm, base tapering, apex acute; shiny green, glabrous, midrib ridged on both surfaces; domatia absent; petioles glabrous. **Stipules** joined, awns 2–3 mm long. **Flowers** axillary, in 9–15-flowered, compound cymes, white. **Corolla**: cylindrical tube 3–4 mm long. **Flowering time** July–Dec. **Fruit** drupaceous, globose, 6–7 mm in diam., inconspicuously crowned with remains of calyx lobes. Coastal sand dunes, forest margins, watercourses, waterfalls, river mouths, woodland and shrubland; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests, Albany Thicket (Bizana District S to Port St Johns, southwards to Komga, Kentani East London).

2b Bracteoles of most flowers free and alternate, mostly 2

coriacea (Sond.) J.Tosh & Robbr.
[= *Kraussia coriacea* Sond. (basionym), *Tricalysia sonderiana* Hiern]

Coastal jackal-coffee; *kus-jakkalskoffie* (A); *isigila-mtonjane* (X)

Evergreen shrub or small tree, up to 6 m high; older stems with straw-coloured bark. **Leaves**: blades up to 80 × 40 mm, elliptic, ± acute at apex, cuneate at base; glabrous, coriaceous, shiny above, midrib ± flat above, raised beneath; domatia absent; petioles up to 6 mm long, stout, puberulous above. **Stipules** joined, awn up to 3 mm long. **Flowers** axillary, in 1–5-flowered cymes; white or pink. **Corolla**: tube 4–6 mm long, glabrous outside, densely crisped-hairy at throat; lobes up to 6 × 3 mm, reflexed. **Flowering time** Sept.–Dec. **Fruit** purplish black, spherical, 7–8 mm in diam. Coastal forest, dune bush; Indian Ocean Coastal Belt, Indigenous Forests (Uvongo District, probably distributed into most NE area of EC).

ERIOSEMOPSIS Robyns

Species 1, endemic to sthn Afr., KZN, EC.

[E]subanisophylla Robyns

Perennial, dwarf shrub, 0.4–0.6 m; villous-tomentose. **Leaves** elliptic to obovate-elliptic, up to 60 × 40 mm, base ± rounded, margins entire; densely villous-tomentose; stipule subulate-lanceolate, persistent, 7 mm long. **Inflorescence**: axillary cymes; peduncle up to 30 mm long, densely pilose. **Calyx**: lobes linear, 5–6 mm long, villous. **Corolla** green, villous; tube 3–5 mm long. **Stamens** 5(6), arising in corolla mouth, exserted; filaments linear, ± as long as anthers; anthers oblong. **Disc** annular, pilose. **Ovary** 2-locular, with a single pendulous ovule in each locule; style fusiform, stigma oblong-globose, 2-lobed, 1 mm long. **Flowering time** Oct.–Dec. **Fruit** globose, tipped with persistent calyx. Riverbanks; Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Port Shepstone District).

GALIUM L.

Goose-grass

Species ± 400, cosmopolitan; 12 in sthn Afr., widespread, except B.

Inflorescences very reduced, flowers in groups of 1–3(4, 6)

[E]amatymbicum Eckl. & Zeyh.

Perennial herb, up to 0.3 m high. **Leaves** in whorls of 4–6, opposite, linear-lanceolate to lanceolate, with ± long, white, spreading hairs on both sides, apex acuminate, margins entire. **Flowers** solitary, subtended by bracts; pedicels up to 2 mm long. **Corolla** up to 1.5 mm in diam., whitish, pubescent outside; stamens very short. **Flowering time** Dec. **Fruit** covered with long hairs, wrinkled; mericarps reniform, up to 1.5 mm long. Rocky, coastal thornveld; Albany Thicket, Sub-Escarpment Savanna (Fort Beaufort to East London).

spurium L.

Annual herb, 0.4–3.0 m high, stem weak. **Leaves** in whorls of 6–8, linear-lanceolate to obovate, with distinct, ± filiform acumen at apex, glabrous above or with scattered straight or curled hairs beneath, margins with coarse recurved prickles. **Flowers** single or occasionally paired on peduncles; fruiting pedicels up to 35 mm long. **Corolla** up to 2 mm in diam., greenish white, lobes longer than wide, pointed; stamens very short. **Ovary** up to 0.8 mm long. **Flowering time** Sept.–Dec. **Fruit** covered with white, non-tuberculate, hooked hairs; mericarps globose, up to 4 mm in diam. Forest edges, mountains; Indigenous Forests, Sub-Escarpment Grassland (Queenstown District).

Inflorescences ± extensive and many-flowered

capense Thunb.

Tiny tots

Scrambling or climbing, perennial herb, up to 0.15–2.00 m high. **Leaves** in whorls of 6–10, linear to narrowly lanceolate to oblanceolate, glabrous with ± small prickles or short hairs, apex acuminate, with whitish mucro, margins reflexed. **Inflorescence** broadly pyramidal to ± cylindrical, ebracteate; pedicels and peduncle up to 5 mm long. **Corolla** up to 2–4 mm in diam., bright yellow, lobes long; stamens up to 0.75 mm long. **Ovary** up to 0.6 mm long. **Flowering time** Nov.–Mar. **Fruit** glabrous, ± tuberculate

or granulate or pubescent; mericarps subglobose, up to 2 mm in diam. Mountains, rivers, grassland, karroid areas; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Drakensberg Grassland, Upper Karoo, Dry Highveld Grassland (Graaff-Reinet E to Stutterheim, Molteno southwards to Queenstown).

scabrelloides Puff

Climbing or decumbent, perennial herb, 0.6–2.0 m high. **Leaves** in whorls of 7–10, linear to linear-lanceolate or oblanceolate, with whitish mucro at apex, pubescent both sides, with white, spreading hairs, margins reflexed with coarse, recurved prickles. **Inflorescence** broadly to narrowly pyramidal, ebracteate; pedicels up to 3 mm long; peduncles up to 3 mm long. **Corolla** up to 4 mm in diam., bright yellow to greenish, pubescent outside; stamens less than half as long as lobes. **Ovary** up to 0.6 mm long. **Flowering time** Dec. **Fruit** densely covered with straight white hairs; mericarps subglobose to reniform, up to 1.2 mm in diam. Forest edges, scrub, mountains; Indigenous Forests, Sub-Escarpment Grassland (Middlebrook and Hogsback).

thunbergianum Eckl. & Zeyh.

Climbing or procumbent, perennial herb, 0.15–1.00 m. **Leaves** in whorls of 4, ovate, elliptic or rhombic, with ± acute or short hyaline point at apex, glabrous or both sides, margins with short, spreading hairs. **Inflorescence** broadly pyramidal to ± cylindrical, ebracteate; pedicels up to 3 mm long, ± divaricate in fruit. **Corolla** up to 3 mm in diam., rotate, greenish white to yellowish, lobes longer than wide; stamens half as long as lobes. **Ovary** up to 0.5 mm long. **Flowering time** Nov.–May. **Fruit** densely covered with white, tuberculate, hooked hairs; mericarps subglobose, up to 1.5 mm in diam. Mountains, catchments; Indigenous Forests, Sub-Escarpment Grassland (Kokstad southwards to Queenstown and Hogsback).

tomentosum Thunb.

Kleefgras (A)

Dioecious, perennial herb, 1–2 m high, climbing or scrambling. **Leaves** in whorls of 6–8, narrowly to broadly ovate, or ± lanceolate, apex acute, margins reflexed, midrib with densely recurved prickles below. **Inflorescence** ± broadly pyramidal. **Male flowers**: corolla ± pubescent outside, greenish to pale yellow; ovary rudimentary; stamens very short. **Female flowers**: pedicels ± 90 mm long after anthesis, villous; peduncles up to 35 mm long, villous; corolla up to 4 mm in diam.; ovary ± 0.5–1.0 mm long; stamens rudimentary. **Flowering time** July–Sept. **Fruit** granulate, glabrous or with few whitish hairs; mericarps ± reniform, with 3 grooves on dorsal side, up to 3 × 2 mm. Karroid valleys, riverine thickets; Albany Thicket, Upper Karoo, Lower Karoo (Graaff-Reinet E to Cradock, southwards to Port Alfred).

GALOPINA Thunb.

Species 4, Africa, S Malawi to SE regions of sthn Afr., LIM, NW, G, M, S, FS, KZN, WC, EC.

Inflorescences narrowly cylindrical; angles between axis, peduncles and pedicels 20°–40°(50°)

aspera (Eckl. & Zeyh.) Walp.

Perennial herb, 0.55–1.50 m high; stems unbranched, erect to ascending, short-shoot leaves conspicuous, almost length of long shoot leaves. **Leaves** ± ovate, up to 50 × 30 mm;

stipular sheath with 3(4) or 5 setae. **Inflorescences** up to 380 mm long; fruiting pedicels up to 3 mm long. **Flowers** male, hermaphrodite or female; corolla greenish, purplish or brownish red, often papillate outside. **Flowering time** Dec.–Mar. **Fruit** warty-tuberculate mericarps, up to 2 × 1.5 mm. Forest margins in sun; Indigenous Forests (Clydesdale to East London, Amatole Mts, Greater Addo Elephant National Park).

Inflorescences broadly pyramidal to spherical; angles between axis, peduncles and pedicels (40°)50°–90°

circaeoides Thunb.

Several-stemmed, perennial herb, 0.3–0.9 m high; stems erect to ascending, short-shoots much contracted, with small leaves. **Leaves** ± ovate-lanceolate, up to 105 × 37 mm; stipular sheath with 3 or 5(7) setae. **Inflorescences** up to 300 × 280 mm, lax; peduncles and pedicels filiform, divergent, up to 37 mm in fruit. **Flowers** male, hermaphrodite or female; corolla whitish, yellowish or greenish, occasionally reddish tinged purplish outside, glabrous or papillate. **Flowering time** Dec.–May. **Fruit** ± densely warty mericarps, up to 2 × 1.4 mm. Kloof or gallery forest, riverbeds, bush clumps; Indigenous Forests, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld (uMzimkhulu District SW to Queenstown, Willowmore and Humansdorp Districts, Port Elizabeth, Grahamstown and East London District).

tomentosa Hochst.

Few- to many-stemmed, perennial herb, 0.3–0.8 m high; stems ± erect or ascending, often with short-shoots with small leaves; densely covered with longish whitish or yellowish white hairs. **Leaves** ± ovate-lanceolate, up to 62 × 35 mm, base ± cordate, apex subacute, densely hairy as above; stipular sheath with 3–5 setae. **Inflorescences** up to 250 × 200 mm, stiff; peduncles and pedicels thin, divergent, up to 7 mm long in fruit. **Flowers** male, hermaphrodite or female; corolla greenish yellow or creamy yellow, sometimes reddish brown-tinged outside, glabrous or papillate near tip. **Flowering time** Aug.–Feb. **Fruit** ± smooth, wrinkled or warty mericarps, up to 2 × 1.6 mm. Forest margins; Indigenous Forests (Clydesdale, Umtamvuna Nature Reserve).

GARDENIA J.Ellis

Gardenia; *katjiepiering* (A)

Species ± 250, pantropical; 6 in sthn Afr., widespread, except NC, WC.

thunbergia L.f.

Forest gardenia; *witkatjiepiering* (A); *umValasangwane* (Z)

Small tree, 3–7 m high. **Leaves** whorls of 3, elliptic, up to 130 × 70 mm, glabrous, base narrowing into petioles up to 30 mm long, apex acuminate; domatia present. **Flowers** solitary, pedicel up to 20 mm long. **Calyx**: tube with one lobe split partly to base on one side, with 5 small, apical appendages. **Corolla** white, lobes 8 or 9, elliptic-deltoid, contorted; tube cylindric, up to 120 mm long. **Stamens** 8 or 9, in mouth of corolla tube. **Ovary** 1-locular. **Flowering time** Dec.–Mar. **Fruit** grey, ovoid, up to 70 × 45 mm, woody. **Seeds** many, embedded in pulp. Moist, shady ravines in forest, rarely bushveld; Indigenous Forests (Kosi Bay southwards to Port St Johns, from Mpofu Game Reserve to Komga, Kraggakamma (near Uitenhage) to Alexandria Forest and East London, and to Witelsbos).

HYPERACANTHUS E.Mey. ex Bridson

Species 2, tropical and sthn. Afr., LIM, NW, G, M, S, KZN, EC.

amoenus (Sims) Bridson

Thorny gardenia; *doringkatjiepiering* (A)

Shrub, 2.7–7.0 m high; spines frequently present, upwardly angled, less often patent. **Leaves** usually congested, ± obovate or elliptic, lateral nerves obscure to apparent; petioles up to 5 mm long. **Flowers** usually solitary; peduncle up to 2 mm long; corolla white inside, rose pink to deep-red outside; tube 15–50 mm long, glabrous to puberulous towards apex outside; lobes contorted to the right. **Flowering time** Nov.–Mar. **Fruit** spherical to broadly ellipsoid, up to 20 × 15 mm, dark brown to blackish, fairly thin-walled, crowned by persistent, calyx-forming, short, apical funnel. Forest, closed woodland, kloofs, riverbanks; Indigenous Forests, Sub-Escarpment Grassland (Mkambati Nature Reserve across Amatole Mts to Suurberg, E to Bathurst and East London).

KEETIA E.Phillips

Species 40, tropical Africa; 1 in sthn Afr., LIM, NW, M, S, KZN, EC.

gueinzii (Sond.) Bridson

Climbing turkey-berry; *rank-bokdrol* (A); *umnyushulube* (X); *ibinda* (Z)

Scrambling shrub or climber, 2–7 m high; young branches with crisped, ± rust-coloured hairs. **Leaves** oblong-lanceolate to ovate, up to 135 × 36 mm; domatia present as tufts of hair; petioles up to 7 mm long. **Flowers** 5-merous, in axillary, pedunculate cymes, hairy as above; peduncles up to 5 mm; pedicels up to 7 mm long. **Calyx**: tube 1 mm long. **Corolla** creamy white; tube with a ring of white hairs in mouth; lobes oblong-lanceolate to ovate. **Anthers** exserted. **Style** up to 10 mm long; pollen presenter ovoid, 1.7 mm long, narrowly winged. **Flowering time** Oct.–Dec. **Fruit** up to 9 × 14 mm, black when mature; mostly of 2 pyrenes, ± obovoid. Inland and coastal forest margins, adjacent woodland or thicket; Indigenous Forests (Kokstad District, Weza, Egoso and Daza Forests, southwards to Kei River).

KOHAUTIA Cham. & Schltdl.

Species 60, Old World tropics; 15 in sthn Afr., widespread.

Stigma 2-lobed, lobes free, ± filiform; stipular sheaths modified into 1 or 2 ± fimbriate, triangular lobes in midstem region

amatymbica Eckl. & Zeyh.

Lehlokana (SS); *ikhubalo elimnayama* (X); *umfana-ozacile* (Z)

Annual, occasionally perennial herb, 0.15–0.60 m high; subterranean woody base, roots long, fibrous, with occasional bead-like nodules. **Leaves** up to 61 × 2 mm, linear. **Inflorescences** compound pseudo-umbels, 5–12-flowered; peduncles up to 170 mm long. **Flowers** scented. **Calyx**: tube ± 2.8 mm long, ovoid-elliptic; lobes narrowly triangular. **Corolla**: tube up to 26 mm long, narrowly cylindrical; lobes creamy pink above, brownish beneath, ± narrowly elliptic. **Style** 3–5 mm long; stigma lobes up to 3 mm long. **Flowering time** Sept.–Feb. **Fruit** subglobose, glabrous capsules, up to 3.9 × 4.8 mm. **Seeds** dark brown, ± 1 mm long, slightly flattened, ellipsoid. Recently burned grassland, rocky slopes, disturbed ground, roadsides; Drakensberg Grassland, Sub-

Escarpment Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld (Qacha's Neck, Underberg District SW to Queenstown and Suurberg, eastwards to Grahamstown and Kentani).

cynanchica DC.

Aandblommetjie (A)

Perennial herb, 0.1–0.6 m high; woody base, stems ± quadrangular, papillose. **Leaves** up to 65 × 2 mm, filiform to narrowly linear. **Inflorescences** compound with 1 or 2 flowers at a node, one subsessile, other pseudo-pedicellate; peduncles up to 45 mm long. **Flowers** scented. **Calyx**: tube ± 1.6 mm long, hemispherical to ± ovoid; lobes narrowly triangular. **Corolla**: tube up to 19.4 mm long; lobes whitish pink above, brownish beneath, ± narrowly oblong to ovate. **Style** 1.5–2.6 mm long; stigma lobes up to 2.6 mm long. **Flowering time** Sept.–Feb. (sometimes flowering in first season). **Fruit** hemispheric-obconic, glabrous or slightly scabrid capsules, up to 3 × 4.3 mm. **Seeds** brown ± 0.6 mm long, angular-subconic. Disturbed ground, waste places; Upper Karoo (Middelburg District, Grootfontein).

Stigma not 2-lobed, cylindrical or ovoid; stipular sheath modified into 2–8 fringing, subulate fimbriae in midstem region

virgata (Willd.) Bremek.

Annual, occasionally perennial herb, 0.15–0.50 m high; ± woody base, stems slightly ribbed. **Leaves** up to 32 × 7 mm, narrowly linear to lanceolate-elliptic, shortly aristate, margins revolute. **Inflorescences** compound with 2, 3 or additional accessory flowers at a node, pedicellate or subsessile; peduncles up to 79 mm long. **Calyx**: tube ± 1.3 mm long, obovate-subglobose; lobes narrowly triangular. **Corolla**: tube up to 9.4 mm long; lobes white above, mauve-striped beneath (variously coloured from cream to brownish and red), ± narrowly ovate-triangular; throat slightly papillose. **Style** and stigma together as long as narrow tube. **Flowering time** summer. **Fruit** subglobose, glabrous or slightly scabrid capsules, up to 2.5 × 3.3 mm. **Seeds** brownish, ± 0.4 mm long, round-subconic. Disturbed grassland; Indian Ocean Coastal Belt (Port St Johns).

KRAUSSIA Harv.

Species 3, tropical Africa; 1 in sthn Afr., LIM, M, S, KZN (EC Border).

floribunda Harv.

Rhino-coffee; *renosterkoffie* (A); *isikhuphankobe* (Z)

Tree or shrub, 0.6–4.0 m high. **Leaves** petiolate, oblong or somewhat lanceolate, obtuse to acuminate; stipules triangular, acuminate. **Flowers** in simple, axillary, bracteolate cymes, pedunculate. **Calyx**: tube shallowly campanulate, glabrous to puberulous; divided nearly to base into 4–6 triangular lobes. **Corolla** 5-lobed, white; tube campanulate, villous within. **Stamens** 5, in corolla mouth, exserted. **Disc** annular. **Ovary** 2-locular, with 1 or 2 pendulous ovules per locule; style short, thick, cylindric; stigmatic club long, fusiform, with 10 membranous, narrow, undulate, ciliate wings, exserted. **Flowering time** Oct.–Jan. **Fruit** blue-black, globose, ± size of pea, somewhat fleshy, with many, succulent, red granules; calyx lobes persistent. **Seeds** 2–6, ± ovoid, finely reticulate. Dune scrub, swamp forest, riverine woodland; Indigenous Forests (Port Shepstone District, Izotsha River near EC border).

MITRIOSTIGMA Hochst.

Species 5, tropical Africa; 1 in sthn Afr., KZN, EC.

axillare Hochst.

Dwarf-loquat; *dwerglukwart* (A)

Shrub or small tree, 0.6–2.0 m high; branches ± 4-angular. **Leaves** petiolate, elliptic, membranous; stipules green when dry, ovate acuminate. **Flowers** in small, axillary, bracteolate cymes. **Calyx** 5-lobed, lobes subulate; tube campanulate. **Corolla** white; lobes short, rounded, contorted towards right; tube elongate, funnel-shaped. **Stamens** 5, arising in broad part of corolla tube, ± included. **Disc** cushion-like. **Ovary** 2-locular, with several subpendulous ovules per locule; style filiform, glabrous; stigmatic club bifid at apex. **Flowering time** Aug.–Mar. **Fruit** globose, crowned by persistent calyx lobes. **Seeds** fleshy, testa ornamented with fine reticulations. Margins and understorey of dune and coastal forest, wooded ravines; Indigenous Forests (Umtamvuna Nature Reserve S to Port St Johns).

NENAX Gaertn.

Species 11, endemic to sthn Afr., N, NW, FS, L, NC, WC, EC.

microphylla (Sond.) Salter

Daggapitbossie, *donkieganna*, *granaatbossie* (A)

Dwarf shrub, 0.1–0.3 m high; dioecious; ± rounded, woody, many-stemmed, intricately branched. **Leaves** decussate or pseudo-verticillate, small, ± elliptic to needle-like, glabrous, margins ± papillate. **Inflorescences** few-flowered, reduced. **Flowers** in clusters of 2. **Male flowers** small; corolla tube short, funnel-shaped; lobes recurved, ± lanceolate; anthers yellowish to whitish, exserted. **Female flowers**: corolla much smaller than male flowers. **Ovary** 2-locular; stigmas 2, long-exserted, hairy, often purplish red. **Flowering time** Oct.–Feb. **Fruit** inflated, ± 1.7–3.2 mm in diam., subglobose to ± ellipsoidal, crowned by 4 persistent calyx lobes. Grassland and karroid vegetation, stony hills, crevices in rocky sheets; Upper Karoo, Albany Thicket, Dry Highveld Grassland, Drakensberg Grassland (Oviston E to Sehlabathebe National Park, southwards to Middelburg, Graaff-Reinet, Katberg and Grahamstown).

OLDENLANDIA L.

Species 300, tropical regions, especially Africa; 13 in sthn Afr., widespread, except NC, WC.

1a Seeds not becoming slimy when moistened
2a Stigmata subglobose

cephalotes (Hochst.) Kuntze

Perennial herb, 0.6–1.5 m high; stems 1–several, erect or decumbent; glabrous or with sparsely pilose nodes. **Leaves** up to 35 × 15 mm, linear to elliptic-oblong, base cuneate, apex acute, glabrous, subsessile. **Stipular sheath** produced into a bifid lobe 2.0–2.5 mm long, including ± 1 mm long triangular lobes. **Flowers** isostylous, in terminal or axillary, 20–30-flowered, capitate inflorescences, ± 10 mm in diam.; pedicels up to 1 mm long. **Calyx**: tube ovoid, sparsely pubescent; lobes ovate-triangular. **Corolla** white; tube 0.5 mm long; lobes 1.2 mm long. Style 0.3 mm long. **Flowering time** Dec.–Feb. **Fruit** a broadly subglobose capsule; beak 0.5 mm long. Grassland, damp places; Indian Ocean Coastal Belt (Port Edward S to Port St Johns).

2b Stigmata elongated
3a Leaves petiolate

rupicola (Sond.) Kuntze

Perennial, mat-forming herb, 0.1–0.2 m high; stems glabrous to hairy, often rooting at nodes. **Leaves** up to 37 × 19 mm, ovate, base ± rounded, apex acute; scabridulous above, glabrous beneath; petioles up to 5 mm long. **Stipular sheath** up to 1 mm long; lobes 5–7, ± 3 mm long. **Flowers** heterostylous, in terminal triads; pedicels ± 2.5 mm long. **Calyx**: tube 1 mm long, obconic; lobes broadly triangular. **Corolla** white, pale blue, lilac; tube up to 7 mm long, hairy in throat; lobes ± triangular. **Style** ± 3 mm long in short-styled and 8 mm in long-styled forms; stigma lobes ± 0.3 mm long. **Flowering time** Dec.? **Fruit** a subglobose capsule, beak slightly raised. **Seeds** blackish, testa cells coarsely granulate. Riverbanks, water spray under rock-faces; Indian Ocean Coastal Belt (Transkei, Umtentu River).

tenella (Hochst.) Kuntze

Perennial herb, ± 0.3 m high; stems slender, ± 4-angled, decumbent, intricately branched. **Leaves** 0.3–14.0 × 2.5–9.5 mm, ± ovate, base rounded, apex subacute, abruptly narrowed; petioles ± 3 mm long, thinly membranous. **Stipular sheath** 0.5 mm long with 2 or 3 very short lobes ± 1 mm long. **Flowers** heterostylous, terminal and axillary; pedicels slender, up to 9 mm long. **Calyx**: tube ± 0.7 mm long, obovoid; lobes foliaceous, ovate-lanceolate. **Corolla** white, pale violet; tube 4–5 mm long, ± slender, glabrous inside; lobes 2.2–5.0 × 2.3 mm. **Style** 2.5 mm long in short-styled and 5 mm in long-styled flowers. **Flowering time** July–May. **Fruit** an obovoid capsule, crowned by calyx lobes. **Seeds** black, testa carunculate. Riverbanks, rock crevices, waterfalls, coastal forest; Indigenous Forests, Indian Ocean Coastal Belt (Bizana, Lusikisiki District, Mkambati Nature Reserve).

3b Leaves sessile
4a Erect or ascending herbs

rosulata K.Schum.

Slender, annual herb, ± 0.17 m high; stems glabrous. **Leaves**: basal rosulate, spathulate, deciduous; cauline 3–10 mm long, ± filiform. **Stipular sheath** with 2 short teeth. **Inflorescences** terminal, few-flowered panicles in larger plants, lax; peduncles up to 28 mm long. **Flowers**: pedicels slender up to 38 mm long, heterostylous or isostylous, solitary or 2- or 3-grouped. **Calyx**: tube subglobose; lobes broadly triangular. **Corolla** white to pale purple; tube 1.2–3.6 mm long; lobes up to 2 mm long, oblong-ovate. **Style** 1.2 mm long in short-styled and 2.9 mm in long-styled forms; length intermediate in isostylous forms. **Flowering time** Dec.–Apr. **Fruit** subglobose capsule, not distinctly beaked, valves separated after dehiscence. **Seeds** black, angular, testa reticulate. Grassland, rock crevices below waterfalls, black turf soil; Indian Ocean Coastal Belt (Mkambati Nature Reserve).

4b Decumbent or straggling herbs

affinis (Roem. & Schult.) DC.

Perennial herb, 0.2–1.2 m high; rootstock woody; stems scrambling, glabrous; internodes up to 20–45 mm long, with 2 raised lines below stipules. **Leaves**: blades 20–45 × 6–16 mm, narrowly ovate-lanceolate, base ± rounded, apex ± acuminate; scabridulous above, glabrous beneath; petioles very short. **Stipular sheath** 1 mm long. **Flowers** heterostylous, in lax dichasia; pedicels 2–5 mm long. **Calyx**: tube subglobose; lobes

triangular. **Corolla** blue-mauve; tube 3.0–4.5 mm long, hairy inside; lobes elliptic. **Styles** 3 mm long in short-styled flowers, 4.5 mm in long-styled flowers; stigma lobes 1–3 mm long. **Flowering time** Aug.–Apr. **Fruit** a globose capsule, glabrous, obscurely 8-ribbed, scarcely beaked, crowned by calyx lobes. **Seeds** brown, reticulate. Coastal bush, sandy soil, river mouth; Indian Ocean Coastal Belt (Port Shepstone District, Mkambati Nature Reserve).

1b Seeds becoming slimy when moistened
5a Flowers nearly all in pairs at nodes; pedicels as long as leaves; testa cells coarsely granulate

herbacea (L.) Roxb.

Annual or perennial herb, 0.12–0.30 m high; erect, stems 4-ribbed, spreading, much branched. **Leaves** linear, 15 × 1 mm, base cuneate, apex acute, glabrous; petioles not developed. **Stipular sheath** short, truncate, with a few setae. **Flowers** usually isostylous; pedicels graceful, spreading. **Calyx**: tube ovoid, papillate or shortly hairy; lobes narrowly triangular, margins scabridulous. **Corolla** white or lilac; tube green, 2–11 mm long, cylindrical; lobes mauve with purple marks, ovate. **Stigma**: lobes filiform, 0.7–0.9 mm long. **Flowering time** Oct.–Mar. **Fruit** straw-coloured, subglobose capsule, crowned by blackish calyx lobes, papillate or shortly hairy; beak up to 1 mm long. **Seeds** brown, ± ovoid, angular. Pioneer in grassland, small watercourses, riverbanks; Indian Ocean Coastal Belt (Umtamvuna River, Port Shepstone S to Port St Johns).

5b Most of flowers solitary or few in subsessile axillary fascicles; pedicels short, some flowers subsessile; testa cells with wavy walls

capensis L.f.

Prostrate or ascending, annual herb, up to 0.2 m high or long, sometimes mat-forming. **Leaves** 7–30 × 0.5–4.5 mm, linear to narrowly elliptic, base cuneate, apex acute, margins inrolled; petioles up to 2 mm long. **Stipular sheath** ± 2 mm long, with long and short fimbriae. **Flowers** not heterostylous; peduncles obsolete or up to 2 mm long; pedicels up to 3 mm long. **Calyx**: tube ± 1 mm long, campanulate, sparsely pubescent; lobes triangular or linear-subulate, margins setulose-ciliolate. **Corolla** white, lilac, pink or reddish; tube cylindrical; lobes 4, ± 0.5 mm long. **Stigma**: lobes 0.2 mm long, adjacent to anthers. **Flowering time** Oct.–Mar. **Fruit** white, obconic, shortly pubescent capsule, beak straight, slightly raised, ± 0.3 mm high. **Seeds** brown, ellipsoid-angular. Waste places; Sub-Escarpment Savanna, Albany Thicket (Willowvale District, Uitenhage District).

OXYANTHUS DC.

Wild loquat trees; *wilde lukwartbome* (A)

Species 40; 3 in sthn Afr., LIM, M, S, KZN, EC.

speciosus DC.

Wild loquat; *wilde lukwart* (A); *umbinda* (X); *ibomvathi* (Z)

Shrub or small tree, (1)3–12 m high. **Leaves** large, up to 0.3 × 0.15 m, petiolate; domatia as hairy tufts in nerve axils. **Stipules** green, ovate, deciduous. **Flowers** in dense, axillary panicles. **Calyx** 5-lobed; lobes linear; tube campanulate. **Corolla** 5-lobed, white, glabrous; lobes narrowly elliptic, acuminate, contorted; tube long, narrowly cylindric, hairy within. **Stamens** 5, arising in corolla mouth, usually exserted; anthers linear, sessile, with curved apiculus. **Disc** annular. **Style** filiform, exserted; stigma fusiform. **Flowering time**

Nov.–Feb. **Fruit** baccate, ellipsoid, many-seeded. **Seeds** somewhat compressed, striate. Understorey of evergreen forests, mountain slopes, streambanks; Indigenous Forests (Weza, Manubi, Manina, Ngadu, Ntsubani, Qokama, Isidenge and Pirie Forests).
O. speciosus subsp. *gerrardii* (Sond.) Bridson occurs in EC as most southern distribution.

PACHYSTIGMA Hochst.

Crowned medlars, gousiekte bushes; *kroonmispel*, *gousiektebossies* (A)

Species 10, warm parts of Africa; 10 in sthn Afr., LIM, NW, M, S, FS, KZN, EC.

macrocalyx (Sond.) Robyns

Crowned medlar; *kroonmispel* (A); *intzane* (X); *isiphuthe* (Z)

Tree or shrub, 1.5–3.0 m high. **Leaves** shortly petiolate, ovate to elliptic, velvety, base tapering to rounded, apex tapering to acute. **Stipules** triangular with thread-like lobe. **Flowers** in simple, axillary cymes, condensed. **Calyx** persistent, foliaceous, 5-partite, ± 5 mm long, segments spathulate, hairy. **Corolla** 5-lobed, greenish yellow, glabrous to hairy; lobes ± 4 mm long, apex with long point; tube shortly cylindric. **Stamens** 5, arising in corolla mouth, exserted; anthers lanceolate. **Disc** annular. **Ovary** (3)5(8)-locular, one pendulous ovule per locule; style exserted, with 3–8-lobed, broadly cylindrical, stigmatic knob (pollen presenter). **Flowering time** Aug.–Feb. **Fruit** a globose drupe, crowned by persistent calyx lobes. Closed woodland, forest, riverbanks, stony hillsides; Indigenous Forests, Sub-Escarpment Savanna (Umtamvuna Nature Reserve SW to Queenstown, eastwards to Komga, Kei River Mouth).

PAVETTA L.

Bridal bushes; *bruidsbosse* (A)

Species 400, Old World tropics; 24 in sthn Afr., widespread, except N, NC, WC.

1a Calyx lobes 0.2–2.0 mm long, fused from just below middle to almost completely, free parts of lobes overlapping, apices acute or obtuse to rounded, well spaced and tooth-like (acute) or ± sinuate
2a Calyx lobes ± 2.0 mm long, fused just below middle, free parts of lobes triangular but mostly cymbiform (boat-shaped), apices acute

revoluta Hochst.

Dune bridal bush; *duin-bruidsbos* (A); *umcilikishe*, *mponjane* (X); *umhlabambaza* (Z)

Small tree or shrub, up to 8 m high. **Leaves** petiolate, ± elliptic to obovate, acute to obtuse, shiny, glabrous, dark green above, almost semi-succulent. **Domatia** on lower leaf surfaces, axils of main and secondary veins. **Bacterial nodules** round or slightly elongated, along main veins, also scattered over leaf surface. **Inflorescences** in upper leaf axils; relatively few-flowered clusters in branched corymbs. **Flowers**: corolla tube up to 10 mm long; lobes 5 mm long. **Flowering time** Nov.–Feb. **Fruit** ± 10 mm in diam., black, crowned by 4 small projections of persistent calyx lobes. Coastal bush and forests; Indian Ocean Coastal Belt, Albany Thicket, Indigenous Forests (Port Edward south-westwards to Port St Johns, Alexandria, Grahamstown and East London).

2b Calyx lobes 0.20–1.75 mm long, fused from middle to almost completely, free parts of lobes overlapping, apices obtuse to rounded, well spaced and tooth-like (acute) or ± sinuate
3a Calyx lobes 0.80–1.75 mm long, fused to middle, apices obtuse to rounded

galpinii Bremek.

Forest glandular-leaved bush; *woud-kliertjiesbos* (A)

Shrub, up to 2.5 m high. **Leaves** petiolate, large, narrowly elliptic or narrowly obovate, acute to acuminate, glossy dark green above, paler below. **Domatia** on lower leaf surfaces. **Bacterial nodules** round, scattered all over leaf surface. **Inflorescences** in upper leaf axils; relatively few-flowered clusters in branched corymbs. **Flowers**: corolla tube up to 14 mm long; lobes up to 12 mm long. **Calyx**: lobes up to 1.75 mm long, broad, persistent in fruit. **Flowering time** Dec.–Feb. Undergrowth in forest, riverbanks, dense shade; Indian Ocean Coastal Belt, Indigenous Forests (Port Edward to Port St Johns).

kotzei Bremek.

Glossy bridal bush; *blink-bruidsbos* (A)

Shrub, up to 2 m high; decumbent, young twigs glabrous. **Leaves** with petioles 5–10 mm long; lamina oblanceolate, subcoriaceous, shiny above, glabrous; lateral veins 7–9 pairs. **Domatia** covered by a tuft of hairs. **Bacterial nodules** circular, scattered over lamina. **Inflorescences** terminal and axillary on inflorescence-supporting branches; relatively few-flowered, lax corymbs. **Flowers**: corolla tube 11 mm long; lobes 7 mm long. **Calyx** glabrous, tube cup-shaped; lobes with rounded apices, up to 1.5 mm long. **Flowering time** Sept.–Feb. **Fruit** 4–6 mm in diam., crowned by remains of persistent calyx. Undergrowth in mist belt forests; Indigenous Forests (Kokstad District, Ntsikeni Forest SW to Engcobo, across Amatole Mts to Hogsback and Keiskammahoek).

3b Calyx lobes 0.2–0.5 mm long, fused almost completely, apices tooth-like (acute) or ± sinuate

inandensis Bremek.

Forest bridal bush; *bos-bruidsbos* (A); *umhleza* (X); *umdlezi* (Z)

Small to medium-sized tree, up to 4 m high; young twigs glabrous. **Leaves** with petioles 5–15 mm long; lamina elliptic, subcoriaceous, sometimes shiny above, glabrous, lateral veins 4–6 pairs. **Domatia** covered by tuft of hairs. **Bacterial nodules** circular to elliptic, scattered over lamina. **Inflorescences** terminal and axillary on inflorescence-supporting branches; relatively few-flowered, lax corymbs. **Flowers**: corolla tube up to 6.8 mm long; lobes 8 mm long. **Calyx** glabrous, tube cup-shaped, 1.0–1.2 mm long; lobes with tooth-like apices. **Flowering time** Sept.–June. **Fruit** 5–9 mm in diam., persistent calyx forming a ridge. Forest trees, shade; Indigenous Forests (Port Edward S to Port St Johns, across Amatole Mts to Hogsback, Alexandria, Grahamstown and East London).

lanceolata Eckl.

Bridal bush; *bruidsbos* (A); *umhleza* (X); *igololembuzi* (Z)

Shrub or small tree, up to 3.5 m high; young twigs glabrous. **Leaves** with petioles 2–6 mm long; lamina narrowly elliptic, subcoriaceous, sometimes shiny above, glabrous, lateral veins 3–6 pairs. **Domatia** covered by tuft of hairs. **Bacterial nodules** circular to elliptic, scattered over lamina. **Inflorescences** terminal and axillary on inflorescence-supporting branches; relatively few-flowered, lax corymbs. **Flowers**: corolla tube up to 6.5 mm long; lobes 7.5 mm long. **Calyx** glabrous, tube cup-shaped; lobes acute or with sinuate appearance. **Flowering time** Nov.–May. **Fruit** 5–7 mm in diam.; black, crowned with persistent

calyx. Riverine forests, forest margins, bush clumps; Indigenous Forests, Albany Thicket (Oribi Gorge, Engcobo, Stutterheim, Alexandria, Grahamstown and East London).

1b Calyx lobes 3.5–7.0 mm long, fused at base or far below middle, free parts of lobes with broadly or narrowly u- or v-shaped sinuses in between, apices acute
4a Calyx tube and lobes glabrous

bowkeri Harv.

Hairy coastal bridal bush; *harige kus-bruidsbos* (A)

Shrub, 0.5–2.0 m high; very similar to *P. natalensis*, but leaves velvety hairy on lower surface. **Inflorescences** in upper leaf axils; many-flowered, much-branched, umbrella-like cymes. **Flowers**: corolla tube up to 12 mm long; lobes 10 mm long. **Calyx**: tube obconic; lobes ± 3.5 mm long, triangular, cymbiform (boat-shaped) with sharp point. **Flowering time** Sept.–Feb. **Fruit** ± 5 mm in diam., crowned with persistent calyx lobes. Coastal and inland forests, riverbanks, river mouths, waterfalls; Indigenous Forests (Oribi Gorge, Port Edward, Port St Johns, Komga, East London).

capensis (Houtt.) Bremek. subsp. **capensis**

Eastern Cape bridesbush; *Oos-Kaapse bruidsbos* (A)

Small tree or shrub, up to 4 m high. **Leaves** subsessile to distinctly petiolate, obovate-acute, bases attenuate, thick-textured, almost semi-succulent, glossy green, glabrous. **Domatia** on lower leaf surface. **Bacterial nodules** along main and secondary veins, sometimes scattered over leaf surface. **Inflorescences** at ends of leafless, side branchlets; many-flowered, contracted, umbrella-like cymes, subtended by one pair of leaves. **Flowers**: corolla tube up to 15 mm long; lobes 7 mm long. **Calyx**: tube urceolate (urn-shaped); lobes linear, 4–6 mm long, cymbiform, green. **Flowering time** Oct.–Feb. **Fruit** shiny green, turning black, calyx lobes persistent. Coastal bush and forests on sand dunes and hillsides, wooded kloofs; Indigenous Forests, Sub-Escarpment Savanna, Albany Thicket (Harding S to Queenstown, Keiskammahoek, Suurberg, Uitenhage, Port Elizabeth and E to Grahamstown).

capensis (Houtt.) Bremek. subsp. **komghensis** (Bremek.) Kok

Hairy eastern Cape bridesbush; *harige Oos-Kaapse bruidsbos* (A)

Leaves thinner in texture, hairy on both surfaces or sparsely so on upper surface. Edges of bush clumps, forest margins, forests, riverine bush; Indigenous Forests, Sub-Escarpment Savanna, Albany Thicket (Oribi Gorge SW to Port Shepstone, Maclear, Kentani, Komga and Port Elizabeth).

natalensis Sond.

Natal bride's bush, coastal bridal bush; *Natal-bruidsbos*, *kus-bruidsbos* (A); *isiceza* (X)

Small tree or shrub, up to 3 m high. **Leaves** petiolate, fairly large, narrowly elliptic, acute to acuminate, glabrous. **Domatia** on lower leaf surfaces. **Bacterial nodules** elongated, arranged mostly along main vein, some round nodules also present, scattered over leaf surface. **Inflorescences** in few- to many-flowered, branched, lax, umbrella-like cymes in upper leaf axils and side branches. **Flowers**: corolla tube up to 20 mm long; lobes 10 mm long. **Calyx**: tube obconic; lobes ± 5.5 mm long, falcate with sharp point. **Flowering time** Dec., Jan. **Fruit** round, 5 mm in diam., crowned with long, slender, persistent calyx lobes. Deep shade in forests, bush clumps, riverbanks; Indigenous Forests (Port Shepstone to Port St Johns).

4b Calyx tube and lobes shortly white-hairy to -tomentose

cooperi Harv. & Sond.

Pompon bridal bush; *pompom-bruidsbos* (A); *luphehlwane* (S); *is-Anywana* (Z)

Shrub or small tree, up to 3 m high. **Leaves** petiolate, elliptic or broadly obovate-acute, bases attenuate, densely hairy, especially on venation, secondary veins many. **Domatia** covered by dense hairy pockets, in axils of main and secondary veins on lower leaf surface. **Bacterial nodules** round or slightly elongated, arranged along veins. **Inflorescences** at ends of stout, leafless, side branchlets; dense, many-flowered, unbranched rounded cymes (balls). **Flowers**: corolla tube 15 mm long; lobes 5 mm long. **Calyx**: tube urceolate; lobes linear, 7 mm long, cymbiform. **Flowering time** Oct.–Jan. **Fruit** round, 5 mm in diam., shiny black, persistent calyx lobes. Among large boulders, mountain slopes, forest margins, forest undergrowth, bush clumps; Indigenous Forests, Sub-Escarpment Savanna (Mount Frere and Bizana districts).

gracilifolia Bremek.

Narrow-leaved bridal bush, small bride's bush; s*malblaar-bruidsbos*, *klein-bruidsbos* (A); *luphehlwane* (S)

Dwarf shrub or small tree, up to 3 m high. **Leaves** small, sessile to petiolate, narrowly elliptic, elliptic or narrowly obovate, hairy or glabrous. **Domatia** absent from lower leaf surface. **Bacterial nodules** round or slightly elongated, scattered over leaf surface. **Inflorescences** at ends of stout, leafless, side branchlets; few- to many-flowered, branched, umbrella-like cymes, subtended by 2 deciduous leaves. **Flowers**: corolla tube up to 20 mm long; lobes 7 mm long. **Calyx**: tube urceolate, lobes linear, ± 5.5 mm long, cymbiform with sharp point. **Flowering time** Oct.–Feb. **Fruit** round, up to 8 mm in diam., crowned with persistent calyx. Forests, light to dense shade, rock crevices; Indian Ocean Coastal Belt, Indigenous Forests (Oribi Gorge Nature Reserve, Paddock District, Manteku in Pondoland).

PENTANISIA Harv.

Species 15, tropical Africa; 3 in sthn Afr., LIM, NW, G, M, S, FS, KZN, L, NC, EC.

Leaves linear to lanceolate, glabrous or margins ciliate, rarely hairy; inflorescences spicate in fruit

angustifolia (Hochst.) Hochst.

Perennial, erect or prostrate herb, 0.10–0.45 m high; rootstock thick, woody with several stems. **Leaf blades** variable, 20–150 × 2–10 mm, sometimes up to 50× as long as wide, base cuneate, apex acute; petioles up to 2 mm long. **Stipules** with 3–5 linear segments. **Inflorescence** a head or short spike; peduncle 90–170 mm long, elongating in fruit. **Calyx**: tube ± 1 mm long; foliaceous lobe glabrous or ciliate. **Corolla** blue or violet-blue; tube up to 16 mm long, shortly appressed-hairy; lobes up to 5 × 2 mm. **Stigma** of 2 filiform lobes. **Flowering time** Aug.–Apr. Rocky outcrops, loamy soil, recently burnt grassland, closed shrubland and woodland; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests (Port Edward SW to Queenstown, across Amatole Mts to Kentani).

Leaves orbicular to oblong, often hirsute, more rarely glabrous; inflorescences capitate

prunelloides (Klotzsch ex Eckl. & Zeyh.) Walp.

Wild verbena, broad-leaved pentanisia; *sooibrandbossie* (A); *isiCimamlilo* (Z)

Perennial, erect or prostrate herb, 0.10–0.45 m high; rootstock thick, woody with many hairy stems. **Leaf blades** up to 85 × 35 mm, base rounded to subcordate, apex acute or subobtuse; petioles obsolete. **Stipules** with ± 5 narrow segments. **Inflorescence** ± villous; peduncle 35–340 mm long, hairy. **Calyx**: tube ± 1 × 1 mm, pubescent; lobes unequal, 1 or 2 larger and foliaceous, the rest small. **Corolla** bright blue; tube up to 18 mm long, pubescent outside; lobes up to 5 × 2.5 mm. **Flowering time** July–Apr. Rocky outcrops in grassland (recently burnt), closed woodland and shrubland; Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Indigenous Forests, Sub-Escarpment Savanna (Queenstown E to Port Edward, southwards across Amatole Mts to Kentani).

PHYLOHYDRAX Puff

Species 2, tropical Africa and Madagascar; 1 in sthn Afr., NW, S, KZN, WC, EC.

carnosa (Hochst.) Puff

Perennial, succulent herb, creeping stems 0.1–0.2 m long; with ± short upright branches; rooting at nodes. **Leaves** sessile, decussate, ovate, apices obtuse. **Stipule sheath** cupular, toothed. **Flowers** heterostylous; sessile, axillary, solitary or in pairs. **Calyx** irregularly lobed, ± lacerate, persistent in fruit. **Corolla** 4-lobed, white or pinkish; lobes ± lanceolate; tube funnel-shaped. **Stamens** 4, arising in corolla mouth, exserted. **Ovary** 2-locular, 1 ovule per locule; stigmas hairy. **Flowering time** Nov.–May. **Fruit** small, indehiscent, ± ellipsoid, laterally compressed, hidden in stipular sheath. Along seashores on primary coastal dunes, salt marshes; Indian Ocean Coastal Belt, Albany Thicket, Eastern Fynbos-Renosterveld (Port St Johns, Komga, Port Alfred, Alexandria, Cape St Francis).

PSYCHOTRIA L.

Species ± 1 400, tropical regions; 2 in sthn Afr., LIM, M, S, KZN, EC.

capensis (Eckl.) Vatke

Bird-berry; *voëlbessie* (A); *umgono-gono* (X); *izele* (Z)

Shrub or small tree, 2–4 m high. **Leaves** petiolate, ± elliptic; domatia close to venation, bacterial nodules faintly dotted. **Stipules** ± ovate, caducous; colleters present. **Flowers** in terminal cymes. **Calyx** persistent; tube cup-shaped with minute teeth. **Corolla** 5-lobed, white, yellow or reddish, glabrous; lobes reflexed, shorter than tube, valvate; tube cylindric, throat hairy. **Stamens** 5, arising in middle of corolla tube, slightly exserted. **Ovary** 2-locular, 1 erect ovule per locule; style filiform; stigma bifid, lobes linear. **Flowering time** Sept.–Mar. **Fruit** ovoid drupes, ± 7 mm long, red, ageing to blackish. Coastal, inland forests, large rocks, grassland; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests, Albany Thicket (Bizana District and Port Edward, southwards to Port St Johns, across Amatole Mts to Komga, and to Suurberg, Grahamstown and East London).

PSYDRAX Gaertn.

Quar trees; *kwarbome* (A)

Species ± 100, Old World tropics; 4 in sthn Afr., B, LIM, NW, G, M, S, KZN, WC, EC.

obovata (Eckl. & Zeyh.) Bridson

Quar; *kwar* (A); *umbombemfene* (X); *umzilambuzi* (Z)

Small tree, shrub or liana, 1.5–8.0 m high. **Leaves** opposite, petiolate, elliptic to obovate, coriaceous, base abruptly attenuate, apex obtuse. **Stipules** with a truncate to triangular base with foliaceous lobe. **Flowers** in pedunculate, clearly branched, umbellate cymes. **Calyx**: tube broadly ellipsoid; limb a truncate to dentate rim. **Corolla** 5-lobed, white to yellow; lobes reflexed, obtuse to acute; tube cylindrical, with a ring of deflexed hairs inside. **Stamens** 5, arising at corolla throat. **Ovary** 2-locular, 1 ovule per locule; style slender, exserted; stigmatic knob cylindrical. **Flowering time** Oct.–Feb. **Fruit** an ellipsoid drupe. Coastal dunes, forests, mountain slopes, riverbanks and mouths; Indigenous Forests, Indian Ocean Coastal Belt, Albany Thicket, Sub-Escarpment Savanna (Port Edward S to Kei River Mouth, from Uitenhage to Port Elizabeth, Grahamstown and East London).

***RICHARDIA** L.

Species 15, tropical America; 4 naturalised in sthn Afr., LIM, NW, G, M, S, FS, KZN, EC.

brasiliensis Gomes

Mexican (tropical) richardia; *Meksikaanse* (*tropiese*) *richardia* (A)

Perennial, prostrate herb, stems ± 0.2 m long; taproot central, mat-forming, densely hirsute. **Leaves**: blades elliptic, base narrowly attenuate, apex acute; petioles up to 15 mm long; upper surface, margins and nerves beneath shortly hairy. **Stipular sheath** up to 3.5 mm long, with 3–5 fimbriae. **Inflorescences** up to 12 mm in diam.; bracts ovate-oblong, rounded at base. **Calyx**: tube up to 1.7 mm long; lobes 5 or 6, ovate-triangular. **Corolla** white tinged pink, up to 3.2 mm long; lobes 4–6. **Style** up to 4 mm long. **Flowering time** Jan., Feb. **Fruit** brown, oblong-obovoid cocci, inner face with smooth depressed area. Grassy roadsides, weed in gardens and cultivations, dune forest (Grahamstown).

humistrata (Cham. & Schltdl.) Steud.

Peelton weed

Perennial, procumbent herb, stems up to 0.2 m long; plants densely hairy with white, bulbous-based hairs. **Leaves**: blades ovate, base abruptly attenuate, apex acuminate, venation bowed, 3 secondary veins on each side of midrib arched, reaching to apex; leaf bases and lower parts of blade ± glabrous. **Stipular sheath** up to 4 mm long, with 5–7 fimbriae. **Inflorescences** up to 10 mm in diam., margins of all parts densely hairy as mentioned above; bracts ovate, acuminate at apex, obtuse at base. **Calyx**: lobes triangular. **Corolla** yellow-green. **Flowering time** Dec.–Apr. Dominant plant in overgrazed communities in grassland, an abundant ground cover in Transkei, especially in areas where extensive soil erosion occurs, could become invasive; Sub-Escarpment Grassland, Drakensberg Grassland, Eastern Fynbos-Renosterveld, Albany Thicket (Queenstown E to Mthatha, southwards to Stutterheim, Suurberg and Grahamstown).

scabra L.

Perennial, prostrate herb, stems up to 0.55 m long. **Leaves**: blades elliptic, base abruptly attenuate, apex acute; petioles up to 12 mm long; marginal areas above and nerves beneath with short rather stiff conical hairs, most of upper surface ± glabrous. **Stipular sheath** up to 4 mm long, with 3–7 fimbriae. **Inflorescences** up to 16 mm in diam.; bracts ovate, acuminate at apex, rounded at base. **Calyx**: lobes triangular to oblong-lanceolate. **Corolla** white, pale pink, mauve or apex of lobes tinged pink; tube up to 6.3 mm long; lobes ovate-triangular. **Style** 7.5 mm long. **Flowering time** Feb.? **Fruit** grey-brown cocci, inner face with smooth depressed area very narrow. Roadsides, margins between forest and grassland; Indigenous Forests, Drakensberg Grassland (Amatole Mts, Hogsback Pass).

ROTHMANNIA Thunb.

Mock gardenias; *valskatjiepierings* (A)

Species 40, tropical Africa, Asia and Seychelles; 3 in sthn Afr., B, LIM, NW, G, M, S, KZN, WC, EC.

Flowers solitary in leaf axils; flowers and fruit ± 70 mm in diam.

capensis Thunb.

Cape gardenia, common rothmannia; *valskatjiepiering* (A); *umzukuza* (X); *isiqathankobe* (Z)

Evergreen tree, 3–7(–14) m high. **Leaves** opposite or occasionally ternate, elliptic, dark, shiny green; domatia distinct on upper surface, hairy in nerve axils below; petioles short, widened. **Calyx** with cylindrical tube; lobes 5, up to 8 mm long, erect. **Corolla** 5-lobed, showy, widely campanulate, white or yellow with maroon streaks or speckles. **Stamens** 5, in corolla mouth, subexserted; anthers sessile, linear. **Flowering time** Dec.–Feb. **Fruit** globose, faintly grooved lengthwise; hard at first, softening at maturity, crowned with small remains of persistent calyx. Evergreen forest, wooded ravines, rocky hillsides; Sub-Escarpment Grassland, Indigenous Forests, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Umtamvuna Nature Reserve southwards to Keiskammahoek, from Baviaanskloof to Groendal, Wilderness and Kap River near Grahamstown).

Flowers in fascicles of 2–4 or profusely; flowers ± 35 mm and fruit ± 25 mm in diam.

globosa (Hochst.) Keay

September bells; *September klokkies* (A); *umgubhe* (X); *umphazane* (Z)

Slender, evergreen (briefly deciduous), small tree, 2–8 m high. **Leaves** opposite, lanceolate to elliptic, dark green above, paler below, venation pinkish, prominent below; hair-tuft domatia below; petioles ± 7 mm long. **Calyx** with cylindrical tube; lobes fused to ± halfway, free ends membranous, apices linear, erect. **Corolla** 5-lobed, showy, campanulate, cream-coloured with pink honeyguides. **Stamens** 5, included. **Flowering time** Aug.–Nov. **Fruit** globose, brown, hard and woody when dry, crowned with persistent calyx. Forest margins, riverbanks and river mouths, dune bush, closed woodland; Indian Ocean Coastal Belt, Indigenous Forests, Sub-Escarpment Savanna (Oribi Gorge and Lusikisiki southwards to King William's Town, Kentani and East London).

RUBIA L.

Madder

Species 60, Africa, temperate Asia, America; 3 in sthn Afr., LIM, NW, G, M, S, FS, KZN, L, WC, EC.

Leaves in whorls of 4 (very rarely 3 or 5), blades with 5 prominent, bowed veins (arched or curved)

cordifolia L.

Bruidsgras, *vaskloubossie* (A); *inTwalalubombo* (Z)

Scrambling or climbing, slender, perennial herb, reaching up to 1.5–5.0 m high; stems 4-ribbed, often with recurved prickles. **Leaves** and stipules similar; blades cordate; upper surface glabrous, margins and veins below with recurved prickles; petioles 15–60 mm long. **Flowers** in several- to many-flowered, axillary and terminal cymes. **Corolla** subcampanulate, greenish to yellow; lobes ± triangular, long-acuminate. **Flowering time** Jan.–May. **Fruit** dark purple to black, of 2 mericarps up to 3.9 mm in diam. Forest edges, clearings, scrub, coastal scrub or dune forest; Upper Karoo, Sub-Escarpment Savanna, Indigenous Forests, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld [Steynsburg, Queenstown and Port St Johns districts S to Komga, Driefontein and Skoenmakerskop (SW of Port Elizabeth)].

Leaves in whorls of 6–8(–12), blades with 3 prominent, bowed veins or only midvein distinct

petiolaris DC.

Kleefgras, *rooihoutjie* (A); *mmatsane* (?)

Scrambling or climbing, more dense and stout (than above), perennial herb, up to 3 m high; stems 4-ribbed, with strong, recurved prickles. **Leaves** and stipules similar; petioles 10–30 mm long; blades ovate-lanceolate to broadly ovate, acute at apex; upper surface glabrous, margins and veins below with conspicuous recurved prickles. **Flowers** in few- to several-flowered axillary and terminal cymes. **Corolla** campanulate, greenish; lobes ± triangular, acuminate. **Flowering time** Nov.–May. **Fruit** blackish, of 2 mericarps up to 3 mm in diam. Forest margins, scrub, riverine fringes, contour paths along beaches; Mesic Highveld Grassland, Upper Karoo, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Eastern Fynbos-Renosterveld [Lady Grey District S, from Middelburg to Wodehouse District, Amatole Mts to Mazeppa Bay, Willowmore District to Port Elizabeth, and from Driefontein (Humansdorp District) to near St Francis Bay].

***SHERARDIA** L.

Species 1, Europe, Mediterranean, West Asia; 1 naturalised in sthn Afr., S, EC.

arvensis L.

Annual herb; stems prostrate up to 0.1 m long; 4-angled, somewhat scabrid with small, deflexed prickles. **Leaves** and stipules similar, in whorls of 4–6, sessile; lower leaves obovate-cuspidate, soon withering; upper leaves oblanceolate, mucronate. **Flowers** in axillary, pedunculate heads; with up to 10 connate leaves forming an involucre, 4–10-flowered. **Calyx** 4–6-toothed, persistent in fruit. **Corolla** 4-lobed, lilac, funnel-shaped with a long, cylindrical tube. **Stamens** 4. **Ovary** 2-locular with a single ovule in each locule; style filiform, bifid, branches unequal; stigmas capitate. **Flowering time** Dec.?

Fruit of 2, 1-seeded mericarps. Along roadside, adjacent to waterfall marsh; Indigenous Forests (Amatole Mts, Gaika's Kop).

SPERMACOCE L.

Species 100, warm regions of America; 5 in sthn Afr., widespread, except FS, WC.

natalensis Hochst.

IsiNdiyandiya (X?); *inSulansula*, *uMabophe* (Z)

Perennial herb, 0.2–0.7 m high; glabrous; stems prostrate to erect, 4-angled. **Leaves** opposite or falsely whorled, shortly petiolate. **Stipular sheath** with ± filiform fimbriae. **Flowers** axillary, in dense, sessile, globose masses. **Calyx** 4-lobed, persistent; lobes triangular; tube obovoid. **Corolla** 4-lobed, white; lobes spreading, white-hairy inside; tube slender, funnel-shaped. **Stamens** 4; filaments arising at throat. **Ovary** 2-locular; 1 ovule per locule; style filiform, exserted; stigma bilobed. **Flowering time** Aug.–May. **Fruit** a 2-valved capsule dehiscing from apex downwards. Grassland, well-drained soil, rocky, loam, margins of coastal forest; Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Bizana southwards from Mthatha to Port St Johns and from Grahamstown to East London).

TARENNA Gaertn.

Butter-spoon bushes; *botterlepelbosse* (A)

Species 180, Old World tropics; 8 in sthn Afr., LIM, M, S, KZN, EC.

pavettoides (Harv.) Sim subsp. pavettoides

Narrow-leaved butterspoon; *valsbruidsbos* (A); *umuthi, kashaka* (Z)

Straggling shrub, 3–10 m high. **Leaves** petiolate, lanceolate, base attenuate, apex acuminate; dark glossy green. **Stipules** ovate, blackening when dry. **Flowers** terminal (sometimes axillary), pedunculate, cymes corymbose; 5-merous. **Calyx**: lobes oblong, concave. **Corolla** cream-coloured, bearded in throat; lobes ± oblong, contorted; tube cylindrical. **Stamens** in corolla throat, ± included. **Disc** annular. **Ovary** 2-locular, 1 or more ovules per locule; style exserted; pollen presenter narrowly spindle-shaped, bifid at apex. **Flowering time** Sept.–Dec. **Fruit** scarcely fleshy, black, tipped with remains of calyx lobes. **Seeds** spherical with a small ± circular excavation, surface reticulate. Margins, understorey of evergreen and swamp forests; Indian Ocean Coastal Belt, Indigenous Forests, Sub-Escarpment Savanna (Port Edward southwards to Port St Johns).

TRICALYSIA A.Rich. ex DC.

Tosh et al. (2009) gives the following initial statistics for the genus: species ± 108, continental Africa (± 95 spp.), Madagascar (12 spp.) and Comoros (1 sp.); the authors did not report on current distributions; 7 in sthn Afr., LIM, M, S, KZN, EC.

capensis (Meisn. ex Hochst.) Sim

Forest jackal-coffee; *bos-jakkalskoffie* (A); *umponyane* (X); *indulwane* (Z)

Shrub or small tree, 2–5 m high; multistemmed. **Leaves** lanceolate to ovate, up to 100 × 35 mm, base tapering, apex attenuate; sparsely hairy on veins; hair tuft domatia in axils of principal lateral veins below; petioles puberulous. **Stipules** joined, awn 2–5 mm long. **Flowers** axillary, in 3–5-flowered cymes, white. **Corolla**: tube cylindrical, ± 10 mm long, lobes spreading. **Calyx tube** well-developed, lobes inconspicuous; corolla throat not densely bearded; anther connective protruding in inconspicuous appendage.

Flowering time Mar.–Oct. **Fruit** drupaceous, ovoid, ± 8 mm long, crowned with remains of persistent calyx. Forests, forest margins, riverine vegetation; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests (Umtamvuna Nature Reserve, Port Edward southwards to Port St Johns, Kentani).

VANGUERIA Comm. ex Juss.

Wild medlars; *wilde mispels* (A)

Species 27, tropical Africa and Madagascar; 5 in sthn Afr., N, B, LIM, NW, G, M, S, FS, KZN, NC, EC.

infausta Burch.

Wild medlar; *wilde mispel* (A); *umvilo* (X); *umviyo* (Z)

Shrub or small tree, 2–7 m high; plants densely velvety. **Leaves** large, 40–300 × 25–180 mm, ± oblong-elliptic. **Stipules** connate at base, apex with linear appendage, villous within. **Flowers** in many-flowered, axillary, compound, dichasial cymes; bracteate. **Calyx** persistent, 5-lobed; tube saucer-shaped, lobes ovate. **Corolla** greenish yellow, hairy, 5-lobed; tube campanulate; lobes narrowly triangular, reflexed; villous in throat. **Stamens** 5, in corolla mouth; shortly exserted; filaments linear; anthers oblong. **Ovary** 5-locular, 1 pendulous ovule per locule; style terete, shortly exserted; stigma (pollen presenter) thickened, cylindric, furrowed, ± 5-lobed at apex. **Fruit** large, indehiscent, ± globose, with 5 pyrenes, crowned with circular scar from persistent calyx, edible. Closed shrubland, grassland, coastal scrub, rocky areas; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests (Oribi Gorge, southwards to Mthatha, Port St Johns and Willowvale District).

BREMEKAMP, C.E.B. 1934. A monograph of the genus *Pavetta* L. *Feddes Repertorium* 37: 1–208.
BREMEKAMP, C.E.B. 1952. The African Oldenlandieae *s.l. Verhandelingen der Koninklijke Nederlandse Akademie van Wetenschappen, afdeling Natuurkunde*, sect. 2. 48,2: 3–297.
BRIDSON, D.M. 1985. The reinstatement of *Psydrax* (Rubiaceae, subfam. Cinchonoideae tribe Vanguerieae) and a revision of the African species. *Kew Bulletin* 40: 687–725.
BRIDSON, D.M. 1986. The reinstatement of the African genus *Keetia* (Rubiaceae subfam. Cinchonoideae, tribe Vanguerieae). *Kew Bulletin* 41: 965–994.
BRIDSON, D.M. 1987. Studies in African Rubiaceae – Vanguerieae: a new circumscription of *Pyrostria* and a new subgenus, *Canthium* subgen. *Bullockia*. *Kew Bulletin* 42: 611–639.
BRIDSON, D.M. 1992. The genus *Canthium* (Rubiaceae – Vanguerieae) in tropical Africa. *Kew Bulletin* 47: 355–403.
BRIDSON, D.M. 1998. Rubiaceae. *Flora zambesiaca* 5,2: 211–377.
BRIDSON, D.M. & ROBBRECHT, E. 1985. Validation of the African genus *Hyperacanthus* E.Mey. (Rubiaceae tribe Gardenieae). *Kew Bulletin* 40: 273–286.
BRIDSON, D.M. & VERDCOURT, B. 1988. *Flora of tropical East Africa.* Rubiaceae (part 2): 415–747.
LANTZ, H. & BREMER, B. 2004. Phylogeny inferred from morphology and DNA data: characterizing well-supported groups in Vanguerieae (Rubiaceae). *Botanical Journal of Linnean Society* 146,3: 257–283.
LAUNERT, E. 1966. Rubiaceae. *Prodromus einer Flora von Südwestafrika* 115: 1–27.
LEWIS, W.H. & OLIVER, R.L. 1974. Revision of *Richardia* (Rubiaceae). *Brittonia* 26: 271–301.
MANTELL, D. 1989. *Kohautia*. *Flora zambesiaca* 5,1: 85–93.
PHILLIPS, E.P. 1924. *Burchellia bubalina*. *Flowering Plants of South Africa* 4: t. 145.
PHILLIPS, E.P. 1926. Rubiaceae. *The genera of South African flowering plants*, edn 1. *Memoirs of the Botanical Survey of South Africa* No. 10.
PHILLIPS, E.P. 1927. Description of three new South African plants. *Bothalia* 2: 368, 369.

PHILLIPS, E.P. 1951. The genera of South African flowering plants. *Memoirs of the Botanical Survey of South Africa* No. 25.
POOLEY, E. 1993. *The complete field guide to trees of Natal, Zululand & Transkei.* Natal Flora Publications Trust, Durban.
PUFF, C. 1986a. Paederieae, Anthospermeae, Rubieae. *Flora of southern Africa* 31, part 1, fascicle 2: 1–79.
PUFF, C. 1986b. *Phylohydrax* (Rubiaceae – Spermacoceae) – a new genus to accommodate the African and Madagascan '*Hydrophylax*' species. *Plant Systematics and Evolution* 154: 343–366.
PUFF, C. 1989. *Otiophora*, *Paederia*, *Anthospermum*, *Rubia* & *Galium*. *Flora zambesiaca* 5,1: 63–65, 142–149, 150–158, 193–201.
PUFF, C., ROBBRECHT, E. & RANDRIANASOLO, V. 1984. Observations on the SE African-Madagascan genus *Alberta* and its ally *Nematostylis* (Rubiaceae, Alberteae), with a survey of the species and a discussion of the taxonomic position. *Bulletin du Jardin Botanique National de Belgique* 54: 293–366.
RIDSDALE, C.E. 1975. A synopsis of the African and Madagascan Rubiaceae – Naucleeae. *Blumea* 22: 541–553.
ROBBRECHT, E. 1979. The African genus *Tricalysia* A.Rich. (Rubiaceae - Coffeeae). 1. A revision of the species of subgenus *Empogona*. *Bulletin du Jardin Botanique National de Belgique* 49: 239–360.
ROBBRECHT, E. 1988. Tropical woody Rubiaceae. *Opera Botanica Belgica* 1: 1–271.
ROBYNS, W. 1928. Monographieae Vangueriae. *Bulletin du Jardin Botanique de l'État, à Bruxelles* 11: 1–359.
SONDER, O.W. 1865. Rubiaceae. *Flora capensis* 3: 1–39.
TOSH, J., DAVIS, A.P., DESSEIN, S., DE BLOCK, P., HUYSMANS, S., FAY, M.F., SMETS, E. & ROBBRECHT, E. 2009. Phylogeny of *Tricalysia* (Rubiaceae) and its relationships with allied genera based on plastid DNA data: resurrection of the genus *Empogona*. *Annals of the Missouri Botanical Garden* 96: 194–213.
VERDCOURT, B. 1952. A revision of certain African genera of herbaceous Rubiaceae I – the genus *Pentanisia* Harvey. *Bulletin du Jardin Botanique de l'État, à Bruxelles* 22: 233–286.
VERDCOURT, B. 1953. A revision of certain African genera of herbaceous Rubiaceae V. – a revision of the genus *Pentas* Bentham together with a key to related genera. *Bulletin du Jardin Botanique de l'État, à Bruxelles* 23: 237–371.
VERDCOURT, B. 1958. Remarks on the classification of the Rubiaceae. *Bulletin Rijksplantentuin, Brussels* 28: 209–281.
VERDCOURT, B. 1976. *Flora of tropical East Africa.* Rubiaceae (part 1): 1–414.
VERDCOURT, B. 1981. Notes on African Rubiaceae. *Kew Bulletin* 36: 493–557.
VERDCOURT, B. 1987. Notes on African Rubiaceae – Vanguerieae. *Kew Bulletin* 42: 123–199.
VERDCOURT, B. 1989. Rubiaceae. *Flora zambesiaca* 5,1: 1–210.
VERDCOURT, B. & BRIDSON, D.M. 1991. *Flora of tropical East Africa.* Rubiaceae (part 3): 1–956.

RUTACEAE

(including PTAEROXYLACEAE J.-F. Leroy)

(Order Sapindales)

Compiled by J.E. Victor & S.P. Bester

1a Leaves simple; mainly shrubs and undershrubs, unarmed, often aromatic, often ericoid; rarely trees:

2a Flowers bisexual:

3a Trees with large flowers in open panicles; leaves comparatively large..... **Calodendrum**

3b Shrubs often ericoid and aromatic:

4a Style ± as long as petals, exceeding claw (if present); flowers terminal, in clusters and/or axils of leaves..... **Agathosma**

4b Style much shorter than petals, not exceeding claw (if present); flowers solitary, or few, or terminal, in reduced racemes, never in dense heads or clusters:
5a Petals transversely bearded at throat ..... **Euchaetis**
5b Petals pubescent or glabrous at throat:
6a Petals with limb concave and having lacerate margins ..... ***Ruta**
6b Petals with margins entire:
7a Staminodes situated in groove in petal, connate below ..... **Coleonema**
7b Staminodes free from petals, or absent:
8a Disc spreading-crenulate; staminodes absent or vestigial ..... **Diosma**
8b Disc obvallate (surrounding/as if by a wall); staminodes of simple shapes present..... **Acmadenia**
2b Flowers unisexual; plants polygamous or dioecious:
9a Petals absent..... **Empleurum**
9b Petals 4 or 5 ..... **Vepris**
1b Leaves compound, pinnate or (1)3–5-foliolate; mainly trees or large shrubs:
10a Leaves (1)3(5)-foliolate ..... **Vepris**
10b Leaves pinnate:
11a Flowers bisexual; stamens 8 or 10; fruit baccate; unarmed shrubs or trees ..... **Clausena**
11b Flowers unisexual; stamens 4; fruit a capsule; shrubs or trees:
12a Fruit a globose capsule; shrubs or trees armed with spines ..... **Zanthoxylum**
12b Fruit a 4-lobed capsule; shrubs or trees, unarmed ..... **Ptaeroxylon**

ACMADENIA Bartl. & H.L.Wendl.

Species 33, sthn Afr., mainly in WC, extending eastwards into EC.

[E]**kiwanensis** I.Williams

Dwarf shrub, 300–500 mm high, single-stemmed at base. **Leaves** 7–14 × 1.5–2.2 mm, simple, lanceolate to linear-lanceolate, acute, 5-ranked, alternate, simple, margins scabrid. **Flowers** solitary, terminal, pink. **Calyx** deeply divided; lobes 5, persistent. **Petals** 5, clawed, pubescent and bent inward at throat. **Stamens** 5; anthers not protruding; apical gland pointed and minute; staminodes 5, 1 mm long, erect, glandular at apex. **Disc** fleshy, green, just exceeding ovary. **Ovary** 5-carpellate, ± 0.8 mm in diam.; style short, glabrous, erect, stigma capitate. **Flowering time** Jan.–Dec. **Fruit** 5-carpellate, with horns 1.5 mm long. **Seeds** black, endosperm black-covered. Grassland; Albany Thicket (between Keiskamma and Tyolomnqa or Chalumna Rivers SW of East London, within 8 km of the coast).

obtusata (Thunb.) Bartl. & H.L.Wendl.

Dwarf shrub, single-stemmed at base, up to 500 mm high. **Leaves** opposite or alternate, simple, linear-lanceolate, acute, mucronate, shortly petiolate, glabrous. **Flowers** solitary, terminal, crowded on many short branchlets; 10 mm in diam., bright pink. **Calyx** deeply divided; lobes 5, persistent. **Petals** 5, clawed, pubescent at throat, bent inward at throat. **Stamens** 5; anthers not protruding; apical gland 4 mm long; staminodes 5, 0.5 mm long, glabrous, somewhat fusiform. **Disc** cupular, exceeding ovary, surrounding stigma at first. **Ovary** 5-carpellate, ± 1 mm in diam.; apices emarginate; style short, glabrous, erect, stigma capitate. **Flowering time** mainly Sept.–Nov. **Fruit** 5-carpellate, remaining concealed behind persistent calyx lobes, with horns 0.7 mm long. **Seeds** black, shining. Limestone and calcareous sands; Albany Thicket, Eastern Fynbos-Renosterveld [Port Elizabeth (Coega) W to Agulhas Plains].

AGATHOSMA Willd.

Species ± 140, sthn Afr., KZN, L, NC, WC, EC.

1a Bracteoles absent; flowers in terminal clusters

acutissima Dummer

Dwarf shrub, up to 0.7 m high. **Leaves** 5–10 mm long, alternate, simple, revolute and glandular at margins, linear, lanceolate or ovate-lanceolate, mucronate. **Flowers** in terminal clusters, pink; bracteoles absent. **Calyx** 5-parted; sepals 1.75–2.50 mm long. **Petals** 5, 3–4 mm long, hypogynous, imbricate. **Staminodes** opposite to petals, linear or lanceolate-linear, ± emarginate at apex, concave and puberulous above, with gland behind apex. **Disc** cupular. **Ovary** superior, of 3 almost free carpels with oblong processes; style glabrous. **Flowering time** Aug., Sept. **Fruit** 1–3-carpellate. Sandstone hills and valley bushveld ecotone, lower coastal slopes; Eastern Fynbos-Renosterveld (Hankey W to Plettenberg Bay).

apiculata G.Mey.

Knoffel buchu; *knoffelboegoe* (A)

Shrub or dwarf shrub, up to 1.2 m high. **Leaves** 2.5–8.0 mm long, alternate, spreading or reflexed, oblong- or ovate-lanceolate, ovate or sometimes cordate, acute or obtuse, with a slightly recurved awn-like mucro, glabrous, glands usually confined to margins. **Flowers** in terminal clusters, white; bracteoles absent. **Sepals** 1.5–3.0 mm long, glabrous. **Petals** 3.5–4.0 mm long, blade obovate; upper surface puberulous, ciliolate at base; claw almost as long, linear-oblong, puberulous above, ciliolate. **Staminodes** 2.5 mm long, linear, acuminate, gland-tipped, ciliolate. **Ovary** with many, long-stalked glands on upper half, with 3 carpels with rotund processes; style glabrous. **Flowering time** Apr.–Jan. **Fruit** reticulately ridged, with linear-oblong processes. On hills and flats of limestone, clays, granite and coastal sand dunes; Eastern Fynbos-Renosterveld, Albany Thicket (Riversdale E to Grahamstown, S to Port Alfred).

[E]**martiana** Sond.

Dwarf shrub, single-stemmed, up to 3 m high. **Leaves** 3–7 mm long, alternate, erect-spreading, elliptic, ovate or rotund, mucronate, slightly recurved; gland-crenulate at margins, usually with 2 or 3 rows of conspicuous glands beneath on either side of slightly raised nerve. **Flowers** in lax, terminal clusters, white with maroon dots; bracteoles absent. **Sepals** 2–3 mm long, reflexed. **Petals** 3.5–4.5 mm long, elliptic or elliptic-oblong, very obtuse, widely cuneate and puberulous above at base, with 2 rows of conspicuous glands beneath. **Staminodes** 1.5 mm long, oblong- or linear-lanceolate, obtuse or truncate, with a large gland behind apex, puberulous above or pubescent at margins. **Ovary** glabrous, 3(4)-carpellate with rotund processes; style glabrous. **Flowering time** July–Sept. Lower slopes; Eastern Fynbos-Renosterveld (Uniondale SE to Humansdorp).

[E?]**mucronulata** Sond.

Dwarf shrub, up to 1 m high. **Leaves** 3.5–6.0 mm long, alternate, erect-spreading, often slightly recurved above middle, rotund or orbicular, with a recurved mucro, slightly concave above, with large scattered glands beneath. **Flowers** in lax, terminal clusters, white with purple dots; bracteoles absent. **Sepals** 2–3 mm long, widely oblong or widely obovate, narrowing to an apiculus, widely membranous at margins, rounded and glabrous beneath. **Petals** 4.0–4.5 mm long, obovate or obovate-oblong, obtuse, cuneate at base, puberulous above near base. **Staminodes** 1.5–2.5 mm long, linear, emarginate, margins pubescent. **Ovary** 3-carpellate, with rotund hispid or glabrous processes; style glabrous. **Flowering time** Sept., Oct. Dry middle slopes; Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld (Willowmore SE to Humansdorp).

mundtii Cham. & Schltdl.
Jakkalspisbos (A)

Dwarf shrub, up to 1 m high. **Leaves** 4–10 mm long, alternate, erect-spreading, or spreading, elliptic, lanceolate-, oblanceolate- or elliptic-oblong, acute, subacute or obtuse, rounded or cuneate at base, convex and glabrous or puberulous above, revolute and with conspicuous glands at margins, glabrous or puberulous beneath, with a prominent nerve and few or no glands. **Flowers** in terminal (or axillary) clusters, white; bracteoles absent. **Sepals** 0.5–1.5 mm long, ciliolate or edged with stalked glands, slightly keeled and puberulous or glabrous beneath. **Petals** 3.0–4.5 mm long. **Staminodes** 0.75–1.75 mm long, narrowly linear, subulate, oblanceolate-, elliptic- or linear-oblong, tipped with a conical or subulate gland, furrowed above, ± ciliate, sometimes pilose above and beneath. **Ovary** 2-carpellate, with rotund processes; style glabrous. **Flowering time** June–Nov. Middle to upper dry rocky slopes; Eastern Fynbos-Renosterveld (Witteberg Mts E to Baviaanskloof N of Humansdorp).

ovalifolia Pillans

Dwarf shrub, up to 1.5 m high. **Leaves** 4–5 mm long, alternate, erect-spreading, slightly recurved at apex, elliptic, widely ovate or subrotund, obtuse or with a short blunt mucro, hispidulous beneath, with large scattered glands to margins. **Flowers** in terminal clusters, white with red dots; bracteoles absent; peduncles 4 mm long, oblong, obtuse, convex behind apex; ciliolate, puberulous on lower half, prominently glandular beneath. **Petals** 4.5 mm long, elliptic-oblong, obtuse, cuneate at base, ciliolate, puberulous above near base. **Staminodes** 2.5 mm long, linear, truncate, tipped with a rotund gland, concave above, ciliate. **Ovary** 2-carpellate, with rounded hispid processes; styles glabrous. **Flowering time** June–Oct. Rocky quartzitic upper slopes; Eastern Fynbos-Renosterveld (Swartberg SE to Kouga Mts).

[E]pilifera Schltdl.

Dwarf shrub, single-stemmed, up to 0.6 m high. **Leaves** usually 4–6 mm long, alternate, erect-spreading, with a slender, incurved mucro, gland-crenate and slightly revolute at margins, sometimes with 1–4 scattered glands and a slightly raised nerve beneath. **Flowers** in terminal clusters, white with dark dots; bracteoles absent. **Sepals** 1.5–2.0 mm long, with conspicuous glands beneath. **Petals** 2.5 mm long, elliptic, cuneate at base, puberulous beneath on lower half. **Staminodes** 0.75–1.00 mm long, linear, semi-cylindric, tipped with a conical gland, pubescent above on upper half. **Ovary** glabrous, with 1–3 carpels with rotund processes; style glabrous. **Flowering time** Sept., Oct. Upper sandstone slopes; Eastern Fynbos-Renosterveld, Albany Thicket (Baviaanskloof SE to Port Elizabeth).

[E]puberula (Steud.) Fourc.

Shrub, up to 1.5 m high. **Leaves** alternate, simple, somewhat thickened and gland-crenate at margins, gland-dotted beneath. **Flowers** in terminal clusters, white with red dots; bracteoles absent. **Calyx** 5-parted, 2.5–4.0 mm long. **Petals** 5, hypogynous, imbricate, usually gland-dotted on lower surface. **Staminodes** opposite to petals, petaloid, with gland behind apex, puberulous above. **Disc** cupular. **Ovary** superior, 3(4)-carpellate, with processes. **Flowering time** Mar.–Oct. **Fruit** a capsule, with 1–4 chambers, inner and outer walls separating at maturity. Quartzite, sandstone or gravelly sand on middle slopes; Eastern Fynbos-Renosterveld, Albany Thicket, Sub-Escarpment Savanna (Baviaanskloof, Grahamstown and to Humansdorp).

recurvifolia Sond.

Boegoe, *kanferboegoe* (A)

Dwarf shrub, single-stemmed, up to 1.5 m high. **Leaves** 2–7 mm long, alternate, recurving, elliptic, ovate or rotund, mucronate or mucronulate; with distinctly thickened pale and eglandular hyaline margins, with an inconspicuous nerve and many scattered glands beneath. **Flowers** in terminal clusters, white; bracteoles absent. **Sepals** 1.0–1.5 mm ovate or oblong, obtuse or subacute, convex and glabrous or puberulous beneath, with a callus behind the apex. **Petals** 3.5–4.5 mm long. **Staminodes** 1.5–2.5 mm long, linear or oblong, concave and puberulous above, tipped with a conical gland. **Ovary** glabrous or puberulous, with 2 carpels with rotund processes; style glabrous. **Flowering time** May–Nov. Dry middle to upper slopes and valley bushveld ecotone; Eastern Fynbos-Renosterveld, Rainshadow Valley Karoo, Albany Thicket (Swartberg Mts E to Uitenhage).

1b Bracteoles 2; flowers 1–5, clustered together in axils of leaves

[E]**kougaense** Pillans

Dwarf shrub, up to 0.2 m high. **Leaves** mostly 10 mm long, alternate, erect-spreading, lanceolate, acute, rounded at base, concave and somewhat rough above, slightly thickened at margins, ciliolate, rounded and with scattered and marginal glands beneath, with a scarcely raised nerve. **Flowers** in pairs in axils of upper leaves, white; bracteoles 2. **Sepals** 2 mm long, ovate-oblong, obtuse, hyaline at margins, ciliate, rounded and with 2 rows of glands beneath. **Petals** 5 mm long, obovate, subacute or acute, cuneate at base, with several glands beneath. **Staminodes** 1.5 mm long, linear, tipped with a conical gland, slightly concave above, ciliate. **Disc** crenulate. **Ovary** glabrous, with 1 or 2 carpels with very small, rotund processes; style glabrous. **Flowering time** July–Nov. Rocky slopes at high altitudes; Eastern Fynbos-Renosterveld, Albany Thicket (Swartberg Mts SE to Uniondale and Kouga Mts).

ovata (Thunb.) Pillans

False buchu; *basterboegoe*, *rivierboegoe*, *wildeboegoe*, *bosboegoe* (A); *uMahesakomhlope* (Z)

Much-branched shrub, usually 1–2 m high. **Leaves** mostly 5–15 mm long, opposite, ternate, alternate or scattered, sometimes crowded, erect-spreading. **Flowers** 1–4 together, axillary, white, pink or purple; bracteoles 2. **Sepals** 0.75–2.00 mm long. **Petals** 3.5 mm long, with many glands beneath. **Staminodes** 1.5–2.5 mm long, tipped with conical gland. **Disc** crenulate. **Ovary** glabrous, studded with glands, with 5 carpels with oblong, obtuse, truncate or emarginate processes; style glabrous, often recurved. **Flowering time** all year. **Fruit** capsular, with 5 carpels. Rocky sandstone and silcrete on open slopes and forest margins, in mixed grassland; Mesic Highveld Grassland, Upper Karoo, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Drakensberg Grassland, Eastern Fynbos-Renosterveld, Albany Thicket (Lady Grey S, from Collingham to Mkambati Nature Reserve, across Amatole Mts to Kei River Mouth, from Blesberg to Willowmore, Steytlerville, Port Elizabeth, Grahamstown and East London, and to Humansdorp).

[E]**unicarpellata** (Fourc.) Pillans

Much-branched shrub, ± 0.2(–0.4) m high. **Leaves** mostly 6–8 mm long, alternate, erect-spreading, ovate-lanceolate or lanceolate, acute, cuneate at base, slightly revolute and obscurely gland-crenate, glabrous, with a prominent nerve and scattered glands

beneath. **Flowers** 1–3 together in axils of upper leaves, white; bracteoles 2. **Sepals** 1.00–1.25 mm long, widely ovate, acute, ciliate, obtusely convex and shiny beneath. **Petals** 5 mm long, obovate, narrowly cuneate at base, slightly concave and pubescent above. **Staminodes** 1.25–1.50 mm long, spathulate, obtuse, ciliate, slightly concave above. **Disc** crenulate. **Ovary** glabrous, with 1 carpel with an oblong, obtuse, terete process; style glabrous. **Flowering time** Apr.–Dec. Rocky, grassy middle and lower slopes; Albany Thicket, Eastern Fynbos-Renosterveld (Kouga and Baviaanskloof Mts).

venusta (Eckl. & Zeyh.) Pillans

Boegoe, *goeieboegoe* (A)

Dwarf shrub, up to 1 m high. **Leaves** mostly 6–8 mm long, alternate, erect-spreading, obtusely serrate and thickened at margins, with a raised nerve and scattered glands beneath. **Flowers** 2–5 together clustered at ends of very short, bracteolate stipes in axils of upper leaves, pale mauve and often dark-dotted; bracteoles 2. **Sepals** 0.75 mm long, deltoid-ovate, obtuse; minutely puberulous beneath. **Petals** 3.5 mm long, tapering to an obtuse base. **Staminodes** 2.75 mm long, tipped with a large gland. **Disc** inconspicuous, crenulate. **Ovary** distinctly raised on a stout stipe, glabrous, with (2)3 or 4(5) carpels with conical-oblong glandular processes; styles glabrous, much recurved. **Flowering time** July–Feb. Grassy fynbos in seeps and rocky loams on upper and middle southern slopes; Upper Karoo, Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld, Albany Thicket, Sub-Escarpment Savanna (Sneeuberg near Graaff-Reinet, SE to Grahamstown).

1c Bracteoles 2; flowers pedunculate, > 5 together in terminal clusters
2a Ovary usually 2-carpellate

[E]**bicornuta** R.A.Dyer

Shrub or shrublet. **Leaves** 2–6 mm long, alternate, ascending, slightly recurved above middle, ovate or ovate-lanceolate, obtuse, rounded at base; glabrous, many scattered glands beneath. **Flowers** in terminal clusters; bracteoles 2. **Sepals** 0.75 mm long, oblong or deltoid-oblong, obtuse, convex beneath, glabrous. **Petals** 3.0–3.5 mm long; blade obovate, ± pubescent above on nerve, with a gland behind apex; claw about as long, cuneate-linear, ciliate. **Staminodes** 2.5 mm long, linear, obtuse, tapering to a filiform base, tipped with a gland, pilose above on lower half. **Ovary** glabrous, with 2(3) carpels with oblong processes; style glabrous. **Flowering time** May–Sept. Albany Thicket (Albany District).

blaerioides Cham. & Schltdl.

Dwarf shrub, up to 1.3 m high. **Leaves** 3–6 mm long, alternate, saddle-shaped, usually with stalked glands at margins, puberulous and eglandular beneath, with large glands on recurved margins. **Flowers** in terminal clusters, white or pink; bracteoles 2. **Petals** 2.5–3.5 mm long, obovate or obovate-elliptic, with several glands beneath. **Staminodes** 1.5–2.0 mm long, subulate or lanceolate-linear, slightly concave and pubescent above tipped with an elliptic gland. **Ovary** puberulous on apex, 2-carpellate with rotund processes. **Flowering time** Apr.–Jan. **Fruit** pubescent except on horns. Moist upper sandstone slopes; Eastern Fynbos-Renosterveld (Uniondale District on EC border).

[E]**clavisepala** R.A.Dyer

Bitterboegoe, *muishondbossie* (A)

Dwarf shrub, up to 0.7 m high. **Leaves** 3.5–5.0 mm long, alternate, erect-spreading or slightly reflexed, oblong, ovate-oblong, elliptic, ovate-elliptic or sometimes ovate,

glabrous, convex, or almost flat above, slightly recurved and with conspicuous glands at margins. **Flowers** in terminal clusters; bracteoles 2. **Calyx** glabrous or puberulous; sepals 1.5 mm long, ciliate. **Petals** 3–4 mm long, elliptic- or ovate-oblong. **Staminodes** 1.5 mm long, oblong-lanceolate, concave above, puberulous beneath, subquadrate and glabrous at base, tipped with an acute gland. **Ovary** glabrous, with 2 carpels with rotund processes; style glabrous. **Flowering time** all year. Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Grahamstown to Alexandria and Bathurst).

elegans Cham. & Schltdl.

Shrub, up to 1.5 m high. **Leaves** usually 5–10 mm long, alternate, erect-spreading, oblong, elliptic-oblong, oblong- or ovate-lanceolate, obtuse or subacute, rounded or subcordate at base, ± concave and glabrous or hispid above, slightly revolute, somewhat crenate, with marginal glands, rarely with stalked glands on margins, glabrous, or ± hispid beneath, with a slightly raised nerve. **Flowers** in terminal clusters, white; bracteoles 2. **Sepals** 1.25–1.50 mm long. **Petals** 3.0–3.5 mm long, elliptic-oblong or obovate, obtuse, tapering to a narrowly cuneate base, ciliolate or puberulous above on lower half. **Staminodes** 1.25–2.00 mm long. **Ovary** puberulous on apex, with (1)2 carpels, with rotund, setose processes; style glabrous. **Flowering time** all year. Damp mountain slopes; Eastern Fynbos-Renosterveld (Swartberg Mts SE to Tsitsikamma).

[E]stenopetala (Steud.) Steud.

Dwarf shrub, up to 1.5 m high. **Leaves** usually 8–13 mm long, alternate, crowded, erect-spreading, linear or lanceolate-linear, with a slightly raised nerve and scattered glands beneath, glabrous, or sometimes pilose at margins and beneath on nerve. **Flowers** in terminal clusters, white; bracteoles 2, minute. **Sepals** 2–3 mm long, linear-lanceolate. **Petals** 4.5–5.5 mm long; claw as long or slightly longer than blade, very slender, pilose throughout or only on lower half. **Staminodes** 4.0–5.5 mm long, with a linear blade and slightly longer pilose claw. **Ovary** glabrous, 2-carpellate, with oblong, obtuse processes; style glabrous. **Flowering time** June–Nov. Coastal limestone hills; Albany Thicket, Eastern Fynbos-Renosterveld (Suurberg SW to Humansdorp).

2b Ovary usually 3-carpellate

affinis Sond.

Shrub or dwarf shrub, up to 0.6 m high. **Leaves** 4–7 mm long, alternate, lanceolate or ovate-lanceolate, gland-dotted beneath. **Flowers** in terminal clusters, pale pink or white; bracteoles 2. **Calyx** 5-parted. **Petals** 5, 5 mm long, blade narrowly obovate; claw almost as long, slender, ciliate. **Staminodes** 4 mm long, opposite to petals, linear-oblong and villous at middle, tapering to a slender apex with a large gland, slender and ciliate below middle. **Disc** cupular. **Ovary** superior, of 3 almost free carpels, with rotund processes; style glabrous. **Flowering time** May–Oct. **Fruit** capsular, 3-carpellate. Seeps on upper sandstone slopes; Eastern Fynbos-Renosterveld (Swartberg, Kammanassie, Baviaanskloof and Kouga Mts).

capensis (L.) Dummer

Boegoe, *anysboegoe* (A)

Shrublet, varying considerably in height. **Leaves** 1.5–7.0 mm long, alternate. **Flowers** in lax, terminal clusters, or lower axillary; white, pink or purple; bracteoles 2. **Petals** 3–5 mm long, claw scarcely half as long to equal in length, linear. **Staminodes** 1.25–4.00 mm long linear, linear-lanceolate, lanceolate or lanceolate-oblong, attenuate,

gland-tipped, concave and ± pubescent above at middle, ± ciliate. **Ovary** glabrous, or pilose at apex, with (2)3 carpels having oblong or obovate pilose or glabrous processes. **Flowering time** all year. Slopes and flats on shale, granite or coastal sands, less often on acid sand; Eastern Fynbos-Renosterveld, Albany Thicket, Sub-Escarpment Savanna (from WC east to Albany).

cerefolium (Vent.) Bartl. & H.L.Wendl.

Klamboegoe, *steenbokboegoe*, *strandboegoe*, *anysboegoe* (A)

Single-stemmed shrublet, up to 1.4 m high. **Leaves** (2–)3–5(–8) mm long, alternate, usually somewhat recurved, often gland-crenate at margins, with scattered glands and raised nerve beneath, sometimes with stalked glands on margins. **Flowers** in terminal clusters, white, pink or mauve; bracteoles 2. **Petals** 3–5 mm long; claw half as long to equal in length, narrowly linear, ± ciliate. **Staminodes** 1.75–3.25 mm long, lanceolate or lanceolate-linear, acuminate, tipped with a gland, tapering towards base, concave above, ciliate. **Ovary** with 3 carpels with rotund or widely obovate glabrous or pilose processes; style glabrous. **Flowering time** Aug.–Jan. Mostly coastal lime sands and limestone flats and hills; Rainshadow Valley Karoo, Albany Thicket, Eastern Fynbos-Renosterveld [Willowmore (Gwarriepoort area) E to Joubertina and Uitenhage, and to Clarkson near Humansdorp].

[E]**gonaquensis** Eckl. & Zeyh.

Hottentotsboegoe (A)

Dwarf shrub. **Leaves** 6–9 mm long, alternate, crowded, ascending, linear, obtuse, rounded at base, concave above, with minute glands beneath, distinctly gibbous behind apex. **Flowers** in dense, terminal clusters, white; bracteoles 2. **Sepals** 2.0–2.5 mm long, linear-lanceolate. **Petals** 5–6 mm long; blade obovate, obtuse, concave above in upper half, often with a few long hairs; claw twice or almost twice as long, filiform, pilose except at base. **Staminodes** 5–6 mm long, narrowly linear in upper half, filiform in lower half, tipped with a rotund gland, pilose on middle part. **Ovary** pilose on apex, with 3 carpels with rotund glabrous processes; style glabrous. **Flowering time** all year. Mainly coastal grassland; Albany Thicket (Port Elizabeth to Alexandria).

[E]**hirta** (Lam.) Bartl. & H.L.Wendl

Boegoe (A)

Dwarf shrub, up to 0.6 m high. **Leaves** 0.4–1.5 mm long, alternate, ascending or erect-spreading, lanceolate or ovate-lanceolate, with scattered glands, sometimes tuberculate-scabrid. **Flowers** in terminal clusters and in axils of uppermost reduced leaves, white; bracteoles 2. **Sepals** 1.5–2.0 mm long, conspicuously keeled down to peduncle, sometimes scabrid and with short, glandular hairs. **Petals** 4.5–5.0 mm long; claw $^2/_3$ or almost as long as blade, linear or subfiliform, ciliate. **Staminodes** 3.5–5.0 mm long, with a gland behind apex, tapering to a slender base, villous at middle, ciliated below. **Ovary** setose at apex, or glabrous, with 3 carpels with obovate or rotund processes; style glabrous. **Flowering time** all year. Seasonal seeps and lower slopes and dunes; Eastern Fynbos-Renosterveld, Albany Thicket, Sub-Escarpment Savanna (Uitenhage to Grahamstown and Tsitsikamma Mts to Humansdorp).

[E]**peglerae** Dummer

Dwarf shrub. **Leaves** 6–14 mm long, alternate, crowded, linear, obtuse or subacute. **Flowers** in terminal clusters; bracteoles 2. **Sepals** 2.25–2.50 mm long, lanceolate.

Petals 5.0–6.5 mm long; claw $^1/_2$ to almost as long, narrowly linear, pilose. **Staminodes** 5–6 mm long, narrowly linear, tipped with a gland, filiform towards base, pilose except towards apex. **Ovary** glabrous, 3-carpellate, with rotund processes; style glabrous. **Flowering time** Sept.–May. Mixed grassland; Eastern Fynbos-Renosterveld, Albany Thicket, Sub-Escarpment Savanna (Kentani S, from Grahamstown to Peddie District and from Humansdorp to Jeffreys Bay).

serpyllacea Licht. ex Roem. & Schult

Dwarf shrub, up to 0.8 m high. **Leaves** mostly 5–10 mm long, alternate, with a prominent nerve beneath, gibbous behind apex, often ± revolute at margins, with impressed glands at margins and/or keel. **Flowers** in terminal clusters, or lower axillary, white, pink or purple; bracteoles 2. **Sepals** 1.5–3.0(–4.0) mm long. **Petals** 3.5–5.5 mm long; claw 0.5–1.5× as long as blade, narrowly linear or subfiliform. **Staminodes** 1.75–4.50 mm long, with an apical gland. **Ovary** hispid, pubescent or pilose on apex, with 3 carpels with oblong processes usually pilose on apex; style glabrous. **Flowering time** May–Dec. Coastal or inland sand or limestone flats and slopes; Eastern Fynbos-Renosterveld (WC east to Humansdorp).

CALODENDRUM Thunb.

Species 1, tropical and sthn Afr., LIM, NW, G, M, S, KZN, WC, EC; in forests.

capense (L.f.) Thunb.

Cape chestnut, wild chestnut; *wildekastaiingboom*, *wilde-kastaiing*, *Kaapse kastaiing* (A); *molalakgwedi*, *mookêlêla* (NS – Pedi); *muvhaha* (Venda); *umBhaba*, *umsitshana*, *umemezi* (X); *umBhaba*, *umemeze omhlophe* (Z)

Tree, evergreen or deciduous, 7–22 m high. **Leaves** opposite, simple, petiolate, elliptic, 60–180 × 35–90 mm, gland-dotted. **Flowers** in large, terminal, paniculate racemes, pink-dotted mauve. **Sepals** 5, somewhat fleshy, valvate, spreading when mature. **Petals** 5, linear, imbricate. **Disc** cupular. **Stamens** usually 5 fertile and equalling petals, and 5 petaloid staminodes with immersed glands; anthers with immersed apical gland. **Ovary** stalked, 5-lobed, 5-locular, ovoid, tuberculate, with stipitate glands at apex, with 2 ovules in each locule; style much longer than ovary, glandular; stigma subcapitate. **Flowering time** Sept.–Dec. **Fruit** a woody, 5-angled capsule covered with blunt protuberances; seeds large, black, shiny, containing oil. Evergreen forests; Indigenous Forests (Bizana District S, from Queenstown to Port St Johns, Bosberg Nature Reserve to Dwesa, Suurberg to East London, and to Jeffreys Bay).

CLAUSENA Burm.f.

Species ± 50, Africa to Malaysian region; 1 in sthn Afr., LIM, M, S, FS, KZN, WC, EC.

anisata (Willd.) Hook.f. ex Benth.

Horsewood, false horsewood; *basternieshout*, *lemoenhout*, *perdepis*, *stinkbas* (A); *munukha-vhaloi*, *murandela*, *mudedede* (Venda); *isitutu*, *umnukambiba*, *isifutho*, *umnukandiba*, *umtuto* (X); *umNukelambiba*, *unukambiba*, *umsanga*, *isifudu*, *umnukambiba*, *umwashampunzi* (Z)

Tree or shrub, up to 5(–10) m high. **Leaves** alternate, imparipinnate, densely gland-dotted; leaflets ovate, toothed. **Flowers** in axillary, cymose panicles, yellow or white. **Sepals** 4 or 5, small, united at base. **Petals** 4 or 5, imbricate, membranous. **Stamens** 8 or 10, inserted at base of disc; anthers elliptic, dorsifixed, introrse, without apical gland.

Ovary (2–)4- or 5-locular, with 2 ovules in each locule; style short, caducous; stigma broad, obtuse, or 2–5-lobed. **Flowering time** Aug.–Nov. **Fruit** baccate, 1- or 2-seeded. Evergreen forests; Indigenous Forests [Fort Donald (Bulembu Forest) S, from Queenstown District (Klaas Smit's River) to Mngazi River, Amatole Mts to Kentani and from Baviaanskloof to Port Elizabeth, Grahamstown and East London].

COLEONEMA Bartl. & H.L.Wendl.

Species 8, sthn Afr., concentrated in WC, also NC, EC.

aspalathoides Juss. ex Don

Shrub or dwarf shrub, up to 1.3 m high, arising from a single stem at base. **Leaves** up to 12 × 1.0–1.2 mm, linear-oblong, glabrous, alternate, apex often reflexed with a sharp point ± 1 mm long, gland-dotted, ± in 2 rows. **Flowers** solitary, terminal on very short branchlets that may be so reduced and many, that flowers appear to be axillary and/or crowded into spikes; 8–10 mm in diam., subtended by several reduced leaves. **Petals** 5, spreading, pink; throat open, claw connate with staminode. **Stamens** 5; anthers each with a minute, apical gland. **Disc** cupular, narrow, partly free, fairly level on top. **Ovary** 5-carpellate, glabrous; apices globose with an immersed gland; stigma capitate, depressed globose; style and filaments short, glabrous. **Flowering time** Apr.–Nov. **Fruit** 5-carpellate, glabrous, with 1 mm long horns. Sandstone slopes; Eastern Fynbos-Renosterveld, Albany Thicket (Kouga E to Joubertina, Kareedouw, Suuranysberge, Suurberg and to Humansdorp).

pulchellum I.Williams

Shrub or shrublet, virgate, erect, arising from a single stem at base, 0.5–1.0 m high. **Leaves** up to 12 × 1.0–1.2 mm, linear-oblong, glabrous, alternate, spreading-erect, apex often reflexed with a sharp point ± 1 mm long, glabrous, gland-dotted, ± in 2 rows, margins narrowly translucent, smooth, ciliolate. **Flowers** solitary, terminal on very short branchlets that may be so reduced and many, that flowers appear to be axillary and/or crowded into spikes; 7 mm in diam., subtended by several reduced leaves. **Petals** 5, spreading, pink; throat open, claw connate with staminode. **Stamens** 5; anthers each with a minute, apical gland. **Disc** cupular, narrow, partly free, fairly level on top. **Ovary** 5-carpellate, glabrous; apices globose with an immersed gland; stigma capitate, depressed globose; style and filaments short, glabrous. **Flowering time** Mar.–Oct. **Fruit** 5-carpellate, glabrous, with 1 mm long horns. Coastal sands; Eastern Fynbos-Renosterveld, Albany Thicket (Suurberg to Uitenhage, Port Elizabeth and Alexandria S, from Humansdorp to Skoenmakerskop).

DIOSMA L.

Species 28, sthn Afr., concentrated in WC, also NC, EC.

apetala (Dummer) I.Williams

Shrub, low, dense and spreading from a single stem at base. **Leaves** alternate, simple, sessile, with a row of gland dots along the midrib, glabrous. **Flowers** terminal, sessile, solitary or 2-nate, inconspicuous; bract 1 per flower; bracteoles 2, very much reduced. **Calyx**: lobes 5, persisting, widely spread and pale in colour, giving a 5-petalled appearance to minute flower. **Petals** 5, forming a cup before flower opens. **Stamens** 5; staminodes seen as a vestigial gland, spherical in shape ± 0.15 mm in diam., on outer edge of lobes of disc. **Disc** well developed, sinuate-crenulate, 5-lobed, fleshy, nectariferous,

standing wide open, far exceeding ovary; stigma capitate. **Ovary** 5-carpellate. **Flowering time** all year. **Fruit** 5-carpellate, horns present. Sandstone slopes, alt. above 900 m; Eastern Fynbos-Renosterveld (Swartberg and Kouga Mts).

hirsuta L.

Hottentotsboegoe (A)

Shrub, 0.5(–1.5) m high, single stemmed at base. **Leaves** linear, 12(–22) × 0.9 mm, alternate, simple, shortly petiolate, one row of gland dots to either side of midrib. **Flowers** terminal, 5 mm in diam., pedicellate, in much-reduced, compound racemes. **Calyx**: lobes 5, 1.5 mm long, persisting. **Petals** 5, 2.5 × 1.7 mm, ovate, glabrous, white, without gland dots, connate with lobes of disc, spreading. **Stamens** 5; anthers with apical gland globose, semi-immersed. **Staminodes** absent. **Disc** well developed, sinuate-crenulate, 5-lobed, fleshy, nectariferous, standing open, much longer than ovary. **Ovary** 5-carpellate, often glandular with gland persisting and immersed at apex of horn of ripe fruit. **Flowering time** mainly Sept.–Nov. **Fruit** 5-carpellate; carpels glabrous, with gland dots; horns 1.5–3.0 mm long. Sandstone and clay slopes in quartzitic soil derived from the Table Mountain geological series in stony gravelly ground, seldom in deep sandy soil; Albany Thicket, Eastern Fynbos-Renosterveld, Sub-Escarpment Savanna (Joubertina E to Baviaanskloof, Uitenhage and Port Elizabeth, S to Humansdorp).

passerinoides Steud.

Shrub, 0.3–0.4 m high, with several stems arising from stout rootstock. **Leaves** elliptic to lanceolate, alternate, simple, sessile, gland-dotted on both sides of prominent midrib and on margins. **Flowers** terminal, solitary. **Calyx**: lobes 5. **Petals** 5, white, 3 × 2.2 mm, ovate or suborbicular, obtuse, glabrous. **Stamens** 5; anthers with semi-immersed apical gland; staminodes 5, vestigial, in the form of a round swelling on disc ± 0.15 mm in diam. **Disc** well developed, sinuate-crenulate, 5-lobed, fleshy, nectariferous, standing open, much longer than ovary; stigma capitellate; style at first deflexed. **Ovary** 5-carpellate, 1 mm in diam., glabrous, becoming reddened, apices globose. **Flowering time** June–Sept. **Fruit** 5-carpellate; 6 mm long, 5 mm in diam., carpels glabrous, pitted with gland dots; horns 1.5 mm long, spreading. Silcrete slopes; Eastern Fynbos-Renosterveld, Albany Thicket [Willowmore E to Kouga Mts, Steytlerville and Baviaanskloof (between Cambria and Smitskraal)].

prama I.Williams

Shrub, up to 1.5 m high, erect, arising from a single stem at base. **Leaves** 3.0–4.5 × 1.2–1.4 mm, eciliate, glabrous, sessile, alternate, with pustulate gland dots scattered mainly towards midrib. **Flowers** terminal, solitary or 2-nate, sessile, yellow in bud, cream-coloured when open. **Calyx**: lobes 5, 1.2 × 1.2 mm, ovate or suborbicular. **Petals** 5, cream-coloured, 2.2 × 1.5 mm, oblong, glabrous, sessile, spreading. **Stamens** 5; anthers with apical gland 0.2 mm in diam.; staminodes 5, 0.2 mm long, apices reddened. **Disc** well developed, sinuate-crenulate, 5-lobed, exudes nectar, standing open, exceeding ovary. **Ovary** 5-carpellate, apex of each carpel with a large translucent gland. **Flowering time** mainly Sept.–Dec. **Fruit** 5-carpellate, 7 mm long, 6 mm in diam.; carpels reddened with horns, green, short, spreading, rather thickened at apex, sometimes recurved with apical gland now on under side. Dry sandstone slopes, mountainous country growing on hard dry stony or rocky ground; Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld, Albany Thicket (Kouga and Baviaanskloof Mts to Cockscomb and Humansdorp District).

[E]rourkei I.Williams

Shrub, 1–2 m high, erect, arising from a single stem at base. **Leaves** alternate, simple, gland-dotted, lower surface minutely pubescent up the middle. **Inflorescence** terminal with flowers aggregated into clusters of up to 12. **Flowers** up to 6 mm in diam., shortly pedicellate. **Calyx**: lobes 5, 2.0–2.3 mm long, persisting. **Petals** 5, white, oblong, sessile, spreading. **Stamens** 5; anthers with minute apical gland; staminodes 5, vestigial, a small gland towards apex of lobe. **Disc** well developed, sinuate-crenulate, 5-lobed, standing open and free of ovary, exceeding ovary; stigma capitate, globose, green; style 1.3 mm long, erect. **Ovary** 5-carpellate, apices of carpels with a gland surrounded by a few very small bristles. **Flowering time** June–Aug. **Fruit** 5-carpellate; 8 mm long, 4.5 mm in diam.; pedicel 3 mm long; horns erect, ± 2.5 mm long. Rocky sandstone slopes; Eastern Fynbos-Renosterveld, Albany Thicket [Willowmore, Kouga Mts, Baviaanskloof, (Sandvlakte), Steytlerville District (Scholtzberg) and Humansdorp District].

EMPLEURUM Sol. ex Aiton

Species 2, sthn Afr., WC, EC.

unicapsulare (L.f.) Skeels

Willow buchu, false buchu, wildebuchu; *wilgerboegoe*, *bergboegoe*, *bitterboegoe*, *olifantsboegoe*, *vleiboegoe* (A)

Erect shrub or small tree, up to 5 m high. **Leaves** alternate, simple. **Flowers** unisexual or bisexual, small, axillary, 1–3 together, bracteolate. **Calyx** subcampanulate, with thickish lobes. **Petals** absent. **Disc** absent or inconspicuous in female flowers. **Male flowers**: stamens 4, opposite calyx lobes; anthers longer than filaments, oblong, with 2 shoulders and gland between shoulders or linear-ovate, with apical gland. **Female flowers**: ovary sessile, 1-locular, with glandular appendage larger than ovary, 2-ovulate; style lateral, thick, linear-ovate, nearly as long as ovary; stigma simple. **Flowering time** mainly Apr.–Sept. **Fruit** narrowly ovate. Streambanks or seeps; Eastern Fynbos-Renosterveld, Albany Thicket (Tsitsikamma E to Uitenhage, Port Elizabeth and to Humansdorp).

EUCHAETIS Bartl. & H.L.Wendl.

Species 23, sthn Afr., concentrated in the WC, also NC, EC.

[E]cristagalli I.Williams

Shrub, 0.3–0.5 m high, arising from a single stem at ground level. **Leaves** alternate, (6–)9(–19) × 1.0–1.3 mm, linear-lanceolate, erect or on low shoots spreading. **Flowers** terminal, solitary, on much-reduced branchlets, crowded together into small groups, without any conspicuous involucral leaves; flowers subtended by 1(2), bracts and 2 bracteoles. **Petals** 5, clawed; claw transversely bearded above, ciliate on margins and narrowing below, forming a cage around reproductive parts of flower; limb white, spreading 7.5 mm in diam., and soon falling away. **Stamens** 5; anthers with apical gland globose, minute; staminodes 5, reduced to a minute vestigial gland on outer surface of disc. **Disc** level on top, surrounds and exceeds ovary, but does not close over it at first. **Ovary** 5-carpellate, 0.6 mm long, 0.6 mm in diam., glabrous; carpels with apices globose. **Flowering time** Feb., Mar. **Fruit** 5-carpellate; horns 1 mm long. Sandstone slopes; Albany Thicket, Eastern Fynbos-Renosterveld [Great Winterhoek Mts, Cockscomb, Uitenhage District (Groendal Nature Reserve)].

[E]vallis-simiae I.Williams

Shrub, up to 1.2 m high, erect, single-stemmed at base. **Leaves** petioled; alternate, elliptic, 5–8 mm long, midrib prominent with minute gland dots to either side. **Flowers** terminal, white, 1–4-nate, 7 mm in diam. **Petals** 5, 5.6 mm long, spreading, soon falling away; clawed with transverse beard above and margins ciliate, narrowing below, forming a cage around reproductive parts of flower. **Stamens** 5; anthers with minute, globose, apical gland; staminodes 5, forming a minute, vestigial, sessile gland on outer rim of disc. **Disc** level on top, surrounds and exceeds ovary, somewhat closing over it. **Ovary** 5-carpellate; apices globose and densely pubescent; stigma capitate, depressed-globose; style extending to 1.5 mm long, glabrous, erect. **Flowering time** Aug.–Oct. **Fruit** 5-carpellate, 9 mm long, 6 mm in diam., scabro-tomentose, sessile; horns 2.5 mm long, suberect, obtuse, dark green or reddened. Sandstone slopes; Eastern Fynbos-Renosterveld, Albany Thicket (Kouga and Baviaanskloof Mts).

PTAEROXYLON Eckl. & Zeyh.

Species 1, southern half of Africa, B, LIM, M, S, KZN, EC.

Research, using *rbc*L sequence data (Gadek et al. 1996), shows Ptaeroxylaceae to be a close sister family to Rutaceae. These studies are supported by, Razafimandimbison et al. (2010) placing the old Ptaeroxylaceae into the Rutaceae.

obliquum (Thunb.) Radlk.
(= *P. utile* Eckl. & Zeyh.)

Sneezewood; *nieshout* (A); *thate* (T); *mulari*, *munari*, *munukha-vhaloi* (Venda); *umthathi*, *umthote* (X); *umthathe*, *ubhaqa* (Z)

Tree or shrub, often aromatic, dioecious, with indistinct oil cavities in younger parts. **Leaves** opposite or subopposite, paripinnate; rachis slightly winged; leaflets asymmetrical, opposite; stipules absent. **Flowers** unisexual, regular, in contracted thyrses, pale yellow. **Sepals** 4, variously connate or almost free; lobes imbricate or with open aestivation. **Petals** 4, free, valvate or imbricate. **Disc** annular, intra-staminal, fleshy. **Male flowers**: stamens 4, arising at base of disc; ovary absent. **Female flowers**: staminodes rudimentary; ovary superior, arising on disc, 2-locular, with a solitary ovule in each locule; styles 2, free or connate; stigmas capitate. **Flowering time** all year. **Fruit** a compressed capsule, bilobed from apex, cordate at base, 2-locular, 2-seeded, dehiscing along an inner suture, eventually suspended from bipartite axis. **Seeds** compressed, with a terminal wing. Forests, open and closed shrubland, savanna; Sub-Escarpment Grassland, Indigenous Forests, Indian Ocean Coastal Belt, Lower Karoo, Dry Highveld Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Queenstown to Port St Johns S, from Jansenville to Komga, Wolwefontein to Uitenhage, Alexandria, Grahamstown, Bathurst and East London).

***RUTA** L.

Species 8, temperate Eurasia, 1 occasional garden escape in sthn Afr.

graveolens L.

Common rue, countryman's treacle, garden rue, herb of grace, herb of repentance, rue; *binnewortel*, *wynruit*, *wynryk* (A); *tloro* (SS)

Shrub, dwarf shrub or herb, up to 1 m high. **Leaves** alternate, pinnate to subbipinnate, up to 100 × 60 mm; rachis stout, glandular, leaflets thick-textured, elliptical or obovate,

up to 25 × 10 mm, margins entire, sometimes revolute, glabrous, densely pellucid-glandular. **Flowers** in terminal and axillary cymes on stout peduncles up to 90 mm long; petals 5, up to 8 mm long, yellow, clawed, limb concave with lacerate margins. **Flowering time** Sept.–Mar. **Fruit** a 4-lobed capsule, ± 5 mm long, dehiscing at apex, densely pellucid glandular, each lobe several seeded. **Seeds** blackish, wedge-shaped, 2 mm long, rounded at back, minutely tuberculate. Weed on waste and cultivated land; Albany Thicket, Eastern Fynbos-Renosterveld (Port Elizabeth).

VEPRIS Comm. ex A.Juss.

Species ± 30, mostly Africa to Mascarene Islands and India; 7 in sthn Afr., B, LIM, G, M, S, KZN, WC, EC.

bachmannii (Engl.) Mziray
[= *Oricia bachmannii* (Engl.) I.Verd.]

Twin-berry tree; *tweelingbessieboom* (A); *inzanyane* (X); *umozane* (Z)

Tree, 5–15 m high. **Leaves** alternate or opposite, 3–5-foliolate, usually large; leaflets narrowly ovate. **Flowers** unisexual, with occasional bisexual ones on flattened, tomentose pedicels in axillary and terminal racemes or panicles. **Calyx** shortly 4-lobed, saucer-shaped. **Petals** 4, ovate, obtuse. **Male flowers**: stamens 4, without apical gland; ovary rudimentary. **Female flowers**: stamens rudimentary; ovary of 2–4 carpels, variously free or cohering, with 2 pendulous ovules in each locule, hispid; style short, terete; stigma peltate. **Flowering time** Apr.–Dec. **Fruit** drupaceous, of 2–4 distinct carpels, 1–3 carpels aborted; seeds solitary in locules. Forests; Indigenous Forests, Sub-Escarpment Savanna, Indian Coastal Belt (Kentani District).

lanceolata (Lam.) G.Don

White ironwood; *witysterhout* (A); *muhondwa* (Venda); *umzane*, *umdlebe*, *umngamazwele* (X); *umozane*, *isutha* (Z)

Small tree or shrub, ± 5 m high. **Leaves** alternate, digitately 3-foliolate, gland-dotted; leaflets narrowly elliptic, 50–120 × 15–32 mm, glabrous; sometimes with crinkled margins, base tapering; petioles not winged. **Flowers** yellow, unisexual, in dense, terminal panicles. **Calyx** united at base, shortly 4-lobed. **Petals** (3)4, somewhat fleshy. **Male flowers**: stamens 8, without apical gland; ovary rudimentary, 2–4-angled, with 2–4 styles. **Female flowers**: staminodes 8, rudimentary; ovary 4-locular, with 2 ovules in each locule; style short; stigma peltate. **Flowering time** Dec.–Mar. **Fruit** 4-locular, with 1 or 2 ovules aborting; seeds solitary in locules. Evergreen forests, dry types of forest and at the coast, in littoral evergreen thicket on sandy soils and on dunes; Indigenous Forests, Albany Thicket (Bizana S, from Seymour to Willowvale District and from Humansdorp District to Albany and Alexandria Forest).

natalensis (Sond.) Mziray
[= *Teclea natalensis* (Sond.) Engl.]

Natal *cherry-orange, bastard white ironwood, bastard ironwood;* Natal-kersielemoen, *baster-witysterhout* (A); *umboza*, *inzanyana*, *umgani*, *umsingomzane* (X); *umozane* (Z)

Shrub or slender, heavily foliaged tree, up to 8 m high. **Leaves** alternate, 3-foliolate, gland-dotted; leaflets oblanceolate to elliptic, 50–150 × 20–40 mm, without hairs, on short petioles, margins entire, tending to roll under; petioles up to 10 mm long,

not winged. **Flowers** greenish cream-coloured, small, inconspicuous, male flowers falling early; produced in small, axillary or terminal, branched heads, or panicles, 20–30 mm long. **Calyx** usually shortly 4- or 5-lobed, cupular. **Petals** 4 or 5. **Male flowers**: stamens as many as petals, inserted at base of disc, anthers dorsifixed, cordate, without apical gland; ovary rudimentary. **Female flowers**: staminodes as many as petals; disc sometimes present; ovary sessile, globose, 1-locular, with 2 pendulous ovules; style short or cylindric; stigma peltate. **Flowering time** all year. **Fruit** drupaceous, 1-seeded. Evergreen thicket in coastal and inland forests, forest margins, and in dune bush along coast; Indigenous Forests, Sub-Escarpment Savanna, Indian Coastal Belt, Albany Thicket (Keiskammahoek to Kentani S, from Alexandria Forest to Bathurst and East London).

trichocarpa (Engl.) Mziray
(= *Teclea gerrardii* I.Verd.)

Zulu cherry-orange; *Zoeloe-kersielemoen* (A); *umboza*, *inzanyana*, *umozane* (X); *umozane* (Z)

Shrub or small, evergreen tree, up to 6 m high. **Leaves** alternate, 3-foliolate, gland-dotted; leaflets elliptic to obovate, 35–100 × 10–40 mm, sessile, base tapering, apex rounded, margins entire; petioles sometimes narrowly winged. **Flowers** unisexual in axillary, unbranched sprays. **Calyx** usually shortly 4- or 5-lobed, cupular. **Petals** 4 or 5. **Male flowers**: stamens as many as petals, inserted at base of disc, anthers dorsifixed, cordate, without apical gland; ovary rudimentary. **Female flowers**: staminodes as many as petals; disc sometimes present; ovary sessile, globose, 1-locular, with 2 pendulous ovules; style short or cylindric; stigma peltate. **Flowering time** Sept.–Nov. **Fruit** drupaceous, 1-seeded. Evergreen thicket, forests and forest margins, on littoral dunes and in dune scrub, along coast; Sub-Escarpment Savanna, Indigenous Forests, Indian Coastal Belt [Lusikisiki District (Mswakazi Forest) S to Butterworth (Cwebe Forest) and to Dwessa Forest].

ZANTHOXYLUM L.

Species ± 250, Africa to East Indies and America; 6 in sthn Afr., widespread.

capense (Thunb.) Harv.

Small knobwood; *perdepram*, *prambos* (A)

Usually a small tree, 4–7(–10) m high, monoecious or dioecious, branches spinescent; stems and thick branches usually with knobs. **Leaves** alternate, imparipinnate; 4–8 pairs of leaflets plus a terminal leaflet, 10–40 × 10–20 mm, with 4–8 pairs of lateral veins, with immersed glands. **Leaflets** with margins crenulate or serrulate. **Flowers** unisexual, in terminal panicles. **Calyx** of 4, small, ciliate sepals. **Petals** 4, free. **Male flowers**: stamens 4, opposite sepals; ovary rudimentary. **Female flowers**: staminodes 4, inserted at base of stout gynophore 0.3 mm long; ovary glabrous, with immersed glands, obliquely obovate, unilocular, with 2 apical ovules; style simple, shorter than ovary and obliquely inserted; stigma capitate. **Flowering time** Oct.–Dec. **Fruit** a subglobose capsule, gland-dotted. Evergreen forests, closed woodland and shrubland; Indigenous Forests, Sub-Escarpment Savanna, Albany Thicket (Queenstown to Port St Johns S, from Somerset East to Kentani, Baviaanskloof to Suurberg Pass, Grahamstown, Alexandria, Kenton on Sea, Port Alfred and Bathurst).

davyi (I.Verd.) P.G.Waterman

Tree, 8–30 m high; trunk armed. **Leaves** alternate, pinnate, 80–250 mm long; rachis grooved above. **Leaflets** sessile, opposite or subopposite, (2)3–6-jugate, becoming

progressively larger from basal pair upwards to apical one, terminal leaflet sometimes petiolulate or sometimes aborted; lamina 20–70 × 8–25 mm, lanceolate to narrowly elliptic, dotted with pellucid glands in marginal sinuses, margins crenulate-serrate, lateral veins many and rather closely spaced. **Inflorescence** of terminal panicles, 40–60 mm long. **Flowers** unisexual. **Calyx** of 4 small, ciliate sepals. **Petals** 4, free. **Male flowers**: pedicellate; stamens 4, opposite sepals; ovary rudimentary. **Female flowers**: staminodes rudimentary or absent; ovary obliquely obovate, with 2 sutures distinct, unilocular, with 2 apical ovules, with immersed glands; style simple, shorter than ovary and obliquely inserted; stigma capitate. **Flowering time** Oct.–Jan. **Fruit** a globose capsule, gland-dotted. Evergreen forests; Indigenous Forests [Kokstad District (Ngcelwane Forest) S to Kambi and Ntsubane Forest, from Amatole Mts (Hogsback and Kologha Forests) to King William's Town (Mkubiso Forest)].

GADEK, P.A., FERNANDO, E.S., QUINN, C.J., HOOT, S.B., TERRAZAS, T., SHEAHAN, M.C. & CHASE, M.W. 1996. Sapindales: Molecular delimitation and infraordinal groups. *American Journal of Botany* 83: 802–811.
MENDONÇA, F.A. 1963. Rutaceae. *Flora zambesiaca* 2,1: 181–209.
MZIRAY, W. 1992. Taxonomic studies in Toddalieae Hook.f. (Rutaceae) in Africa. *Symbolae Botanicae Upsaliensis* 30(1): 1–95.
PILLANS, N.S. 1950. A revision of *Agathosma*. *Journal of South African Botany* 16: 55–117.
RAZAFIMANDIMBISON, S.G., APPELHANS, M.S., RABARISON, H., HAEVERMANS, T., RAKOTONDRAFARA, A., RAKOTONANDRASANA, S.R., RATSIMBASON, M., LABAT, J.-N., KEßLER, P.J.A., SMETS, E., CRUAUD, C., COULOUX, A. & RANDRIANARIVELO-JOSIA, M. 2010. Implications of a molecular phylogenetic study of the Malagasy genus *Cedrelopsis* and its relatives (Ptaeroxylaceae). *Molecular Phylogeny and Evolution* 57: 258–265.
VERDOORN, I.C. 1926. Revision of the African Toddalieae. *Kew Bulletin* 1926: 394–415.
WHITE, F. & STYLES, B.T. 1966. Ptaeroxylaceae. *Flora zambesiaca* 2: 547–550.
WHITE, F. & STYLES, B.T. 1986. Ptaeroxylaceae. *Flora of southern Africa* 18,3: 35–37.
WILLIAMS, I. 1981a. Studies in the genera of the Diosmeae (Rutaceae): 9. A revision of the genus *Coleonema*. *Journal of South African Botany* 47: 63–102.
WILLIAMS, I. 1981b. Studies in the genera of the Diosmeae (Rutaceae): 10. A review of the genus *Euchaetis*. *Journal of South African Botany* 47: 157–193.
WILLIAMS, I. 1982a. Studies in the genera of the Diosmeae (Rutaceae): 13. A revision of the genus *Acmadenia*. *Journal of South African Botany* 48: 169–240.
WILLIAMS, I. 1982b. Studies in the genera of the Diosmeae (Rutaceae): 14. A review of the genus *Diosma* L. *Journal of South African Botany* 48: 329–407.
WILLIAMS, I. 1984. Studies in the genera of the Diosmeae (Rutaceae): 15. A review of the genus *Empleurum* Aiton. *Journal of South African Botany* 50: 425–434.

SALICACEAE

(Order Malpighiales)

Compiled by C.L. Bredenkamp & M. Struwig

Phylogenetic relationships within the Flacourtiaceae, Salicaceae and Achariaceae have been assessed with *rbc*L, *trn*L-*F* and *ndh*F DNA sequences and several groups have been identified. The first group retains the family name Salicaceae as the name has nomenclatural priority, and the second group has the conserved name Achariaceae (Soltis et al. 2000; Chase et al. 2002). *Gerrardina* is currently in its own family, the Gerrardinaceae (Alford 2005, 2006).

1a Inflorescence axillary or terminal, racemose, corymbose or paniculate or flowers fasciculate or solitary:
2a Leaves opposite..... **Pseudoscolopia**

2b Leaves alternate:
3a Petals absent ..... **Dovyalis**
3b Petals as many as sepals:
4a Stamens many, not collected in bundles opposite petals; fruit a berry ..... **Scolopia**
4b Stamens equal in number to petals or in bundles opposite petals; fruit usually a capsule:
5a Leaves with 5–9 nerves from base; flowers dioecious; seeds with a red aril ..... **Trimeria**
5b Leaves penninerved; flowers bisexual; seeds without an aril ..... **Homalium**
1b Inflorescence spicate or a catkin:
6a Terminal buds present, rarely lacking; winter buds with several clearly visible unequal outer scales; mature leaves relatively broad; catkins pendulous; floral bracts apically serrate or laciniate; male disc cup-shaped or annular; cultivated and naturalised plants ..... ***Populus**
6b Terminal buds lacking; winter buds with 1 outer scale; mature leaves narrow; catkins usually upright; floral bracts entire; male disc with 1 or 2 small distinct glands at base; indigenous, cultivated and naturalised plants ..... **Salix**

DOVYALIS E.Mey. ex Arn.

Kei-apple, wild apricot; *kei-appel*, *wilde-appelkoos* (A); *mohlono*, *morethema* (S); *umqokolo*, *umnyezana* (X); *umqokolo*, *umkhamgwinqi* (Z)

Species ± 20, widespread in Africa and extending to Sri Lanka and New Guinea; 6 in sthn Afr., LIM, NW, G, M, S, KZN, WC, EC.

1a Styles 5–7

caffra (Hook.f. & Harv.) Hook.f.

Tree or shrub, 1.8–7.6 m high, evergreen, dioecious, rarely polygamous, armed with spines. **Leaves** fascicled, young shoots alternate, petiolate; obovate or elliptic-rhomboid, blade soft to coriaceous, 3–5-veined from base, margins entire. **Male flowers** in fascicles of 5–10 flowers in groups of 3, pedicellate; calyx 2–5-lobed; corolla absent; stamens many. **Female flowers** solitary or in fascicles of 2 or 3, pedicellate; calyx 5–7-lobed, lobes elliptic-lanceolate; corolla absent; styles 5–7; ovary unilocular; placentas 5–7, each with 2 ovules. **Flowering time** Sept.–Mar. **Fruit** a subglobose berry, minutely hairy, bright yellow. Riverine bush, open woodland and forest; Sub-Escarpment Savanna, Indigenous Forests, Sub-Escarpment Grassland, Lower Karoo, Albany Thicket, Eastern Fynbos-Renosterveld (Tabankulu District S to Alexandria District).

1b Styles 2 or 3
2a Exocarp of fruit glabrous

rhamnoides (Burch. ex DC.) Burch. & Harv.

Tree or shrub, 0.6–6.1 m high, dioecious, armed with spines. **Leaves** alternate, petiolate; ovate to elliptic-ovate, blade thin and membranous, 3–5-veined from base, margins entire to crenate. **Male flowers** in fascicles of 3–6, pedicellate; calyx 4- or 5-lobed; corolla absent; stamens 15. **Female flowers** solitary or in fascicles of 2 or 3, pedicellate; calyx 5-lobed, lobes fringed with stipitate glands; corolla absent; styles 2; ovary unilocular, 2 reduced placentas, each with 1 ovule. **Flowering time** July–Nov. **Fruit** ellipsoid to ovoid berry, glabrous, orange to scarlet-red. Forest and closed woodland, riverbanks, sand or soil; Sub-Escarpment Savanna, Indigenous Forests, Indian Ocean Coastal Belt, Sub-Escarpment Grassland, Eastern Fynbos-Renosterveld, Albany Thicket, Lower Karoo, Rainshadow Valley Karoo (Port St Johns S to East London).

[E]**rotundifolia** (Thunb.) Thunb. & Harv.

Tree or shrub, 1.2–6.1 m high, dioecious, armed with spines. **Leaves** alternate, petiolate; suborbiculate to obovate; blade coriaceous, 3–5-veined from base, margins entire.

Male flowers in fascicles of 2–10, pedicellate; calyx 4–6-lobed; corolla absent; stamens 9–20. **Female flowers** solitary or in fascicles of 2 or 3, pedicellate; calyx 4–6-lobed, lobes obovate; corolla absent; styles 2; ovary 2-lobed, unilocular, placentas 2, each with 1 ovule. **Flowering time** Mar.–Oct. **Fruit** an oblong berry, glabrous, red. Sand or soil, well drained, full sun; Albany Thicket, Sub-Escarpment Savanna, Indigenous Forests, Eastern Fynbos-Renosterveld [East London (Bonza Bay) S from Uitenhage and Port Elizabeth to Port Alfred and from Humansdorp to Jeffreys Bay].

2b Exocarp of fruit hairy or papillose

lucida Sim

Tree or shrub, 0.6–12.2 m high, dioecious, rarely armed with spines. **Leaves** alternate, petiolate; obovate to rhomboid; blade soft to coriaceous, 3–5-veined from base, shining dark green above, paler and dull below, margins entire or serrate. **Male flowers** in fascicles of 3–10, pedicellate; calyx 3–5-lobed; corolla absent; stamens 11–27. **Female flowers** solitary or in fascicles of 2 or 3, pedicellate; calyx 3–5-lobed, lobes obovate; corolla absent; styles 2 or 3; ovary 2- or 3-lobed, unilocular, placentas 2 or 3, each with 1 ovule. **Flowering time** July–Oct. **Fruit** an ellipsoid berry, minutely papillose, orange to red. Forest, closed shrub- and woodland, stony soil or rocky; Sub-Escarpment Grassland, Indigenous Forests, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Albany Thicket, Eastern Fynbos-Renosterveld (Weza to Egoso S, from King William's Town to Keiskammahoek, and from Van Stadens Kloof to Albany District).

zeyheri (Sond.) Warb.

Tree or shrub, 1.5–11.0 m high, dioecious, often armed with pubescent or glabrous spines. **Leaves** alternate, petiolate; obovate to rhomboid-elliptic, blade thin and soft, sometimes coriaceous when mature, 3-veined from base, margins entire to crenate. **Male flowers** in fascicles of 3–6, pedicellate; calyx 4–6-lobed; corolla absent; stamens 24–48. **Female flowers** solitary, pedicellate; calyx 4–7-lobed, lobes lanceolate-obovate; corolla absent; styles 2 or 3; ovary 2- or 3-lobed, almost completely 2- or 3-locular, placentas 2 or 3, each with 1 ovule. **Flowering time** Sept.–Jan. **Fruit** oblong berry, densely and shortly hairy, orange to red. Stony soil or rocky; Sub-Escarpment Savanna, Albany Thicket, Dry Highveld Grassland, Drakensberg Grassland, Eastern Fynbos-Renosterveld, Indigenous Forests (Mqanduli District S, from Somerset East to Komga, and from Suurberg to Peddie District).

HOMALIUM Jacq.

Small-leaved brown ironwood; *fynblaar-bruinysterhout* (A); *ikomanci* (X); *umkhakhasi* (Z)

Species ± 180, cosmopolitan, tropical and subtropical; 3 in sthn Afr., N, LIM, M, S, KZN, EC.

Leaves broadly elliptic; capsule 1-seeded

dentatum (Harv.) Warb.

Tree, 6–30 m high. **Leaves** alternate, petiolate; broadly elliptic, margins crenate-serrate. **Inflorescence** axillary and terminal panicle. **Flowers** bisexual. **Calyx** turbinate; sepals 6–8, narrowly elliptic. **Petals** 6–8, elliptic, alternating with sepals. **Stamens** 6–8, solitary or in fascicles of 2, 3 or more, alternating with glands adnate to base of sepals, terete; anthers small, didymous. **Ovary** narrowly conical, semi-superior, 1-locular, 2–5 parietal placentas; styles 3 or 4; stigmas simple. **Flowering time** Oct.–May. **Fruit**

a leathery capsule, 1-seeded, opening at apex by 2–5 valves. Forest, bare rock; Sub-Escarpment Savanna, Sub-Escarpment Grassland, Indigenous Forests, Indian Ocean Coastal Belt, Eastern Fynbos-Renosterveld, Albany Thicket (Flagstaff District S to Suurberg in Greater Addo Elephant National Park).

Leaves elliptic to broadly elliptic; capsule few-seeded

rufescens Benth.

Tree, 3–6 m high. **Leaves** alternate, petiolate; elliptic to broadly elliptic, margins entire or irregularly crenate-serrate. **Inflorescence** axillary, terminal panicle. **Flowers** bisexual. **Calyx** turbinate; sepals 8 or 9, subulate, shorter than petals. **Petals** 8 or 9, elliptic-spathulate, margins white-ciliate, alternating with sepals. **Stamens** 8 or 9, terete; anthers transversely elliptic. **Ovary** cone-shaped, semi-superior, 1-locular, 2–5 parietal placentas; styles 4 or 5; stigmas simple. **Flowering time** July–Jan. **Fruit** a leathery capsule, few-seeded, opening at apex by 2–5 valves. Stony soil or rocky shale; Drakensberg Grassland, Sub-Escarpment Savanna, Indigenous Forests, Indian Ocean Coastal Belt, Albany Thicket (Komga S to East London).

*POPULUS L.

Grey/match/Lombardy poplar; *vaalpopulier*, *Italiaanse/vuurhoutjiepopulier* (A)

Species ± 40, confined to northern temperate and subtropical regions apart from 1 in East Africa; a few have been widely cultivated in sthn Afr., principally for wood pulp, matches and boxes; 4 naturalised in sthn Afr., spreading by suckering.

Male flowers only

×canescens (Aiton) Sm.

Tree, 6–20 m high, terminal buds present; winter buds with several unequal outer scales; suckering freely. **Leaves** dark green and shiny above, grey- or white-woolly to green and smooth beneath; triangular or ovate, dentate. **Inflorescences** pendulous, odourless catkins, appearing before leaves. **Flowers** unisexual, anemophilous; borne in axil of a serrate or laciniate bract; perianth reduced to a cup-like disc. **Male flowers** reddish, with 4–30 or more stamens; filaments free; anthers 2-thecous, oblong to ovate, red. **Female flowers** none. **Flowering time** Sept.–Nov. **Fruit** none. Marshy areas, river valleys; origin Europe and Asia, invasive status: transformer, declared invader (Category 2); Mesic Highveld Grassland, Dry Highveld Grassland, Drakensberg Grassland, Albany Thicket (Lady Grey S, from Steynsburg to Lady Frere and Fort Beaufort to Port Elizabeth).

nigra L.

Tree, 3–30 m high, terminal buds present; winter buds with several unequal outer scales; habitat narrowly columnar with erect branches. **Leaves** alternate; deltoid to broadly rhombic, dentate; petioles flattened. **Inflorescences** pendulous, odourless catkins, appearing before leaves. **Flowers** unisexual, anemophilous; borne in axil of a serrate or laciniate bract; perianth reduced to a cup-like disc. **Male flowers** with 4–30 or more stamens; filaments free; anthers 2-thecous, oblong to ovate, red. **Female flowers** none. **Flowering time** Sept.–Nov. **Fruit** none. Origin Europe and Asia, invasive status: potential transformer, proposed declared invader; Mesic Highveld Grassland or Drakensberg Grassland (Jamestown).

Both male and female flowers

deltoides Marshall

Tree, 2–10 m high, terminal buds present; winter buds with several unequal outer scales. **Leaves** alternate; broadly ovate-triangular, margins coarsely toothed and fringed with hairs, glands at junction of petiole and blade. **Inflorescences** pendulous, odourless catkins, appearing before leaves. **Flowers** unisexual, anemophilous; borne in axil of a serrate or laciniate bract; perianth reduced to a cup-like disc. **Male flowers** with 4–30 or more stamens; filaments free; anthers 2-thecous, oblong to ovate, red. **Female flowers** ovary sessile or subsessile, 1-locular; ovules many; style very short, 2–4-branched. **Fruit** a 2–4-valved capsule. Origin N America, invasive status: potential transformer, proposed declared invader; Mesic Highveld Grassland or Drakensberg Grassland (Jamestown).

PSEUDOSCOLOPIA Gilg

Mock red pear; *vals-rooipeer* (A)

Monotypic, confined to sthn Afr., N, KZN, WC, EC.

polyantha Gilg

Tree or shrub, 2–6 m high. **Leaves** opposite, petiolate; narrowly elliptic to elliptic, margins serrate with cartilaginous teeth or nearly entire. **Inflorescence** a lax, axillary cyme. **Flowers** bisexual. **Sepals** 4, elliptic, valvate in bud, persistent. **Petals** 4, subsimilar to sepals. **Stamens** many; filaments free; anthers arcuate. **Ovary** superior, ovoid-subglobose, 1-locular, 2 or 3 parietal placentas, 1 ovule on each placenta, pubescent; style terete, 2- or 3-fid at apex. **Flowering time** all year. **Fruit** 2- or 3-valved capsule, ovoid, with persistent style. Riverside, stony soil or rocky, sand and gravel or humus-rich soil, sandstone, partial shade; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indigenous Forests, Indian Ocean Coastal Belt [Bizana District S to Lusikisiki District (Ntsubane Forest), Port St Johns and Mkambati Nature Reserve].

SALIX L.

Weeping/crack/brittle/small-leaved/silver/flute willow; *kleinblaar-/silwer-/fluitjies-/treurwilger* (A); *mogokare* (S); *umngcunube* (X); *umnyezane* (Z)

Species ± 400, mostly in temperate parts of the northern hemisphere; 1 indigenous (with 5 subspecies) and 4 naturalised in sthn Afr.

***babylonica** L.

Tree, 4.5–18.0 m high, terminal buds lacking, winter buds with 1 outer scale; branchlets slender, hanging vertically, almost to ground. **Leaves** alternate, petiolate; lanceolate, margins serrulate. **Inflorescences** small catkins. **Flowers** unisexual, entomophilous; borne in axil of an entire bract, 1 or 2 small nectariferous glands at base. **Female flowers** single ovary, composed of 2 carpels, sessile or stipitate; ovules 4–8, arranged on 2 placentas; style short, 2 short stigmas. **Flowering time** Aug.–Oct. **Fruit** a sessile capsule, dehiscing by 2 recurving valves. Grassland and closed shrubland, along rivers and streams; origin Asia, invasive status: transformer, declared invader (Category 2); Upper Karoo, Dry Highveld Grassland, Sub-Escarpment Grassland, Albany Thicket, Eastern Fynbos-Renosterveld, Rainshadow Valley Karoo (Burgersdorp E to Lady Grey S to Queenstown and Baviaanskloof).

caprea L.

Pussy willow, florist's willow, goat willow, sallow

Bushy, deciduous shrub to small tree, 3–6 m high. **Leaves** lanceolate to elliptic or obovate, 70–120 mm long, dark green above, grey and felted below, dull yellow in winter. **Inflorescences**: male catkins plump and silky, 25–50 mm long, freely produced on felty greyish stems before leaf-set. **Gynoecia** hairy. **Flowering time** early spring. Occurring in various soil types, moisture-loving, potential invader; Upper Karoo (Middelburg District, Grootfontein).

***fragilis** L.

Tree, 1–6 m high, terminal buds lacking, winter buds with one outer scale. **Leaves** alternate, petiolate, margins coarsely serrated, two glands at base of blade. **Inflorescences** dense, cylindrical catkins. **Flowers** unisexual, shortly stalked, entomophilous; borne in axil of an entire bract, with 1 or 2 small, nectariferous glands at base. **Female flowers** single ovary, composed of 2 carpels, sessile or stipitate; ovules 4–8, on 2 placentas; style short, 2 short stigmas. **Flowering time** Sept., Oct. **Fruit** a shortly stalked capsule, dehiscing by 2 recurving valves. Origin W Europe and Asia, invasive status: transformer, declared invader (Category 2); Mesic Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland, Dry Highveld Grassland, Upper Karoo [Lady Grey District (Joubertspas) to Ramatseliso's Gate and Naude's Neck, and S to Henning District].

mucronata Thunb.

Tree or shrub, 1–3 m high, terminal buds lacking, winter buds with one outer scale. **Leaves** alternate, petiolate, short, reddish; lanceolate, tapering to base and apex, margins finely serrate or entire. **Inflorescences** spikes. **Flowers** unisexual, entomophilous. **Male flowers** coloured yellowish by stamens, dense, 2 stamens. **Female flowers** greenish, urn-shaped, single ovary, composed of 2 carpels, sessile or stipitate; ovules 4–8, arranged on 2 placentas; style short, 2 short stigmas. **Flowering time** July–Dec. **Fruit** a small capsule, dehiscing by 2 recurving valves. Stony soil or rocky, loam, sand, sandstone, moist, full sun; Upper Karoo, Mesic Highveld Grassland, Sub-Escarpment Grassland, Indigenous Forests, Sub-Escarpment Savanna, Dry Highveld Grassland, Albany Thicket, Rainshadow Valley Karoo, Lower Karoo (Aliwal North to Lady Grey S, from Middelburg to Kei River Mouth and from Joubertina to East London).

Two subspecies in EC:

S. mucronata Thunb. subsp. **mucronata**
[= *S. capensis* Thunb., *S. gariepina* Burch., *S. mucronata* Thunb. subsp. *capensis* (Thunb.) Immelman]
Small-leaved willow; *kleinblaarwilger* (A); *moluoane* (SS); *umngcunube* (X)

S. mucronata Thunb. subsp. **hirsuta** (Thunb.) Immelman
(= *S. hirsuta* Thunb.)
Silver willow; *silwerwilger* (A)

SCOLOPIA Schreb.

Kei red pear, thorn pear; *kei-rooipeer*, *doringpeer* (A); *umnguni*, *umnqanqa*, *iqumza* (X); *ingqumuza*, *umahlambahlale* (Z)

Species ± 37, Africa, Madagascar, Comoros, Mascarenes, Malaysia and Australia; 5 in sthn Afr., widespread.

1a Flowers solitary or fasciculate

flanaganii (Bolus) Sim

Tree or shrub, up to 5 m high, armed with slender spines. **Leaves** alternate, petiolate; elliptic, margins serrulate or entire in lower $^1/_3$; stipules minute, caducous. **Flowers** bisexual, solitary or fasciculate in leaf axils. **Receptacles** funnel-shaped. **Sepals** 4–6. **Petals** 4–6, caducous, alternating with sepals. **Disc** fleshy. **Stamens** 10–20. **Ovary** superior, 1-locular, few ovules on 2–5 parietal placentas; style simple, longish; stigma obscurely 2–4-lobed. **Fruit** a fleshy berry, remains of sepals, petals and stamens at base and style at apex. Forest and closed woodland; Sub-Escarpment Grassland, Drakensberg Grassland, Indigenous Forests, Sub-Escarpment Savanna (Ugie to Ntsubane S, from Fort Cunynghame Forest, Engcobo District).

1b Flowers racemose
2a Leaves elliptic or ovate

mundii (Eckl. & Zeyh.) Warb.

Tree or shrub, 1.2–16.0 m high, armed or unarmed. **Leaves** alternate, petiolate; elliptic or ovate, margins serrate or serrulate; dark green and shiny above, paler below; caducous. **Flowers** bisexual, racemes. **Receptacles** funnel-shaped. **Sepals** 4 or 5. **Petals** when present, deltoid. **Disc** small, orange, fleshy lobes. **Stamens** many. **Ovary** superior, 1-locular, few ovules on 2–5 parietal placentas; style sulcate; stigma bilobed with each lobe again faintly bilobed. **Flowering time** all year. **Fruit** a fleshy berry with persistent style. Forest, closed woodland, grassland; Indigenous Forests, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket, Lower Karoo [Mount Frere to Tabankulu Forest S, from Queenstown to Baziya Forest, Hogsback to Willowvale, from Steytlerville to Fort Grey Forest Reserve, and to Tsitsikamma (Koopmans Bosch)].

2b Leaves narrowly to broadly obovate, sometimes elliptic or ovate

zeyheri (Nees) Harv.

Tree or shrub, up to 13 m high, armed or unarmed. **Leaves** alternate, petiolate; elliptic, ovate or obovate, margins entire or crenate-serrate, teeth usually in upper $^1/_2$; dull green above, paler below, upper surface frequently covered with a thin, flaky, waxy covering, often bright pink when young. **Flowers** bisexual, axillary racemes. **Receptacles** funnel-shaped. **Sepals** 5 or 6. **Petals** when present, narrowly elliptic. **Disc** fleshy, densely villous. **Stamens** many. **Ovary** superior, 1-locular, ovules 4; style simple; stigma bifid, subsessile. **Flowering time** all year. **Fruit** a fleshy berry, style persistent. Forests, closed woodland, closed shrubland, bare rock, stony soil or rocky, sand, loam or humus-rich soil, shale, partial shade, well drained; Drakensberg Grassland, Sub-Escarpment Grassland, Indigenous Forests, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Albany Thicket, Eastern Fynbos-Renosterveld, Lower Karoo (Maclear District S, from Queenstown to Nyameni River Mouth, Fort Beaufort to Kentani and from Suurberg Pass to East London).

TRIMERIA Harv.

Small-leaved wild mulberry; *fynblaar-wildemoerbei* (A); *igqabela*, *ikomanci* (X); *idlebendlova* (Z)

Species 5, Africa; 3 in tropical East Africa and Zimbabwe; 2 in sthn Afr., LIM, M, S, KZN, WC, EC.

SALICACEAE

Sepals and petals 4- or 5-merous

grandifolia (Hochst.) Warb.

Tree, 3–10 m high, dioecious. **Leaves** alternate, simple, petiolate; circular or broadly obovate, margins serrate, 5–7-nerved from base; stipules sometimes foliose, caducous. **Flowers** unisexual. **Male flowers** in panicle, sepals and petals 4 or 5, marginal disc glands opposite each sepal; stamens 9–16, inserted in threes or fours alternating with disc glands; anthers small, subglobose. **Female flowers** spicate, sepals and petals 4; disc or marginal scale-like glands; styles 3, short. **Flowering time** Sept.–Apr. **Fruit** a dry, 3-valved capsule. **Seed** with red aril. Stony soil or rocky, loam, sand, clay, humus-rich soils, sandstone, partial shade, moist; Indigenous Forests, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Drakensberg Grassland, Indian Ocean Coastal Belt, Eastern Fynbos-Renosterveld, Albany Thicket, Lower Karoo, Rainshadow Valley Karoo (Kokstad S, from Elliot to Mkambati Nature Reserve, Hogsback Forest to Qora River Mouth, from Humansdorp District to Storms River Forest, and to Keurboomsrivier).

Sepals and petals trimerous

trinervis Harv.

Tree, 0.08–5.00 m high, dioecious. **Leaves** alternate, simple, petiolate; elliptic or obovate, margins serrate-callose, 3(–5)-nerved from base; stipules sometimes foliose, caducous. **Flowers** unisexual, spikes. **Male flowers** sessile; sepals and petals 3; stamens 9, in threes at base of petals; anthers small, subglobose; style aborted; disc glands opposite sepals, tooth-like, fleshy. **Female flowers** sessile; petals 3; disc glands as in males; styles 3, short, persistent. **Flowering time** all year. **Fruit** a dry, 3-valved capsule. **Seed** with red aril. Forest, open and closed woodland, stony soil or rocky; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Dry Highveld Grassland, Albany Thicket, Eastern Fynbos-Renosterveld, Indigenous Forests, Lower Karoo (Queenstown District to Mount Frere S, from Somerset East, Komga, Kirkwood to Fort Grey Nature Reserve, and to Humansdorp).

ALFORD, M.H. 2005. *Systematic studies in Flacourtiaceae.* Dissertation, Cornell University, Ithaca, New York.

ALFORD, M.H. 2006. Gerrardinaceae: A new family of African flowering plants unresolved among Brassicales, Huerteales, Malvales, and Sapindales. *Taxon* 55: 959–964.

CHASE, M.W., ZMARZTY, S., LLEDO, M.D., WURDACK, K.J., SWENSEN, S.M. & FAY, M.F. 2002. When in doubt, put it in Flacourtiaceae: a molecular phylogenetic analysis based on plastid *rbc*L DNA sequences. *Kew Bulletin* 57: 141–181.

KILLICK, D.J.B. 1976. Flacourtiaceae. *Flora of southern Africa* 22: 53–92.

LEISTNER, O.A. 2005. *Seed plants of southern tropical Africa: families and genera.* Southern African Botanical Diversity Network Report No. 26. SABONET, Pretoria.

MATTHEWS, M.L. & ENDRESS, P.K. 2005. Comparative floral structure and systematics in Crossomatales (Crossomataceae, Stachyuraceae, Staphyleaceae, Aphloiaceae, Geissolomataceae, Ixerbaceae, Strasburgeriaceae). *Botanical Journal of the Linnean Society* 147: 1–46.

SHIPUNOV, A.B. 2005. Systema Angiospermarum. Internet. http://herba.msu.ru/shipunov/ang (accessed 1 Apr. 2006).

SOLTIS, D.E., SOLTIS, P.S., CHASE, M.E., MORT, D.C., DIRK, C.A., ZANIS, M., SAVOLAINEN, V., HAHN, W.H., HOOT, S.B., FAY, M.F., AXTELL, M., SWENSEN, S.M., PRINCE, L.M., KRESS, W.J., NIXON, K.C. & FARRIS, J.S. 2000. Angiosperm phylogeny inferred from 18S rDNA, *rbc*L, and *atp*B sequences. *Botanical Journal of the Linnean Society* 133: 381–461.

VON BREITENBACH, J., DE WINTER, B., POYNTON, R., VAN DEN BERG, E., VAN WYK, B. & VAN WYK, E. 2001. *Pocket List of Southern African Indigenous Trees.* Briza, Pretoria.

SALVADORACEAE

(Order Brassicales)

Compiled by C.L. Bredenkamp & N. Madlokazi

AZIMA Lam.

Species 4, Africa, Madagascar, Asia; 1 in sthn Afr., N, LIM, S, KZN, WC, EC.

tetracantha Lam.

Needle bush; *spelde-doring* (A); *igcegceleya* (X); *isikhumekele* (Z)

Shrub, dwarf shrub or climber, 0.4–8.0 m high. **Leaves** opposite, green, margins entire, apex mucronate; petioles flattened. **Spines** straight, 2 in axil of each leaf, up to 3.7 mm long. **Bracts** reduced. **Calyx** campanulate, 4-lobed and slightly 2-lipped. **Petals** originate at base of ovary, projecting beyond calyx. **Stamens** 4, alternating with petals; anthers exserted. **Ovary** rudimentary, on a small disc in centre of stamens. **Flowering time** Sept.–Nov. **Fruit** globose, ± 7 mm in diam. **Seed** with cotyledons cordate, flattened, deep brown. Closed shrubland, closed woodland, thicket, forest; Sub-Escarpment Savanna, Sub-Escarpment Grassland, Indigenous Forests, Indian Ocean Coastal Belt, Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld, Albany Thicket (Mpunzi Drift S, from Queenstown to Port St Johns, Alice to Komga, from Steytlerville E to Albany District and Port Alfred).

VERDCOURT, B. 1968. *Flora of tropical East Africa*. Salvadoraceae: 1–3.
VERDOORN, I.C. 1963. Salvadoraceae. *Flora of southern Africa* 26: 129–132.
VICKERY, A.R. 1983. Salvadoraceae. *Flora zambesiaca* 7,1: 375.

SAMYDACEAE

(Order Malpighiales)

Compiled by R.H. Archer, C.L. Bredenkamp & M. Struwig

Phylogenetic relationships within the Flacourtiaceae, Salicaceae and Achariaceae have been reassessed with *rbc*L, *trn*L-*F* and *ndh*F DNA sequences and several groups have been identified. The first group retains the family name Salicaceae as the name has nomenclatural priority, and the second group has the conserved name Achariaceae (Soltis et al. 2000; Chase et al. 2002). *Casearia*, with a number of other genera not analysed with *rbc*L, belongs to a resurrected Samydaceae (Alford, pers. com.; Alford 2005).

CASEARIA Jacq.

Sword-leaf; *swaardblaar* (A); *umjuluka* (Z)

Species ± 160, cosmopolitan in tropics; 1 in sthn Afr., KZN, EC.

gladiiformis Mast.

Tree, 2.3–24.4 m high. **Leaves** alternate, petiolate; elliptic or ovate, margins entire, sometimes serrate-crenate; stipules small. **Inflorescence** an axillary fascicle. **Flowers** bisexual; sepals 5, broadly elliptic; petals absent; staminal tube united for 0.3–0.5 mm and then divided into 10 fertile stamens and 10 alternating staminodes; filaments linear; anthers ovate; ovary superior, 1-locular with few to many ovules, 3 or 4 parietal placentas; style short; stigma capitate. **Fruit** yellowish orange, ellipsoid capsule, opening by 3 or 4 valves. In forest, chiefly along the coast; Sub-Escarpment Savanna, Indigenous Forests, Indian Ocean Coastal Belt (Port St Johns S to Kentani District).

ALFORD, M.H. 2005. *Systematic studies in Flacourtiaceae.* Dissertation, Cornell University, Ithaca, New York.
CHASE, M.W., ZMARZTY, S., LLEDO, M.D., WURDACK, K.J., SWENSEN, S.M. & FAY, M.F. 2002. When in doubt, put it in *Flacourtiaceae*: a molecular phylogenetic analysis based on plastid *rbc*L DNA sequences. *Kew Bulletin* 57: 141–181.
KILLICK, D.J.B. 1976. Flacourtiaceae. *Flora of southern Africa* 22: 53–92.
LEISTNER, O.A. 2005. *Seed plants of southern tropical Africa: families and genera.* Southern African Botanical Diversity Network Report No. 26. SABONET, Pretoria.
SHIPUNOV, A.B. 2005. Systema Angiospermarum. Internet. http://herba.msu.ru/shipunov/ang (accessed on 1 Apr. 2006).
SOLTIS, D.E., SOLTIS, P.S., CHASE, M.E., MORT, D.C., DIRK, C.A., ZANIS, M., SAVOLAINEN, V., HAHN, W.H., HOOT, S.B., FAY, M.F., AXTELL, M., SWENSEN, S.M., PRINCE, L.M., KRESS, W.J., NIXON, K.C. & FARRIS, J.S. 2000. Angiosperm phylogeny inferred from 18S rDNA, *rbc*L, and *atpB* sequences. *Botanical Journal of the Linnean Society* 133: 381–461.
VON BREITENBACH, J., DE WINTER, B., POYNTON, R., VAN DEN BERG, E., VAN WYK, B. & VAN WYK, E. 2001. *Pocket List of Southern African Indigenous Trees.* Briza, Pretoria.

SANTALACEAE

(= VISCACEAE)

(Order Santalales)

Compiled by C.L. Bredenkamp & G. Germishuizen (Viscaceae)

1a Aerial, hemiparasitic, shrubs, subshrubs or herbs, unisexual, dioecious or monoecious..... **Viscum**
1b Rooted hemiparasitic plants:
2a Fruit dry or fleshy; hemiparasitic herbs or subshrubs; leaves usually small to scale-like:
3a Flowers unisexual, generally 4-merous ..... **Thesidium**
3b Flowers bisexual, generally 5-merous..... **Thesium**
2b Fruit fleshy; trees or shrubs, sometimes scandent; leaves usually well developed:
4a Leaves opposite:
5a Leaves subsessile with cordate base ..... **Rhoiacarpos**
5b Leaves shortly petiolate with cuneate base ..... **Colpoon**
4b Leaves alternate:
6a Flowers bisexual or male; fairly densely branched small trees or shrubs..... **Osyris**
6b Flowers bisexual; weak, loosely branched shrubs..... **Osyridicarpos**

COLPOON P.J.Bergius

(= *OSYRIS* sensu Goldblatt & Manning, 2000)

Cape sumach; *pruimbas* (A); *umbulunyathi* (X, Z)

Species 6 or 7, Africa to India, 2 in sthn. Afr., coastal, M, S, KZN, NC, WC, EC.

compressum P.J.Bergius

[= *Osyris compressa* (P.J.Bergius) DC. Manning & Goldblatt, 2012]

Glaucous, hemiparasitic shrub or small tree, up to 5 m high. **Leaves** mostly opposite, ovate-elliptic, cuneate at base, leathery, margins thickened. **Flowers** in delicate terminal, cymose panicles, greenish, buds 1.7–2.4 mm in diam. **Flowering time** Dec.–June. **Fruit** a red to black drupe, up to 17 × 12 mm. Coastal; Indian Ocean Coastal Belt, Albany Thicket, Eastern Fynbos-Renosterveld (from NC and WC to Tsitsikamma, along coast to Port Edward).

OSYRIDICARPOS A.DC.

Monotypic, Africa, from Ethiopia to sthn Afr., LIM, M, S, KZN, EC.

schimperianus (Hochst. ex A.Rich.) A.DC.

Climbing shrub, 1–4 m high; stems scandent with long, slender branches. **Leaves** alternate, shortly petiolate, oblong to lanceolate, 3-nerved. **Inflorescence** a terminal raceme, with small bracteoles. **Flowers** bisexual, small, green, subtended by 1 bract and 2 minute bracteoles. **Perianth**: tube cylindrical, adnate to ovary below; lobes 5, with tuft of hairs attached to back of anthers. **Stamens** 5; anthers ovoid. **Disc** obscure. **Ovary**: ovules 2 or 3, pendulous from apex of a flexuous, filiform, central placenta; style simple; stigma capitate. **Fruit** a drupe, crowned with persistent perianth lobes. Forests, river valleys and mouths, closed woodland; Indigenous Forests, Indian Ocean Coastal Belt, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Albany Thicket (uMzimkhulu District SW to Queenstown and Port St Johns, from Keiskammahoek to Kentani and southwards to Grahamstown and Kowie River).

OSYRIS L.

Tannin bushes; *looibasbosse* (A)

Species 4, throughout Africa, the Mediterranean area and S Asia; 3 in sthn Afr., N, B, LIM, NW, G, M, S, FS, KZN, L, NC, EC.

lanceolata Hochst. & Steud.

Rock tannin bush; *bergbas* (A); *morogabaloi* (T); *umbulunyathi* (X, Z)

Small tree or shrub, 1.5–4.0 m high; androdioecious. **Leaves** elliptic to oblong. **Inflorescences** with flowers occurring in 2- or 3-flowered dichasia. **Perianth** yellowish green. **Disc** ± flat, angled between stamens. **Flowering time** Oct.–Feb. **Fruit** an ellipsoid drupe, crowned with persistent perianth lobes, yellow turning red. Rocky ridges or outcrops, slopes, alt up to 3 000 m; Upper Karoo, Sub-Escarpment Grassland, Albany Thicket, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld (Oviston E to Port Edward, southwards from Middelburg to Maclear, Pearston to Grahamstown and Port Alfred, and to Tsitsikamma District).

RHOIACARPOS A.DC.

Monotypic, KZN, WC, EC.

capensis (Harv.) A.DC.

Granaatbessie (A)

Straggling shrub, up to 0.6 m high; branches 4-angled. **Leaves** opposite, stout, leathery, sessile, ± rounded or subcordate at base, midrib prominent, margins slightly inrolled. **Inflorescences** short, axillary or terminal racemes or panicles of usually 3-flowered cymules, bracteate. **Flowers** bisexual, yellow. **Perianth**: tube short, slender, obconic; lobes 5, ovate, acute, persistent, with a tuft of hairs attached to anthers. **Stamens** 5; anthers ovoid. **Disc** subconcave, with short, prominent, obtuse lobes. **Ovary** fleshy; ovules 5, pendulous from straight cylindrical placenta; style cylindric-conical; stigma 5-lobed, minute, alternating with perianth lobes. **Flowering time** Mar.–Oct. **Fruit** a red, edible, ovoid drupe. **Seed** bony. Fynbos, beach meadow, well-drained, sandy soil, calcrete, partial shade; Albany Thicket, Eastern Fynbos-Renosterveld (King William's Town to Bonza Bay and Kei River Mouth S, from Hankey E to Uitenhage, Port Elizabeth, Grahamstown and East London, and from Slang River to Jeffreys Bay).

THESIDIUM Sond.

Species 4, all in sthn Afr., WC, EC.

fragile (Thunb.) Sond.

Hemiparasitic, dioecious shrublet, 0.3–0.5 m high. **Leaves** alternate, scale-like. **Inflorescence** a slender, terminal spike of solitary, or 2- or 3-flowered, bracteolate cymules. **Flowers** unisexual. **Male flowers** hypocrateriform; perianth lobes 4 or 5; stamens 4, anthers small; ovary and style rudimentary or absent. **Female flowers** with perianth tube shortly campanulate, lobes 4(5); disc obscure; staminodes rarely present; ovules 2 or 3, pendulous from apex of a central, straight or folded, filiform placenta; style short; stigma obscurely 2- or 3-lobed. **Flowering time** all year. **Fruit** a globose, 5-ribbed nut, conspicuously reticulated; fleshy basal ring crowned by persistent perianth; endocarp crustaceous; embryo terete in centre of fleshy albumen. Sandy flats and slopes; Eastern Fynbos-Renosterveld (Port Elizabeth and Grahamstown S to Nature's Valley and Humansdorp).

THESIUM L.

Species ± 325, in temperate regions of the Old World, 2 in South America and many in Africa; over 180 in sthn Afr., widespread, particularly frequent in grassland.

Section *Imberbia*

Margins of perianth segments entire, glabrous, papillose or finely lobed; apical beard absent; anthers attached to perianth by a tuft of perianth-hairs adhering to their apices.

1a Perianth segments glabrous or fringed with minute papillae; anthers attached to perianth-segments by a tuft of hairs (subsection Subglabra*)*
2a Flowers in clusters, dense terminal spikes/racemes, or corymbose heads

commutatum Sond.

Densely branched, nearly leafless, hemiparasitic shrub, up to 0.3 m high. **Leaves** of 2 kinds, few and terete below, small, decurrent and subulate-lanceolate above, apices dark. **Inflorescences** with few flowers crowded in terminal clusters. **Bracts** ovate, hooded with inner surfaces concave. **Flowers** sessile, whitish. **Perianth**: tube absent; segments triangular, hooded. **Disc** conspicuous. **Flowering time** Sept.–Mar. Flats and slopes, mountain foothills and slopes in dry, short fynbos; Eastern Fynbos-Renosterveld, Albany Thicket (WC to Uitenhage; Kouga Mts and Van Stadens Mts).

congestum R.A.Dyer

Dwarf shrub, hemiparasite, 0.3–0.5 m high; stems deeply sulcate. **Leaves** dense near stem apices, fleshy, linear-lanceolate, up to 9 mm long. **Inflorescences** of dense, terminal, many-flowered spikes. **Bracts** slightly longer than flowers, broad, fleshy, margins microscopically serrulate. **Flowers** sessile. **Perianth**: tube up to 0.6 mm long; segments triangular. **Flowering time** Nov.? Fynbos, alt. 1 800–3 000 m; Drakensberg Grassland (Klein-Winterberg and Amatole Mts, Katberg).

ericifolium A.DC.

Heath-like, densely leafy, much-branched, hemiparasitic shrublet, up to 0.2 m high. **Leaves** linear, ± 4 mm long, keeled. **Inflorescences** many-flowered in small, dense, terminal cymose clusters. **Bracts** exceeding flowers. **Flowers** sessile, greenish. **Perianth**: tube absent; external glands obvious; segments triangular. **Disc** conspicuous. **Flowering time** Sept.–Jan. **Fruit** small, ovoid, 10-ribbed, scarcely reticulate. Dry rocky slopes in short fynbos; Eastern Fynbos-Renosterveld (WC to Willowmore, Baviaanskloof, Kouga Mts, Uitenhage and Van Stadens Mts).

euphorbioides L.

Single-stemmed, slender, hemiparasitic shrub, up to 2 m high, with angular branchlets. **Leaves** amplexicaul, imbricate, ovate to suborbicular, cordate at base, glaucous. **Inflorescences** of terminal, head-like clusters. **Bracts** large, leafy, suborbicular, coloured; enclosing cymes. **Flowers** cream-coloured to yellowish. **Perianth** with distinct external glands; segments lanceolate, hooded, with incurved margins. **Disc** inconspicuous. **Flowering time** Aug.–Jan. **Fruit** shortly stalked, subglobose, beaked; 10-ribbed, with 5 ribs prominent and 5 faint. Sandstone slopes; Eastern Fynbos-Renosterveld (Elandskloof Mts to Uitenhage).

foliosum A.DC.

Densely leafy, yellow-green, hemiparasitic shrub, 0.75–0.90 m high; stems ribbed. **Leaves** cymbiform (boat-shaped), linear in outline, up to 11 mm long, apex acute. **Inflorescences** of many-flowered, dense, terminal racemes. **Bracts** leaf-like, reaching to top of flowers. **Flowers** lemon-yellow. **Perianth** with short tube; segments 1.4 mm long, inner surface prominently hooded at apex. **Disc** absent. **Flowering time** July–Feb. **Fruit** stalked, globose, ± 5 mm long, capped by persistent perianth; 10-ribbed, reticulate between ribs. Low fynbos on sandstone slopes, mountain summits, forests; Drakensberg Grassland, Eastern Fynbos-Renosterveld, Indigenous Forests, Albany Thicket (Hogsback, Tsitsikamma, Baviaanskloof, Humansdorp, Port Elizabeth, Grahamstown).

glomeruliflorum Sond.

Low, hemiparasitic shrublet, up to 0.4 m high; stems angular to winged. **Leaves** cymbiform to terete, linear in outline, up to 16 mm long. **Inflorescences** of axillary cymules arranged in determinate racemes. **Bracts** lanceolate, broadened towards base, curved to fit round flower. **Flowers** whitish. **Perianth** with tube absent; segments 0.9 mm long, slightly hooded. **Disc** not conspicuous. **Flowering time** May–Sept. **Fruit** ellipsoid, ± 2.5 mm long including persistent perianth, light brown; 10-ribbed with reticulation between ribs. Rocky sandstone slopes; Eastern Fynbos-Renosterveld, Albany Thicket (WC to Humansdorp, Baviaanskloof Mts).

leptocaule Sond.

Twiggy shrublet, hemiparasite, up to 0.4 m high. **Leaves** of two kinds: basal leaves acicular up to 4 mm long; upper leaves scale-like, ovate-lanceolate ± 2 mm long, apex acute, dark. **Inflorescences** small, cymose clusters. **Bracts** ovate with membranous, serrulate margins. **Flowers** greenish yellow. **Perianth** with tube absent; segments 0.9 mm long, outer surface humped. **Disc** prominent. **Flowering time** July–Mar. **Fruit** ovoid, ± 3 mm long including persistent perianth, greyish brown; 10-ribbed with reticulation between ribs. Rocky sandstone slopes, top of escarpment; Eastern Fynbos-Renosterveld, Albany Thicket (Willowmore District, Baviaanskloof Mts, Port Elizabeth).
Like *T. nigromontanum* but flowers without visible external glands.

nigromontanum Sond.

Like *T. leptocaule* but differing in the following characters:

Shrublet, up to 0.25 m high. **Leaves** linear, fleshy, subobtuse below, sparsely leafy above and appressed, terete-lanceolate, acute. **Bracts** with apex attenuate, margins jaggedly serrate. **Flowers** greenish. **Perianth** with conspicuous external glands; segments dark. **Flowering time** Sept.–Nov. Sandstone slopes and flats; Eastern Fynbos-Renosterveld (WC to Sundays River).

strictum P.J.Bergius

Bokbos, *teringbos* (A)

Sparsely leafy, broom-like, hemiparasitic shrub, up to 2 m high; stem erect, virgately branched. **Leaves** cymbiform, linear to lanceolate in outline, scattered, upper leaves smaller. **Inflorescences** of terminal, many-flowered, lax, corymbose heads. **Bracts** oblong, fleshy, flat. **Flowers** white to creamy green. **Perianth** with tube up to 0.3 mm long; segments triangular-ovate, margins shortly papillose. **Disc** conspicuous. **Flowering time** July–Oct. **Fruit** globose, ± 5 mm long including persistent perianth, yellowish brown; 10-ribbed with reticulation between ribs. Sandstone slopes; Eastern Fynbos-Renosterveld, Albany Thicket [WC to Willowmore, Miller, Steytlerville (Baviaanskloof), Port Elizabeth, Grahamstown, Port Alfred and to Humansdorp].

virgatum Lam.

Much-branched, hemiparasitic, sparsely leafy shrublet, up to 0.75 m high; stems angled and minutely pustulate. **Leaves** acicular, 2 mm long, margins decurrent. **Inflorescences** of few-flowered, lax, corymbose heads. **Bracts** leaf-like, often widely separated from flowers. **Flowers** whitish. **Perianth** tube very short; segments triangular, ± 1 mm long, deeply hooded. **Disc** conspicuous. **Flowering time** Aug.–Feb. **Fruit** ellipsoid-globose, ± 4 mm long, attenuate and 7-winged at base, somewhat reticulate between wings. Stony flats and lower slopes; Eastern Fynbos-Renosterveld, Albany Thicket (WC to Kouga Mts, Baviaanskloof, Joubertina, Uitenhage, Van Stadens Mts, Grahamstown, and to Humansdorp).

2b Flowers not in clusters, dense terminal spikes/racemes, or corymbose heads

acutissimum A.DC.

Sprawling, glaucous, hemiparasitic shrublet, up to 0.3 m high; stems many, with flexuose, often grey-glaucous branches. **Leaves** linear, up to 15 mm long, mucronate. **Inflorescences** 1–3-flowered. **Bracts** shortly adnate to peduncle. **Flowers** minute, white. **Perianth** with cylindric tube; segments triangular, ± 1 mm long, hooded. **Disc** conspicuous. **Flowering time** Sept.–Jan. **Fruit** ellipsoid, ± 3 mm long, including persistent perianth; 10-ribbed, reticulate between ribs. Marshy streambanks, grassland, fynbos, marginal valley bushveld; Drakensberg Grassland, Indian Ocean Coastal Belt, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Rhodes SE to Port Edward, southwards across Amatole Mts to Alice and Stutterheim, from Hankey to Grahamstown and Hamburg).

angulosum DC.

Erect shrub, hemiparasite, 1.0–1.5 m high; stems broadly winged, branchlets angular. **Leaves** linear, decurrent, midrib prominent, continuous with cartilaginous wing margins. **Inflorescences** of cymules arranged in rather elongated, lax racemes. **Bracts** linear-lanceolate. **Flowers** white. **Perianth** with tube 1 mm long; segments elliptic ± 3.7 mm long, hooded with papillose, incurved margins. **Flowering time** Feb., May, July? **Fruit** with stout, yellow stalk ± 2 mm long, subglobose, ± 4 mm long, including gaping, persistent calyx; prominently 10-ribbed, slightly reticulate between ribs. Stony, rocky hillsides; Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Sub-Escarpment Savanna (Queenstown Mts, Lusikisiki, Pirie Mts and Kentani District).

asperifolium A.W.Hill

Sprawling, scabrid, hemiparasitic shrublet, up to 0.25 m high. **Leaves** linear to lanceolate, up to 18 mm long, subacute, keeled beneath. **Inflorescences** of axillary cymules

arranged in loose panicles. **Bracts** ± lanceolate. **Flowers** whitish. **Perianth** 1.5 mm long; segments ovate, 0.75 mm long, slightly hooded. **Disc** prominent, lobed. **Fruit** globose, ± 4 mm long; prominently ribbed, inconspicuously reticulate between ribs. Sandstone slopes and hills; Sub-Escarpment Grassland (WC to Queenstown District).

fructicosum A.W.Hill

Shrub, hemiparasite, 0.15–0.50 m high; single stemmed to ± $^{2}/_{3}$ of shrub length, then branching into 4–6 whip-like, dichotomously divided branchlets. **Leaves** deciduous, cymbiform, linear-oblong in outline, up to 11 mm long. **Inflorescences** of 1–3-flowered cymules, in a loose raceme-like arrangement. **Bracts** cymbiform, rather thick. **Perianth** cup-shaped, tube 1 mm long; segments broadly triangular, ± 1 mm long, slightly hooded, apex and margins papillose. **Disc** glandular. **Flowering time** Dec.–May. **Fruit** ellipsoid-globose, up to 6 mm long including persistent perianth; prominently 5-ribbed at base with less prominent ribs between, reticulate. Mountain slopes; Eastern Fynbos-Renosterveld, Sub-Escarpment Savanna, Albany Thicket (Langkloof, Grahamstown).

galioides A.DC.

Sprawling, hemiparasitic shrublet, up to 0.3 m high; branchlets many, short. **Leaves** small. **Inflorescences** axillary, cymose, dichotomously branched. **Bracts** linear, fleshy. **Flowers** whitish. **Perianth** campanulate, ± 2 mm long; segments triangular, flat, ± 1 mm long, slightly hooded. **Disc** lobed, well-marked. **Flowering time** Aug.–May. Sandstone slopes, mountain tops; Albany Thicket, Dry Highveld Grassland, Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld (WC to Graaff-Reinet, Somerset East, Slypsteenberg, Baviaanskloof, Ecca Pass, Grahamstown, Kap Valley).

hirsutum A.W.Hill

Dwarf shrub, hemiparasite, 0.05–0.15 m high; rootstock slender, branched; stems many, arcuate-ascending, pubescence of short, straight, bulbous-based hairs with obtuse apices. **Leaves** linear, apices with white, sharp points. **Inflorescences** with solitary flowers in axils of bracts on short peduncles, arranged in racemes. **Bracts** adnate to peduncles, leaf-like. **Flowers** yellowish. **Perianth** with conspicuous external glands; tube ± 1 mm long; segments 2 mm long, hooded. **Flowering time** Oct.–Jan.? **Fruit** with stalk 5-ribbed, ± 1 mm long; broadly ellipsoid ± 6 mm long, including persistent calyx; 10-ribbed, reticulate between ribs. Grassy plains; Drakensberg Grassland, Sub-Escarpment Grassland, Albany Thicket (Barkly East, Queenstown, Graaff-Reinet).

lineatum L.f.

Vaalstorm, *witstorm* (A)

Rigid, nearly leafless, hemiparasitic shrub, up to 2 m high, with stems grooved, rigid, spine-tipped. **Leaves** linear, soon deciduous. **Inflorescences** with solitary flowers in axils of bracts on short peduncles, arranged in racemes on spinescent branchlets. **Bracts** small, scale-like, triangular. **Flowers** whitish yellow. **Perianth** with tube ± 1 mm long; segments triangular, 1.5 mm long, subacute, hooded, margins slightly inflexed. **Flowering time** Aug.–Apr. **Fruit** oblong-ellipsoid, ± 8 mm long; not ribbed, with slight reticulation. Dry stony slopes and flats; Upper Karoo, Albany Thicket, Eastern Fynbos-Renosterveld (Karoo to Swartberg Mts; Middelburg, Graaff-Reinet, Steytlerville, Grahamstown).

lisae-mariae Stauffer

Hemiparasitic, woody herb, 0.6–0.8 m high; stems rush-like. **Leaves** reduced, ovate, scale-like, ± 1 mm long. **Inflorescences** of lax, terminal spikes. **Bracts** ovate and scale-

like, margins serrate, lower surfaces rounded. **Flowers** white. **Perianth** with tube 1.3 mm long; segments narrowly triangular ± 0.6 mm long. **Flowering time** Sept.? **Fruit** globose, 2.5 mm long. Southern mountain slopes; Albany Thicket (Grahamstown).

namaquense Schltr.

Namaqua thesium, poison bush; *gifbossie* (A)

Slender, dwarf shrub, hemiparasite, 0.5–0.8 m high. **Leaves** linear, acute, 6–8 mm long, ± fleshy, glabrous. **Inflorescences** indefinite. **Bracts** acicular, leaf-like. **Flowers** solitary, pedicellate. **Perianth** ± 1.5 mm long, without a marked tube; segments triangular, < 1 mm long, apex acute, slightly hooded, glabrous. **Disc** conspicuous, lobed. **Flowering time** Sept.–Jan. **Fruit** with prominent ribs. Mountain passes and valleys, disturbed areas, karoo; Mesic Highveld Grassland, Upper Karoo (Lady Grey S to Middelburg, Graaff-Reinet).

pallidum A.DC.

Hemiparasitic shrub, 0.05–0.60 m high; from an erect rootstock, stems branched in upper part, closely sulcate. **Leaves** linear, 1.7–5.0 mm long, ± coarsely verrucose, somewhat fleshy, glabrous. **Inflorescences** of single or few-flowered cymes, arranged in loose, terminal panicles. **Bracts** leaf-like, adnate to peduncle for ± halfway. **Flowers** white, green-yellow. **Perianth** 1.5–2.0 mm long, tube present; segments broadly ovate, up to 1.3 mm long, hooded, margins slightly fringed, incurved, membranous. **Flowering time** Sept.–May. **Fruit** ellipsoid, up to 5 mm long, including persistent perianth; prominently 10-ribbed, reticulate between ribs. Grassy mountain slopes and summits; Mesic Highveld Grassland, Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Drakensberg Grassland, Albany Thicket (Lady Grey E to uMzimkhulu southwards, from Elliot and Ugie to Mkambati Nature Reserve and across Amatole Mts, from Katberg Pass to Komga and Baviaanskloof E to Grahamstown and East London).

[E]**scandens** Sond.

Scrambling, hemiparasitic undershrub, 0.3–0.4 m high; branches flexuose, trailing. **Leaves** fleshy, terete, up to 35 mm long. **Inflorescences** of 3–5-flowered, axillary cymules, arranged in branched racemes. **Bracts** shortly adnate to peduncles, leaf-like, recurved. **Flowers** greenish white. **Perianth** cupular, ± 1.5 mm long; segments ovate, ± 1.3 mm long, slightly hooded, fleshy, flat. **Flowering time** Aug.–Apr. **Fruit** ellipsoid-globose, ± 4 mm long, somewhat fleshy, red. Closed shrubland; Upper Karoo, Sub-Escarpment Savanna, Albany Thicket (Graaff-Reinet E to Komga, southwards from Port Elizabeth E to Bathurst District).

squarrosum L.f.

Densely branched, hemiparasitic subshrub, up to 0.2 m high, branches angular when young. **Leaves** fleshy, linear, subacute, recurved at tips. **Inflorescences** of axillary cymules, arranged in terminal racemes. **Bracts** shortly adnate to peduncles, leaf-like. **Flowers** whitish. **Perianth** 1.5 mm long; segments ovate-lanceolate, ± 1 mm long, hooded, glabrous. **Disc** prominent. **Flowering time** Nov.–Jan. **Fruit** with broad, beige-coloured stalk; ellipsoid-globose, up to 5 mm long, including persistent perianth, dark brown; prominently 10-ribbed, reticulate between ribs. Recently burnt grassland, flats or lower slopes; Indian Ocean Coastal Belt, Albany Thicket, Eastern Fynbos-Renosterveld (Knysna to Weza S to Willowvale District, from Suurberg in Greater Addo Elephant National Park to Grahamstown).

triflorum Thunb. ex L.f.

Gifbossie (A)

Scrambling, hemiparasitic undershrub, 0.3–1.0 m high; rootstock stout, branches trailing, angular and sulcate when young. **Leaves** linear-lanceolate, flat or subterete, up to 45 mm long. **Inflorescences** axillary, cymules arranged in branched racemes. **Bracts** leaf-like, often longer than peduncles. **Flowers** whitish. **Perianth** 3.3 mm long; segments triangular, ± 2 mm long, flat, hooded, glabrous. **Disc** prominent, lobed. **Flowering time** Nov.–Jan. **Fruit** ovoid-globose, ± 4 mm long, including persistent perianth, coarsely reticulate. Forests and coastal bush; Upper Karoo, Indigenous Forests, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (from the north to Tsitsikamma; Middelburg S, from Hogsback to Idutywa, Addo to Port Elizabeth and East London).

virens E.Mey. ex A.DC.

Hemiparasitic, dwarf shrub, 0.1–0.3 m high; stems and branches slender, trailing. **Leaves** linear, up to 22 mm long, apices acute. **Bracts** leaf-like, adnate to peduncle, up to base of flower. **Flowers** subsolitary, white. **Perianth** ± 2.5 mm long; segments linear-lanceolate, 1 mm long, hooded, margins incurved. **Flowering time** Dec.? **Fruit** oblong-ellipsoid, ± 4 mm long, including persistent perianth; 10-ribbed, reticulate between ribs. Damp grass slope; Drakensberg Grassland (Transkei, Ongeluksnek).

1b Perianth segments with a marginal fringe of long papillae, or with 2 fine lateral lobes, but no apical beard; anthers with attachment hairs (subsection Fimbriata*)*

hystrix A.W.Hill

Kleinswartstorm (A)

Much-branched, hemiparasitic, dwarf shrub, 0.25–0.60 m high. **Leaves** very small, ± triangular, coriaceous, glabrous. **Bracts** very small, broadly ovate. **Flowers** solitary, sessile, short, creamy white. **Perianth** ± 1.5 mm long; segments triangular-ovate, hooded, 0.66 mm long. **Flowering time** Aug.? **Fruit** ovoid-globose, ± 4 mm long; 10-ribbed, glaucous between ribs. Karoo, roadsides/rail sides; Upper Karoo, Albany Thicket (Middelburg, Graaff-Reinet and Cradock districts, S to Kleinpoort).

Section *Barbata*

Perianth segments with a ± dense, pendulous beard, hanging from their apices, margins ± hairy; anthers attached to perianth by a tuft of perianth hairs adhering to their apices.

asterias A.W.Hill

Dwarf shrub, 0.25–0.60 m high; rootstock stout, erect, compressed, angled, branched in upper half. **Leaves** acicular, up to 22 mm long, grooved above. **Inflorescences** of solitary flowers or cymules arranged in lax racemes. **Bracts** linear, partly adnate to peduncle. **Perianth** ± 3.5 mm long, tube ± 1 mm long with large, rounded, external glands; segments lanceolate ± 2.5 mm long, margins incurved. **Flowering time** Sept.–Apr. **Fruit** ovoid, ± 7 mm long, including persistent perianth; sitting on cream-coloured, ribbed pedestal, 10-ribbed, faintly reticulate between ribs. Recently burned grassland; Drakensberg Grassland, Indian Ocean Coastal Belt (Maclear E to Mkambati Nature Reserve).

capitatum L.

Hemiparasitic, dwarf shrub, 0.1–0.4 m high; densely leafy. **Leaves** imbricate, appressed to or spreading, linear, up to 14 mm long, strongly keeled, margins minutely translucent and scabrid, apex pungent. **Inflorescences** of dense, terminal, bracteate heads.

Bracts gradually differentiated from upper leaves, becoming petiolate and oblong-lanceolate with broader, jagged, cartilaginous margins. **Flowers** whitish. **Perianth** up to 7 mm long; segments linear-lanceolate, up to 4 mm long, fleshy. **Flowering time** all year. **Fruit** ellipsoid-globose, up to 7 mm long including persistent perianth; slenderly 10-ribbed, smooth between ribs. Coastal, sandstone slopes; Eastern Fynbos-Renosterveld (WC to Port Elizabeth and to Humansdorp).

confine Sond.

Teringbossie (A)

Hemiparasitic shrub, 1.0–1.2 m high; rootstock woody, branches, whip-like, grey. **Leaves** scale-like, appressed, subulate-lanceolate, up to 5 mm long. **Inflorescences** of few-flowered, short spikes. **Bracts** lanceolate, ± 2 mm long, acutely acuminate, margins membranous, jagged. **Perianth** 2.5 mm long; segments lanceolate, 1.5 mm long, acute. **Flowering time** Dec.? **Fruit** ellipsoid, ± 4 mm long; 10-ribbed, faintly reticulate between ribs, ± glaucous-green. Grassland on mountain slopes; Drakensberg Grassland (Rhodes District).

flexuosum A.DC.

Straggling, hemiparasitic shrublet, 0.2–0.3 m high; branches whip-like, grooved. **Leaves** sparse, acicular, ± 10 mm long, subterete, acute. **Inflorescences** of densely flowered, stout spikes. **Bracts** ovate-lanceolate, acutely acuminate, ± 2 mm long, margins broadly hyaline, indurated. **Flowers** whitish. **Perianth** ± 2 mm long; segments lanceolate, ± 1.3 mm long, acute with a long hood. **Flowering time** Sept.–Apr. **Fruit** ellipsoid-globose, ± 5 mm long, beaked by long, cone-like, persistent perianth. Dry lower slopes; Albany Thicket, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld (Swartberg Mts eastward to Graaff-Reinet, Alice, Baviaanskloof, Port Elizabeth and Port Alfred).

gnidiaceum A.DC.

Closely leafy, hemiparasitic shrublet, up to 0.3–0.5 m high; branches ascending. **Leaves** subulate, up to 6 mm long, terete, with recurved, rigid, white tips. **Inflorescences** of dense, subterminal spikes. **Bracts** linear-lanceolate, apices acuminate, margins scabrid-puberulous. **Flowers** white. **Perianth** up to 3.5 mm long, external glands distinct; segments linear-lanceolate, up to 2.5 mm long. **Flowering time** Aug.–Jan. **Fruit** ovoid-globose, ± 4.5 mm long; prominently 10-ribbed, prominently reticulate between ribs. Grassy hillsides, sandstone slopes; Upper Karoo, Sub-Escarpment Grassland, Drakensberg Grassland, Sub-Escarpment Savanna, Albany Thicket (Cradock E to Elliot, southwards from Koudeveld Mts to King William's Town and to Uitenhage, Grahamstown and Kasouga River Mouth).

[E]**hollandii** Compton

Erect, glabrous, hemiparasitic, dwarf shrub, 0.3–0.6 m high. **Leaves** dense, linear-lanceolate, up to 10 mm long, keel and margins scabrid. **Inflorescences** of densely flowered, terminal, oblong spikes. **Bracts** ± as long as flowers, abaxially rounded, margins scabrous. **Flowers** ± 5 mm long including pedicel. **Perianth** with tube ± 1.5 mm long; segments narrowly triangular, ± 2 mm long. **Flowering time** Aug.–Oct. **Fruit** globose, 3 mm in diam.; 10-ribbed, reticulate between ribs. Sandstone slopes; Eastern Fynbos-Renosterveld (Uniondale to Port Elizabeth).

Closely related to *T. scabrum* of the WC.

imbricatum Thunb.
Much-branched, hemiparasitic, dwarf shrub, 0.2–1.4 m high; stems stout, branchlets densely leafy. **Leaves** cymbiform, linear in outline, up to 8 mm long, sharply keeled below, apices acute, rigid. **Inflorescences** of few-flowered, terminal heads. **Bracts** leaf-like. **Perianth** ± 4 mm long; segments triangular, acute, ± 3.5 mm long. **Flowering time** Oct., Nov. **Fruit** oblong-ovoid, up to 6 mm long, including thick, closed perianth; 10-ribbed, reticulation not strongly demarcated. Mountain slopes, full sun, shale and dolerite; Drakensberg Grassland, Upper Karoo, Sub-Escarpment Grassland, Lower Karoo (Maclear, southwards to Middelburg, Andriesberg and Nardousberg at Graaff-Reinet).

impeditum A.W.Hill
Glaucous, decumbent, hemiparasitic, dwarf shrub, 0.2–1.4 m high; rhizomatous, stems slender. **Leaves** linear, up to 14 mm long, apices acute, recurved. **Inflorescences** of lax spikes with solitary flowers in bract axils. **Bracts** leaf-like, as long as or exceeding flowers. **Perianth** up to 3 mm long; segments narrowly lanceolate, up to 2 mm long. **Flowering time** Feb.? **Fruit** ellipsoid-globose, ± 4.7 mm long, including persistent perianth; prominently 10-ribbed, distinctly reticulate between ribs. Mountain slopes and summits, alt. up to 1 800 m; Sub-Escarpment Grassland, Upper Karoo (Hangklip Mtn near Queenstown, Sneeuberg Range near Graaff-Reinet).

junceum Bernh.
Sparsely leafy, hemiparasitic shrublet, up to 0.6 m high; stems slender, whip-like. **Leaves** few, terete. **Inflorescences** in slender, lax to dense spikes. **Bracts** ocreate, broadly ovate, up to 2 mm long, apex acute, tip stout, margins membranous, scurfy, jagged. **Flowers** whitish. **Perianth** ± 2 mm long, narrowly triangular, up to 1.3 mm long, apex acute, hooded, margins inrolled, inner surfaces white, fleshy. **Flowering time** Aug.–May. **Fruit** ellipsoid-globose, 4 mm long; faintly 10-ribbed and reticulate between ribs. Mountain slopes, alt. up to 1 800 m, river mouths and valleys; Drakensberg Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (WC to Ongeluksnek southwards, from King William's Town to Kei River Mouth, Baviaanskloof to Port Elizabeth, Grahamstown and East London).

[E]orientale A.W.Hill
Few-stemmed, hemiparasitic, dwarf shrub, 0.1–0.3 m high; branches suberect, leafy. **Leaves** with midrib strongly keeled below, flat or cymbiform, linear in outline, up to 14 mm long, apex uncinate. **Inflorescences** of few-flowered, leafy racemes. **Bracts** leaf-like, ovate-lanceolate, adnate to peduncle. **Flowers** solitary in bract axils; green, white inside. **Perianth** urceolate, ± 4 mm long, with distinct external glands; segments linear-lanceolate, up to 3 mm long, hooded. **Flowering time** Oct.? **Fruit** ovoid-ellipsoid, ± 6 mm long; conspicuously 10-ribbed, slightly reticulate between ribs. In grassland; Sub-Escarpment Grassland, Dry Highveld Grassland (Griqualand East near Kokstad, Somerset East, Bosberg).

phyllostachyum Sond.
Erect, leafy, hemiparasitic shrublet, up to 0.25 m high. **Leaves** linear, up to 4 mm long, recurved above, acute, uncinate. **Inflorescences** of lax spikes. **Bracts** linear, acute. **Flowers** whitish. **Perianth** ± 3 mm long, external glands conspicuous; segments linear-lanceolate, up to 2 mm long. **Flowering time** Aug.–Oct. Low hills, grassland, alt. 30–500 m; Eastern Fynbos-Renosterveld, Albany Thicket, Sub-Escarpment Savanna (Swartberg Mts to EC; Port Elizabeth and Grahamstown District).

sonderianum Schltr.
Densely leafy, hemiparasitic shrub, 0.5–0.7 m high; dichotomously branched. **Leaves** secund (all directed to one side), linear, recurved, sharply keeled below, pungent, scabridulous on margins. **Inflorescences** with flowers in crowded, oblong spikes. **Bracts** linear-lanceolate, shorter than flowers. **Flowers** whitish. **Perianth** up to 5.5 mm long; segments linear-lanceolate, subacute, ± 3 mm long, hooded. **Flowering time** Aug., Sept. **Fruit** ovoid-ellipsoid, 10 mm long, including long, cylindric, persistent perianth; prominently 5-ribbed, intermediate ribs less conspicuous, reticulate. Sandstone slopes; Eastern Fynbos-Renosterveld (WC to Grahamstown).

spartioides A.W.Hill
Wiry, hemiparasitic, dwarf shrub, 0.1–0.2 m high; rhizomatous, base woody with several ascending stems. **Leaves** subulate-lanceolate, up to 3 mm long, abaxially convex, apex acutely acuminate. **Bracts** scale-like, ovate-lanceolate, apex acuminate, ± ½ as long as flowers. **Flowers** rather crowded towards end of axillary branches, sessile within bracts. **Perianth** ± 1.5 mm long; segments ± 1 mm long, triangular. **Flowering time** Mar.? **Fruit** small, subglobose, ± 3 mm long, including persistent perianth; conspicuously 10-ribbed, finely reticulate between ribs. Stony soil in closed woodland; Upper Karoo (Middelburg District, Grootfontein).

umbelliferum A.W.Hill
Robust, hemiparasitic shrub, up to 2 m high; branches few, ascending. **Leaves** fleshy, subterete, 20–40 mm long, obtuse. **Inflorescences** with flowers in dense, terminal corymbs. **Bracts** leaf-like, slightly adnate to short peduncles, as long as flowers. **Flowers** whitish. **Perianth** ± 2.5 mm long, with conspicuous external glands; segments lanceolate, ± 1.3 mm long, slightly hooded. **Flowering time** Dec., Jan. **Fruit** ovoid-ellipsoid, ± 4 mm long; fairly prominently 5-ribbed, intermediate ribs and reticulation inconspicuous. Rocky sandstone slopes; Eastern Fynbos-Renosterveld (Swartberg Mts to Humansdorp).

zeyheri A.DC.
Much-branched, prostrate, hemiparasitic, dwarf shrub, 0.3–0.5 m high; stem stout, knotty. **Leaves** linear, up to 10 mm long, strongly keeled below, margins papillate and scabrous. **Inflorescences** terminal. **Flowers** solitary or 2–5 in lax cymes. **Bracts** linear, shorter than flowers. **Flowers** white. **Perianth** up to 4.5 mm long; segments subacute ± 3 mm long. **Flowering time** Oct.? **Fruit** oblong, ± 6 mm long, including beak-like persistent perianth; prominently 10-ribbed, reticulate between ribs. Dolerite hills; Sub-Escarpment Grassland (Queenstown, banks of Komani River).

Section *Penicillata*
Perianth segments with dense apical beard; perianth hairs behind each anther free, not adhering to apex of anther.

penicillatum A.W.Hill
Stout, hemiparasitic shrub, up to 1 m high, branches purple-angled. **Leaves** fleshy, linear, ± 27 mm long, keeled below, margins slightly thickened, hyaline. **Inflorescences** of dense, terminal corymbs. **Bracts** linear-oblong, as long as flowers. **Flowers** whitish. **Perianth** ± 3 mm long; segments linear-lanceolate, ± 2.5 mm long, flat, hooded. **Flowering time** Sept.–Feb. **Fruit** with stout stalk; ellipsoid, ± 6 mm long; prominently 5-ribbed, intermediate ribs faint, conspicuously reticulate between ribs. Sandstone slopes, amongst rocks in riverbed; Eastern Fynbos-Renosterveld (WC to Tsitsikamma Mts, Storms River, Humansdorp).

Section *Annulata*

Perianth segments with a ± dense apical beard, rarely papillose; perianth hairs behind anthers absent, but replaced by a ring of short downwardly-directed gold-coloured hairs inserted in tube at the level of attachment of filaments.

aggregatum A.W.Hill

Hemiparasitic, nearly leafless shrublet, up to 0.5 m high; branches slender, virgate, semi-erect. **Leaves** linear-lanceolate, 3–28 mm long, terete, appressed to stem or ascending. **Inflorescences** capitate, 5–16 mm long. **Bracts** broadly lanceolate, margins membranous, entire, fimbriate-ciliate or serrulate. **Flowers** whitish. **Perianth** becoming urceolate, ± 4 mm long; lobes linear, up to 2.5 mm long, often abaxially warty. **Flowering time** Aug.–Jan. **Fruit** ellipsoid, ± 6 mm long, including persistent perianth; prominently 10-ribbed, delicately reticulate between ribs. Sandstone flats and slopes; Eastern Fynbos-Renosterveld (WC to Uitenhage to Port Elizabeth and to Humansdorp).

frisea L.

Sprawling, hemiparasitic shrublet, 0.2–0.3 m high; stems trailing, rooting at nodes. **Leaves** linear, up to 25 mm long, pungent. **Inflorescences** of cymules arranged in dense, terminal spikes. **Bracts** linear, up to 4 mm long, sharply keeled below, margins minutely serrulate. **Flowers** whitish. **Perianth** up to 2.5 mm long; segments elliptic, flat, up to 1.6 mm long, ± hooded. **Flowering time** Aug.–Oct. **Fruit** ellipsoid-globose, ± 3 mm long; distinctly 10-ribbed, strongly reticulate between ribs. Fynbos, grassland, weedy in lawns and golf courses; Eastern Fynbos-Renosterveld (WC to Langkloof, Baviaanskloof).

[E]**patersoniae** A.W.Hill

Sparsely leafy, hemiparasitic shrublet, 0.2–0.3 m high; stems sparingly branched, ascending. **Leaves** spreading, linear-subterete, up to 16 mm long, apex acute. **Inflorescences** of 3–5-flowered cymules in crowded ovoid heads. **Bracts** broadly lanceolate, ± 1.1 mm long, keeled, without membranous margins. **Flowers** whitish. **Perianth** urceolate, ± 2.5 mm long, external glands conspicuous; segments lanceolate, 1.4 mm long. **Flowering time** July–Sept.? Fynbos, grassland, sandstone slopes; Eastern Fynbos-Renosterveld (Port Elizabeth).

subnudum Sond.

Broom-like, hemiparasitic shrub, 0.4–1.0 m high. **Leaves** dense or sparse, scale-like or acicular, up to 55 mm long. **Inflorescences** of dense, terminal, cylindrical spikes, elongating with age. **Bracts** broadly lanceolate, keeled below, margins entire or minutely serrulate, shorter than flowers. **Flowers** whitish. **Perianth** becoming urceolate; segments linear, reddish brown, up to 2.8 mm long, glands not prominent. **Flowering time** July–Mar. **Fruit** ovoid-globose, ± 4 mm long; subconspicuously 10-ribbed and reticulate between ribs. Mountain feet or summits; Eastern Fynbos-Renosterveld WC to Port Elizabeth to Tsitsikamma).

VISCUM L.

Mistletoe; *lidjiestee*, *voëlent* (A)

Species ± 100, widely distributed in the African (including Madagascan) and Asian tropics, with extensions into north temperate zones of Europe and Asia; 17 in sthn Afr., the only occurrence of the genus in south temperate regions, widespread.

1a Shrubs 0.25–1.00 m high
2a Plants leafless or with scale leaves only
3a Berries with warts

anceps E.Mey. ex Sprague

Leafless, dioecious, aerial, hemiparasitic shrub, 0.5–1.0 m high; internodes of distal branches strongly flattened, minutely ribbed. **Staminate flowers** mostly in triads (sometimes dyads), sessile, mostly solitary at nodes of younger branches. **Pistillate flowers** solitary in a bilobed bracteal cup, sessile at nodes of younger branches. **Flowering time** June, July. **Fruit** a shortly stalked, ovoid-ellipsoid berry, dull orange, strongly warty only on distal half at maturity. Parasitic on species of *Vachellia, Senegalia, Calpurnia* and *Zanthoxylum*; coastal or riverine forests and associated bushland, clay soils; alt. 5–915 m; Indigenous Forests, Sub-Escarpment Savanna (Mtata River to Port St Johns S, from W of Butterworth to Kei River Mouth).

3b Berries smooth

continuum E.Mey. ex Sprague

Leafless, dioecious, aerial, hemiparasitic shrub, 1.0–1.5 m high, often pendulous with age, usually pale green; stems rounded. **Leaf scales** adhering to stem, with whitish margins. **Staminate flowers** in triads, or borne in dyads or singly at nodes without bracteal cups. **Pistillate flowers** solitary in bracteal cups in axils of leaf scales. **Flowering time** July, Aug. **Fruit** a stalked, ovoid-ellipsoid berry, pale yellow, smooth; style persistent. Parasitic primarily on species of *Vachellia, Senegalia,* rarely *Combretum*; shrublands of the Little Karoo; alt. 90–1 020 m; Sub-Escarpment Grassland, Albany Thicket, Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld (Graaff-Reinet to Komga S, from Steytlerville to Fort Beaufort).

hoolei Wiens

Leafless, monoecious, aerial, hemiparasitic subshrub, 0.3–0.5 m high, occasionally somewhat glaucous; internodes of stems rounded. **Leaf scales** acute, mostly on younger shoots. **Staminate and pistillate flowers** borne singly and sessile in bracteal cups, mostly 2 per node; staminate flowers with stamens united in a central synandrium. **Flowering time** July, Aug. **Fruit** a sessile, rotund berry, white, smooth; style persistent. Parasitic primarily on species of *Searsia*; shrubland, grassland, gravel, stony soil; alt. 140–1 520 m; Sub-Escarpment Grassland/Albany Thicket (widespread, one specimen recorded from Grahamstown).

2b Plants with well-developed leaves
4a Plants dioecious

crassulae Eckl. & Zeyh.

Leafy, dioecious, rather small, hemiparasitic semi-shrub, 0.2–0.3 m high, often stout with age, highly succulent, dark green when fresh, exceedingly brittle when dried; internodes rounded; nodes often swollen with age. **Leaves** obovate-orbicular, fleshy when fresh, wrinkled and distorted when dried and easily broken from stem. **Staminate flowers** in dichasia, 1–3 per axil. **Pistillate flowers** solitary, rarely 2 together. **Flowering time** July, Aug. **Fruit** a sessile, ovoid berry, bright orange, smooth. Parasitic primarily on *Portulacaria afra*, rarely on succulent species of *Euphorbia*; shrublands of the Little Karoo; alt. 155–550 m; Albany Thicket (Steytlerville to Patensie and Port Elizabeth).

obscurum Thunb.

Leafy, dioecious, hemiparasitic shrub, ± 1 m high, sometimes glaucous, pale green; internodes rounded; nodes often dilated. **Leaves** oblanceolate-obovate, 3-nerved basally. **Staminate flowers** in sessile, axillary dichasia, 2 or 3 per axil. **Pistillate flowers** solitary in bracteal cups, and then borne singly, or in fascicles of 2 or 3 per axil. **Flowering time** June, July. **Fruit** an ellipsoid-globose berry, whitish cream-coloured to pale pink, smooth, developing a relatively long stalk at maturity. Parasitic on a wide variety of hosts including species of *Vachellia, Senegalia, Cussonia*, *Garcinia*, *Manilkara*, *Maytenus*, *Olea*, *Prunus*, *Searsia*, *Salix* and *Schotia*; forest, open and closed woodland, grassland, sandy soil; alt. 10–1 585 m; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indigenous Forests, Albany Thicket, Eastern Fynbos-Renosterveld (widespread from Tsitsa Falls to Msikaba Drift S, Jansenville District to Komga, Greater Addo Elephant National Park to Port Elizabeth, Grahamstown and East London, and to Witelsbos).

4b Plants monoecious

obovatum Harv.

Leafy, monoecious, densely branched, often globose, hemiparasitic shrub, ± 0.5 m high, pale yellow to green; internodes rounded, relatively short; nodes often swollen. **Leaves** obovate-rounded. **Dichasia** with central flower mostly staminate, lateral ones pistillate, or often with all flowers the same gender. **Flowering time** Mar., Apr. **Fruit** a sessile, ellipsoid berry, dull orange, warty when young, less so at maturity; style persistent. Parasitic on species of *Dichrostachys*, *Maytenus*, *Mimusops* and *Ochna*; coastal and riverine forests or drier bushland; alt. 3–610 m; Indian Ocean Coastal Belt, Indigenous Forests, Albany Thicket, Eastern Fynbos-Renosterveld (Mtata River Mouth to Kentani District S, from Uitenhage District to Hopewell and Kenton on Sea).

rotundifolium L.f.

Leafy, monoecious, hemiparasitic shrub, 0.2–0.5 m. high, often forming densely branched, rounded clusters, pale green; internodes rounded, 6-ribbed. **Leaves** ± sessile, variable, ovate-suborbicular to elliptic-oblong, often 3-nerved from base. **Dichasia** primarily with central flower staminate, lateral ones pistillate; bearing a short stalk. **Flowering time** Apr.–Aug., but possibly all year. **Fruit** a stalked, ellipsoid berry, orange, smooth; style persistent. Parasitic on many diverse hosts including species of *Vachellia, Senegalia, Boscia*, *Carissa*, *Ehretia*, *Euclea*, *Grewia*, *Maytenus*, *Olea*, *Rhamnus*, *Searsia* and *Salix*; dry shrubland, grassland, sandy soil, stony soil; alt. 10–1 950 m; Upper Karoo, Sub-Escarpment Grassland, Lower Karoo, Albany Thicket, Sub-Escarpment Savanna, Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld, (widespread, Albert District to Port Edward and S to Queenstown, from Graaff-Reinet to Komga, Steytlerville to Uitenhage, Port Elizabeth, Grahamstown, Port Alfred and East London).

triflorum DC.

Leafy, monoecious, small, often globose, hemiparasitic shrub, 0.3–0.5 m high, yellow-green; internodes somewhat flattened and delicate, 6-ribbed; older branches rounded. **Leaves** obovate-elliptic or very variable, relatively thin, not very coriaceous, conspicuously 3(–5)-nerved from base, margins often crisped. **Dichasia** with central flower staminate, lateral ones pistillate, or often with all flowers of the same gender, in axils, with a narrow stalk. **Flowering time** Mar., but possibly sporadic throughout year. **Fruit** an essentially sessile, ellipsoid-globose berry, white, smooth; sepals and style persistent. Parasitic on species of *Rapanea* and *Syzygium*; riverine and drier evergreen forests, fring-

es of coastal and montane forests, woodlands; Sub-Escarpment Savanna, Indigenous Forests, Indian Ocean Coastal Belt (Lusikisiki, Magwa Falls, Ntsubane Forest).

1b Minute herbs only several mm high

E minimum Harv.

Leafless, monoecious, minute herb, ± 0.03 m high. **Dichasia** with central flowers staminate, lateral flowers pistillate. **Flowering time** June, July. **Fruit** a stalked, ellipsoid-rounded berry, at least twice the height of plant, bright orange, smooth, with a terminal crown-like ring of persistent tepals. Parasitic on succulent *Euphorbia horrida* and *E. polygona*; alt. up to 650 m; Sub-Escarpment Savanna/Albany Thicket (Grahamstown).

BAKER, J.G. & HILL, A.W. 1911. Santalaceae. *Flora of tropical Africa* 6,1: 411–434.
BEAN, P.A. 1990. The identity of *Osyris abyssinica* var. *speciosa* (Santalaceae). *South African Journal of Botany* 56: 665–669.
BROWN, N.E. 1932. Santalaceae. In J. Burtt Davy, *A manual of the flowering plants and ferns of the Transvaal with Swaziland* 2. Longmans, Green & Co., London.
DER, J.P. & NICKRENT, D.L. 2008. A molecular phylogeny of the Santalaceae (Santalales). *Systematic Botany* 33,1: 107–116.
GOLDBLATT, P & MANNING, J. 2000. Cape plants: a conspectus of the Cape flora of South Africa. *Strelitzia* 9: National Botanical Institute, Pretoria & Missouri Botanical Garden, St. Louis.
HILL, A.W. 1915a. The genus *Thesium* in South Africa, with a key and descriptions of new species. *Kew Bulletin* 1: 1–43.
HILL, A.W. 1915b. Notes on South African Santalaceae. *Kew Bulletin* 1: 97–102.
HILL, A.W. 1925. Santalaceae. *Flora capensis* 5,2: 135–212.
HILLIARD, O.M. 1994. A note on *Colpoon* (Santalaceae). *Edinburgh Journal of Botany* 51: 391, 392.
IMMELMAN, K.L. 1989. Key to the species of *Thesium* in PRE, not accounted for in Flora capensis. Unpublished notes.
LEVYNS, M.R. 1940. Two new species of *Thesium* and some notes on other species. *Journal of South African Botany* 6: 73–78.
LEVYNS, M.R. 1950. Santalaceae. In R.S. Adamson & T.M. Salter, *Flora of the Cape Peninsula*. Juta, Cape Town.
MANNING, J. & GOLDBLATT, P. 2012. Plants of the Greater Cape Floristic Region 1: the Core Cape Flora, *Strelitzia* 29. South African National Biodiversity Institute, Pretoria.
MILLER, A.G. 1989. Santalaceae. *Flora of Ethiopia* 3: 379–383.
POLHILL, R. & WIENS, D. 1998. *Mistletoes of Africa*. The Royal Botanic Gardens, Kew.
ROESSLER, H. 1969. Santalaceae. *Prodromus einer Flora von Südwestafrika* 21: 1–5.
STAUFFER, H.U. 1961. Santalales-Studien V–VIII. *Vierteljahrsschrift der Naturforschenden Gesellschaft in Zürich* 106: 387–418.
WIENS, D. & TOELKEN, H. 1979. Viscaceae. *Flora of southern Africa* 10,1: 43–56.

SAPINDACEAE

(Order Sapindales)

Compiled by C.L. Bredenkamp & N. Madlokazi

1a Leaves compound, rarely 1-foliolate:
2a Leaves imparipinnate or biternate or (1–)3-foliolate:
3a Herbaceous or woody, scandent with tendrils ..... **Cardiospermum**
3b Trees or shrubs, without tendrils ..... **Allophylus**
2b Leaves 1- or 2-paripinnate:
4a Fruit composed of 2 or 3 broadly winged cocci; stamens 8 ..... **Atalaya**
4b Fruit drupaceous or baccate, cocci not winged:
5a Sepals connate to form a saucer-shaped or campanulate tube ..... **Smelophyllum**

5b Sepals free or almost so; stamens (6–)8 or more:
6a Fruit globose, obscurely 3-lobed; leaf rachis ± winged ..... **Hippobromus**
6b Fruit conspicuously lobed:
7a Flowers unisexual; stamens (8–)12–20 ..... **Deinbollia**
7b Flowers bisexual; stamens 6–10 ..... **Smelophyllum**
1b Leaves simple, sometimes 1-foliolate:
8a Leaves 1-foliolate; sepals 4; petals 4 or absent; ovary 2-locular, with a single, basal ovule in each locule ..... **Allophylus**
8b Leaves simple:
9a Petals (4)5(6); ovary 2- or 3-locular, with a single ovule in each locule; fruit globose ..... **Pappea**
9b Petals absent; ovary 2–6-locular, with 2 axile ovules in each locule; fruit angled or winged; young leaves sticky ..... **Dodonaea**

ALLOPHYLUS L.

Species ± 180, but with poor segregation in an exceptionally difficult genus; cosmopolitan, mainly tropical and subtropical; 8 in sthn Afr., N, B, LIM, M, S, KZN, WC, EC.

1a Leaves unifoliolate

dregeanus (Sond.) De Winter

Simple-leaved false currant; *enkelblaarvalstaaibos* (A); *umthabathani* (X); *umthathazana* (Z)

Tree or shrub, 1.2–15.0 m high; white-grey bark. **Leaves** broadly ovate to elliptic, discolorous, glossy green below, glabrous except for domatia in axils of principal lateral veins below, margins wavy; petioles light green. **Flowers** simple, in lax panicles, white. **Ovary** 2-loculed, with a single basal ovule in each locule; style 2-lobed. **Flowering time** all year. **Fruit** ovoid, up to 10 mm long, red. Rivers, grasslands, forests, seashores, thicket; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Albany Thicket (Ntabankulu District E to Port Edward S to Port St Johns, Komga and East London).

1b Leaves trifoliolate
2a Terminal leaflet 3–4× as long as wide, narrowly elliptic

natalensis (Sond.) De Winter

Dune false currant; *duinevalstaaibos* (A); *umgqalagquzulu* (X); *isihlohlelo* (Z)

Tree or shrub, 2–5 m high; grey bark. **Leaflets** narrowly elliptic, discolorous, glabrous, margins shallowly toothed; veins below puberulent. **Flowers** simple, in lax panicles, white. **Sepals** 4, opposite, the 2 outer larger. **Petals** spathulate. **Ovary** with 2-lobed style, 1.5 mm long. **Flowering time** Nov., Dec. **Fruit** bright red, 6 mm in diam., subglobose. River mouths, forests, seashores, thicket; Sub-Escarpment Savanna, Indigenous Forests, Indian Ocean Coastal Belt, Albany Thicket (Elliotdale to Port St Johns S, from Bonza Bay to Gonubie Nature Reserve and Peddie to East London).

2b Terminal leaflet up to 1.5–3.0× as long as wide, usually elliptic or obovate elliptic
3a Terminal leaflet usually lobed up to half the distance to the midrib, 25–50 mm long

decipiens (Sond.) Radlk.

False currant; *valstaaibos* (A); *umcandathambo* (X); *umhlohlela* (Z)

Many-stemmed shrub, grey bark. **Leaves** with leaflets elliptic, discolorous, puberulent, margins serrate; petioles pubescent. **Flowers** simple, in lax panicles, yellow to green. **Petals** obovate. **Ovary** with 2-lobed style, 1 mm long. **Flowering time** all year.

Fruit 3.5 mm in diam., globose. Rivers, grasslands, mountains, kloofs, forests, thicket; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Dry Highveld Grassland, Indigenous Forests, Eastern Fynbos-Renosterveld, Albany Thicket (Katberg to Bizana S, from Queenstown to Lusikisiki District, Graaff-Reinet to Butterworth District, Baviaanskloof to East London, and Tsitsikamma to Humansdorp).

3b Terminal leaflet with margins subentire to crenate or serrate, usually 50 mm long

africanus P.Beauv.

Black false current; *swartvalstaaibos* (A); *inqala* (X); *umhloshazana* (Z)

Tree or shrub, 3–8 m high, white-grey bark. **Leaflets** obovate to elliptic, discolorous, glossy, dark green above, light green below, pubescent; veins on both sides hairy and prominent with domatia in axils of secondary veins, margins serrate; petioles pubescent. **Flowers** simple, in lax panicles. **Petals** spathulate. **Ovary** with 2-lobed style, 1.8 mm long. **Flowering time** Dec.–Feb. **Fruit** red or orange, 4–6 mm in diam., subglobose. **Seeds** flattened, globose. Rivers, thicket, grasslands, streambanks, forests; Indian Ocean Coastal Belt, Indigenous Forests (Port Edward S to Port St Johns).

ATALAYA Blume

Species 8 or 9, Australia to Indochina; 3 in sthn Afr., comparatively rare, LIM, M, S, KZN, EC.

[E]capensis R.A.Dyer

Cape krantz ash; *Kaapse krans-es* (A)

Tree, 1.5–10.0 m high. **Leaves** discolorous, shiny above, glabrous, paripinnate; leaflets in 2–5 pairs, weakly asymmetrical, lanceolate, undulate, apex acute, margins entire. **Flowers** small and creamish, in terminal panicles up to 110 mm long. **Stamens** 8, arising within disc; filaments hairy. **Flowering time** Dec., Jan. **Fruit** a nut, with 1–3 brittle, yellowish brown wings. Rivers, forests, kloofs, thicket; Albany Thicket, Indigenous Forests, Eastern Fynbos-Renosterveld (Humansdorp District E to Port Elizabeth).

natalensis R.A.Dyer

Natal krantz ash; *Natalse krans-es* (A); *umhlambila* (Z)

Tree, 7–20 m high. **Leaves** up to 300 mm long, bluish green, glabrous, paripinnate; leaflets in 3–5 pairs, more asymmetrical, lanceolate, undulate, apex acute, margins entire, wavy. **Flowers** small and greenish white in rather dense, terminal panicles, up to 200 mm long. **Flowering time** Nov.–Jan. **Fruit** a nut, with 3 pale brown wings. Very rare forest tree; Indigenous Forests (Port St Johns District).

CARDIOSPERMUM L.

Species ± 14, predominantly tropical America; 4 in sthn Afr., N, LIM, M, KZN, EC.

Flowers 7–10 mm long; fruits broadly ellipsoid

***grandiflorum** Sw.

Balloon vine; *blaasklimop* (A)

Perennial climber, 0.3–8.0 m high. **Leaves** biternate, stipulate; leaflets lobed, pubescent, upper surface sparsely pubescent, lower surface tomentose, apex acute, margins serrate; petioles up to 70 mm long. **Flowers** cream-coloured, in axillary thyrses; peduncle with a pair of tendrils at summit, sturdy. **Sepals** ovate, petaloid. **Petals** 4, ovate with petaloid appendages, hairy. **Stamens** 8; filaments free. **Ovary** villous; style branches

filiform, hirsute. **Flowering time** Apr.–Nov. **Fruit** an inflated capsule, membranous, up to 66 mm long. **Seeds** black, globose, with a white, oblong hilum. Origin tropical America, declared weed (Category 1), transformer; river mouths, streambanks, thicket; Indigenous Forests, Albany Thicket, Eastern Fynbos-Renosterveld (Graaff-Reinet S, from Uitenhage to Port Elizabeth and Grahamstown).

Flowers 2–6 mm long; fruits obversely tetrahedroid

*__halicacabum__ L. var. __microcarpum__ (Kunth) Blume

Lesser balloon vine; *blaasklimop* (A)

Herbaceous or slightly woody climber, 0.4–2.0 m long. **Leaves** biternate, stipulate; leaflets lobed with sharp teeth, glabrescent, apex acuminate; petioles up to 35 mm long. **Flowers** white-yellow, in abortively 3-flowered thyrses; peduncle with a pair of tendrils at summit, slender. **Petals** 4, with petaloid appendages, hairy. **Stamens** 8; filaments unequal. **Ovary** villous; style short, style branches clavate, plumose. **Flowering time** all year. **Fruit** an inflated capsule, membranous, < 20 mm long. **Seeds** black, reniform, with a white, ovate hilum. Origin tropical America, minor weed, not invasive; seashores; Indian Ocean Coastal Belt, Albany Thicket (Mngazi River, Port St Johns, Ntafufu, Kentani, East London).

DEINBOLLIA Schumach. & Thonn.

Species ± 40, Africa and Madagascar; 1 in sthn Afr., M, S, KZN, EC.

oblongifolia (E.Mey. ex Arn.) Radlk.

Dune soap-berry; *duineseepbessie* (A); *umasibele* (X); *iqinisamasimu* (Z)

Tree or shrub, dioecious, up to 3.5 m high. **Leaves** paripinnate, large, many jugate, green; leaflets oblong-elliptic, apex acute, margins entire, wavy. **Flowers** white to cream-coloured, in many-flowered, dense, axillary racemes. **Sepals** 5, concave, imbricate, pubescent. **Petals** 5, woolly with red-brown scales on inner surface, ciliate. **Disc** glabrous. **Stamens** (8–)12–20, arising within disc; filaments linear, pilose. **Ovary** 3-lobed; style simple, thick, straight. **Flowering time** Mar.–Nov. **Fruit** separating into 2 berry-like mericarps, up to 15 × 10 mm, leathery and brown when mature. **Seeds** subglobose. Rivers, forests, seashores, thicket; Indigenous Forests, Indian Ocean Coastal Belt, Albany Thicket, Eastern Fynbos-Renosterveld (Port St Johns S, from Nahoon River to Kei River Mouth, and from Suurberg to Uitenhage).

DODONAEA Mill.

Species 68, predominantly Australia; 1 in sthn Afr., with 2 varieties, widespread.

viscosa Jacq. var. **angustifolia** (L.f.) Benth.

Sand olive; *sandolien* (A)

Small tree or shrub, 0.8–9.0 m high, dioecious. **Leaves** simple, linear-oblanceolate, resinous, shiny, apex acute, young leaves viscous, margins entire. **Flowers** small and greenish yellow, in rounded, axillary, paniculate thyrses. **Petals** absent. **Sepals** 4, imbricate, valvate, puberulent. **Disc** vestigial. **Stamens** 6; filaments shorter than anthers. **Ovary** 2–4(–6)-locular; style, 3–6-fid. **Flowering time** July–Oct. **Fruit** winged capsule, membranous, pink-tinged, septicidally 2- or 3- valved, with 1 seed in each locule. **Seeds** glabrous, compressed. Karoo, mountains, kloofs, thicket; Indian Ocean Coastal Belt, Lower Karoo, Drakensberg Grassland, Rainshadow Valley Karoo, Albany Thicket (Mkambati

Nature Reserve S, from Graaff-Reinet E to Cathcart and Steytlerville to Uitenhage and Grahamstown).

HIPPOBROMUS Eckl. & Zeyh.

Monotypic, LIM, M, KZN, EC.

pauciflorus (L.f.) Radlk.

False perdepis; *valsperdepis* (A); *umfazonengxolo* (X); *uqhume* (Z)

Aromatic, small tree or shrub, monoecious or polygamous, up to 5 m high. **Leaves** paripinnate, rachises winged, leaflets sessile, subopposite, obovate, margins entire, toothed above. **Flowers** in axillary panicles, golden-velvety. **Sepals** 5, unequal, elliptic, concave, ciliate. **Petals** 5, shorter than sepals, obovate, without scales, imbricate. **Disc** thick, annular. **Stamens** 8, arising within disc, longer than calyx; filaments terete, anthers oblong. **Ovary** 3-locular, subglobose, with 2 ovules in each locule; style short, thick, stigma 3-angled. **Flowering time** July–Nov. **Fruit** globose. **Seeds** flattened, without an aril. Riverine thickets, forest margins, kloofs, mountains; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indigenous Forests, Indian Ocean Coastal Belt, Dry Highveld Grassland, Drakensberg Grassland, Eastern Fynbos-Renosterveld, Albany Thicket (Queenstown E to Port St Johns S, from Somerset East to Willowvale District and Hankey to Uitenhage, Port Elizabeth, Grahamstown and East London, and to Humansdorp).

PAPPEA Eckl. & Zeyh.

Monotypic, Africa, very variable, widespread.

capensis Eckl. & Zeyh.

Jacket-plum; *doppruim* (A); *umgqalutye* (X); *umgqogqo* (Z)

Tree, 7–13 m high. **Leaves** simple, petiolate, oblong, apex mucronate, margins minutely toothed. **Flowers** small and yellowish, regular, in axillary racemes. **Sepals** 5, small, connate to form a cupular-shaped calyx; lobes ovate. **Petals** 4–6, villous within. **Disc** small, annular. **Stamens** 8–10, arising within disc; filaments villous. **Ovary** 2- or 3-locular, 2- or 3-lobed, hirsute, with a solitary ovule in each locule; style short, thick; stigma-simple. **Flowering time** Nov.–Mar. **Fruit** globose, velvety, green to brown, with 1 or 2 locules aborting, splitting to reveal a seed enclosed in a jelly-like, orange-red arillode. **Seeds** globose, black, shiny. Streambanks, rivers, karroid areas; Sub-Escarpment Grassland, Lower Karoo, Sub-Escarpment Savanna, Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld, Albany Thicket (Queenstown S, from Graaff-Reinet to King William's Town and from Steytlerville to Uitenhage, Port Elizabeth, Grahamstown and Fish River Mouth).

[E]SMELOPHYLLUM Radlk.

Monotypic, EC.

capense (Sond.) Radlk.

Bend-me-not; *buig-my-nie* (A)

Tree or shrub, up to 4 m high, bark smooth, grey. **Leaves** petiolate, imparipinnate, in 4 pairs, brownish green; leaflets obliquely elliptic, obtusely toothed and undulate on margins. **Flowers** small and greenish, in axillary panicles, bisexual. **Sepals** 5, connate at base, calyx with small lobes. **Petals** 5, slightly longer than calyx, ± quadrate, reflexed at apex, each with a thick appendage longer than petal. **Disc** cupular. **Stamens** 6–10;

filaments subterete. **Ovary** 2- or 3-locular with a solitary, basal ovule in each locule; style short, thick; stigma simple. **Flowering time** Dec., Jan. **Fruit** 2-lobed, with fleshy pericarp. **Seeds** without an aril. Forests, kloofs, river edges, thicket; Rainshadow Valley Karoo, Indigenous Forests, Albany Thicket, Eastern Fynbos-Renosterveld (Steytlerville to Baviaanskloof, Cockscomb, Uitenhage and Port Elizabeth).

BOWDEN, L.F. 1966. *Cardiospermum* L. *Flora zambesiaca* 2,2: 508–512.
DAVIES, F.G. & VERDCOURT, B. 1998. *Flora of tropical East Africa*. Sapindaceae: 1–108.
DE WINTER, B. 1954. The nomenclature of species of *Allophylus* in South Africa. *Bothalia* 6: 407, 408.
DYER, R.A. 1937. *Atalaya capensis*: a new generic record for South Africa. *South African Journal of Science* 34: 214–217.
DYER, R.A. 1943. The third species of *Atalaya* in South Africa—*Atalaya natalensis* sp. nov. *South African Journal of Science* 39: 112–115.
EXELL, A.W. 1966. Sapindaceae. *Flora zambesiaca* 2,2: 494–508, 512–543.
FIVAZ, J. & ROBBERTSE, P.J. 1993. *Pappea capensis*: monoecious, dioecious or androecious? *South African Journal of Botany* 59: 342–344.
FOUILLOY, R. & HALLÉ, N. 1973. Sapindacées. *Flore du Cameroun* 16: 1–202. Also reprinted in *Flore du Gabon* 23: 1–202.
FRIEDRICH-HOLZHAMMER, M. 1968. Sapindaceae. *Prodromus einer Flora von Südwestafrika* 75: 1–5.
LEENHOUTS, P.W. 1967. A conspectus of the genus *Allophylus* (Sapindaceae). *Blumea* 15: 301–358.
SONDER, O.W. 1860. Sapindaceae. *Flora capensis* 1: 236–242.
WEST, J.G. 1984. A revision of *Dodonaea* Miller (Sapindaceae) in Australia. *Brunonia* 7: 1–194.

SAPOTACEAE

(Order Ericales)

Compiled by C.L. Bredenkamp & N. Madlokazi

1a Flowers (4)5(6)-merous; sepals in a single whorl or at least not manifestly in 2 whorls:
2a Secondary veins of leaves inconspicuous, surface of lamina divided into small polygonal areoles by tertiary vein reticulation; seeds subspherical, faintly 5-ribbed with small basal scar ..... **Sideroxylon**
2b Secondary veins of leaves easily distinguished, lamina not clearly marked into small polygonal areoles; seeds ± compressed-ellipsoid with long lateral scar:
3a Fruit usually 3–5-seeded; seeds laterally compressed, testa hard and shiny; endosperm copious ..... **Chrysophyllum**
3b Fruit 1(2)-seeded; seeds not much compressed; endosperm absent..... **Englerophytum**
1b Flowers 3- or 4(5)-merous; sepals manifestly in 2 whorls:
4a Flowers generally 3-merous; sepals 6 in 2 dissimilar whorls..... **Manilkara**
4b Flowers generally 4-merous; sepals 8 in 2 dissimilar whorls:
5a Seeds laterally flattened, with small, basal, circular scar; endosperm present ..... **Mimusops**
5b Seeds ellipsoid, not or only slightly laterally compressed, with large scar; endosperm absent..... **Vitellariopsis**

CHRYSOPHYLLUM L.

Species ± 80, especially in the Neotropics, ± 15 in Africa, 10 in Madagascar, 2 or 3 extending from India to Malesia and Australia; 1 in sthn Afr., S, KZN, EC.

viridifolium J.M.Wood & Franks

Fluted milkwood; *bos-stamvrug* (A); *umgwinya* (Z)

Large tree, 3–30 m high, bark pale grey. **Leaves** chartaceous; oblong or narrowly ovate-oblong, glabrescent, glossy above, base acuminate, margins undulate; petioles

brownish pubescent. **Flowers** white, axillary in fascicles. **Corolla**: tube short, campanulate, ciliate. **Stamens** short; anthers versatile; filaments pilose, white hairs. **Ovary** pubescent; style columnar. **Flowering time** Jan., Feb. **Fruit** 5-seeded, ± 20 mm in diam., subglobose, green-yellow. **Seed** with a long, narrow, ventral scar, smooth and shiny, testa hard. Evergreen subtropical forest, often a canopy tree; Indigenous Forests (Pondoland East, Egoso Forest).

ENGLEROPHYTUM K.Krause

Species 5–10, poorly defined and variable species in tropical Africa; 2 in sthn Afr., B, LIM, NW, G, M, S, KZN, EC.

natalense (Sond.) T.D.Penn.

Natal milkplum; *Natal-melkpruim* (A); *ithunga* (X); *umthongwane* (Z)

Perennial shrub, 1–15 m high, bark brown, branchlets densely brown. **Leaves** many at branch ends, oblanceolate to narrowly elliptic, greenish drying greyish green, puberulent, base narrowly acute, apex acuminate, lateral nerves inconspicuous. **Flowers** solitary, in fascicles, sessile. **Calyx** a single whorl of 5(6), slightly ovate lobes, thick and leathery. **Corolla** shortly tubular; lobes 5(–10), white-yellowish. **Stamens** 5(–10); anthers extrorse; filaments well developed, sometimes converted to petaloid scales in female flowers. **Flowering time** July–Jan. **Fruit** a 1-seeded berry, 25 × 15 mm, deep red. **Seeds** ellipsoid, testa thin, brittle, ventral scar ± 2.5 mm wide. Forests, riverbanks, thicket; Indian Ocean Coastal Belt, Albany Thicket, Sub-Escarpment Savanna, Indigenous Forests (Egoso Forest and Port St Johns S to Komga, Willowvale, Kentani and East London).

MANILKARA Adans.

Species ± 70, pantropical, 30 in America, ± 20 in Africa and Madagascar, ± 15 in Asia and the Pacific; 4 in sthn Afr., N, B, LIM, M, S, KZN, EC.

nicholsonii A.E.van Wyk

Tree, 3–10 m high. **Leaves** crowded at tips of branches, elliptic to ovate, apex retuse, margins undulate to repand; stipules caducous or absent. **Flowers** axillary in axils of leaves, trimerous, creamy white. **Sepals** 6, in 2 whorls, often broad. **Corolla** 6(8)-lobed, each lobe with 2 dorsal appendages. **Stamens** 6 arising from throat of corolla tube; filaments usually longer than short anthers. **Ovary** 6–16-locular; ovules ventrally or basiventrally attached. **Flowering time** June–Aug. **Fruit** a 1- or 2-seeded berry, up to 30 × 20 mm, orange. **Seeds** laterally flattened; testa hard, scar conspicuous. Riverbanks, forests, sandy soils derived from Table Mountain Sandstone; Indian Ocean Coastal Belt, Sub-Escarpment Savanna, Indigenous Forests (Port Shepstone District and Umtamvuna River).

MIMUSOPS L.

Species ± 40, 20 in Africa, 15 in Madagascar, 4 in the Mascarenes, 1 in the Seychelles, and 1 in Asia and the Pacific; 3 in sthn Afr., B, LIM, NW, G, M, S, KZN, EC.

caffra E.Mey. ex A.DC.

Coastal red milkwood; *kus-rooimelkhout* (A); *umtunzi* (X); *umkhakhayi* (Z)

Small tree or shrub, 1–15 m high. **Leaves** leathery, glossy above, densely and minute brownish appressed-pubescent below, obovate-cuneate or obcordate, distinctly narrowing towards base, usually emarginate or retuse, margins strongly revolute; petioles ± 16 mm

long. **Flowers** white, axillary; pedicels 15–30 mm long. **Calyx** brownish pubescent, 8 mm long, lobes narrowly whorled, triangular, inner lanceolate, paler and delicate. **Corolla**: tube 1.5 mm long. **Stamens**: filaments subulate; anthers 3.5 mm long. **Ovary** 2.5 mm long; style 6.5 mm long. **Flowering time** Nov.–Aug. **Fruit** 1–few-seeded, orange-red. **Seeds** 13 mm long, with small, circular, basal scar. Coastal tree, riversides, kloofs, thicket; Albany Thicket, Indian Ocean Coastal Belt, Sub-Escarpment Savanna, Sub-Escarpment Grassland (Ngangelizwe E to Port St Johns, S to Grahamstown, Port Alfred and East London).

obovata Sond.

Forest red milkwood; *bos-rooimelkhout* (A); *umtunzi wehlathi* (X); *umnole* (Z)

Tree or shrub, up to 20 m high. **Leaves** thinly coriaceous, glabrous when old or with powdery vestige of rusty brown pubescence, elliptic to elliptic-obovate, base acute, apex acute or obtuse; lamina glossy above, mat below, margins undulate; petioles up to 7 mm long. **Flowers** white to pale yellowish, scented; pedicels 10–30 mm long, axillary. **Calyx** in 2 whorls, 10 mm long, segments free, triangular, inner slightly narrower, paler. **Corolla**: tube 1 mm long. **Stamens**: anthers 5.5 mm long. **Ovary** 3 mm long; style 8 mm long. **Flowering time** Feb.–Oct. **Fruit** 1–few-seeded, ovoid, yellow to orange. **Seeds** 25 mm long with circular, basal scar. Rivers, forests, mountains, kloofs; Drakensberg Grassland, Albany Thicket, Indian Ocean Coastal Belt (Queenstown E to Port St Johns, from Fort Beaufort E to East London and southwards to Port Elizabeth).

SIDEROXYLON L.

Species ± 75, 49 in the Neotropics, ± 25 elsewhere (6 Africa, 6 Madagascar, 8 Mascarenes, 4 Asia, 1 in NW Pakistan, Afghanistan, Oman, Somalia, Ethiopia, Djibouti); 1 in sthn Afr., LIM, M, S, KZN, WC, EC.

inerme L.

Wit-melkhout (A); *umqwashu* (X)

Tree or shrub, 1–15 m high; blackish bark. **Leaves** dark green, glossy above, elliptic to obovate, base acuminate, apex slightly acute, glabrous above. **Flowers** 5-merous throughout, scented, axillary. **Corolla** 5-lobed, without lateral appendages, campanulate, whitish green, ovate, auricled at base. **Calyx** up to 2 mm long, cup-shaped, imbricate glabrous. **Stamens** arising from throat of corolla tube; staminodes petaloid, with a broad base, alternipetalous. **Ovary** with basally attached seed. **Flowering time** all year. **Fruit** 1-seeded, up to 100 mm in diam., purple to blackish. **Seeds** depressed-globose, with small, circular scar in a basal depression; testa thick, bony, dark brown. Coastal woodlands, thicket, mountains, forests, river mouths; Albany Thicket, Drakensberg Grassland, Eastern Fynbos-Renosterveld, Sub-Escarpment Savanna (Queenstown E to Port St Johns, from Grahamstown southwards to Port Elizabeth and Humansdorp).

VITELLARIOPSIS Baill. ex Dubard

Species 6, E and S Africa; 2 in sthn Afr., M, S, KZN, EC.

marginata (N.E.Br.) Aubrév.

Forest bush milkwood; *bos-melkhout* (A); *umthunzi* (X); *umphumbulu* (Z)

Perennial tree or shrub, 4–10 m high, bark grey. **Leaves** glabrous, narrowly obovate, apex acute to apiculate, margins revolute; petioles up to 10 mm long. **Flowers** white-yellow, up to 4 in axil; pedicels pubescent, up to 30 mm long. **Calyx** 6-lobed, divided

nearly to base, up to 9 mm long. **Corolla** 3- or 4-merous; tube short; lobes and lateral appendages subequal. **Stamens** up to 8; anthers up to 2.5 mm long. **Ovary** ± 8 locular, subglobose; style terete, obtuse. **Flowering time** Sept.–Nov. **Fruit** 1(2)-seeded, ellipsoid with pointed apex, up to 50 × 35 mm, purplish red. **Seeds** testa thin and broad scar, 20–25 mm long. Rivers, thicket, forests; Albany Thicket, Sub-Escarpment Savanna (Butterworth District).

AUBRÉVILLE, A. 1961. Notes sur les Sapotacées de l'Afrique équatoriale. *Notulae Systematicae (Paris)* 16: 223–279.
AUBRÉVILLE, A. 1971. Essais de géophylétique des Sapotacées 2. *Adansonia* 11: 425–436.
BREDENKAMP, C.L. 1993. A *Bequaertiodendron* by any other name? *Bothalia* 23: 235, 236.
HARVEY, W.H. & WRIGHT, C.H. 1906. Sapotaceae. *Flora capensis* 4,1: 436–444.
HEINE, H. & HEMSLEY, J.H. 1960. Notes on African Sapotaceae II. The genus *Bequaertiodendron* De Wild. *Kew Bulletin* 14: 304–309.
HEMSLEY, J.H. 1966. Notes on African Sapotaceae. *Kew Bulletin* 20: 472–478.
HEMSLEY, J.H. 1968. *Flora of tropical East Africa*. Sapotaceae: 18–24.
KRAUSE, K. 1914. *Englerophytum*, eine neue afrikanische Gattung der Sapotaceen. *Botanische Jahrbücher* 50: 343–348.
KUPICHA, F.K. 1983. Sapotaceae. *Flora zambesiaca* 7,1: 210–247.
LIBEN, L. 1989. La véritable identité des genres et espèces confondus sous le nom de *Bequaertiodendron magalismontanum* (Sond.) Heine & Hemsley (Sapotaceae) en Afrique centrale et occidentale. *Bulletin du Jardin Botanique National de Belgique* 59: 151–169.
MEEUSE, A.D.J. 1960. Notes on the Sapotaceae of southern Africa. *Bothalia* 7: 322–339.
MEEUSE, A.D.J. 1963. Sapotaceae. *Flora of southern Africa* 26: 31–53.
PENNINGTON, T.D. 1991. *The genera of Sapotaceae*. Royal Botanic Gardens, Kew & The New York Botanical Garden, Bronx.
ROESSLER, H. 1967. Sapotaceae. *Prodromus einer Flora von Südwestafrika* 106: 1.
STEYN, E.M.A. 1990. Macromorphological floral characters in *Bequaertiodendron magalismontanum*, possible taxonomic significance. *South African Journal of Botany* 56: 440–442.

SCROPHULARIACEAE *s.l.*

(= BUDDLEJACEAE)

(Order Lamiales)

Compiled by S.J. Smithies, C.L. Bredenkamp & Z.L. Magwaza

Scrophulariaceae has long been treated as a large, very diverse family, with many tribes (Takhtajan 1997; Fischer 2004). Following recent molecular analyses of plants, inferences as to evolutionary relationships have been made and many new phylogenetic classifications have been deduced. These have led to several changes in the scope of the Scrophulariaceae (Tank et al. 2006; Stevens 2008). Hence the following changes have been made in the Scrophulariaceae: parasitic genera are treated in the Orobanchaceae; Buddlejaceae is treated as synonymous to Scrophulariaceae and relevant EC genera have been incorporated; *Craterostigma* and *Lindernia* have been moved to Linderniaceae; *Mimulus* to Phrymaceae; the genera **Cymbalaria*, **Linaria*, **Misopates* and *Veronica* to Plantaginaceae and *Anastrabe*, *Bowkeria*, *Halleria*, also *Nuxia* to Stilbaceae. The current tribes for various genera of the Scrophulariaceae *s.s.* are listed below.

At the level of genera and species, this family has long been taxonomically problematic and many of the genera were last revised by Rolfe (1901) and Hiern (1904). The current treatment closely follows the incomparable monographs on the tribes Manuleeae and

Selagineae by Olive M. Hilliard (1995, 1999). Her smaller works, some together with B.L. Burtt, on *Diascia* section Racemosae, the new genus *Pseudoselago*, parts of *Nemesia*, and *Diclis*, as examples, are also valuable. Other much used references are Philcox (1990), Fischer (1992), Goldblatt & Manning (2000), Cook (2004), Manning & Goldblatt (2012).

Summary of tribes for genera of Scrophulariaceae *s.s.*

[after Fischer (2004), Kornhall & Bremer (2004), Tank et al. (2006) and Mabberley (2008)].

- Tribe Aptosimeae: *Aptosimum*, *Peliostomum*.
- Tribe Hemimerideae: *Alonsoa*, *Diascia*, *Diclis*, *Hemimeris*, *Nemesia*.
- Tribe Limoselleae (syn. Hebenstretieae; Manuleeae; Selagineae): *Chaenostoma*, *Cromidon*, *Dischisma*, *Glekia*, *Glumicalyx*, *Hebenstretia*, *Jamesbrittenia*, *Limosella*, *Lyperia*, *Manulea*, *Phyllopodium*, *Pseudoselago*, *Selago*, *Sutera*, *Trieenea*, *Zaluzianskya*.
- Tribe Scrophularieae: **Verbascum* (sometimes in tribe Verbasceae).
- Tribe Teedieae (syn. Freylinieae): *Dermatobotrys*, *Freylinia*, *Oftia*, *Phygelius*, *Teedia*.
- Unassigned to a tribe: *Buddleja* and *Gomphostigma*.

Key based on Leistner (2000).

1a Ovary with 1 ovule in each locule; fruit consisting of (1)2 ± ovoid cocci:
2a Two lateral corolla lobes ascending and united with 2 posterior (upper) lobes to form a 4-lobed upper lip, anterior (lower) lobe aborted or reduced to a small tooth:
3a Calyx of 2 segments..... **Dischisma**
3b Calyx of 1 segment..... **Hebenstretia**
2b Corolla limb usually with a 1- or 2-lobed upper lip and 3-lobed lower lip, occasionally upper lip 4-lobed with one well-developed anterior lobe:
4a Corolla limb always glabrous on inner surface..... **Selago**
4b Corolla limb with conspicuous 1-celled clavate hairs at base of upper lip, often all round mouth:
5a Calyx divided more than halfway into 5 narrowly triangular lobes, becoming indurated (hardened) in most species ..... **Pseudoselago**
5b Calyx divided much less than halfway (except sometimes the posterior lobe) into 3 or 5 lobes, at least the anterior pair broadly deltoid, never indurated..... **Cromidon**
1b Ovary with 2–many ovules in each locule; fruit a capsule, berry or drupe:
6a Leaves alternate, rarely opposite; corolla without pouches, pockets or spurs:
7a Corolla tube short, narrow, or sometimes somewhat campanulate ..... ***Verbascum**
7b Corolla tube elongated, comparatively broad with wide-open throat:
8a Capsules thick-walled, obovoid or ± globose to ovoid, compressed in upper part at right angles to septum, emarginate, opening only above; anthers of posterior pair of stamens smaller than others, sometimes empty..... **Aptosimum**
8b Capsules thin-walled, narrowly elongate-ovoid, acute, acuminate or obtusely pointed, opening ± down to base; all 4 anthers fertile and of ± equal size..... **Peliostomum**
6b Leaves usually opposite at least near base, sometimes rosulate or verticillate, occasionally alternate above; corolla tube sometimes with pouches, pockets or spurs:
9a Corolla with pouches, pockets or spurs, usually near base (caution: in *Diascia* such inflations rarely absent or corolla throat only slightly depressed, then yellow patches or oil-secreting hairs sometimes present there and seeds usually curved):
10a Flowers resupinate (inverted by twisting of stalk); corolla tube split to base..... **Alonsoa**
10b Flowers not resupinate; corolla tube not split, even if short:
11a Corolla tube short or obsolete; various inflations usually present in corolla throat or at base of limb:
12a Stamens 4..... **Diascia**
12b Stamens 2..... **Hemimeris**
11b Corolla tube somewhat elongated with various inflations at base:
13a Capsules ± ovate or urceolate, laterally compressed, septicidal; posterior corolla lip 4-lobed.... **Nemesia**
13b Capsules subglobose, loculicidal; posterior corolla lip 2-lobed ..... **Diclis**
9b Corolla without pouches, pockets or spurs near base of corolla tube or limb:

14a Suffrutices, shrubs, trees, or softly woody epiphytes:
15a Trees, shrubs, or stragglers; inflorescence cymose, paniculate ..... **Buddleja**
15b Suffrutices; inflorescence racemose ..... **Gomphostigma**
16a Fruit fleshy and indehiscent:
17a Leaves opposite and decussate, fleshy; stamens 5, perfect, equal; epiphytic ..... **Dermatobotrys**
17b Leaves opposite, rarely decussate, or alternate, not fleshy; stamens 4 (rarely 5, or 5th one a staminode), didynamous or subequal; not epiphytic:
18a Ovules usually 4 per locule; flowers solitary ..... **Oftia**
18b Ovules many per locule; flowers in cymes or subfasciculate ..... **Teedia**
16b Fruit capsular, dehiscent or subindehiscent:
19a Leaves petiolate ..... **Phygelius**
19b Leaves sessile to shortly-petiolate ..... **Freylinia**
14b Herbs or undershrubs:
20a Stamens 4, or 2, anther thecae 2, distinct or confluent; mainly water plants or in a habitat of unusual moisture conditions ..... **Limosella**
20b Stamens 4, rarely 2; anthers synthecate; mainly dry land herbs or undershrubs:
21a Posterior filaments not decurrent down corolla tube:
22a Bract adnate halfway up calyx tube ..... **Glekia**
22b Bract or floral leaf not or scarcely adnate to calyx tube (at most adhering to part or all of pedicel and sometimes extreme base of calyx):
23a Posticous stamens (on the posterior side, next to the axis) included, arising halfway up tube or higher, anticous pair (most remote or turned away from the axis) either included or anthers just visible in mouth ..... **Manulea**
23b One or both pairs of stamens exserted at anthesis (in two species of *Sutera* all stamens are included but then arising near base of tube):
24a Clavate hairs, when present, confined to orange/yellow patch at base of posterior lip; seeds sinuously wrinkled in longitudinal bands ..... **Trieenea**
24b Clavate hairs, when present, confined to inside of corolla tube as longitudinal bands, these sometimes coalescing or extending from throat onto bases of corolla lobes; seeds patterned with transversely elongated pits arranged like a chequerboard:
25a Inflorescences with mixture of single flowers and some 3–several-flowered cymules, in leaf or bract axils; corolla lobes with clavate hairs on inside near mouth and base ..... **Sutera**
25b Inflorescences usually with single flowers in leaf or bract axils (mostly with 3-flowered cymules in *C. floribunda* and rarely so in *C. polelensis*); corolla lobes glabrous on upper surface ..... **Chaenostoma**
21b Posterior filaments decurrent down corolla tube, often to base, sometimes briefly:
26a Stigma short (up to 2 mm), often minutely bifid, stigmatic surface ± terminal, either jelly-like or composed of minute papillae, these either terminal or also extending briefly downwards:
27a Leaves usually opposite, bases decurrent, forming ridges or narrow wings down stem ..... **Lyperia**
27b Leaves either alternate, at least on upper part of stem, or opposite and then not decurrent ..... **Jamesbrittenia**
26b Stigma lingulate (tip occasionally minutely bifid), often ± equalling or longer than style, flattened, with 2 marginal bands of stigmatic papillae:
28a Bract either adnate to pedicel (or part of pedicel) only, or to pedicel and base of calyx tube (never more than lower third):
29a Inflorescence capitate, nodding in flower, erect in fruit ..... **Glumicalyx**
29b Inflorescence either capitate or extended, always erect:
30a Capsules beaked; orange patches, if present, on corolla limb, then located on all lobes forming radial pattern ..... **Zaluzianskya**
30b Capsules not beaked; orange/yellow patches present on corolla limb but only on posterior lip ..... **Trieenea**
28b Bract adnate at least halfway up calyx tube, rarely less:
31a Calyx strongly 5-ribbed, plicate in flower, distinctly bilabiate, posterior lip 3-toothed, anterior lip ± 2-toothed; stamens 4 or 2; staminodes usually absent; flowers ± sessile ..... **Zaluzianskya**
31b Calyx not strongly ribbed, rarely plicate and then 2 stamens and 2 staminodes, distinctly bilabiate or not, lobing various, often deep, sometimes right to base; stamens 4 or 2; staminodes present or absent; flowers pedicellate ..... **Phyllopodium**

ALONSOA Ruíz & Pav.

Mask flower

Species ± 11, mainly tropical America, from Mexico to Chile, centred in Peru; 2 in sthn Afr., WC, EC.

peduncularis (Kunze) Wettst.

Perennial herbs, stems 0.3–0.9 m high. **Leaves** petiolate, ovate, acute, dentate or incise-serrate. **Flowers** single, axillary; pedicels twisted so flowers resupinate (upside down). **Calyx** 5-lobed. **Corolla** 5-lobed, split to base on apparently lower side, with 2 shallow sacs at base of lobes, lined with oil-secreting trichomes or elaiophores; lobes pink or pale red with inside of sacs yellow. **Flowering time** ± Oct.–Mar. Perhaps among S-facing rocks, clay soil; alt. 300–580 m; Eastern Fynbos-Renosterveld ('woody gorges about Uitenhage', not collected in EC since 1830s).

ANASTRABE E.Mey. ex Benth. see **STILBACEAE**

APTOSIMUM Burch. ex Benth.

Karoo or veld violet; *karoo-viooltjie* (A)

Species ± 20, sthn and tropical Africa; all in sthn Afr., widespread but mostly in western, dry regions, not S or KZN.

Plants erect or suberect

indivisum Burch. ex Benth.

Karoo violet, veld or wild violet; *karooviool*, *karooviooltjie* (A)

Dwarf shrub, stem short, 0.01–0.08 m high; ± erect, usually branches short and crowded, leafy. **Leaves** ± spathulate, acute, apiculate, long-petiolate, midrib not hardening into spines. **Flowers** axillary, ± equal to or shorter than leaves. **Calyx** deeply 5-lobed. **Corolla** tubular, blue or purple with dark spots in throat, sometimes also white streaks. **Flowering time** ± all year, mostly Oct. Sandy and stony soil; Upper Karoo, Dry Highveld Grassland, Lower Karoo (Middelburg S to Graaff-Reinet and Klipplaat).

marlothii (Engl.) Hiern

Koffie(*boontjie*)*karoo*, *koffiepitkaroo* (A)

Dwarf shrub, decumbent or ± erect, 0.1–0.6 m high; much branched, densely to sparsely spiny, leafy. **Leaves** spathulate, apiculate, clustered. **Flowers** axillary or on reduced side shoots, longer than leaves. **Calyx** shortly 5-lobed. **Corolla** tubular, with short lobes, dark blue to violet or mauve, with centre darker, sometimes with dark spots or striae, throat sometimes white. **Flowering time** Apr.–Dec., mostly Oct. On sandy, often stony soil, sometimes over limestone; Upper Karoo (Oviston).

spinescens (Thunb.) F.E.Weber

Kankerblare/*bossie*, *doringviooltjie*, *koffiepit*, *rolvarkie* (A)

Spiny, dwarf shrub, prostrate to ascending (erect), 0.03–0.30(–0.70) m high; leafy. **Leaves** ± linear, acute, sessile, midrib forming spine with age. **Flowers** axillary, usually longer than leaves. **Calyx** shortly 5-lobed. **Corolla** tubular, expanded above, lobes short, blue to violet or mauve, often darker round mouth, sometimes white in throat. **Flowering time** Oct.–? Sandy, often rocky soil, sometimes with lime; Lower Karoo, Rainshadow Valley Karoo, Albany Thicket (Aberdeen to Willowmore and Kariega Drift).

Plants prostrate

lineare Marloth & Engl.

Dwarf shrub, erect to procumbent, much branched, rarely closely tufted; stems 0.02–0.20 (–0.40) m long, densely leafy. **Leaves** linear or narrowly oblanceolate, apiculate, sessile, up to 0.1 m long, midribs persisting as spines. **Flowers** axillary, mostly shorter than leaves. **Calyx** deeply divided. **Corolla** tubular, bright blue to mauve and violet, with darker marks at base of 5 short lobes, throat sometimes white. **Flowering time** Mar.–? Presence in EC uncertain (East London).

procumbens (Lehm.) Steud.

Karoo/veld violet, carpet flower; *braam-/brandbossie*, *brandkankerbos/-blare*, *karooviooltjie*, *kinkhoesbossie*, *seeroogbossie* (A)

Procumbent, dwarf shrub, up to 0.025 m high and 1 m wide. **Leaves** obovate or narrowly so (rarely wider); petioles not hardening into spines. **Flowers** axillary, mostly longer than leaves. **Calyx**: lobes up to tube length. **Corolla** tubular, violet to blue, often with dark marks or white areas. **Flowering time** Sept.–Apr. Sandy and rocky soil or gravel; Upper Karoo, Dry Highveld Grassland, Sub-Escarpment Grassland, Albany Thicket, Lower Karoo, Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld (Oviston to Aliwal North S, Middelburg to Hofmeyr, Graaff-Reinet to Katberg Pass and Willowmore to Grahamstown).

BOWKERIA Harv. see **STILBACEAE**

BUDDLEJA L.

Wild sage trees; *wilde-saliebome* (A)

Species ± 100, Africa, Asia and America; 7 in sthn Afr., LIM, NW, G, M, S, FS, KZN, L, NC, WC, EC.

1a Corolla tube long, cylindrical; stamens included; interpetiolar leafy stipules present except in the scandent species of B. pulchella

auriculata Benth.

Weeping sage; *treursalie* (A); *utile* (X)

Shrub, 1.2–3.5 m high, with long wand-like branches. **Stipules** short, broad, auriculate, auricles of same texture and colour as leaves. **Bracts** lanceolate-oblong, usually navicular. **Leaves** opposite and decussate; varying in size, dark green, shiny, glabrous and not rugose above, whitish tomentose beneath; blade ovate-lanceolate to lanceolate-oblong, base cuneate to rounded, apex acuminate to acute, margins finely serrate; petioles distinct. **Inflorescences** paniculate, axillary and terminal. **Flowers** whitish; corolla white, orange-yellow, lilac or salmon-coloured, with orange throat. **Flowering time** most of year, prolifically Dec.–May. **Fruit** a small capsule. Rocky ravines, mountain slopes, forest margins in mountainous country; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indigenous Forests (Mount Fletcher District S to Maclear, Somerset East to Keiskammahoek).

pulchella N.E.Br.

Red climbing sage; *rooi-ranksalie* (A)

Shrub, often scandent, 0.8–3.0(–7.0) m high, lateral branches patent, subterete. **Stipules** absent, soon deciduous, represented by faint interpetiolar ridge. **Bracts** linear-terete. **Leaves** opposite or subopposite; upper surface green, lower surface tawny and rufous, stellate-tomentose; blade ovate-lanceolate to ovate-oblong, varying in size, base cuneate,

apex acuminate to acute; petiole bases prominently concave, winged in upper half by decurrent blade. **Inflorescences** axillary, paniculate. **Flowers**: corolla cream-coloured, light orange to whitish and orange throat. **Flowering time** July, Aug. **Fruit** small capsule, narrowly ovoid. Forest margins or open spaces; Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Msikaba River, Kentani).

salviifolia (L.) Lam.

Sagewood; *saliehout* (A); *molalathau* (NS); *igqange* (X); *ilothane* (Z)

Tree or shrub, 1–8 m high; stems many, long, slender, lateral branches suberect, tomentulose (white or rusty). **Stipules** broadly rounded at apex, auriculate. **Leaves** opposite and decussate, sessile or subsessile, dark green, glabrescent, distinctly rugose above, rusty or white tomentulose, reticulate below; blade ovate-lanceolate to linear-lanceolate acuminate, base deeply cordate to auriculate. **Inflorescences** cymose, large terminal, pyramidal bunches, stellate-tomentose. **Flowers** cream-coloured or lilac with deep orange throat. **Flowering time** Sept.–May. **Fruit** small capsule. Forest margins, rocky slopes, watercourses, hillsides; Drakensberg Grassland, Dry Highveld Grassland, Sub-Escarpment Grassland, Albany Thicket, Upper Karoo, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld (Aliwal North to Port St Johns, Willowmore to Humansdorp).

1b Corolla tube short, campanulate; stamens, at least at the anthers, exserted; stipules represented by interpetiolar ridges, sometimes obscure

2a Leaves long and narrow, usually over 3× as long as wide

loricata Leeuwenb.

Mountain sage; *bergsalie* (A); *umngane* (Z)

Shrub, 0.9–3.5 m high, branchlets terete to subquadrangular, stellate-tomentose. **Leaves** opposite, petiolate; dark green, glabrous or slightly scabrid and bullate above, whitish stellate-tomentose beneath; blade very narrowly elliptic, base cuneate, apex acuminate to obtuse, margins closely crenulate, revolute when dry. **Inflorescences** terminal, paniculate, congested. **Flowers** white, creamy or pale yellow often with an orange throat. **Flowering time** Nov.–Feb. **Fruit** a small, hairy capsule in dense, woolly heads. Slopes of high mountains, alt. 90–2 805 m; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna (Lady Grey, Maclear to Mount Ayliff).

saligna Willd.

Mock olive; *wit-olienhout* (A); *motlhwaretshogwana* (T); *umgqeba* (X); *igqeba* (Z)

Shrub or small tree, 0.5–7.0 m high, branches closely leafy, ultimate twigs scaly, ± qaudrate, angles sometimes knobbled, ridged or winged. **Leaves** discolorous, petiolate, dark green, glabrescent, ± smooth above, light-coloured from dense, stellate scales beneath; blade linear, lanceolate or oblong, shortly or long acuminate at apex and base, rarely rounded, margins entire, revolute. **Inflorescences** terminal, in axils of upper leaves, large, many-flowered panicles. **Flowers** subsessile in 3-flowered cymes, small, ± 2 mm long, white or cream-coloured with reddish centre. **Flowering time** Oct.–Mar. **Fruit** a small, brown capsule. Dry hillsides, mountain slopes, wooded valleys, forest margins, coastal bush; Upper Karoo, Sub-Escarpment Savanna, Sub-Escarpment Grassland, Drakensberg Grassland, Albany Thicket, Indigenous Forests, Lower Karoo, Eastern Fynbos-Renosterveld (Norvalspont to Oribi Gorge S, to Graaff-Reinet, Komga and Humansdorp).

2b Leaves oblong or ovate, not over 3× as long as wide

dysophylla (Benth.) Radlk.

White climbing sage; *wit-ranksalie* (A); *umhlabangubo* (X)

Straggling or scandent shrub or climber, 0.9–7.0 m high, divaricately branched, ultimate branchlets terete to quadrate, striate, tawny or rusty pubescent to densely tomentose, with rather long, often stellate hairs. **Leaves** discolorous, dark green, glabrescent or stellate-tomentose above, stellate-pubescent beneath; blade deltoid-ovate to ovate, broadest at base, narrowing to deltoid subacute apex, margins irregularly dentate to crenate; petioles patent, tomentose, ridged or winged by decurrent leaf base. **Inflorescences** large, sublax, cymose panicles, with many small flowers; peduncles, pedicels and, calyces rusty or tawny substellate-tomentose to lanate, ultimate 3-flowered cymes not congested into heads. **Flowers** white or cream-coloured with maroon throat. Forest margins, kloofs, riparian bush; Sub-Escarpment Savanna, Sub-Escarpment Grassland, Drakensberg Grassland, Albany Thicket (Queenstown E to Lusikisiki, S to Port Alfred).

glomerata H.L.Wendl.

Karoo sage; *Karoo-salie* (A)

Shrub, bushy, sometimes straggling, 1.2–3.5 m high, ultimate twigs terete to subcompressed, angled or fluted, with scaly stellate tomentum, internodes short, leaf- and stipule bases prominent. **Leaves** petioled, discolorous, greyish green, tomentulose with short hairs, rugose above, rusty scaly tomentose, reticulate beneath; blade oblong to ovate-oblong, narrowing slightly to a broad apex, broadly cuneate, rounded or cordate at base, margins sinuate-lobed, with lobes again crenate, undulate. **Inflorescences** terminal panicles of congested cymes, ultimately forming subglobose heads of 9 or more flowers. **Flowers** yellowish to bright yellow. **Flowering time** Aug.–Mar. Among rocks, hills and mountains of sandy karroid areas; Upper Karoo, Sub-Escarpment Grassland, Albany Thicket, Lower Karoo, Dry Highveld Grassland, Eastern Fynbos-Renosterveld (Middelburg S to Willowmore, E to Riebeek East).

CHAENOSTOMA Benth. (Kornhall & Bremer 2004, 2005)

[= *SUTERA* Roth (1807), non Roth (1821), section *Chaenostoma* (Benth.) Hilliard]

Species 46, mainly SA but also tropical Africa; LIM, NW, G, M, KZN, NC, WC, EC.

All 4 stamens exserted; leaves opposite; corolla tube funnel-shaped, sometimes widely so, rarely narrow

caeruleum (L.f.) Kornhall

[= *Manulea caerulea* L.f., *Sutera caerulea* (L.f.) Hiern.]

Herb, flowering early but probably perennial, main stem erect, up to 1 m high; branches from base simple or branched; most of plant glandular-pubescent. **Leaves** opposite, dense, ± oblong, dentate, with some leaf tufts in axils. **Flowers** terminal in long racemes forming a corymb. **Calyx** long haired. **Corolla**: tube short (3–4 mm long), yellow or orange; limb rotate, lobes mauve, violet, or rarely white. **Style** and ovary with long glandular hairs. **Flowering time** mainly July–Oct. In scrub and salty or sandy grassland; Rainshadow Valley Karoo, Albany Thicket, Eastern Fynbos-Renosterveld (Willowmore to Patensie and Humansdorp).

calycinum Benth
[= *Sutera calycina* (Benth.) Kuntze]

Perennial herb, later with a woody base, most parts or whole plant glandular-puberulous. **Stems** up to 450 mm long, well branched and leafy. **Leaves** opposite, elliptic, ± acute, margins with small teeth. **Flowers** in bracteate racemes, sometimes in panicles. **Calyx** regular, lobes 6–9; tube with large glandular hairs. **Corolla**: tube 4.0–7.5 mm long, wide, yellow or orange; lobes mauvish pink. **Flowering time** mainly Jan. Sandy grassland of lowlands and slopes, also scrub on seaside dunes, coloniser of bare earth; Sub-Escarpment Grassland, Drakensberg Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Elliot and Cala E to Mthatha, and S to Komga and Kentani).

campanulatum Benth.
[= *Sutera campanulata* (Benth.) Kuntze]

Perennial herb, but can flower when young. **Stems** branched, leafy, up to 600 mm long, with long glandular and acute hairs, latter often alone on lower stems. **Leaves** opposite, ovate to elliptic, acute, denticulate. **Flowers** in racemes arranged in panicles. **Calyx** with long, coarse hairs. **Corolla**: tube 6–9 mm long, yellow or orange; lobes mauve. **Flowering time** all year. Sandy places such as old sand dunes to grassland and scrub; Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (King William's Town SW, Essenbos to Uitenhage, Port Elizabeth and Grahamstown, and from Humansdorp to Jeffreys Bay and Skoenmakerskop).

cinereum (Hilliard) Kornhall
(= *Sutera cinerea* Hilliard)

Perennial, sprawling dwarf shrub, with most parts whitish cobwebby-woolly. **Stems** slender up to 400 mm long. **Leaves** opposite, linear to narrowly elliptic, acute, sometimes with tiny teeth, finely woolly. **Flowers** axillary in short, terminal racemes. **Calyx** clearly bilabiate. **Corolla**: tube ± 5.0–5.5 mm long, narrow, yellow; lobes light mauve. **Flowering time** Sept.–Feb. Mountain slopes, S-facing, in scrub; Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld (Willowmore, Baviaanskloof Mts, Steytlerville and Humansdorp).

halimifolium Benth.
[= *Sutera halimifolia* (Benth.) Kuntze]

Gnarled, much-branched dwarf shrub, but can flower young, many parts clad in sessile hairs like salt grains. **Stems** up to 350 mm long. **Leaves** opposite, elliptic, ± acute, entire or toothed. **Flowers** in long, terminal racemes, forming a panicle. **Calyx** lacking coarse hairs. **Corolla**: tube 3.0–5.0 mm (up to 7.5 mm in Humansdorp area) wide, yellow; lobes pink or mauve, sometimes white. **Flowering time** mainly Sept.–Apr. Dry rocky places; Upper Karoo, Dry Highveld Grassland, Sub-Escarpment Grassland, Lower Karoo, Albany Thicket, Eastern Fynbos-Renosterveld (Oviston to Aliwal North SW, Middelburg to Elliot, Graaff-Reinet to Cradock and Cathcart, and from Kouga to Humansdorp).

patrioticum (Hiern) Kornhall
(= *Sutera patriotica* Hiern)

Annual or perennial, branched herb with most parts glandular-pubescent. **Stems** up to 450 mm high, densely leafy and with leaf tufts in axils. **Leaves** opposite, oblong to elliptic, ± acute, margins sometimes with small teeth. **Flowers** in corymbose panicles formed of long, terminal racemes. **Corolla**: tube short, 3.0–4.5 mm long, wide, yellow or orange;

lobes pink or mauve to blue-violet. **Flowering time** Nov.–May, mostly in Feb. Dry, sandy soil of flats, woodland and scrub or wetter grasslands, often in disturbed areas; Upper Karoo, Dry Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland (Aliwal North E to Ongeluksnek, SW to Murraysburg District, then E to Cathcart).

polyanthum Benth.
[= *Sutera polyantha* (Benth.) Kuntze]

Annual or perhaps perennial herb, much branched; many parts glandular-puberulous. **Stems** up to 300 mm long, leafy. **Leaves** opposite, elliptic, tapering into short petiole, ± acute, usually toothed. **Flowers** in panicles of leafy racemes. **Corolla**: tube 4.5–7.0 mm long, wide, yellow or orange; lobes white or rarely mauve. **Flowering time** Sept.–May. Dry grassland, sometimes rocky, often in gaps in *Portulacaria afra* (*spekboombos*), or shrubland, occasionally damp, shady places or rarely, cliff faces; Drakensberg Grassland, Sub-Escarpment Grassland, Eastern Fynbos-Renosterveld, Albany Thicket (Mpofu Game Reserve to Alice S, Enon to Patensie, Uitenhage and Peddie, and to Slang River).

roseoflavum (Hiern) Kornhall
(= *Sutera roseoflava* Hiern)

Perennial herb, but can appear annual, branches up to 600 mm long, with acute and glandular hairs at base and top respectively, mixed in between. **Leaves** opposite, elliptic or ovate, ± acute, serrate, pubescent. **Flowers** single in leaf axils, appearing crowded near top in leafy panicles in well-grown, much-branched plants. **Corolla**: tube 5–8 mm long, wide, yellow or orange; lobes light mauve. **Flowering time** perhaps all year. In coastal sandy grasslands; Dry Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Savanna, Albany Thicket (Somerset East E to King William's Town and Gonubie River Mouth, Bushman's River to Port Alfred and East London).

rotundifolium Benth.
[= *Sutera rotundifolia* (Benth.) Kuntze]

Dwarf shrub, erect, twiggy and leafy, 0.20–0.45 m high. **Leaves** opposite, often bluish, aromatic, usually ± 10 mm long, but can be up to 20 × 20 mm, ± round to broadly rhomboid, margins often finely serrate. **Flowers** single in upper leaf axils, in panicle. **Corolla**: tube 4.0–6.5 mm long, wide, yellow or orange; lobes purple or mauve, sometimes rose-pink. **Flowering time** Feb.–May. Montane in sand or on rocky outcrops of shale and dolerite, sometimes in cliff crevices and under bushes; Upper Karoo (from NC south to Middelburg District and Sneeuberg in Graaff-Reinet District).

Upper 2 stamens included, in throat or mouth; leaves mostly opposite; corolla tube funnel-shaped, sometimes narrowly so

cordatum (Thunb.) Benth.
[= *Sutera cordata* (Thunb.) Kuntze]

Perennial, softly hairy herb, with many sprawling stems, loosely branched and often rooting at nodes, length indefinite. **Leaves** ovate to widely elliptic, toothed and hairy. **Flowers** single and axillary. **Corolla**: tube 8–11 mm long, yellow or orange; lobes white; upper anthers in mouth. **Flowering time** all year. In coastal shady places, forests or scrub; Upper Karoo, Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld, Albany Thicket, Indigenous Forests (Aliwal North S, from Willowmore to Knysna District E to Grahamstown, Alexandria and Port Alfred, and to Humansdorp).

denudatum Benth.
[= *Sutera denudata* (Benth.) Kuntze]

Perennial herb, many stemmed, up to 450 mm high; stems ridged. **Leaves** narrow, mostly linear, acute or mucronate. **Flowers** terminal in racemes or these grouped in panicles. **Calyx** bilabiate with large and tiny glandular hairs. **Corolla**: tube 9.2–12.5 mm long, yellow or orange; lobes pink or mauve to purple; upper anthers in throat. **Flowering time** all year. Rocky slopes in scrub or near rivers; Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld (Uniondale and Willowmore E to Steytlerville, S to Humansdorp).

floribundum Benth.
[= *Sutera floribunda* (Benth.) Kuntze]

Perennial herb, up to 1 m high; stems usually branched, sometimes rooting at nodes. **Leaves** ovate or elliptic, and dentate. **Flowers** many in groups of 3 (cymules) or in racemes, all arranged in large panicles. **Corolla**: tube 6–11 mm long, yellow; lobes white or light cream-coloured to mauve. **Flowering time** all year, but mainly Jan.–May. Grassland with boulders, stream and forest margins; Drakensberg Grassland, Sub-Escarpment Grassland (Barkly East to Kokstad and S to Engcobo Mtn and Mthatha).

glanduliferum (Hilliard) Kornhall
(= *Sutera glandulifera* Hilliard)

Perennial herb, with sprawling stems of indefinite length, sometimes rooting at nodes, many parts glandular-villous. **Leaves** ovate, acute, ± dentate. **Flowers** single and axillary. **Corolla**: tube 4.5–10 mm long, yellow or orange; lobes white, sometimes somewhat mauve. **Flowering time** mainly Dec.–Mar. Under rocks on montane areas; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna (Stormberg S to Queenstown, Katberg Pass, Amatole Mts, King William's Town and Stutterheim).

impeditum (Hilliard) Kornhall
(= *Sutera impedita* Hilliard)

Perennial herb, many parts glandular-pubescent. **Stems** many, sprawling up to ± 350 mm long, leafy. **Leaves** ovate, acute, toothed. **Flowers** single and axillary. **Calyx** 5–7-lobed, long-haired. **Corolla**: tube 6–10 mm long, orange; lobes mauve; upper anthers in throat. **Flowering time** Jan., Mar., July. In sheltered places in valleys, in or on edge of woods, also mountain slopes; Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Komga and Kentani districts).

integrifolium (L.f.) Benth.
[= *Manulea integrifolia* L.f., *Sutera integrifolia* (L.f.) Kuntze]

Dwarf shrub, straggling or bushy, with most parts ± glandular-puberulous. **Stems** terete, up to 600 mm long, leafy and often with leaf tufts in axils. **Leaves** opposite, ± elliptic, sometimes dentate. **Flowers** single, axillary on upper stems, in racemes or narrow panicles. **Calyx** nearly glabrous. **Corolla**: tube 8–11 mm long, narrow, yellow or orange; lobes white or rarely light mauve. **Flowering time** all year. In coastal areas in scrub or on edge or within forests; Eastern Fynbos-Renosterveld (Kouga River Poort to Humansdorp).

macrosiphon Schltr.
[= *Sutera macrosiphon* (Schltr.) Hiern]

Perennial herb, later with woody caudex, several parts shortly glandular-pubescent. **Stems** many, up to 450 mm long, sprawling to erect, leafy, with leaf tufts. **Leaves** narrow,

acute, rarely with small teeth. **Flowers** single, axillary, in terminal racemes or narrow panicles. **Calyx** clearly bilabiate, tube up to 3.5 mm long. **Corolla**: tube 14–28 mm long, throat yellow; limb somewhat bilabiate, lobes white or pinkish. **Flowering time** mainly Mar.–May. In ± montane rocky areas; Upper Karoo, Drakensberg Grassland, Sub-Escarpment Grassland (Albert District to Middelburg, Queenstown and Graaff-Reinet Districts, Sneeuberg Mts).

marifolium Benth.
[= *Sutera marifolia* (Benth.) Kuntze]

Woolly, perennial herb to twiggy dwarf shrub, stems up to 400 mm long; most of plant glandular-puberulous and with light greyish, cobwebby hairs. **Leaves** elliptic, usually toothed. **Flowers** single in upper leaf axils, in terminal racemes or leafy panicles. **Calyx** clearly bilabiate. **Corolla**: tube 9–13 mm long, narrow, yellow or orange; lobes often white, also pale pink or mauve. **Flowering time** all year. Rocky places near rivers or on hillsides; Eastern Fynbos-Renosterveld, Albany Thicket (Joubertina E to Uitenhage and Port Elizabeth).

polelense (Hiern) Kornhall
(= *Sutera polelensis* Hiern)

Perennial herb, much branched, many parts glandular-pubescent. **Stems** erect to sprawling, up to 600 mm long. **Leaves** opposite but alternate near apex, ovate to rhomboid, petiolate or ± sessile, mostly irregularly toothed. **Flowers** many, 1 or 2(3) in a cymule, in upper leaf axils, in racemes or panicles. **Corolla**: tube 7.5–12.0 mm long, yellow or orange; lobes white or sometimes light mauve. **Flowering time** all year. Damp areas among or under rocks; Mesic Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland (Witteberg Mts and Cape Drakensberg round Lady Grey, Barkly East and Maclear).

racemosum Benth.
(= *Sutera racemosa* Kuntze)

Rare herb, possibly annual, little branched, several parts glandular-puberulous. **Stems** up to 350 mm long. **Leaves** ovate, dentate. **Flowers** axillary in leaf or bract axils, forming terminal racemes. **Calyx** bilabiate, lobes shorter than tube. **Corolla**: tube ± 8.0–9.5 mm long, narrow, yellow; lobes perhaps white. **Flowering time** Nov. and probably earlier. Probably among rocks in some shade; Albany Thicket (Enon E to Alicedale).

revolutum (Thunb.) Benth.
[= *Manulea revoluta* Thunb., *Sutera revoluta* (Thunb.) Kuntze]

Suffrutex, up to 600 mm high; often erect, much branched, leafy at least in upper parts. **Leaves** opposite, rarely alternate near apex, up to 25 × 4.5 mm, linear to narrowly elliptic, obtuse, base often decurrent, margins ± revolute. **Flowers** single, axillary, in racemes, these sometimes in narrow panicles. **Calyx** usually clearly bilabiate. **Corolla**: tube 5–13 mm long, throat yellow or orange; lobes pink or mauve, some blue or purple. Posticous stamens in throat or shortly exserted. **Flowering time** Feb.–July. Stony ridges or hill slopes in well-drained soil, full sun; Eastern Fynbos-Renosterveld (WC to Willowmore District).

CRATEROSTIGMA Hochst. see LINDERNIACEAE

CROMIDON Compton

Species 12, SA and Namibia, mainly NC, WC and EC, one extending to FS.

corrigioloides (Rolfe) Compton

Annual herb, stems up to 150 mm long; ± prostrate, laterally branched, retrorsely pubescent. **Leaves** small, 1 or 2 radical pairs (shed early), elliptic, tapering into broad petiole; cauline leaves spathulate; petioles shortening upwards, mostly glabrous. **Flowers** in terminal, crowded heads, forming narrow, many-headed panicles. **Bracts** adnate to pedicel and ± halfway up sepal tube. **Calyx** bilabiate, 5-lobed, pubescent. **Corolla** broadly funnel-shaped; limb bilabiate, 5-lobed; lobes white or light cream-coloured, bud violet outside with orange patch at base of posticous lip and halfway down back of tube. **Flowering time** July–Oct. **Fruit** a pair of soft-walled cocci. Damp or marshy soil; Upper Karoo (Middelburg).

*CYMBALARIA Hill see PLANTAGINACEAE

DERMATOBOTRYS Bolus

Monotypic, KZN, EC.

saundersii Bolus ex Oliv.

Perennial, softly woody, glabrous, usually epiphytic, small shrub; stems up to 1 m long, branched. **Leaves** opposite and decussate, ovate or elliptical, petiolate, ± toothed and fleshy with red veins. **Flowers** mostly in threes, at nodes of branchlets with short pedicels. **Calyx** shortly tubular with 5 lanceolate lobes. **Corolla** red or pinkish red with long, subcylindrical tube becoming funnel-shaped above, and 5 short, flaring, ± ovate lobes. **Flowering time** June–Aug. (early spring), just before leaves appear. Epiphytic on dead trees or rarely on forest floor; Indigenous Forests, Indian Ocean Coastal Belt (Manteku to Mtentu River Mouth, Kentani).

DIASCIA Link & Otto

Twinspurs; *horingkies* (A)

Species ± 64, sthn Afr., widespread with mostly perennial species in the east and annual ones in the west; few in N and FS, more in KZN, L, NC, WC, EC.

1a Yellow patches or spots present at base of upper or lateral corolla lobes and/or on sacs or spurs, usually flat, not hollow, sometimes absent; annual; leaves in, or mainly in, basal rosette, petioles up to 18–25 mm long; leaf margins variously entire or ± sinuate to irregularly lobed, dentate or pinnatifid; flowers axillary, sometimes in a raceme

cuneata E.Mey. ex Benth.

Annual herb, stems simple or branched from base, up to 350 mm high. **Leaves** ovate to obovate. **Flowers** axillary, in lax racemes up to 310 mm long; pedicels 9–24 mm long, ascending, curving back in fruit. **Corolla**: all lobes yellow, often with purplish base. **Sacs** 2, small and hollow, ± oblong, yellow, at bases of 2 upper lobes. **Flowering time** Mar.–Sept., mainly Aug. Open flats with low karroid shrubs or flood plains, in heavy clay soil or silt; Sub-Escarpment Savanna, Albany Thicket (Baziya to Mthatha, SW to Graaff-Reinet, from Willowmore District to Uitenhage, Port Elizabeth and Grahamstown).

decipiens K.E.Steiner

Annual herb, stems simple or branched from base, up to 400 mm high, erect to decumbent. **Leaves** ± ovate to obovate. **Flowers** axillary; pedicels 28–50 mm long, ascending, curving back in fruit. **Corolla**: all lobes light orange-yellow with base purplish red or purple. **Sacs** 2, in tube at base of upper lobes, well-developed, up to 2.8 mm long, projecting backwards and sideways and recurved at ends, ovate, dark purple; outside of each sac with a yellow patch and a yellow stripe between the 2. **Flowering time** May–Oct., mainly Aug. In heavy red clay soil or silt, or in dry, sandy streambeds; Rainshadow Valley Karoo (Toorwater, Gwarriepoort in Willowmore District).

sacculata Benth.

Annual herb, stems simple or laxly branched, up to 300 mm high. **Leaves** ovate to elliptic or oblanceolate. **Flowers** axillary; pedicels ± 20–80 mm long, ascending. **Corolla** lobes reddish or brownish purple or greyish magenta, rarely pink, darker at base with 2 or 3 yellow dots in slanting lines below upper lobes. **Spurs** conical, ± 2–4 mm long, projecting straight back but somewhat upwards at ends. **Flowering time** Aug., Sept. Rocky banks or on well-drained soil in kloofs, medium shade; Albany Thicket (Willowmore District, Baviaanskloof between Keerom and Sandvlakte).

1b One or sometimes two translucent-yellow patches or 'windows' present in corolla tube at base of upper corolla lobes, usually hollow and/or in a depression, often with maroon marks; mostly perennial; leaves mostly with petioles, these sometimes shortening upwards until leaves almost sessile, all leaves sessile in 2 species; leaf margins mostly variously serrate; flowers mostly in terminal, loose racemes, some of these also panicled
2a Stamens projecting forwards

alonsooides Benth.

Annual herb, stems up to 500 mm long, branching from base, erect, decumbent or scrambling. **Leaves** ovate to lanceolate upwards, ± acute; lower petioles up to 22 mm long, upper ones 1–3 mm long. **Flowers** many; pedicels up to 20 mm long, spreading but bent back with ends curving up in fruit. **Corolla** purple, almost rotate, upper lobes joined ± halfway, forming a hollow with 2 flat, yellow windows. **Spurs** and sacs absent. **Flowering time** Apr.–Dec., mostly Aug. Steep S-facing slopes, dolerite soil, under or scrambling up through shrubs; Upper Karoo (Graaff-Reinet District: Sneeuberg).

barberae Hook.f.

Perennial herb with stolons, stems tufted, up to 500 mm high, erect or decumbent, ± glabrous, with some glandular hairs in inflorescence. **Leaves** ovate or ovate-lanceolate, ± acute; petioles up to 5 mm long to almost sessile upwards. **Flowers**: pedicels up to 30 mm long, ascending. **Corolla**: all lobes rose-pink, with white patch outside at base of lower lobe, inside on palate usually 2 lateral areas of dark glands, rarely these joined together; window somewhat hollow, yellow with maroon markings. **Spurs** lateral on tube, up to 8 mm long, projected out and down with tips a little curved inwards, with dark glands inside. **Flowering time** Nov.–Mar. Moist places with silt or gravel such as banks and boulder beds of streams and seepage areas; Sub-Escarpment Grassland (Ntsikeni Nature Reserve and Mount Currie, Kokstad District).

capsularis Benth.

Perennial herb, stems tufted, up to 900 mm high; simple or basally branched, decumbent, rooting near base. **Leaves** ± triangular, acute; petioles up to 6 mm long. **Flowers** in racemes, usually simple, sometimes branched at base; pedicels up to 35 mm long,

ascending. **Corolla**: lobes shades of pink and red, sometimes with dark glands on centre of palate; window hollow. **Spurs** ± 9–11 mm long, projecting down and out, forming a wide V-shape. **Flowering time** Dec.–June, mainly Mar. Rocky areas with grass and shrubs; Upper Karoo, Drakensberg Grassland, Sub-Escarpment Grassland, Dry-Highveld Grassland, Rainshadow Valley Karoo (Burgersdorp E to Lady Grey S, from Middelburg to Lady Frere, Graaff-Reinet to Tarkastad and Steytlerville to Bathurst).

esterhuyseniae K.E.Steiner

Perennial herb, ± unbranched, erect to decumbent, sometimes scrambling up to 1 m long; stems single or tufted. **Leaves** ovate, ± acute, sometimes apiculate; petioles 1–3 mm long. **Flowers**: pedicels 11–31 mm long, ± ascending, curving up in fruit. **Corolla**: lobes pink shades on front, usually with 2 yellow windows, rarely joined into 1, hollow in a slight depression, base of lower lobe with patch in centre of dark, sessile glands. **Spurs** 4.4–7.6 mm long, projecting backwards, then down and outwards. **Flowering time** Oct.–May. Ridge tops on edges of forest on doleritic soil; Sub-Escarpment Grassland (hills in Engcobo District).

fetcaniensis Hilliard & B.L.Burtt

Perennial herb, ± erect or decumbent with stolons, up to 400 mm long; stems tufted, branched. **Leaves** ovate, ± obtuse; petioles 1–7 mm long. **Flowers**: pedicels 15–25 mm long, ascending. **Corolla**: lobes pink shades, rarely red, usually with a transverse patch of dark sessile glands on centre front of palate; window hollow, like a small cone. **Spurs** 5–7 mm long, much curved forward. **Flowering time** Nov.–Mar., mostly Jan. Damp places such as cliff bases and streambanks, often grassland, shade to full sun; Drakensberg Grassland, Sub-Escarpment Grassland (Witteberg Mts and Cape Drakensberg: Ben Macdhui to Matatiele and S to Elliot, Lady Frere and Maclear districts).

mollis Hilliard & B.L.Burtt

Annual herb (sometimes flowering as a seedling), stems up to 1 m long; simple or basally branching. **Leaves** ovate, apex various; petioles 5–16 mm long. **Flowers** sometimes in dense racemes; pedicels mostly 11–20 mm long, spreading. **Corolla**: lobes rose to reddish pink, palate hardly raised; window single, deeply sunk in a larger hollow. **Spurs** ± 3–5 mm long, curving downwards. **Flowering time** Sept.–Mar., mainly Apr. Moist, sheltered places, such as on and near cliffs, in grassland, among rocks and in shrubs on forest margin; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests (Nqadu Forest S to Mqanduli and Port St Johns districts, also Hogsback).

racemulosa Benth.

Perennial herb, erect, decumbent or scrambling, up to 1.35 m high; stems simple or branched. **Leaves** broadly ovate to deltoid, ± acute; petioles 3–23 mm long. **Flowers** in loose racemes up to 350 mm long; pedicels 8–24 mm long, reflexed but curving up in fruit. **Corolla**: all lobes light pink to light red on front, purplish in throat, window single, elliptical, deeply hollow, base of lower lobe raised, forming palate, often with group of sessile glands extending into tube. **Spurs** 9–11 mm long, widely diverging, then bending down, somewhat inwards and forwards near tips. **Flowering time** Mar.–July. Moist, S-facing slopes, scrub on forest margins; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests (rare, Tabankulu SW to halfway between Mthatha and Port St Johns, extinct in KZN?).

stachyoides Schltr. ex Hiern
Perennial herb, with stolons, stems tufted, 150–450 mm high, ± erect or decumbent. **Leaves** ovate, obtuse to rounded; petioles 1.0–3.5 mm long. **Flowers** in leafy racemes; pedicels ± 14–26 mm long, ascending. **Corolla**: lobes rose-pink, sometimes with a few, dark, sessile glands in palate centre; window like a small, hollow cone. **Spurs** ± 4–7 mm long, projecting out, then down and somewhat curved inwards at ends. **Flowering time** Nov.–Jan. **Fruit** an ovate, obtuse capsule. Base of cliffs or in streambed amongst grass clumps; Drakensberg Grassland, Sub-Escarpment Grassland (rare, Qacha's Neck S, Queenstown to Lady Frere, Maclear and Barkly Pass).

stricta Hilliard & B.L.Burtt
Erect to decumbent, or scrambling, perennial herb, up to 200 mm high and 500 mm long; rhizome present; stems tufted, simple or somewhat branched. **Leaves** small, usually steeply ascending, ovate-lanceolate, ± acute; petioles 1–2 mm long. **Flowers** small, crowded, sometimes in panicles; pedicels 10–15 mm long, ascending. **Corolla**: lobes pink, pink-maroon or red; window a short cone, 1–2 mm deep. **Spurs** ± 4 mm long, curved down and forwards. **Flowering time** Dec.–Feb. Mountain summits and slopes or streambanks and beds, often in scrub in moist soil; Drakensberg Grassland, Sub-Escarpment Grassland (Witteberg Mts and Cape Drakensberg: Barkly East to Matatiele and Maclear districts).

2b Stamens erect

aliciae Hiern
Perennial erect, decumbent or scrambling herb, up to 1.2 m high; stems simple or branched. **Leaves** opposite and decussate, large, ovate to deltoid, acute; petioles 1–5 mm long. **Flowers** in loose racemes up to 180 mm long. **Corolla**: lobes pink or purplish pink on front, base of upper lobes purplish red or greyish purple; window a shallow, elliptical, yellow hollow; tube below lower lobe keeled, usually with patch of trichomes, dark purple or pale yellow. **Spurs** 5.7–7.9 mm long, mostly parallel, projecting back and curving down then forwards. **Flowering time** Feb.–Aug. In sheltered, damp places near streams or among shrubs on forest margins; Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Kentani).

integerrima E.Mey. ex Benth.
Perennial herb, mostly 450 mm high, up to 1 m if scrambling; stolons present; stems tufted, branching near base, ± erect. **Leaves** narrow-linear to lanceolate, ± acute, glabrous; petioles 1–3 mm long. **Flowers** in racemes; pedicels 6–18 mm long, ascending. **Corolla**: tube keeled at base of lower lobe; lobes mostly pink, also purple-red and red-pink; keel often with dark sessile glands, spreading onto ridged palate; window somewhat hollow. **Spurs** 4–6 mm long, projecting slightly out and downwards, then somewhat tipping inwards. **Flowering time** Nov.–Mar., mainly Jan. Rock crevices or gravelly soil, on slopes or streambanks; Dry Highveld Grassland, Mesic Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland (Burgersdorp to Lady Grey and Barkly East S, from Middelburg to Wodehouse, and Queenstown districts).

patens (Thunb.) Grant ex Fourc.
Perennial herb or suffrutex, up to 1 m high; stems well branched, sprawling or scrambling through other plants, sometimes rooting. **Leaves** patent, narrow-linear to lanceolate, acute, glabrous; petioles 1.0–1.5 mm long. **Flowers** few; pedicels 13–20 mm long, ascending. **Corolla** lobes shades of pink or red, 1 orange with transverse band

of dark, sessile glands on lower lobe at base; window somewhat hollow. **Spurs** ± 4–5 mm long, straight but diverging at ± 45°. **Flowering time** May–Aug., Dec. Shady, rocky areas such as by a kloof stream in scrub, in moist loamy soil; Eastern Fynbos-Renosterveld (Willowmore District: Witteberg Mts E, to Kouga Mts and -River, from Joubertina to Steytlerville: Baviaanskloof Mts and Humansdorp: Langkloof).

personata Hilliard & B.L.Burtt

Perennial herb, up to 1.3 m high; stems with stolons, few, simple, erect. **Leaves** mostly ± ascending, lanceolate, acute and apiculate, thick in texture, sessile. **Flowers** many; pedicels ± 7–15 mm long, steeply ascending. **Corolla** personate with raised palate closing the mouth; lobes pale pink or white tinged with pink; 2 windows, 1 in tube roof, 1 in floor, both hollow. **Spurs** ± 1.5 mm long, projecting inwards towards each other with no glands inside. **Sacs** 2 at side of corolla tube above spurs. **Flowering time** mainly July–Feb. Damp grassland near sea or on slopes inland; Sub-Escarpment Grassland, Drakensberg Grassland, Albany Thicket (Stutterheim and Komga S to East London).

rigescens E.Mey. ex Benth.

Twinspur, bride's saddle

Perennial herb, stems tufted, up to 1.3 m high, simple or little branched, erect or decumbent. **Leaves** ovate, ± acute and apiculate, thick in texture, sessile. **Flowers** crowded; pedicels ± 7–18 mm long, ascending. **Corolla**: tube forming a much-raised keel with dense patch of yellow, stalked glands; lobes shades of pink; window somewhat hollow. **Spurs** ± 3 mm long, projecting downwards with incurved tips. **Flowering time** mainly Nov.–Apr. Damp but sunny areas, especially on forest margins, also in grassland; Sub-Escarpment Grassland, Drakensberg Grassland, Sub-Escarpment Savanna (Tabankulu Mtn S, from Engcobo to Baziya Mtn and Bedford District to Amatole Mts and Stutterheim).

2c Two stamens erect, two projecting forwards

anastrepta Hilliard & B.L.Burtt

Perennial herb, ± erect to decumbent, in a tangled mass, up to 400 mm high; stems many with stolons, ± simple to much branched. **Leaves** ovate or elliptic; petioles up to 8 mm long, upper leaves often ± sessile. **Flowers** in racemes; pedicels usually 20–35 mm long, often spreading widely. **Corolla**: lobes strong pink with a white patch on outside of tube floor and base of lower lobe; mouth of tube and base of lower lobe with 2 patches of dark sessile glands; window elongate, hollow. **Spurs** 6–7 mm long, projecting at right angles to tube with upturned tips. **Flowering time** Feb. Damp and semi-shaded areas at foot of basalt cliffs or with grass in rocky streambeds; Drakensberg Grassland (Drakensberg at Ramatseliso, NE of Matatiele).

lilacina Hilliard & B.L.Burtt

Perennial herb, lithophyte, stems many, of indefinite length as creeping and rooting, little branching. **Leaves** broadly ovate, obtuse; petioles ± 3 mm long. **Flowers** small, in leafy racemes up to 100 mm long, sometimes branching near base; pedicels 6–10 mm long, spreading or reflexed in fruit. **Corolla** lobes lilac or lilac-pink, to violet; palate much raised without dark glands; window cone-like. **Sacs** 2, shallow, in place of spurs. **Flowering time** Nov.–Mar. **Fruit** ± orbicular, beaked capsule. Cliffs; Sub-Escarpment Grassland (Saalboom Nek on Barkly East, Elliot boundary, Otto du Plessis Pass in Lady Frere District).

ramosa Scott-Elliot

Herb, possibly perennial, stems many, up to 1 m long when scrambling, flexuous, laxly branched above. **Leaves** ovate, acute; petioles 1–2 mm long. **Flowers** many in racemes up to 180 mm long; pedicels 7–14 mm long. **Corolla** campanulate, lobes probably all rose-pink; window slightly hollow with 2 somewhat deeper hollows at sides, yellow. **Spurs** or sacs absent. **Flowering time** Mar., Apr. Doleritic clay soil, leaf litter or moss in moist shade and semi-shade of shrubs; Albany Thicket (Somerset East, Bosberg).

DICLIS Benth.

Dwarf snapdragon

Species ± 10, Africa and Madagascar; ± 4 in sthn Afr., widespread, but not in WC.

Separation of 2 EC species not always clear, characters not constant. Distributions overlap, sun and shade preferences not constant. Root type important for species separation, roots seldom collected.

reptans Benth.

Dwarf snapdragon, toadflax; *umsolo* (X); *isinama* (Z)

Perennial, sometimes annual, mat-forming or scrambling herb, up to 400 mm long; roots fibrous; stems decumbent. **Leaves** peltate to broadly ovate, obtuse, margins ± strongly dentate; petioles long-haired. **Flowers** single, axillary and pedicellate. **Calyx**: lobes ± acute, upper one narrow and elliptic. **Corolla**: tube with basal spur; limb bilabiate, upper lobes small, ascending, other 3 lobes larger and spreading, white to pale pink or mauve, often mauve speckled, palate yellow. **Spur** long and narrow, 2.5–3.0 mm long. **Flowering time** all year, mostly Nov., Dec., Apr., May. Moist areas with shade, at least for roots, often S aspect; Upper Karoo, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Albany Thicket, Eastern Fynbos-Renosterveld (Middelburg E to Mkambati, Fort Beaufort to Dwessa Nature Reserve and to Grahamstown and Humansdorp).

rotundifolia (Hiern) Hilliard & B.L.Burtt

Differs from *D. reptans* as follows: stems prostrate or creeping, up to 1 m long, few small plants erect, up to 100 mm high; roots fleshy and fusiform. **Leaves**: margins shallowly and indistinctly crenate, sometimes ± entire; petioles often shorter with shorter hairs. **Calyx**: lobes obtuse, upper one ± obovate. **Corolla** usually white with yellow palate. **Spur** usually short and wide, 2.0–2.5 mm long. **Flowering time** July–Feb., mostly Jan. Open areas, in grass or on bare soil with ± full sun, often N aspect; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Drakensberg Grassland (Kokstad District S, from Maclear to Mthatha, Amatole Mts, Willowvale District, also Storms River Mouth).

DISCHISMA Choisy

False slugwort; *basterslakblom*, *katstert* (A)

Species 11, Namibia and coastal districts of WC and EC to near Port Elizabeth.

ciliatum (P.J.Bergius) Choisy

Kleinkatstert (A)

Woody, dwarf shrub up to 600 mm high; sometimes flowering when still herbaceous, stems mainly branched near base or near apex; ± tomentose with long, jointed, white hairs. **Leaves** oblanceolate to narrowly elliptic, acute, ± sessile, margins with ± 4 pairs

of teeth towards apex or ± entire, glabrous. **Flowers** often in dense, terminal spikes, up to 150 mm long. **Calyx** 2 parts narrow, keeled and ciliate. **Corolla** white; tube narrow, split on anterior side; limb of 4 posterior lobes, ± equal. **Flowering time** May, Aug., Sept. **Fruit** breaking into 2 cylindrical cocci or elliptical, non-splitting. Seashore, sandy soil, often in coastal fynbos; Albany Thicket, Eastern Fynbos-Renosterveld (Humansdorp and Port Elizabeth districts).

FREYLINIA Colla

Bell bush, honey bells; *klokkiesbos* (A)

Species 9, 1 from tropical Africa to sthn Afr.; 9 in sthn Afr., usually montane habitats; 1 in Waterberg, LIM, rest in WC, EC.

crispa Van Jaarsv.

Bell bush; *klokkiesbos* (A)

Erect, stiff suffrutex, up to 2.5 m high; little branched, branches ascending. **Leaves** ovate-lanceolate, 10(–15) mm long, acute, strongly crisped, margins undulate, leathery, semi-succulent, shortly petiolate. **Flowers** reddish purple, ± pendulous, pedicellate; crowded, usually in groups of 3 per node, in a terminal raceme up to 100 mm long, sometimes with lateral racemes. **Corolla**: tube 22(–24) mm long, straight, somewhat flaring; lobes spreading. **Flowering time** Apr.–Oct., mostly in June. Well-drained, rocky, TMS scree slopes, in sun; Eastern Fynbos-Renosterveld (Willowmore and Joubertina districts, Kouga Valley and Mts).

densiflora Benth.

Honey bell bush; *klokkiesbos* (A)

Erect, woody, evergreen shrub, up to 3 m high; with long, straight branches. **Leaves** blue-green, up to 25 mm long, elliptic to linear-elliptic, rarely ovate, acute to acuminate, entire, often undulate. **Flowers** pink to pale mauve, rarely purple and white, tube usually darker than lobes; in dense, narrow, terminal racemes up to 150 mm long, sometimes in panicles. **Corolla** salverform; tube up to 18 mm long, narrowly funnel-shaped; lobes 5, ± equal, spreading to reflexed. **Flowering time** June–Nov., mostly Aug., Sept. Open hillside or ridge crest, TMS rocky soil, also moist places on cliff ledges or in kloof; Eastern Fynbos-Renosterveld, Albany Thicket (Great Winterhoek Mts, Uitenhage District to Alicedale and Grahamstown).

lanceolata (L.f.) G.Don

Honey bell bush; *heuningklokkiesbos* (A)

Evergreen shrub or small tree, up to 6 m high; mostly many-stemmed, small branches drooping. **Leaves** up to 120 mm long, lanceolate or narrowly elliptical, both ends tapering, entire, leathery, sessile. **Flowers** strong yellow or rarely white or creamy pink inside, ± white outside, honey-scented, in many-flowered, terminal panicles up to 200 mm long. **Corolla**: tube ± cylindrical, up to 10 mm long; limb regular; lobes 5, spreading or reflexed. **Flowering time** Dec.–Feb., sometimes also other months. Moist places, such as streambanks and vlei margins; Eastern Fynbos-Renosterveld, Albany Thicket (Joubertina District, Kouga Mts to Uitenhage).

undulata (L.f.) Benth.

Mauve honey bell bush

Erect, woody, little-branched, dwarf shrub or shrub, up to 2 m high. **Leaves** up to 20 mm long, ovate or ovate-lanceolate, mostly acute, margins often undulate. **Flowers** mauve

or bluish purple, sometimes lobes lighter than tube, to white, somewhat pendent, in loose, terminal racemes, ± 40(–150) mm long, sometimes with smaller lateral racemes. **Corolla**: tube up to 10 mm long, narrowly funnel-shaped; limb regular; lobes 5, spreading or somewhat reflexed. **Flowering time** Aug.–Nov. Dry hillsides in Cape heath, or sclerophyllous scrub; Eastern Fynbos-Renosterveld (Suurberg Pass, Uitenhage and Port Elizabeth districts).

GLEKIA Hilliard

Monotypic, sthn Afr., mainly L and EC mountains.

krebsiana (Benth.) Hilliard

Dwarf shrub, up to 600 mm high; often sprawling, stem glabrous but for ± retrorse hairs on 2 internodal ridges. **Leaves** up to 36 mm long, ± elliptic, bases joined and decurrent, forming stem ridges, margins finely dentate. **Flowers** single, axillary in crowded, racemose, ± rounded, terminal heads. **Corolla**: tube up to 13 mm long, narrow below, campanulate above; lobes white inside with orange patch at base of upper lip, outside with bluish purple mark; mouth bearded. **Flowering time** mostly Aug., Sept. Montane, rocky areas, cliffs, streambanks, scrub forest, often shade; Mesic Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland, Dry Highveld Grassland (Herschel District to Barkly East and Rhodes, from Wodehouse to Queenstown and from Graaff-Reinet to Somerset East and Pirie Mtn).

GLUMICALYX Hiern

Species 6, sthn Afr., montane, mainly L, also FS, KZN, EC.

Flower heads nodding, later erect in fruit.

Stamens all exserted at anthesis; calyx mostly 5-lobed

[E]**apiculatus** (E.Mey.) Hilliard & B.L.Burtt

Perennial herb with woody base, erect, up to 250 mm long; stems simple, tufted. **Leaves** up to 15 × 6 mm, ± elliptic, ± acute, base with pulvinus (swollen petiole), margins crenate to serrate above, glabrous. **Flowers** in small, spherical heads, < 10 mm in diam., single, lengthening in fruit up to 45 mm. **Calyx** 3–5-lobed, 3 posticous lobes free for ± $^1/_3$ of their length. **Corolla**: tube up to 4 mm long, cream-coloured; limb bilabiate; lobes orange-yellow to cream-coloured inside, pale outside. **Flowering time** Jan.–Mar. **Fruit** a capsule, with ± 7–12 ovules per loculus. Wet gravelly soils on rock platforms or base of cliffs; Drakensberg Grassland (Witteberg Mts and Cape Drakensberg: Lady Grey, Barkly East, Elliot and Maclear districts).

flanaganii (Hiern) Hilliard & B.L.Burtt

Perennial herb or dwarf shrub, stems ± simple, erect or decumbent first, up to 600 mm high. **Leaves** up to 37 × 16 mm, ovate or oval, apex various, margins roughly crenate to serrate or ± lobed; shortly pubescent; ± $^1/_2$ length of flat petiole. **Flowers** in a single, obconical head at first, up to 30 mm long, lengthening in fruit. **Calyx**: lobes up to $^1/_2$ length of tube. **Corolla**: tube up to 17.5 mm long, cream-coloured; limb ± regular; lobes orange inside, light brownish outside. **Flowering time** Feb., Mar. Rocky, often with basalt, moist places, cliff bases and streambeds; Drakensberg Grassland (Barkly East District: Ben Macdhui).

montanus Hiern

Perennial herb with woody base, stems ± simple, tufted, decumbent then erect, up to 300 mm long. **Leaves** up to 20 × 8 mm, oblong-elliptic to obovate, ± obtuse, base with pulvinus, margins crenate to serrate above, ± glabrous with tiny hairs on lower margins. **Flowers** in spherical heads, ± 15 mm in diam., usually single, lengthening in fruit. **Calyx**: lobes free to base or rarely somewhat connate. **Corolla**: tube up to 6 mm long, cream-coloured; limb bilabiate; lobes cream-coloured to light yellow or ochre above, cream-coloured below. **Flowering time** Jan., Feb. **Fruit** a capsule with ± 20–25 ovules per loculus. Shallow gravelly soils over basalt or in rocky streambeds; Drakensberg Grassland (Barkly East and Maclear Districts).

Two stamens exserted, two included or just visible in mouth at anthesis; calyx 5-lobed

goseloides (Diels) Hilliard & B.L.Burtt

Perennial herb, erect or decumbent, then ascending, up to 450 mm long; stems single or several, little branched, closely leafy. **Leaves** up to 65 × 15 mm; basal, if present, rosulate, elliptic, obtuse; cauline ± oblong, ± entire. **Flowers** in heads, obconical at first, up to 100 mm long, then oblong, usually single, lengthening in fruit. **Calyx**: lobes free or somewhat joined, divided to base on anticous side. **Corolla**: tube 20–29 mm long, cream-coloured; limb ± regular; lobes ± circular, bright orange to orange-red inside, cream-coloured or white outside. **Flowering time** Jan., Feb., June. Gravelly places and boulder beds; Drakensberg Grassland, Sub-Escarpment Grassland (Drakensberg face on KZN border, Griqualand East, high on Insizwa and Ngeli Mts).

nutans (Rolfe) Hilliard & B.L.Burtt

Perennial herb with woody base, decumbent, then ascending, up to 450 mm long; stems one to many, leafy. **Leaves** rosulate at base, up to 30 × 11 mm, oblanceolate, obtuse, ± crenate above; cauline ± oblong. **Flowers** obconical at first, up to 30 mm long, single or with smaller heads in nearby leaf axils, longer in fruit. **Calyx**: lobes up to $^1/_3$ length of tube, divided to base on anticous side. **Corolla**: tube up to 16 mm long, cream-coloured; limb bilabiate; lobes oblong but narrow, becoming reflexed, orange to deep brick-red inside, light brown or purplish outside. **Flowering time** Dec.–Mar. Grassy slopes, rocky or gravelly areas, base of cliffs, boulder beds, roadsides; Mesic Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland (Witteberg Mts and Cape Drakensberg: Lady Grey and Barkly East E to Matatiele).

GOMPHOSTIGMA Turcz.

Otter bushes; *otterbosse* (A)

Species 2, Africa, both extending into sthn Afr., N, B, LIM, NW, G, M, FS, KZN, L, NC, WC, EC.

virgatum (L.f.) Baill.

Otter bush; *otterbos* (A); *phêphêng* (T); *isepha kanonkala* (X)

Perennial shrub, dwarf shrub or herb, 0.3–2.0 m high, virgate suffrutices, canescent, with mostly stellate scales. **Leaves** opposite, rarely ternate, sometimes appearing fascicled, connate at base or with a ridge between them; narrowly elliptic, 5–80 mm long. **Flowers** in terminal racemes; pedicels bibracteate. **Calyx** cuneate at base. **Corolla** white, rarely blue or pink; tube not longer than calyx; lobes broad, recurved in open flower. **Stamens** arising in throat of corolla; free portion of filaments shorter than anthers;

anthers exserted or subexserted. **Capsule** subcylindric, 2-lobed, 2-valved, with valves splitting. **Seeds** many. Near watercourses and riverbanks in sand or mud, in running water among boulders, alt. 110–2 410 m; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Upper Karoo, Albany Thicket, Lower Karoo (Barkly East SW to Graaff-Reinet, E to Komga).

HALLERIA L. see **STILBACEAE**

HEBENSTRETIA L.

Slugwort; *slakblom* (A)

Species ± 24, tropical, sthn Afr. and N to Eritrea; 24 in sthn Afr., species numbers decreasing eastwards and northwards, widespread but mostly in NC, WC.

Diagnostic characters in basal plant parts, mature fruits, bract shape from open flowers during anthesis; coloured fleck usually at top of the split corolla tube, sometimes extending onto the lobe bases.

Plants annual

integrifolia L.

Annual herb, ± erect, 0.6(–1.0) m high; base sometimes woody, stems sturdy. **Leaves** narrowly linear, 10–30 × 0.5–1.3 mm, entire, sometimes denticulate, often with axillary leaf tufts. **Flowers** in a dense, terminal spike, over 200 mm long. **Bracts** ovate, acuminate, margins membranous, often stopping short of apex. **Corolla** ± white with orange fleck; lobes short, ± 1 mm long. **Flowering time** mostly Jan. **Fruit** narrowly oblong, splitting into 2 equal or unequal parts. Sandy or grassy places, full sun; Eastern Fynbos-Renosterveld, Albany Thicket (Somerset East to Kei Mouth S, from Willowmore to East London, also Humansdorp).

Plants perennial (at least basal part of stems clearly woody or an underground rootstock present)

comosa Hochst.

Katstert (A)

Herb, up to 0.6 m high; stems herbaceous, usually several, simple, rarely branched, arising from a woody rootstock. **Leaves** mainly 30–60 × 1–8 mm, mostly narrowly lanceolate and entire, or broader and ± dentate, some linear. **Flowers** in single, erect, terminal spikes, up to 200 mm long. **Bracts** oblong to ovate, acuminate, tapering slowly, membranous margins reaching almost to apex. **Corolla** white, rarely yellow or orange with orange to red fleck; lobes short. **Flowering time** Nov.–Feb. **Fruit** narrowly oblong, splitting into 2 equal or unequal parts. Recently burned grassland, alpine grassland, grassy slopes; Drakensberg Grassland, Sub-Escarpment Grassland, Indian Ocean Coastal Belt (Joubertspas to Thaba Chitja S, from Port St Johns to Hogsback, Dwessa Forest and Kei River Mouth).

cordata L.

Perennial, woody, dwarf shrub, up to 0.3(–0.6) m high; stems much branched, ascending to erect, closely leafy. **Leaves** ± 3–5 mm long and wide, broadly cordate to broadly ovate. **Flowers** in short, dense, terminal spikes, mostly up to 20–30 mm long. **Bracts** leaf-like but smaller, ovate, acute. **Corolla** short, white, sometimes with yellow to orange fleck in throat; lobes short. **Flowering time** Aug.–Mar., mainly Mar. **Fruit** round but bilaterally compressed, splitting into 2 equal, uniconvex parts. Coastal sand dunes from high water mark; Albany Thicket (Kei River Mouth to Port Elizabeth, Port Alfred and Bathurst).

dura Choisy

Perennial, dwarf shrub or shrub, 0.6(–1.0) m high; clearly woody at base, branched. **Leaves** mostly 8–30 × 1–5 mm, linear to lanceolate, denticulate. **Flowers** in ± dense spikes, 30–80 mm long; often with old spike present between over-topping younger ones. **Bracts** ovate and acuminate; membranous margins often contracted abruptly, short of apex. **Corolla** white, seldom yellow with an orange, red or brownish red fleck; lobes short. **Flowering time** Sept.–Jan. **Fruit** narrowly oblong, the 2 parts moderately unequal. Grassland, often with rocks; Mesic Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland, Dry Highveld Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Albany Thicket (Aliwal North to Weza Village S, from Lootsberg Railway Halt to Port St Johns, Graaff-Reinet to Hogsback and Port Elizabeth to East London).

robusta E.Mey.

Perennial dwarf shrub, up to 0.6 m high; stems erect, often well branched, often woody at base. **Leaves** mostly 7–20 × 1–2 mm, ± linear, entire or somewhat toothed, spreading. **Flowers** in spikes up to 200 mm long. **Bracts** broadly ovate, base broad, apex a short point. **Corolla** white or yellow with orange to purple fleck, sometimes all orange or brown; lobes of various lengths. **Flowering time** Sept., Oct. **Fruit** broadly ellipsoid, the 2 parts unequal. Rocky and dry mountain slopes; Upper Karoo, Sub-Escarpment Grassland, Drakensberg Grassland (Middelburg District: Kompasberg, to Sterkstroom: Stormberg S, from Graaff-Reinet: Sneeuberg to Stockenström: Katberg).

HEMIMERIS L.f.

Yellow faces; *geelgesiggie* (A)

Species ± 4; Vanrhynsdorp and Calvinia via coastal districts to Port Elizabeth, NC, WC, EC.

racemosa (Houtt.) Merr.

Common yellow faces; *bobbejaangesiggies* (A)

Annual herb, erect or ascending, sometimes scrambling 40–500 mm long; stems branched with noticeable white hairs. **Leaves** 10–50 × 5–25 mm, ± ovate, sometimes lanceolate or elliptical, ± serrate or seldom entire with ± winged petioles or upper ones sometimes sessile. **Flowers** in terminal clusters of 4–12, in axils of leaf-like bracts; pedicellate. **Corolla** yellow, bilabiate, glandular villous on outside; upper lip hooded and emarginate, sometimes brown-spotted inside, lateral lobes spreading, each with well-developed, ± central sac, lowest lobe largest, usually emarginate. **Flowering time** Aug., Sept. Valley, in sandy, often moist areas; Albany Thicket (Port Elizabeth).

JAMESBRITTENIA Kuntze

Species 84, 1 from India, Egypt and Sudan, rest in Africa, Zambia and S from Angola; 74 in sthn Afr., widespread but especially WC, EC.

1a Flowers of brown shades (yellowish-, red-, purple- to dark brown); lobes thick (veins invisible on upper surface) with whitish to yellowish thin margins

atropurpurea (Benth.) Hilliard

Dwarf shrub or shrub up to 1 m high; parts of plant often glutinous because of secreting glistening glands, stems many-branched with leafy dwarf shoots (brachyblasts) in axils. **Leaves** short, ± 10 × 3 mm, ± spathulate, mostly entire, lower surface with many glistening glands. **Flowers** axillary, scattered, sometimes stem apex sterile. **Calyx**: lobes up to 2.8 mm long, linear-lanceolate. **Corolla**: tube up to 24 mm long; limb bilabiate;

lobes oblong to cuneate, thick, obtuse to truncate, margins revolute, upper surface shades of yellow- to red- or chocolate-brown. **Flowering time** Oct.–Apr. Stony places; Upper Karoo, Dry Highveld Grassland, Mesic Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland, Lower Karoo, Sub-Escarpment Savanna, Albany Thicket (Bethulie to Ongeluksnek S, from Middelburg to Cala, Graaff-Reinet to Queenstown, Willowmore to Alice and Joubertina to Alexandria).

huillana (Diels) Hilliard

Dwarf shrub or shrub up to 1.2 m high; stems many, branches with many, leafy, dwarf shoots. **Leaves** up to 30 × 10 mm, ± spathulate, mostly toothed, often thick, lower surface clad in secreting glistening glands. **Flowers** axillary, scattered but in groups interspersed with sterile sections, usually ending stem in a raceme. **Calyx**: lobes up to 4.5 mm long, linear-lanceolate. **Corolla**: tube up to 27 mm long; limb bilabiate; lobes oblong to cuneate, obtuse to truncate, margins revolute, upper surface shades of yellow- to red- or chocolate-brown. **Flowering time** mainly Oct.–Apr. Stony places, often in hot valleys; Sub-Escarpment Savanna, Albany Thicket (from KZN south in coastal valleys to Komga, Uitenhage to Albany).

1b Flowers white or variously coloured; lobes thin (veins visible on upper surface), sometimes thicker around mouth or radiating from mouth, lacking a contrasting border
2a Corolla limb bilabiate or ± regular, lobes ± round, broadly elliptic, oblong-elliptic or oblong (length ± equalling breadth), tips rounded, usually yellow, orange, red, terracotta, seldom violet or rose shades

aspleniifolia Hilliard

Dwarf shrub, up to 350 mm high; stems erect or decumbent, twiggy, leafy. **Leaves** pseudofasciculate, oblong, petiolate, divided nearly to midrib, larger lobes often divided again, lobes broadly elliptic to nearly rotund, apex rounded, hairy on both surfaces. **Flowers** single, axillary to upper leaves, these quickly becoming smaller upwards, forming long racemes, sometimes panicled. **Calyx**: tube up to 0.25 mm long; lobes spathulate. **Corolla**: tube up to 5 mm long; limb oblique; lobes ± round, deep pink or shades of red from brick- to dark red, fading to mauve, veins darker, palate yellow. **Flowering time** Oct.–Mar. Rocky places including cliffs, often (always?) on basalt; Drakensberg Grassland (Barkly East to Rhodes and Naude's Neck).

aurantiaca (Burch.) Hilliard

Perennial, but can look annual, many stems up to 300(–750) mm long, prostrate or ascending, much branched, glandular-puberulous, leafy. **Leaves** pseudofasciculate, elliptic to broadly ovate, getting smaller upwards but usually dissected, petiolate, bipinnatisect, lobes oblong or narrowly elliptic, subacute; many glistening glands on upper surface, finely glandular-hairy below. **Flowers** single, axillary. **Calyx**: tube up to 0.3 mm long; lobes oblong to spathulate, rarely with a few teeth. **Corolla**: tube up to 7 mm long, not much expanded upwards; limb oblique; lobes suborbicular, orange, brick-red or salmon-pink, veins dark, throat yellow. **Flowering time** Oct.–Mar. Damp or wet, sandy or stony areas; Dry Highveld Grassland, Upper Karoo, Drakensberg Grassland, Sub-Escarpment Grassland (Aliwal North E to Lady Grey S, from Middelburg to Indwe).

breviflora (Schltr.) Hilliard

Sprawling, perennial herb, stems up to 600 mm long, laxly branched if at all, glandular-villous, leafy. **Leaves** pseudofasciculate, ovate to subrotund, petiolate, obtuse, crenate, bigger lobes sometimes with a tooth, glandular-villous on both surfaces, plus glistening

glands especially on lower one. **Flowers** large, single, axillary, forming long, leafy racemes. **Calyx**: tube up to 0.8 mm long; lobes spathulate. **Corolla**: tube up to 6 mm long, opening quickly into limb; limb oblique; lobes ± round, dark red to terracotta or rose-pink, rarely dark lilac, veins dark, palate yellow. **Flowering time** mainly Oct.–Mar. Bare soil and grassy or rocky slopes; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna (Ongeluksnek Nature Reserve to Kokstad and Tabankulu Mtn, SW to Maclear District).

[E]**multisecta** Hilliard

Prostrate, perennial herb, up to 200 mm long; stems many, much-branched, glandular-pubescent, closely leafy. **Leaves** pseudofasciculate, broadly ovate, shortly petiolate, finely cut (bi- to tripinnatisect), lobes linear, acute, glandular-pubescent on lower surface, many glistening glands on upper one. **Flowers** single, axillary to uppermost leaves. **Calyx**: tube 0.2 mm long; lobes spathulate, upper part deeply dissected, accrescent in fruit. **Corolla**: tube up to 6 mm long; limb oblique; lobes suborbicular, dull terracotta, throat and base of lower lip yellow. **Flowering time** Nov.–Mar. Short grassland; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Cala to Maclear, Mthatha and Port St Johns S to Komga).

stricta (Benth.) Hilliard

Rounded, dwarf shrub, up to 450 mm long; stems virgately branched, only with glistening glands giving grey appearance, leafy. **Leaves** pseudofasciculate, lanceolate to ovate, petiolate, blade cut to midrib (bipinnatisect), lobes linear-oblong or oblong, sometimes 1- or 2-toothed, both surfaces with many glistening glands. **Flowers** many, single in axils of reduced leaves, forming long, dense racemes or panicles. **Calyx**: tube up to 0.2 mm long; lobes linear to spathulate, entire. **Corolla**: tube up to 8 mm long; limb oblique; lobes oblong, retuse, dark red to purple, sometimes magenta-pink. **Flowering time** Nov.–Apr. Rocky areas, often on slopes with scrub; Upper Karoo, Sub-Escarpment Grassland (Aliwal North and Indwe).

May hybridise with *J. pristisepala*.

[E]**zuurbergensis** Hilliard

Dwarf shrub, up to 500 mm high; stems much branched, clad in glistening glands, also glandular-puberulous towards tips, leafy. **Leaves** pseudofasciculate, elliptic, acute, bigger leaves petiolate, dentate or lobed in upper half up to halfway to midrib, lower surface with many glistening glands, upper surface the same or glands few or lacking. **Flowers** single, in axils near tips of branches. **Calyx**: tube up to 0.15 mm long; lobes oblong, acute. **Corolla**: tube up to 8 mm long; lobes ± oblong, apex rounded, light yellow to cream-coloured. **Flowering time** June–Oct. Scrub in hills; Albany Thicket, Sub-Escarpment Savanna (Suurberg and Alexandria Region).

2b Corolla limb decidedly bilabiate, lobes ± cuneate or cuneate-oblong (lobes often twice as long as wide), tips ± truncate to retuse, white or shades of blue, violet, magenta, pink, rarely yellowish or maroon
3a Leaves with glandular hairs up to 0.6 mm long, also glistening glands on both surfaces

albanensis Hilliard

Dwarf shrub, twiggy, branches up to 450 mm long, leafy. **Leaves** spathulate to ovate, petiolate, obtuse, bluntly lobed. **Flowers** single in axils of small, upper leaves, forming a false raceme. **Pedicels** up to 23 mm long. **Calyx**: tube up to 0.2 mm long; lobes

± oblong. **Corolla**: tube up to 10 mm long; limb oblique; lobes truncate or retuse, shades of mauve to magenta. **Flowering time** all year. Karroid areas; Drakensberg Grassland, Albany Thicket, Sub-Escarpment Grassland (Fort Beaufort to Keiskamma Valley S, from Greater Addo Elephant National Park to Port Elizabeth, Grahamstown and Alexandria).

filicaulis (Benth.) Hilliard

Dwarf shrub, often diffuse, ± erect, up to 450 m long; stems tufted, branched, forming a tangled mass, leafy. **Leaves** pseudofasciculate, petiolate, blade ovate, ± deeply divided, up to $^1/_3$ of way to midrib, lobes ± spathulate or cuneate, obtuse, some lobes toothed and variously divided, all segments obtuse. **Flowers** single, axillary, forming leafy inflorescence. **Pedicels** up to 20 mm long. **Calyx**: tube up to 0.3 mm long; lobes oblong to spathulate. **Corolla**: tube up to 10 mm long; limb oblique; lobes cuneate-oblong, ± truncate or retuse, white or cream-coloured, sometimes with a dark streak in midbase, throat yellow-orange. **Flowering time** Oct.–May. Rocky places on slopes and montane areas; Dry Highveld Grassland, Mesic Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland, Upper Karoo, Albany Thicket (Bethulie to Matatiele S, from Middelburg to Engcobo and Graaff-Reinet to Cathcart).

kraussiana (Bernh.) Hilliard

Perennial herb but can appear annual, up to 600 mm long; stems simple to well branched, leafy. **Leaves** pseudofasciculate, ± elliptic, shortly petiolate, coarsely serrate. **Flowers** many but single, axillary. **Pedicels** up to 27 mm long, spreading and filiform. **Calyx**: tube up to 0.2 mm long; lobes oblong. **Corolla**: tube up to 7 mm long; limb oblique; lobes often ± truncate or retuse, white or light mauve, throat orange. **Flowering time** all year. Grassland or scrub, often on forest margins; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Eastern Fynbos-Renosterveld, Albany Thicket (Bizana S, from Mthatha to Mkambati Nature Reserve, Kentani to Kei River Mouth and Kouga Dam to East London).

[E]**maritima** (Hiern) Hilliard

Perennial herb or dwarf shrub, up to 700 mm high; ± erect, sometimes scrambling, leafy. **Leaves** pseudofasciculate, mostly obovate, petiolate, coarsely dentate in upper part. **Flowers** single in upper leaf axils, often forming terminal racemes. **Pedicels** up to 35 mm long. **Calyx**: tube up to 0.4 mm long; lobes oblong-lanceolate. **Corolla**: tube up to 10 mm long; limb oblique; lobes often ± truncate or retuse, white or mauve, throat yellow. **Flowering time** all year. Grassy areas on edges of forests; Indian Ocean Coastal Belt, Albany Thicket, Indigenous Forests (Kayser's Beach along coast to Hamburg, Port Alfred, Kenton on Sea and Alexandria).

[E]**phlogiflora** (Benth.) Hilliard

Dwarf shrub, up to 500 mm high; stems erect or decumbent, branched, often with coarse hairs, densely leafy except in raceme area. **Leaves** pseudofasciculate, elliptic to lanceolate, petiolate, acute, usually coarsely serrate, lobes ± acute. **Flowers** single in topmost axils where leaves are rapidly smaller and grade into bracts, forming long racemes, these sometimes in panicles. **Pedicels** up to 20 mm long. **Calyx**: tube up to 0.3 mm long; lobes oblong. **Corolla**: tube up to 9 mm long; limb oblique; lobes truncate to retuse, white, or tips tinged with mauve, or all mauve, throat orange. **Flowering time** all year. Rough grassland near forest or bush groups; Sub-Escarpment Savanna, Albany Thicket (King William's Town to Butterworth S, from Peddie to East London).

pinnatifida (L.f.) Hilliard
Straggling, perennial herb, up to 450 mm long; stems branched, leafy on young parts at least. **Leaves** pseudofasciculate, ovate, petiolate, obtuse, often with 3 teeth, lobed roughly halfway to midrib or deeper into 4 pairs of broad, oblong lobes, these mostly with 1–3-teeth. **Flowers** single, axillary. **Pedicels** up to 20 mm long. **Calyx**: tube 0.25 mm long; lobes spathulate, ± acute. **Corolla**: tube up to 8.5 mm long; limb oblique; lobes cuneate-oblong, ± retuse, white, throat yellow. **Flowering time** probably all year. Perhaps scrubby grassland; Eastern Fynbos-Renosterveld, Sub-Escarpment Grassland (Assegaaibosch E to Grahamstown).

pristisepala (Hiern) Hilliard
Dwarf shrub, up to 350 mm long, either with crowded glistening glands or with a varying amount of glandular hairs. **Leaves** pseudofasciculate, ovate, elliptic or oblong, petiolate, blade divided to midrib, lobes elliptic or cuneate, deeply cut. **Flowers** many, single, axillary, forming long, dense racemes in upper parts. **Pedicels** up to 4 mm long. **Calyx**: tube up to 0.5 mm long; lobes ± spathulate, 2–5-dentate but can be oblong and entire or variously toothed. **Corolla**: tube up to 11.5 mm long; limb oblique; lobes oblong, retuse, light cream-coloured or yellowish to lilac-pink and mauve, throat white to pale yellow, dark purple lines at base of lobes. **Flowering time** Nov.–Apr. Rocky places, including cliffs; Mesic Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland (Lady Grey, Joubertspas to Ongeluksnek and Rhodes District, southwards to Maclear).

tortuosa (Benth.) Hilliard
Dwarf shrub, stems up to 500 mm long, much branched, leafy. **Leaves** pseudofasciculate, spathulate, entire or few-toothed near apex, rarely deeply 4-lobed. **Flowers** single, axillary to reduced, upper leaves, forming small, terminal racemes, or in axils of other leaves and later overtopped by new growth. **Pedicels** up to 22 mm long. **Calyx**: tube up to 0.4 mm long; lobes ± oblong-spathulate. **Corolla**: tube up to 12 mm long; limb oblique; lobes cuneate-oblong, mainly white, sometimes light pink or mauve, dark line at base of each lobe. **Flowering time** all year. Stony or shaley slopes and flats in karroid scrub; Rainshadow Valley Karoo, Albany Thicket (between Hot Springs and Toorwater E to Willowmore, Jansenville and Klein Winterhoek Mts).

tysonii (Hiern) Hilliard
Dwarf shrub, often browsed, up to 300 mm long; stems ± erect, leafy unless browsed. **Leaves** pseudofasciculate, blade oblanceolate, petiolate, few teeth or lobes mostly cut $^{1}/_{3}$–$^{2}/_{3}$ of way to midrib, lobes often ± oblong, obtuse, mostly entire. **Flowers** single, axillary, sometimes forming nearly nude racemes. **Pedicels** up to 16 mm long. **Calyx**: tube up to 0.2 mm long; lobes ± oblong. **Corolla**: tube up to 14.5 mm long; limb oblique; lobes ± truncate or retuse, white or cream-coloured, throat yellow, sometimes a dark violet streak in midbase of lobes. **Flowering time** all year. Rocky areas, such as dolerite and limestone; Upper Karoo, Sub-Escarpment Grassland, Dry Highveld Grassland (Oviston to Albert District S, from Middelburg to Hofmeyr and Cradock).

3b Upper leaf surface mostly ± glabrous or with scattered glistening glands, sometimes with minute glandular hairs, lower surface thickly clad in glistening glands, sometimes also a few tiny glandular hairs
4a Secondary leaves opposite and decussate, closely grouped on short-shoots, leaves usually no more than 3 × 1 mm

aspalathoides (Benth.) Hilliard
Spreading, twiggy, dwarf shrub, up to 500 mm high; prostrate to erect, branches with closely leafy brachyblasts; plant indumentum short on most parts, sometimes with

secreting glands, appearing varnished. **Leaves** usually narrowly oblong to narrowly spathulate, mostly entire, thick. **Flowers** single, axillary, scattered along branchlets. **Pedicels** longish, up to 22 mm long. **Calyx**: tube 0.2 mm long; lobes ± oblong, subacute. **Corolla**: tube up to 11 mm long; limb oblique; lobes cuneate-oblong, often retuse, shades of pink, mauve, purple and blue, sometimes white, rarely with red spot at lobe base, throat nearly always yellow. **Flowering time** all year. Scrub; Eastern Fynbos-Renosterveld, Rainshadow Valley Karoo, Albany Thicket (Kouga and Baviaanskloof Mts to Steytlerville, Uitenhage, Joubertina and near to St Francis Bay).

microphylla (L.f.) Hilliard

iGwanishe lenyoka (X)

Stout, twiggy, dwarf shrub, up to 500 mm high; branches with closely leafy short-shoots. **Leaves** small, mostly up to 1.5 × 1.0 mm, close, 4-ranked, ovate, cuneate or oblong, thick, acute, entire, revolute. **Flowers** single, axillary. **Pedicels** up to 13 mm long. **Calyx**: tube up to 0.3 mm long; lobes ± oblong, acute with stalked glands. **Corolla**: tube up to 10 mm long; lobes cuneate-oblong, often retuse, purple blue or deep mauve with central streak at lobe base, throat yellow. **Flowering time** all year. Coastal scrub or grassland; Eastern Fynbos-Renosterveld, Albany Thicket (Uitenhage to Port Elizabeth, Greater Addo Elephant National Park, Grahamstown, Alexandria and Port Alfred, also to Humansdorp, Jeffreys Bay and Skoenmakerskop).

[E]**zuurbergensis** Hilliard (see 2a above)

4b Secondary leaves pseudofasciculate, primary leaves mostly > 3 × 1 mm
5a Stems glandular-puberulous at least on upper parts (hairs may be minute and are often mixed with glistening glands)

argentea (L.f.) Hilliard

Shrub, up to 1.5 m high; stems wiry, erect to straggling, well and short branched, ± wide-spreading, densely leafy. **Leaves** alternate, largest ones rhomboid, cuneate or oblong, obtuse, shortly petiolate, margins entire or toothed in upper half. **Flowers** single, axillary to scattered leaf tufts. **Pedicels** up to 25 mm long, filiform, often spreading. **Calyx**: tube up to 0.3 mm long; lobes oblong-lanceolate, ± acute. **Corolla**: tube up to 9.5 mm long; limb oblique; lobes cuneate-oblong, ± truncate or retuse, white, throat yellow. **Flowering time** all year. Forest edges, partly shaded and damp to among rocks in more open places; Albany Thicket, Eastern Fynbos-Renosterveld (Port Elizabeth to Assegaaibosch and to Humansdorp).

foliolosa (Benth.) Hilliard

Dwarf shrub, up to 400 mm high; well branched, leafy in vegetative parts. **Leaves** largest primary ones spathulate, thick, conduplicate (folded in half along midrib), obtuse to subacute, petiolate, upper parts cut, up to $^{3}/_{4}$ of way to midrib, lobes oblong or narrowly spathulate, entire. **Flowers** single, in uppermost leaf axils, leaves rapidly getting smaller upwards, forming nearly nude terminal inflorescences. **Pedicels** up to 24 mm long. **Calyx**: tube up to 0.3 mm long; lobes oblong, ± obtuse. **Corolla**: tube up to 9 mm long; limb oblique; lobes oblong to cuneate, truncate, retuse, purple to blue, mauve or white, throat yellow/orange. **Flowering time** all year. Stony slopes, flats or grassland, sometimes pioneering, karroid; Upper Karoo, Rainshadow Valley Karoo, Albany Thicket (Aberdeen District to Somerset East S, Louterwater to Steytlerville, Port Elizabeth and Debega, and Tsitsikamma to Humansdorp).

tenuifolia (Bernh.) Hilliard

Spreading, dwarf shrub, up to 600 mm high; glands may ooze so may look varnished, stems well branched. **Leaves** alternate, largest primary ones elliptic to spathulate, often conduplicate, few petiolate, usually toothed near apex; secondary ones sometimes entire. **Flowers** single in axils of leaf tufts, often forming leafy racemes. **Pedicels** up to 10(–15) mm long. **Calyx**: tube up to 0.3 mm long; lobes oblong-lanceolate, ± acute. **Corolla**: tube up to 13.5 mm long; limb oblique; lobes cuneate, ± retuse, purple to deep blue, rarely white, pink or mauve. **Flowering time** all year. On coastal, rocky or sandy hills and old sand dunes; Eastern Fynbos-Renosterveld (Baviaanskloof to Longmore Forest Reserve and to Humansdorp).

5b Stems clad in glistening glands only

[E]crassicaulis (Benth.) Hilliard

Stiff, dwarf shrub, stems up to 300 mm long; well branched, leafy. **Leaves** grouped well below inflorescences, largest spathulate or oblong, petiolate, blade cut mostly $^{2}/_{3}$–$^{3}/_{4}$ of way to midrib, lobes oblong, entire or largest toothed. **Flowers** single, axillary to bracts, forming far-emerging racemes. **Pedicels** up to 5 mm long. **Calyx**: tube up to 0.3 mm long; lobes oblong to spathulate. **Corolla**: tube up to 12 mm long, mouth laterally compressed; limb oblique; lobes oblong, retuse, yellow, sometimes upper ones with purple tips. **Flowering time** Nov.–Mar. In montane cliffs and other rocky places; Upper karoo, Sub-Escarpment Grassland (Middelburg E to Queenstown, and S from Graaff-Reinet to Cradock).

pristisepala (Hiern) Hilliard (see 3a above)

stricta (Benth.) Hilliard (see 2a above)

LIMOSELLA L.

Mudwort

Species ± 11, nearly cosmopolitan, mainly in temperate and cooler regions, also in tropical mountains; ± 7 in sthn Afr., widespread.

Plant form varies within one species, caused by differing habitats. Terrestrial plants much smaller, appearing different to aquatic ones. Genus needs revision. All are hydrophytes, leaf axils single-flowered.

1a Stems short, stiff with rosulate leaves, also long, flexible stolons with well-spaced nodes, bearing 1–4, usually petiolate leaves often with floating blades

grandiflora Benth.

Perennial or annual herbs, 10–200 mm long; stems with stolons, tufted or creeping; leaves, flowers or leaf rosettes widely spaced. **Leaves** erect on land, floating in water, blades elliptic to oblong or ovate, or rarely ± linear. **Flowers** white to pale blue or purple. **Pedicels** often shorter than leaves, rarely short in linear-leafed plantlets. **Calyx**: tube smooth, ± as long as corolla tube; lobes widely deltate, acute, equalling to or shorter than calyx tube. **Corolla** lobes longer than calyx; lobes up to 2.5 mm long. **Flowering time** Nov. **Fruit** a capsule longer than calyx. Shallow water, floating or rooted; Upper Karoo, Drakensberg Grassland, Sub-Escarpment Grassland, Eastern Fynbos-Renosterveld, Albany Thicket (Oviston S, from Middelburg and Elliot, Cradock to Komga and Grahamstown to East London).

vesiculosa Hilliard & B.L.Burtt

Perennial or annual(?) herb, amphibious, 10–100 mm high; stems tufted or matted, often with leafy stolons rooting and forming new plants at nodes. **Leaves** with petioles up to 15 mm long; blade ± round, base often cordate. **Flowers** white with yellow throat. **Pedicels** filiform, ± as long as petioles. **Calyx**: tube inflated at base with tiny bladder-like vesicles on outside; lobes deltate to lanceolate, shorter than tube. **Corolla**: tube longer than calyx tube; lobes 2.5–4.0 mm long. **Flowering time** Nov.–Feb. Mud in marshes or edges of water, sometimes inundated; Drakensberg Grassland (Naude's Neck).

1b Stems as in 1a, but, when present, stolons bare, producing only plantlets at nodes; leaves rosulate, > 4, sometimes petiolate, blades erect or floating
2a Leaves all linear, usually terete, often little broader and flattened at apex

grandiflora Benth. (see 1a above)

longiflora Kuntze

Perennial or annual(?), tufted herb, amphibious or under water, terrestrial plants tiny and sturdy, those in water longer and limp, 10–50(–100) mm high. **Leaves** ± erect. **Flowers** blue or mauve below, ± white above. **Pedicels** up to 60 mm long, ± equalling leaves in length. **Calyx**: tube smooth but with 5 strong nerves continuing into lobes; lobes deltate, ± acute. **Corolla** 2–3× as long as calyx; lobes erect, somewhat shorter than corolla tube. **Flowering time** Sept.–Mar. **Fruit** a capsule shorter than calyx tube. Mud near or in water; Drakensberg Grassland, Sub-Escarpment Grassland, Eastern Fynbos-Renosterveld (Barkly East to Ntsikeni Nature Reserve, Mount Hope and Grahamstown).

2b Leaves with petiole and blade or spathulate with apex much broader and flattened than in 2a

africana Glück

Perennial or annual herbs, amphibious or under water, from ± 20–100 mm long, tufted or matted; stems mostly short, some erect, up to 50 mm long; stolons filiform. **Leaves** rosulate, either with filiform petioles up to 45 mm long and blades floating and ± round to oval, or elliptical or spathulate. **Flowers** white to mauve or pink. **Pedicels** much shorter than leaves, 1–7 mm long. **Calyx** up to 2.5 mm long, ± as long as corolla tube; tube smooth; lobes up to 0.5 mm long, ± deltate. **Corolla** lobes ± ovate, equalling to or shorter than calyx, spreading.

Uncertain if present in EC. Close to small forms of *L. grandiflora* and *L. maior*.

grandiflora Benth. (see 1a above)

inflata Hilliard & B.L.Burtt

Perhaps perennial and annual herb, 0.3–1.0 m high; depending on water depth. **Leaves** like *L. grandiflora*; leaf blades elliptic, obtuse; petioles up to 1 m long; bases cone-shaped and inflated when living. **Flowers** white, sometimes bluish round mouth, tube base orange, floating on water surface. **Pedicels** filiform, up to 1 m long. **Calyx**: tube smooth; lobes ± lanceolate, longer than tube. **Corolla**: tube and lobes 4.5–6.0 mm long; lobes longer than calyx. **Flowering time** Mar., Apr. Rock pools, sometimes in marsh pools, rooted in mud; Drakensberg Grassland, Sub-Escarpment Grassland (Barkly East – Ben Macdhui and Queenstown – Andriesberg Summit).

maior Diels (sometimes spelled '**major**')

Perennial or annual, tufted herb, amphibious or under water, rarely floating, 10–300 mm high. **Leaves** either spathulate and clearly flattened in higher parts, or with petiole and

blade; blades also erect or rarely floating; petioles stout, erect and blades lanceolate, elliptical or ovate to round. **Flowers** white, mauve, pink or light blue with purple marks. **Pedicels** up to 50 mm long, mostly shorter than petioles. **Calyx** 2.5 mm long, ± as long as corolla tube; calyx tube smooth; lobes ovate to deltate, 0.8 mm long or more, shorter than calyx tube. **Corolla** lobes equalling to or shorter than calyx. **Flowering time** Oct., Jan., Mar. **Fruit** a capsule shorter than calyx tube. In mud or shallow water; Drakensberg Grassland (Naude's Neck and Hogsback).

vesiculosa Hilliard & B.L.Burtt (see 1a above)

*LINARIA Mill see PLANTAGINACEAE

LINDERNIA All. see LINDERNIACEAE

LYPERIA Benth.

Species 6, sthn Afr., N, NC, WC, EC.

tristis (L.f.) Benth.

Annual herb, ± 30–600 mm high; stems simple or little branched, leafy, most parts glandular-pubescent. **Leaves**: lower ones tapering into long petiole, grading to sessile upwards, up to 75 × 25 mm, ± elliptic, obtuse, margins entire to deeply dentate. **Flowers** single, in axils of bracts, shortly pedicellate, first in terminal corymbs, then lengthening into racemes up to 500 mm long. **Corolla**: tube up to 29 × 2 mm, cylindrical but wider near top; limb ± regular, glabrous above except for tiny glands with stalks round mouth, ± white to greenish yellow or yellow, darker when old, clove-scented after dark. **Flowering time** Oct. Sandy places with gravel or rocks, often in scrub; Albany Thicket, Lower Karoo, Rainshadow Valley Karoo (Graaff-Reinet and Willowmore districts).

MANULEA L.

Finger phlox; *vingertjies* (A)

Species 74, Africa, 1 in India, rest in sthn and S tropical Afr., some in Mozambique, Zimbabwe and Angola, widespread but most in WC, decreasing north- and eastwards, N, B, NW?, LIM, G, M, S, KZN, L, NC, WC, EC.

Stigma usually shortly exserted or just reaching mouth, much longer than style

[E]bellidifolia Benth.

Annual herb, up to 450 mm high; root woody; stems single to 12, loosely tufted, not or little branched with both balloon- and gland-tipped hairs. **Leaves** in 2–4 pairs near stem base, narrowly to broadly elliptic to oblanceolate, petiolate, serrate, both surfaces glandular-puberulous. **Flowers** many in simple, terminal, crowded racemes, often lengthening in fruit. **Calyx** barely bilabiate; lobes oblong-lanceolate with glandular and balloon-tipped hairs. **Corolla**: tube up to 10 mm long, cylindric, expanded in upper $^1/_3$; limb bilabiate; lobes ± elliptic, often revolute, white or light cream-coloured to dull yellow, mouth and throat area orange/yellow; tube puberulous, mainly with balloon-tipped hairs. **Flowering time** May–Oct. Sandy areas often beside rivers, hill slopes; Sub-Escarpment Grassland, Dry Highveld Grassland, Sub-Escarpment Savanna, Albany Thicket (Queenstown S, from Somerset East to Komga and Uitenhage to Bathurst).

buchneroides Hilliard & B.L.Burtt

Perennial herb, up to 450 mm high; stems simple or little branched, puberulous with both balloon- and gland-tipped hairs, not or hardly leafy. **Leaves** mainly radical,

narrowly to broadly elliptic, petiolate, both surfaces glandular-puberulous. **Flowers** many in a long, narrow thyrse, cymules dichasial, few-flowered, usually in a dense, flat-topped, corymbose head, even when elongated and fruiting. **Calyx**: tube barely bilabiate; lobes linear-oblong, tips somewhat spathulate. **Corolla**: tube up to 9 mm long, cylindric, expanded in upper $^1/_3$; limb slightly bilabiate; lobes broadly obovate to subrotund, white, base of upper lip and down throat sometimes yellowish green to orange/yellow; tube puberulous with balloon- and gland-tipped hairs. **Flowering time** mainly Oct.–Jan. Damp grassland; Mesic Highveld Grassland, Drakensberg Grassland (Lady Grey, Barkly East and Rhodes districts).

crassifolia Benth. subsp. **crassifolia**

Perennial herb, 0.6(–1.0) m high; stems simple or little branched, sometimes paniculate, sparingly bracteate or leafy. **Leaves** radical in rosettes, elliptic to oblanceolate, petiolate. **Flowers** many in a long, narrow, lengthening, terminal thyrse, cymules dichasial, several to many-flowered. **Calyx** clearly bilabiate; lobes lanceolate or oblong-lanceolate. **Corolla**: tube up to 8 mm long; limb clearly bilabiate; lobes oblong-elliptic, ± revolute, dull or orange-yellow, throat sometimes orange; tube and back of lobes puberulous with balloon-tipped hairs. **Flowering time** Dec.–Mar. Montane, damp grassy slopes; Mesic Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland, Upper Karoo (Witteberg Mts, Joubertspas to Naude's Neck S, from Middelburg District, Sneeuberg to Bastervoetpad in Elliot and Maclear districts and to Bankberg in Mountain Zebra National Park).

crassifolia Benth. subsp. **thodeana** (Diels) Hilliard

Occurs on Drakensberg Basalt; Drakensberg Grassland (top of Naude's Neck Pass).

florifera Hilliard & B.L.Burtt

Erect, perennial herb, up to ± 1 m high; stems 1 or few, simple up to flowers, distantly leafy. **Leaves** grading upwards into bracts, narrowly elliptic. **Flowers** many in narrow thyrses of dichasial cymules, these grouped in a large panicle. **Calyx** hardly bilabiate; lobes linear-oblong, tips subspathulate. **Corolla**: tube up to 6.5 mm long; limb bilabiate; lobes oblong-elliptic, mauve or whitish; tube somewhat purple or yellow at base respectively, puberulous outside with balloon-tipped hairs. **Flowering time** Dec.–Feb. Damp or wet grassland; Sub-Escarpment Grassland (uMzimkhulu District).

karrooica Hilliard

Erect, annual herb, up to 130 mm high; stems several, simple. **Leaves** opposite and decussate, crowded at stem base, blade elliptic or oblanceolate, petiolate. **Flowers** many in simple, terminal racemes, distant. **Calyx** hardly bilabiate; lobes oblong. **Corolla**: tube up to 3.5 mm long, ± funnel-shaped, mouth oblique; limb bilabiate with lobes arranged 4+1, all lanceolate-oblong, cream-coloured to sulphur-yellow; tube with rare balloon-tipped hairs. **Stigma** well exserted. **Flowering time** July–Sept. Stony or sandy areas on ridges and in riverbeds; Upper Karoo (Graaff-Reinet).

paniculata Benth.

Coarse, perennial herb, stems up to 1 m high; branching from base, forming leafy and bracteate panicles, hairy with patent eglandular hairs. **Leaves** elliptic, hardly petiolate, ± serrate. **Flowers** many in narrow, terminal thyrses of dichasial cymules, forming a broad panicle. **Calyx** hardly bilabiate; tube 0.5 mm long; lobes lanceolate. **Corolla**: tube up to 7 mm long; limb bilabiate; lobes ± elliptic, white or cream-coloured, yellow

at base of upper lip and on back of tube, outside of corolla pubescent, hairs mainly eglandular. **Flowering time** mainly Feb., Mar. Rocky areas; Mesic Highveld Grassland, Sub-Escarpment Grassland, Drakensberg Grassland, Dry Highveld Grassland (Lady Grey to Kokstad S, from between Dordrecht and Queenstown to Elliot and to Bosberg near Somerset East).

parviflora Benth. var. **parviflora**

Perennial herb, stems up to 1 m high, one to several, simple or loosely branched, distantly leafy to bracteate. **Leaves** mostly near base, more spaced and smaller upwards, elliptic to oblanceolate, petiolate. **Flowers** in long, narrow, terminal thyrses, sometimes in a panicle, cymules usually many-flowered, dichasial to monochasial, spaced out, often far apart in fruit. **Calyx** hardly bilabiate; lobes subequal, linear and thick. **Corolla**: tube up to 9 mm long; limb often small, bilabiate; lobes oblong-elliptic to subrotund, often revolute, dull yellow to orange or brownish red; tube sometimes somewhat purple; outside of corolla puberulous with balloon-tipped hairs. **Flowering time** all year. Damp, sandy areas, also beside streams, in grassland or open woodland; Sub-Escarpment Grassland (Mthatha River).

plurirosulata Hilliard

Annual herb, up to 180 mm high; stems crowded, single to many, these then grouped closely to form a small leafy rosette, rarely branched, often nude. **Leaves** in several pairs at stem base, spreading, blade up to 35 mm long, oblanceolate to narrowly elliptic, petiolate. **Flowers** many in simple, terminal racemes, capitate but somewhat lengthening in fruit. **Calyx** hardly bilabiate; tube up to 8 mm long; lobes lanceolate. **Corolla**: tube up to 9.5 mm long; limb clearly bilabiate; lobes all oblong to oblong-elliptic, often revolute, light cream-coloured, orange-yellow around mouth and in throat; tube puberulous with minute glandular and eglandular hairs. **Flowering time** Apr.–Oct. Open veld, stony ridges or moist flats; Upper Karoo, Sub-Escarpment Grassland (Colesberg to Middelburg, Steynsburg and Queenstown).

rhodantha Hilliard subsp. **rhodantha**

Perennial herb, stems up to 750 mm high, single to several, usually simple, sometimes somewhat branched in upper parts, puberulous, hairs mostly gland-tipped, nude to somewhat bracteate. **Leaves** radical, crowded in rosettes, elliptic to oblanceolate, ± obtuse, petiolate, minutely glandular-puberulous on both surfaces. **Flowers** many, in few-flowered, dichasial cymules (mostly 3), in a long, narrow, terminal thyrse; inflorescence axis with balloon-tipped hairs. **Calyx**: tube up to 0.5 mm long, deeply divided into 5 subequal lobes. **Corolla**: tube up to 8.5 mm long; limb bilabiate; lobes oblong to oblong-elliptic, margins ± flat, deep red to strong pink, outside of corolla puberulous with balloon-tipped hairs. **Flowering time** mainly Nov., Dec. Mountain grassland, often damp; Drakensberg Grassland, Dry Highveld Grassland (Barkly East S, Molteno to Jamestown and Tsomo River).

Stigma always included, ± equal to or longer than style

chrysantha Hilliard

Annual herb, up to 150 mm high; most parts glandular-puberulous, many also with balloon-tipped hairs (stems, pedicels, calyx and outside of corolla); stems single to many, tufted, simple, leafless. **Leaves** crowded at base, elliptic to broadly ovate, long-petiolate, glandular-puberulous. **Flowers** many in dense, terminal racemes, soon lengthening. **Calyx** barely bilabiate; tube up to 0.5 mm long; lobes oblong-lanceolate. **Corolla**: tube

up to 4.5 mm long; limb usually hardly bilabiate; lobes elliptic-oblong, bright yellow, rarely cream-coloured, tube lighter with orange patch down back of throat. **Stigma** longer than style. **Flowering time** Apr.–Oct. Gravel amid rocks and riverbeds; Albany Thicket, Lower Karoo, Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld (Jansenville E to Pearston, S to Willowmore and Antoniesberg).

dregei Hilliard & B.L.Burtt

Perennial herb, up to 300 mm high; stems scapose, erect, simple, puberulous with gland- and balloon-tipped hairs. **Leaves** in 1–several basal leaf rosettes, crowded, petiolate, oblanceolate, obtuse, ± serrate; glandular-puberulous, sometimes also with balloon-tipped hairs. **Flowers** many in 1 or 2 long, lax, terminal racemes. **Calyx** bilabiate; tube 1 mm long; lobes oblong-lanceolate with both gland- and balloon-tipped hairs. **Corolla**: tube up to 7.5 mm long; limb bilabiate; lobes elliptic-oblong, ± revolute, dull mustard-yellow, back of throat yellow/orange with a purplish patch, outside with balloon-tipped hairs. **Stigma** much longer than style. **Flowering time** Dec.–Mar. Damp gravel or silt from basalt; Mesic Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland (Witteberg Mts, Lady Grey and Joubertspas E to Rhodes, Naude's Neck and Ben Macdhui).

obovata Benth.

Annual or short-lived, perennial herb, 600(–900) mm high; single or several-stemmed, erect, simple or loosely branched; base pubescent, glabrous or with balloon-tipped hairs upwards. **Leaves** opposite, petiolate, narrowly to broadly elliptic, ± serrate; both surfaces with gland- and balloon-tipped hairs. **Flowers** in long, terminal, sometimes branched thyrses, cymules dichasial, many-flowered. **Calyx** slightly bilabiate; tube up to 0.4 mm long; lobes subequal, spathulate, thick. **Corolla**: tube 5.75(–8.00) mm long; limb bilabiate; lobes elliptic, revolute, light yellow senescing to orange or brown; back of throat with yellow/orange patch, outside partly balloon-tipped hairy. **Stigma** equal to or somewhat longer than style. **Flowering time** Aug.–Dec. Coastal, sandy sites, in dunes and open areas; Albany Thicket, Eastern Fynbos-Renosterveld (Kraggakamma to Port Elizabeth and Port Alfred, from Oyster Bay to Humansdorp).

MIMULUS L. see **PHRYMACEAE**

*__MISOPATES__ Raf. see **PLANTAGINACEAE**

NEMESIA Vent.

Wild nemesias, Cape snapdragons; *leeubekkies* (A)

Species ± 65, Africa, tropical (few) and sthn Afr.; ± 60 in sthn Afr., widespread, but mostly in N, B, S, L, WC.

1a Flowers in terminal, racemose, bracteate inflorescences
2a Annuals
3a Leaves mostly with petioles up to 10 mm long or sessile (also see 3b N. deflexa, *where petioles can be < 10 mm long; also* Nemesia sp. A *which can flower early and look annual)*

affinis Benth.

Annual herb, up to 0.45 m high; stems erect, branched, puberulous in upper parts; hairs capitate with head usually wider than stalk. **Leaves** linear to lanceolate or oblong, denticulate, sessile. **Flowers** in lax racemes up to 50 mm long. **Corolla** white, yellow, blue or rarely red, upper lobes oblong, obtuse; palate cream-coloured or yellow with fine hairs.

Spur extended conical, ± straight, 3–5 mm long. **Flowering time** mostly Aug.–Oct. **Fruit** a capsule, with length = breadth or somewhat longer, up to 6 × 5 mm. Stony soil in grassland; Lower Karoo, Albany Thicket, Eastern Fynbos-Renosterveld (Mountain Zebra National Park to Port Elizabeth, Alexandria and Port Alfred).
Doubtful if *N. floribunda* is included, as hairs are different (Goldblatt & Manning 2000).

floribunda Lehm.

Annual herb, sometimes bushy, 60–370 mm high; stems mainly branched below, few above, somewhat pilose in upper parts. **Leaves** ovate or oval below to lanceolate above, ± obtuse, entire to dentate. **Flowers** in lax, ± corymbose or oblong racemes up to 120 mm long. **Corolla** white, sometimes with purple streaks on upper lip; upper lobes oblong, palate shortly haired. **Spur** ± 5 mm long, extended conical, ± straight. **Flowering time** mostly Aug.–Dec. **Fruit** of ± oblong, widely notched, 8–9 mm long capsules. Grassland, closed shrubland or thicket, loamy soil, full sun; Drakensberg Grassland, Sub-Escarpment Savanna, Albany Thicket (Graaff-Reinet, Fort Beaufort to King William's Town S, from Port Elizabeth to Grahamstown).
See *N. affinis* Benth.

fourcadei A.L.Grant ex K.E.Steiner

Annual herb, up to 420(–740) mm high; stems erect, simple or branching. **Leaves** ovate, acute, dentate. **Flowers** in short racemes, hairs mainly in inflorescence, up to 210 mm in fruit. **Corolla**: upper lip white with purple veins at base; lobes oblong; lower lip white with light yellowish middle, palate bosses yellow-orange, papillate in front, bearded behind, in hypochile, tube and spur. **Spur** cylindrical, straight or somewhat down-curved, 2.0–4.5 mm long. **Flowering time** Aug., Oct. **Fruit** an oblong-ovoid capsule, slightly urceolate, up to ± 18 × 9 mm, either emarginate or with 2 lobes. Grassland on forest margins; Eastern Fynbos-Renosterveld, Indigenous Forests (Kareedouwkloof, Witelsbos and Humansdorp District).

linearis Vent.

Annual herb, up to 900 mm high; stems simple or branched near base, ridged, leaf bases decurrent. **Leaves** sessile or base half-clasping stem; up to 400 × 3 mm, linear, acute, ± entire, some distantly denticulate. **Flowers** in bracteate racemes, grouped in lax corymbs; indumentum of minute, ± sessile hairs, dot-like (also on bracts, pedicels and calyces); pedicels ± 4 mm long. **Bracts** lanceolate. **Calyx**: lobes linear to ovate. **Corolla** white, sometimes mauve-tinged. **Spur** conical prolonged, up to 4 mm long, obtuse. **Flowering time** Sept.–Jan. **Fruit** an oblong capsule, 10 × 7 mm, hardly narrowed near apex, base and upper margin of valves ± rounded. Well-drained sandy or gravelly soil, full sun; Upper Karoo, Sub-Escarpment Grassland, Rainshadow Valley Karoo (Burgersdorp S, from Sondags River near Graaff-Reinet to Queenstown and Willowmore districts).
Regarded by Hilliard & Burtt (1986b) as 'an annual allied to *N. bicornis* (L.) Pers.'. See 2b *N. foetens*. Description based on Latin diagnosis in Ventenat (1804) and specimens identified as '*N. capensis* (Thunb.) Kuntze var. *linearis* (Vent.) Grant' (ined.) by A.L. Grant.

3b Leaves all with petioles up to 26 mm long (also see 2b N. silvatica
that can flower as an annual)

cynanchifolia Benth.

Annual herb, up to 600 mm high; stems ± decumbent to ascending, much branched, leafy. **Leaves** ovate or ovate-lanceolate, obtuse, denticulate. **Flowers** in ± corymbose,

oblong, or semi-umbellate racemes up to 144 mm long, shortly pilose; pedicels up to 30 mm long. **Corolla** mauvish blue, purple or white; upper lobes oblong; palate papillate or with small hairs. **Spur** ± cylindrical, straight or ± forward curved, 6–8 mm long. **Flowering time** July, Aug. **Fruit** an oblong capsule, up to 10 × 8 mm, hardly narrowed near apex. Open plains, rocky slopes or mountain valleys; Upper Karoo, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Middelburg S, from Graaff-Reinet to Komga and from Baviaanskloof to Breakfast Vlei near Grahamstown).

deflexa Grant ex K.E.Steiner

Annual or short-lived perennial, branched herb, up to 210 mm high; ± whole plant with long, fine, hairs. **Leaves** ovate to broadly so; dentate, teeth triangular. **Flowers** in axils of upper leaves or smaller bracts, forming lax racemes up to 270 mm long. **Corolla**: upper lobes ovate, white with red or pink streaks at base; palate glabrous, greenish yellow or orange. **Spur** extended conical, outer half bent downwards, apex bifid, ± 4.0–5.5 mm long. **Flowering time** Oct. **Fruit** an oblong capsule, up to 7.5 × 5.3 mm. Shady places, moist in season; Eastern Fynbos-Renosterveld (Kouga Mts near Joubertina, Sandvlakte-kloof in Baviaanskloof).

melissifolia Benth.

Annual, bushy herb, 100–600 mm high; stems much branched, hairs few, mainly in inflorescence. **Leaves** ovate, roughly dentate. **Flowers** in clusters in racemes; internodes short or long, so flowers in groups, terminal one umbellate. **Corolla**: tube with 2 papillose bosses inside at spur mouth; upper lip with short lobes, mostly white, also pinkish white or light mauve. **Spur** narrowly conical or cylindrical, ± straight, mostly 4.0–5.5(–8.0) mm long. **Flowering time** mainly Sept.–Dec. **Fruit** a large capsule, up to 17 × 9 mm, oblong. Damp places in semi-shade, also weed in disturbed areas; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Thaba Chitja S, from Queenstown to Port St Johns, Somerset East across Amatole Mts to Komga and from Baviaanskloof to East London).

2b Perennials (also see N. deflexa *under 2a)*

caerulea Hiern

Perennial herb, 30–48 mm high; rootstock underground, producing one or a few tufted stems; simple or branching near base, leafy but usually with long, bare axis below flowers; hairs sparse, often only on pedicels and calyx. **Leaves** ovate, obtuse, ± sessile, denticulate. **Flowers** in loose racemes with many flowers. **Corolla**: tube with 2 raised, yellow-orange bosses inside near spur; lobes often purplish blue, rarely pinkish, palate usually yellow, sometimes white. **Spur** narrowly conical, short, 2.0–3.0(–3.5) mm long. **Flowering time** Dec. **Fruit** an ovate or oblong capsule, apex emarginate, rounded. Damp areas with grass; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna (Drakensberg Mts, Ongeluksnek, Qacha's Neck and Naude's Neck S and from Maclear to Baziya Mtn).

denticulata (Benth.) Grant ex Fourc.

Maagpynblommetjie (A)

Perennial herb, up to 600 mm high; rootstock woody with underground runners; stems many, annual, herbaceous, tufted, laxly branched, leafy, usually with long, bare axis below flowers. **Leaves** ovate to lanceolate, 10–18 mm wide, obtuse, base sessile, somewhat decurrent, ± entire or somewhat denticulate. **Flowers** grouped in short, crowded

hairy racemes. **Corolla**: tube with 2 ± flat, orange patches inside at spur mouth; limb blue, mauve, pale violet, pink or white, palate yellow or orange. **Spur** conical, extended, somewhat forward curved, (3–)5(–6) mm long. **Flowering time** July, Aug. **Fruit** an oval capsule, apex somewhat obliquely truncate. Grassland, sandy soil; Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Drakensberg Grassland, Albany Thicket (uMzimkhulu and Port St Johns S, from Katberg to Stutterheim and Dwessa Forest, Port Alfred to East London).

foetens Vent.

Perennial herb or suffrutex, up to at least 400 mm high; stems erect, much branched, leafy to inflorescence; plant foetid smelling. **Leaves** shortly petiolate to sessile; linear-lanceolate, acute, somewhat dentate below and entire upwards. **Flowers** grouped in ± capitate racemes, longer in fruit, covered with minute hairs, ± sessile and globular or dot-like. **Corolla** white, pink or mauve with purple veins; upper lobes oblong; palate bi-convex, yellow-orange. **Spur** 3–4 mm long, cylindrical, obtuse, somewhat curved. **Flowering time** Aug.–Dec. **Fruit** a large, oblong capsule, up to ± 14 mm long, valves somewhat obliquely truncate. Rocky, sandy soil, often streambeds, full sun; Upper Karoo, Sub-Escarpment Grassland, Eastern Fynbos-Renosterveld, Albany Thicket (Kompasberg near Middelburg to Tarkastad S, from Joubertina to Kirkwood and Ecca Pass).

Close to *N. linearis* (annual). Young stems difficult to place. Not synonymous to *N. fruticans* (Thunb.) Benth. *sensu* Philcox (1990: 11). See hairs.

fruticans *auct. non* (Thunb.) Benth. (Philcox 1990)

Excluding syn. *N. foetens* Vent. and possibly *Linaria capensis* Spreng. and *N. capensis* (Spreng.) Kuntze

White wild snapdragon; *witleeubekkie* (A)

Perennial herb, up to 600 mm high; stems erect to ascending, much branched. **Leaves** sessile or with short petioles; linear, lanceolate to oblong, entire to denticulate. **Flowers** in rather lax racemes up to 50 mm long, up to 180 mm in fruit and hairs stalked with slim apex. **Corolla** white, light pink or mauve, orange-yellow on palate and in throat. **Spur** up to 3.5 mm long, cylindrical, mostly straight. **Flowering time** Nov.–Mar. **Fruit** a widely oblong or ovate capsule, 10.5 × 7 mm, ± emarginate, outer corners somewhat horned. Grassland, streambanks, disturbed ground; widespread, except Indigenous Forests (Albert District to Rhodes S, from Steynsburg to Queenstown, Graaff-Reinet to Dwessa Nature Reserve, Willowmore to East London and to Humansdorp).

silvatica Hilliard

White forest nemesia

Much-branched herb, probably short-lived perennial, but flowering in first year, up to 1 m high; leafy; hairs sparse in inflorescence. **Leaves** widely lanceolate or ovate, acute, decurrent, incise-dentate. **Flowers** in dainty, many-flowered, flagelliform racemes, these mostly panicled. **Corolla** with 2 bosses inside tube at spur mouth, hairy and pale greenish yellow; limb white, veins greyish blue, palate white or pale yellow. **Spur** ± 6–9 mm long, cylindrical and somewhat forward curved, acute. **Flowering time** Jan.–May (KZN). **Fruit** a capsule, 3–10 × 3–7 mm, ± ovate but truncate at an angle of ± 30°. Forest edges and floor, often rocky; Sub-Escarpment Grassland (Mount Ayliff and Tonti Forest to Ngeli, S to Hogsback).

umbonata (Hiern) Hilliard & B.L.Burtt

Perennial herb, up to 450 mm high; rootstock with underground runners forming tufted, ± unbranched, ascending stems; usually with long bare axis below flowers. **Leaves** ± sessile or shortly petiolate, decurrent; lanceolate or narrowly elliptical, 1–6 mm wide, obtuse, ± entire or denticulate. **Flowers** several in short, hairy racemes up to 40 mm long. **Corolla** pink, mauve or reddish purple, upper lobes rounded, palate orange or yellow, puberulous. **Spur** extended conical, somewhat curved, 3.0–3.5(–4.0) mm long. **Flowering time** Dec., Jan. **Fruit** a large capsule, up to 14 × 9 mm, ± ovate, obliquely truncate. Grassland and disturbed ground; Sub-Escarpment Grassland, Drakensberg Grassland, Albany Thicket (Queenstown to Maclear and Mthatha S, and from Hogsback and Katberg to Cathcart District).

sp. A

Hilliard & Burtt 43: 400–401 (1986b). Possibly *N. fruticans* (Thunb.) Benth. or undescribed species.

Perennial herb, up to 450 mm high; may flower as seedling, when stems ± simple; stems tufted, much branched, erect, leafless well below flowers. **Leaves** lanceolate or oblong, acute to obtuse, ± serrulate; petioles up to 4 mm long on branches below, to sessile above. **Flowers** in many-flowered, lax, hairy racemes. **Corolla** mauvish, (bright) pink and/or violet with basal yellow patch in middle of upper lip; lobes ± oblong; palate orange-yellow, papillate. **Spur** widely conical then narrowly so or cylindrical, somewhat curved, apex bifid, 3–4 mm long, orange-yellow. **Flowering time** Dec.–Mar. **Fruit** a 5–13 × 5–8 mm capsule, ovate or somewhat urceolate, apex obliquely truncate. Probably grassland; Mesic Highveld Grassland, Drakensberg Grassland (Lady Grey, Barkly East, Ben Macdhui, Naude's Neck, Rhodes).

1b Flowers in leaf axils or in terminal, leafy-looking racemes

albiflora N.E.Br.

Annual or short-lived, perennial herb, up to 750 mm high; stems erect to straggling, laxly branched, most of plant woolly. **Leaves** petiolate below, ± sessile above; ovate, roughly serrate (more blunt than in *N. pubescens*). **Flowers** in upper leaf axils, or grouped in racemes. **Bracts** leaf-like, ± sessile. **Corolla** white, flushed pale pink or lilac, veins violet, palate and tube floor yellow; upper lobes oblong, palate papillate. **Spur** narrow, extended conical, ± straight, 2.5–3.5 mm long. **Flowering time** Sept.–Jan. **Fruit** of long capsules, 15 × 7 mm, ovate-oblong to urceolate, obliquely truncate. Partly shaded, damp areas, often in caves or under rocks; Dry Highveld Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Albany Thicket (mountains in Albert and Barkly East southwards, from Umbombola Range near Queenstown to Spes Bona near Bizana, Bakenkop at Mountain Zebra National Park to Addo, Uitenhage and Humansdorp).

hanoverica Hiern

Perennial, decumbent herb or suffrutex, up to 300 mm high; stems erect, spreading or ascending, much branched, hairy in upper parts. **Leaves** petiolate; lanceolate to ovate, ± obtuse or acute, apiculate, variously toothed but upper ones ± entire. **Flowers** in upper leaf axils and in terminal racemes. **Bracts** as small leaves. **Corolla** whitish; upper lobes short, rounded. **Spur** widely conical, ending with short, narrow section, ± 3 × 3 mm. **Flowering time** Mar. **Fruit** up to 9 × 7.5 mm, ovate or somewhat urceolate, truncate, level to somewhat oblique. On riverbanks; Upper Karoo (Graaff-Reinet).

pubescens Benth.

Perennial, sometimes annual herb, up to 380 mm high; stems erect or ascending, sturdy, laxly much branched in inflorescence. **Leaves** opposite to alternate in floral area, ovate, obtuse or apiculate, floral ones acute, petiolate, dentate to serrate (sharper than in *N. albiflora*). **Flowers** in leaf axils or upper ones in leafy and bracteate, ± loose racemes; ± pilose or pubescent to glabrescent. **Corolla** white, throat yellow, lips small, upper lobes oblong, up to 4 mm long; **Spur** extended conical, up to 3 mm long. **Flowering time** July, Oct. **Fruit** a capsule, up to 8 × 6 mm, widely ovate-oblong, slightly narrower below the truncate and emarginate apex. Sandy, stony and rocky mountain areas; Upper Karoo (Middelburg and Graaff-Reinet districts).

NUXIA Comm. ex Lam. see **STILBACEAE**

OFTIA Adans.

Lazy bush; *sukkelbossie* (A)

Species 3, sthn Afr., NC (Namaqualand) southwards to WC (about Gansbaai) and east along mountains to EC.

africana (L.) Bocq.

Mountain lazybush; *koekblommetjiebos*, *sukkelbossie* (A)

Shrub or dwarf shrub, up to 1.5 m high; branches decumbent; pubescence mixed with short glandular and long, mostly eglandular hairs; foetid smell. **Leaves** much varied, elliptical or ovate to round, acute to acuminate, sessile, revolute, stiffly dentate or serrate. **Flowers** axillary to upper leaves, shortly pedicellate. **Calyx** deeply lobed. **Corolla** regular, tube greenish, up to 8 mm long, cylindrical; limb shorter, white, 5-lobed, up to 8 mm wide, fragrant. **Flowering time** Sept., Oct. **Fruit** a shiny, black drupe. Sandy or gravelly soils with sandstone, also granite; Eastern Fynbos-Renosterveld (Joubertina and Uitenhage).

PELIOSTOMUM Benth.

Karoo violets; *karooviolette*, *veldviolette* (A)

Species ± 7, tropical and sthn Afr., most in latter, widespread, but mostly in western, dry regions, not in G, L.

leucorrhizum E.Mey. ex Benth.

Dwarf shrub, 30–400 mm high; stems loosely branched, erect or ascending, partly woody, bark often white, leafy. **Leaves** ± sessile; grey-green, alternate, linear to narrow-obovate or -elliptical, entire. **Flowers** single in leaf axils, ± sessile, longer than leaves. **Calyx** deeply lobed. **Corolla** somewhat irregular; tube long, base narrow, widening beyond calyx, throat wide; limb spreading, small, 5-lobed; deep blue or violet with darker marks round mouth. **Anthers** long-ciliate. **Flowering time** Sept.–Dec. **Fruit** a narrowly ovoid-conical capsule, thin-walled, up to 8 mm long. Rocky, sandy soil, often dry riverbeds; Lower Karoo, Rainshadow Valley Karoo (Aberdeen SW to Willowmore).
Including *P. leucorrhizum* var. *leucorrhizum* and var. *linearifolum* F.E.Weber, latter probably not = *Aptosimum lugardiae* (N.E.Br. ex Hemsl. & Skan) E.Phillips. See base of corolla in relation to calyx of *A. lugardiae* in NC, tube more funnel-shaped or widening within calyx.

origanoides E.Mey. ex Benth.

Dwarf shrub, 50–300(–600) mm high; prostrate or with stem tips ascending, much branched, ± glabrous, branches woody to wiry. **Leaves** alternate, oval or oblong to obovate with short petioles, entire. **Flowers** single, axillary, longer than leaves. **Calyx** 5-partite. **Corolla** as above but narrow basal part of tube hardly exserted from calyx; deep blue or violet, or mauve with white stripes on lower lip. **Anthers** short-ciliate or ± glabrous. **Flowering time** mainly Sept.–Dec. **Fruit** a narrowly ovoid-conical capsule, thin-walled, 6 mm long. Sandstone slopes, sandy soil; Lower Karoo, Rainshadow Valley Karoo, Albany Thicket (Graaff-Reinet S, Willowmore and Baroe).

PHYGELIUS E.Mey. ex Benth.

Species 2, sthn Afr., widespread in eastern half of SA, M, S, FS, KZN, L, WC, EC.

aequalis Harv. ex Hiern

Sturdy shrub, dwarf shrub or herb, 0.45–2.00 m high; stems erect, woody below, branched. **Leaves** opposite, ovate to lanceolate upwards, ± obtuse, finely crenate-serrate; petioles decurrent. **Flowers** single, axillary or in terminal, oblong, dense, compound, cymose, bracteate inflorescences, up to 200 mm long; pedicels up to 8 mm long. **Corolla**: tube up to 40 mm long, narrow funnel-shaped, somewhat incurved or ± straight, drooping, truncate at mouth; 5 lobes short, ovate or round; crimson or salmon-pink outside, orange to purplish inside. **Flowering time** Nov.–Mar. Damp, shady places with rocks (often basalt), streambanks, ravines, forest margins; Mesic Highveld Grassland, Sub-Escarpment Grassland (Lady Grey, Joubertspas to Griqualand East, Mount Arthur).

capensis E.Mey. ex Benth.

Cape figwort, Cape fuchsia, river bells

Differing from *P. aequalis* in the following: shrub, 0.3–1.5 m high; stems laxly branched. **Leaves** ovate-lanceolate. **Flowers** loosely branched, up to 360 mm long, pyramid-shaped; pedicels up to 24 mm long. **Corolla**: tube up to 36 mm long, funnel-shaped, incurved, oblique at mouth; strong to pale red outside, sometimes yellow at mouth. **Flowering time** Dec.–Mar. Streambeds, water edges, steep mountain slopes; Mesic Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland (Lady Grey to Qacha's Neck and Naude's Neck S, from Queenstown to Katberg Pass and Hogsback).

PHYLLOPODIUM Benth.

Capewort; *opslag* (A)

Species 26, all in sthn Afr., mostly in WC; N, KZN, NC, WC, EC.

Based largely on Hilliard (1994: 429–460).

Annual herbs but base can be woody; hairs eglandular, retrorse on stems (minute, ± sessile glands may be present, glandular hairs also in P. rustii*); leaves petiolate, margins serrate*

bracteatum Benth.

Annual herbs, stems up to 300 mm high; simple to much branched, lower ones often decumbent, leafy and spreading- to retrorse-haired. **Leaves** opposite, widely elliptic or ovate. **Flowers** many in lax racemes, where leaves gradually become bracts upwards. **Corolla**: lobes white with orange patch at base of upper lip. **Flowering time** all year. Damp sandy areas, often weedy; Indian Ocean Coastal Belt, Albany Thicket, Eastern Fynbos-Renosterveld (EC Coast, inland to Fort Beaufort, Winterhoek Mts and Grahamstown).

[E?]cuneifolium (L.f.) Benth.

Annual herbs, stems up to 400 mm high; simple or much-branched, lower ones often decumbent, leafy. **Leaves** as for *P. bracteatum*. **Flowers** many in crowded heads, later in long, dense racemes, with a sudden change from leaves to bracts. **Corolla**: lobes mauve with orange mark below upper lip. **Flowering time** all year. Common weed of damp, sandy areas; Drakensberg Grassland, Sub-Escarpment Savanna, Albany Thicket, Eastern Fynbos-Renosterveld (Mount Kempt near Stutterheim to Kentani and Kei River Mouth S, from Fort Beaufort to Grahamstown and to Humansdorp).

[E]diffusum Benth.

Annual herbs, up to 350 mm high; stems simple to much branched, leafy; many stem hairs with inflated tips. **Leaves** opposite becoming alternate upwards, elliptic to rhomboid. **Flowers** many in crowded heads, later becoming long, lax racemes; lowest pedicels 1.5–4.0 mm long, (< 1.5 mm long in other species). **Corolla**: tube widening soon; lobes white, buds can be purple outside, orange and purple marks at base of upper lip, concurrently. **Flowering time** July–Jan. Sandy grassland; Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (King William's Town S, from Winterhoek Mts near Uitenhage to Port Elizabeth and Peddie).

rustii (Rolfe) Hilliard

Annual herbs, up to 300 mm high; stems simple or much branched, leafy with glandular and retrorse eglandular hairs. **Leaves** as for *P. diffusum*, elliptic to linear higher up stem, blade of lowest leaves at least, broad compared to length, 7–15(–25) × 3–8(–10) mm, serrate. **Flowers** in crowded heads, soon becoming longer, rather lax, terminal racemes on ± bare branches. **Corolla**: tube widening soon; lobes white with orange patch at base of upper lip. **Flowering time** Aug.–Nov. Sand or loamy sand in disturbed areas; Albany Thicket, Eastern Fynbos-Renosterveld (Karoo Nature Reserve near Graaff-Reinet S, Humansdorp).

Annual herbs, or probably so; hairs glandular, minute in upper parts, also eglandular, latter retrorse on stems; leaf base narrowed then suddenly expanding and half-clasping, leaf margins entire, denticulate or with up to 4 tooth pairs

elegans (Choisy) Hilliard

Annual herbs, probably up to 450 mm high; stems simple or much branched from base, base woody, leafy to bracteate above. **Leaves** as for *P. rustii*, all narrow compared to length, 18–35 × 1–3 mm, linear to narrowly oblanceolate, entire with tiny teeth or with ± 4 teeth pairs; petioles 3–8 mm long. **Flowers** many in dense heads, elongating soon into long, dense, narrow spikes. **Corolla**: tube widening in throat; lobes white, probably with yellow blotch on upper lip. **Flowering time** Sept.–Dec. Sandy hill slopes, many plants after fire; Eastern Fynbos-Renosterveld (Mts on WC border, Joubertina).

PSEUDOSELAGO Hilliard

Species 28, sthn Afr., mainly southwestern areas of WC; NC, WC, EC.

outeniquensis Hilliard

Annual, erect herb, up to 750 mm high; stems single, simple or mostly branched in upper parts, narrowly winged by decurrent leaf bases. **Leaves** crowded and opposite on stems below, becoming alternate, smaller and spaced soon upwards; ob- or linear-lanceolate, acute, several-toothed above, teeth in pairs. **Flowers** small, single, bracteate, sessile or in spikes, these often grouped in lax corymbs, sometimes in narrow panicles.

Bracts adnate to calyx tube. **Calyx** deeply 5-lobed. **Corolla** tubular, bilabiate; tube funnel-shaped, 5–6 mm long; limb ± regular; 5 lobes spreading, white with orange mark at base of upper lip, there also bearded. **Flowering time** Feb., Mar. **Fruit** a pair of soft-walled cocci, convex on outer side. Flats, open ground or in bush; Eastern Fynbos-Renosterveld (Witelsbos and Eersterivier, SE to Humansdorp).

SELAGO L.

(= *WALAFRIDA* E.Mey.)

Bitter bush; *aarbossie* (A)

Species ± 190, Madagascar (1), few in tropical Afr., mainly sthn Afr.; ± 174 in sthn Afr., widespread, mostly in WC.

Based largely on Hilliard (1999) and her groups of *Selago,* species are retained in the current treatment. Lowest bracts should often be ignored as not typical. Small flowers are often female only, having staminodes instead of stamens. Such flowers differ from heterosexual ones and are not used for identification purposes.

1a Leaves mostly tufted (fascicled, group of leaves in axils of main leaves)
2a Bract adnate to short pedicel, free from calyx

Group 1

Perennial herbs, closely leafy. **Leaves** alternate, glandular-punctate. **Flowers** in dense, non-extending glomerules (small, ± spherical racemes), arranged in corymbose panicles. **Bracts** with pale, membranous margins. **Pedicels**: basal ones up to 1.4 mm long. **Calyx** tubular. **Corolla** white, sometimes ± violet. **Anthers**: upper ones in throat, lower ones shortly exserted.

foliosa Rolfe

Perennial herb, up to 1(?) m high; branches simple, rod-like, villous. **Leaves** sessile; main ones up to 35 × 10 mm, ± elliptic, 3-nerved, ± acute, entire. **Flowers** in small glomerules, in a terminal corymb up to 120 mm wide. **Bracts** elliptic, softly fringed with hairs. **Calyx**: lobes deltate, acute, far shorter than tube. **Corolla** purple or white. **Flowering time** Apr., May. Grassland; Sub-Escarpment Grassland (Griqualand East and Mts near Clydesdale).

2b Bract adnate to pedicel, if present, and base or base of calyx tube

Group 2

Dwarf shrubs, closely leafy. **Leaves** usually opposite, alternate upwards, ericoid, entire, mostly revolute; glandular-punctate, ± glabrous. **Flowers** in crowded, terminal spikes or racemes, single or arranged in corymbose or long panicles. **Bracts** adnate to only base of calyx tube (or sometimes somewhat higher in *S. glomerata*), usually longer than calyx, lanceolate, acute with marginal hairs, sometimes elsewhere. **Pedicel** absent or minute. **Calyx** campanulate, lobed to halfway or more; lobes narrowly deltate, acute. **Corolla** white. **Anthers** mostly all well exserted.

glomerata Thunb.

Blouaarbossie (A)

Dwarf shrub or shrub, up to 120 mm high; branches shortly, ± recurved pubescent, densely leafy. **Leaves** opposite, or alternate upwards, main ones up to 8 × 2 mm, narrowly deltate to linear-oblong, ± acute, apiculate, broad-based, glossy. **Flowers** in spikes

in a dense, corymbose or elongated, round-topped panicle up to 80 × 40 mm. **Bracts** short, up to calyx length, back smooth. **Flowering time** mostly July–Nov. **Fruit** broad cocci, inner surface concave. Probably shrubby areas, sometimes rocky; Albany Thicket, Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld (Steytlerville, Baviaanskloof, Kouga Mts to Port Elizabeth and to Humansdorp).

karooica Hilliard

Dwarf shrub or shrub, up to 800 mm high; stems erect to sprawling, branching often lax, twiggy or long; shortly pubescent, hairs patent or recurved. **Leaves**: main ones up to 6 × 1.7 mm, deltate to linear-lanceolate, acute, apiculate, broad-based. **Flowers** in spikes, 10 × 10 mm, often single, sometimes a few in a loose corymb. **Bracts** longer than above, veins raised on back. **Calyx** up to 4 mm long. **Anthers**: upper ones in mouth or hardly exserted, lower ones shortly so. **Flowering time** Sept.–Dec. Montane, in shrubby areas, often in dry rocky ones; Eastern Fynbos-Renosterveld (Willowmore, Baviaanskloof and Kouga Mts).

luxurians Choisy

Perennial herb, dwarf shrub or shrub, sometimes appearing annual, up to 1 m high; branches often spiny; thickly hairy when young with coarse, patent hairs. **Leaves**: main ones up to 7 × 1.7 mm, often deltate, sometimes narrowly oblong-elliptic or oblong, ± acute, apiculate, base clasping. **Flowers** in short spikes, up to 15 × 10 mm, in a dense, much-branched, corymbose panicle. **Calyx**: lobes acute. **Corolla**: tube up to 6 mm long. **Anthers**: upper ones shortly exserted, lower ones exserted. **Flowering time** all year. **Fruit** narrow cocci, up to 1 mm wide. Sandy places with scrub, along roads and waste places; Rainshadow Valley Karoo, Albany Thicket, Eastern Fynbos-Renosterveld (Willowmore to Port Elizabeth and to Humansdorp).

[E]mediocris Hilliard

Dwarf shrub or shrub, up to 1 m high; spindly(?), branches virgate; pubescent, hairs mostly recurved. **Leaves**: main ones 7 × 1 mm, lanceolate or oblong, broad-based, dull. **Flowers** in spikes in small, ± dense, corymbose panicles ± 20 × 20 mm. **Corolla**: tube up to 5 mm long. **Flowering time** Apr.–Oct. **Fruit** cocci with inner surface ± flat. Montane, grassy slopes and fynbos; Eastern Fynbos-Renosterveld, Albany Thicket (Baviaanskloof Mts, Elandsberg, Suurberg, Great Winterhoek Mts, and Uitenhage).

myriophylla Hilliard

Dwarf shrub or shrub, up to 1 m high; branches virgate, later stout, upper ones bunched together; ± patent pubescent, closely leafy. **Leaves** alternate, main leaves short, up to 3.5 × 1 mm, narrowly deltate, acute, apiculate, broad-based, hardly revolute. **Flowers** in few-flowered spikes or racemes in a crowded pyramid-shaped panicle, up to 80 × 40 mm. **Bracts**: venation raised on back. **Calyx** up to 2.1 mm long. **Corolla**: tube up to 2.7 mm long. **Flowering time** Oct.–Dec. Pioneer in disturbed areas, and perhaps in scrub; Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld, Albany Thicket (Baviaanskloof and Kouga Mts to Patensie).

Group 3a

Perennial herbs, closely leafy at least above. **Leaves** mainly opposite, becoming alternate upwards, seldom alternate, tufted (rarely not or hardly so), > 2 mm wide, base narrowed, apex often acute with callose tip, margins usually entire but sometimes with tiny teeth; all glandular-punctate. **Flowers** in corymbose panicles, these sometimes lax. **Bracts** adnate

to pedicel and base of calyx tube, concave and keeled, margins pale, membranous, broad in these 3 species and elliptic, often hair-fringed. **Pedicels**: basal ones mostly 1–2 mm long. **Calyx** campanulate, subequally, mostly shortly 5-lobed, margins with hairs. **Corolla** white, sometimes with some violet. **Anthers**: upper ones shortly to well exserted, lower ones all well so.

Also see 3b: Group 3b (p. 1526) and 1b: Group 3c (p. 1529).

hyssopifolia E.Mey.

Perennial, coarse herb, up to 1.5 m high; stems ± erect, simple or somewhat laxly branched above; patent- or recurved-pubescent. **Leaves**: main ones up to 75 × 20 mm, elliptic, larger ones with petioles, entire or with minute teeth, pubescent. **Flowers** in few-flowered, dense racemes, grouped in small, dense, corymbose panicles up to 40 mm in diam., these grouped in a large, lax panicle. **Bracts** up to 2 mm long, obtuse. **Calyx** up to 1.8 mm long; lobes acute to obtuse. **Corolla** white, or somewhat violet. **Anthers** all well exserted. **Flowering time** mainly Dec.–May. On forest margins or along streams in coarse vegetation or scrub; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Kokstad S to Port St Johns, Komga and Dwessa Nature Reserve).

[E]**inconstans** Hilliard (also see 1b: Group 3c)

Perennial, stoloniferous herb, with stems up to ± 350 mm long, tufted and simple or little branched near base, or well branched, dwarf shrub; patent-pubescent, hairs acute. **Leaves** hardly tufted, main ones up to 17 × 6.5 mm, variously elliptic to rotund, obtuse, petiolate, entire or with few callose teeth. **Flowers** up to ± 30 in a short, terminal raceme, sometimes forming a lax, leafy, corymbose panicle. **Bracts** elliptic, pale margins narrow, pubescent all over. **Pedicels** basal ones up to 5 mm long. **Calyx**: lobes ± $^1/_2$ length of calyx, subacute to obtuse, pubescent on back and margins. **Corolla** white or pale mauve, sometimes violet-tinged. **Anthers**: upper ones shortly exserted, lower ones exserted. **Flowering time** mainly Dec.–Feb. Rocky grassland; Drakensberg, Sub-Escarpment Grassland (Matatiele and Mthatha districts).

monticola J.M.Wood & M.S.Evans

Perennial herb with few stems, up to 1 m high; erect, simple or little branched at base, more so in inflorescence; ± recurved-pubescent or rarely hairs patent. **Leaves**: main ones often up to 20 × 3.5 mm, sometimes much more, mostly linear-oblong to oblong-elliptic; scabrid-pubescent on upper surface and margins. **Flowers** in short, globose or oblong racemes, up to ± 8 mm in diam., grouped in a lax, corymbose panicle, often lengthening up to ± 50 mm long in fruit. **Bracts** up to 5 mm long, acute. **Calyx** up to 3.7 mm long, anticous lobes, at least, ± acute. **Corolla** white. **Anthers**: upper ones shortly exserted, lower ones well so. **Flowering time** all year. Montane, sloping grassland, especially near water; Sub-Escarpment Grassland (face of Drakensberg in KZN, Umnga Flats near Mthatha).

peduncularis E.Mey. (also see 1b: Group 3c)

Herb, probably perennial, flowering as seedling, up to 1 m long; stems few, simple or sparsely branched near base; pubescent, hairs patent to somewhat recurved. **Leaves** not or hardly tufted, main ones up to 40 × 20 mm, linear to broadly elliptic, acute with callose tip, entire or teeth minute. **Flowers** many in terminal racemes up to ± 20 mm in diam., sometimes forming a lax, ± corymbose panicle, staying dense or lengthening in fruit up to ± 100 mm long. **Bracts** ladle-like, reaching ± level of calyx apex; blade elliptic, pale margins broad. **Pedicels** basal ones up to 7 mm long. **Calyx**: lobes acute,

± glabrous. **Corolla** white. **Anthers**: upper ones in mouth, lower ones well exserted. **Flowering time** all year. Grassland, or scrubby grassland; Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Lusikisiki S to Bizana District and Mkambati Nature Reserve).

tarachodes Hilliard

Perennial herbs, 0.2–1.2 m high; stem tufted, usually simple below flowers, closely leafy at least in upper part; recurved-pubescent. **Leaves** alternate, main ones up to 35 × 7 mm, oblong to elliptic, scabrid-pubescent on margins. **Flowers** crowded in ± 10-flowered racemes, grouped into a dense, corymbose panicle up to 90 mm in diam. **Bracts** up to 2.3 mm long, ± obtuse. **Calyx**: lobes mostly rounded or obtuse, often ± toothed or apiculate, sometimes margins with minute hairs. **Corolla** white. **Anthers**: upper ones shortly to well exserted, lower ones well exserted. **Flowering time** all year. On beaches; Indian Ocean Coastal Belt (Mkambati Nature Reserve).

2c Bract adnate to calyx from above base of tube to ± halfway up
[*if halfway also see 2d (p. 1520) and 2e (p. 1525)*]

Group 4a

Dwarf shrubs or perennial herbs, closely leafy. **Leaves** usually opposite, becoming alternate, sometimes one or the other, mostly tufted (*S. albida* sometimes not tufted), often ericoid, bases mostly ± narrowed, margins entire, mostly glandular-punctate. **Flowers** in long, narrow panicles of small, globular spikes or racemes (glomerules) up to ± 10 mm in diam., somewhat longer in fruit. **Bracts** mostly adnate up to ± $^1/_2$ calyx tube, lobes hair-fringed. **Calyx** campanulate, 5-lobed mostly to halfway, rarely irregularly 3–5-lobed (*S. bolusii*) or 3-lobed (*S. witbergensis*), anticous lobes as long as wide, lobes ± all hair-fringed. **Pedicels** absent or minute. **Corolla** ± violet, mauve or white. **Anthers** all exserted, mostly well or far so.
[(also see key couplet 1b: Group 4c (p. 1529) and key couplets 2e, 3b: Group 4b (p. 1528)]

albida Choisy

Woody, dwarf shrub, stems up to 600 mm long, branching; ± retrorse-puberulous when young. **Leaves** tufted, sometimes poorly so, main ones up to 15(–25) × 2.0(–2.3) mm, oblong, narrowly elliptic or -oblanceolate, margins ± revolute, both sides puberulous. **Flowers** in terminal, pedunculate racemes up to 10 × 10 mm at first, longer in fruit, these grouped into lax panicles, sometimes further grouped. **Bracts** adnate to at least $^1/_3$ of calyx tube, narrow, lanceolate. **Calyx** somewhat oblique, 5-lobed, 2 anticous lobes larger than others, deltate, subacute. **Corolla** mauve, rarely white. **Flowering time** mainly Dec.–Apr. Rocky slopes and grassland; Upper Karoo, Dry Highveld Grassland, Drakensberg Grassland, Albany Thicket (Aliwal North S, from Middelburg to Molteno and Graaff-Reinet S to Willowmore).

[E]**bolusii** Rolf

Woody, dwarf shrub or shrub, ± 1 m high; stems well branched, retrorse-pubescent when young. **Leaves** mostly alternate, main ones up to 8 × 1.8 mm, elliptic; ± glabrous. **Flowers** in few-flowered, sessile or shortly pedunculate glomerules, 5–8 × 4–7 mm, grouped in a narrow, terminal panicle ± 50–70 mm long, sometimes further compound. **Bracts** adnate to lower part of calyx tube at least, elliptic or oblong-elliptic. **Calyx** oblique, mostly 5-lobed in upper $^1/_2$, sometimes irregularly 3–5-lobed, 2 anticous lobes wider than others, all deltate. **Corolla** white. **Flowering time** Sept.–Dec. Rocky areas on cliffs or mountain summits, among boulders; Upper Karoo (Graaff-Reinet).

galpinii Schltr.
Perennial herb, later woody, cushion-like, dwarf shrub, up to 500 mm long; stems tufted, much branched, prostrate or decumbent, recurved-puberulous when young. **Leaves**: main ones up to 23 × 2 mm, narrowly elliptic or linear-lanceolate. **Flowers** in few-flowered, dense racemes ± 10 × 10 mm, these terminal on lateral branchlets, many together forming a long, narrow, secund, terminal panicle. **Bracts** adnate to ± $^1/_2$ calyx tube, lanceolate-elliptic, acute. **Calyx** somewhat oblique, 5-lobed in upper $^1/_2$, 2 anticous lobes bigger than others, pubescent outside. **Corolla** mauve. **Flowering time** mainly Jan.–May. Grassland, often in mountainous areas; Upper Karoo, Mesic Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland (Aliwal North to Lady Grey and Naude's Neck Pass S, from mountain summits of Hangklip and Andriesberg near Queenstown to Amatole Mts and Hogsback).

melliodora Hilliard
Perennial herb, ± 1 m high; stems many, branched; hairs dense, soft, ± patent, acute when young. **Leaves** alternate, main ones up to 12 × 2 mm, linear-oblong or narrowly elliptic, somewhat revolute, both sides pubescent. **Flowers** in rounded, dense, few-flowered racemes, arranged in a narrow, much-branched, terminal panicle. **Bracts** adnate to $^1/_2$ calyx tube, oblong or oblong-lanceolate, obtuse. **Calyx** somewhat oblique, 5-lobed to halfway, 2 anticous lobes somewhat larger than others; lobes deltate or oblong. **Corolla** white to pale mauve. **Anthers** all exserted. **Flowering time** (Jan.) Feb. (Mar.). Montane, grassy and rocky slopes and in scrub; Drakensberg Grassland (Barkly East).

pachypoda Rolfe
Perennial herb, stems up to 400 mm long, prostrate or decumbent, much branched, recurved-puberulous but rather bare below leaf insertion. **Leaves** opposite or becoming alternate, main ones up to 22 × 3 mm, narrowly elliptic, ± acute. **Flowers** in few-flowered, dense racemes ± 13 × 10 mm, on lateral branchlets, simple or lower ones branching, forming a short, narrow, secund, terminal panicle. **Bracts** adnate to ± $^1/_2$ calyx tube, broadly elliptic, subacute. **Calyx** lobed in upper $^1/_2$, 2 anticous lobes hardly larger than others, pubescent outside. **Corolla** mauve; tube up to 5.6 mm long. **Anthers**: upper ones shortly exserted. **Flowering time** mainly Feb., Mar. Rocky grassland, often in mats on rock sheets, grassy plateaus on mountain summits; Sub-Escarpment Grassland (Ngeli and Baziya Mts).

persimilis Hilliard [(also see 3b: Group 4b (p. 1528)]
Woody, dwarf shrub, at least 400 mm high; stems probably erect or spreading; small-haired, later nude. **Leaves**: main ones up to 10 × 1.8 mm, elliptic, acute, base half-clasping, puberulous on both sides. **Flowers** in dense glomerules ± 7 × 8 mm at first. **Peduncles** leafy, grouped in narrow, terminal panicles, sometimes further compound. **Bracts** adnate to pedicel, if present, and calyx tube, basal ones widely elliptic to ovate-elliptic. **Calyx** 4- or 5-lobed to ± halfway, 2 anticous lobes much broader than others. **Corolla** white to pale mauve; tube up to 4.3 mm long. **Flowering time** Aug.–Dec. Habitat?; Upper Karoo (Burgersdorp S to Middelburg and Cradock).

witbergensis E.Mey. (also see 3b: Group 4b)
Tufted, dwarf shrub, up to 350 mm high; stems prostrate to ± erect; small-haired when young. **Leaves**: main ones up to 15 × 1.4 mm, elliptic or elliptic-lanceolate, obtuse to acute or apiculate, flat or revolute; mostly puberulous on both sides. **Flowers** in dense, terminal racemes (glomerules) up to 10 × 8 mm (up to 30 mm long in fruit), those

on small twigs up to 40 mm long, loosely panicled. **Bracts** adnate to pedicel and calyx tube, basal ones up to 4.8 mm long, elliptic. **Calyx** 3-lobed (irregularly 4 or 5), 2 anticous lobes larger than posticous one, all lobes deltate. **Corolla** ± violet-blue. **Flowering time** Nov.–Mar. Rocky grassland or colonising bare areas; Mesic Highveld Grassland, Drakensberg Grassland (Barkly East to Rhodes, S to Wodehouse District).

2d Bract adnate to half calyx tube or more [*ignore any free, basal bracts; if halfway up also see 2c (p. 1518) and 2e (p. 1525)*]

Group 5

Dwarf shrubs. **Leaves**: main ones narrow, up to 1.2 mm wide. **Flowers** in dense racemes, mostly in panicles. **Bracts** adnate to whole calyx tube, hair-fringed on lower margins. **Pedicels** minute. **Calyx** campanulate, lobed less than halfway to base, mostly 5-lobed, lobes unequal. **Corolla** white, tube < 5 mm long.

speciosa Rolfe

Dwarf shrub, up to 450 mm high; branches many, erect or decumbent, young ones retrorse-puberulous, densely leafy. **Leaves** opposite with bases joined, ± opposite or alternate above; main ones up to 20 × 1.2 mm, linear, acute, apiculate, entire, revolute, ± glabrous. **Flowers** in dense racemes, these in narrow, dense, terminal panicles ± 100 mm long. **Bracts** broad, lanceolate or ovate-lanceolate, concave, ± glabrous. **Calyx**: (3–)5-lobed, 2 anticous lobes broader than others; lobes oblong-deltate. **Corolla**: tube up to 4.8 mm long. **Flowering time** Aug.–Oct. Stony areas on slopes, flats and streambeds; Mesic Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland, Upper Karoo (Lady Grey and Barkly East SW to Queenstown, from Cradock to Katberg).

Group 6a

Mainly dwarf shrubs or suffrutices. **Leaves** opposite, soon alternate upwards, mostly tufted (*S. decipiens* sometimes little so), margins entire. **Flowers** in large, crowded spikes or racemes, single or often in lax panicles, these sometimes corymbose. **Bracts** adnate to at least $^1/_2$ calyx tube, hair-fringed. **Pedicel** absent or minute. **Calyx** deeply 2- or 3-lobed, anticous lobes sometimes bifid, variously hair-fringed. **Corolla** white or ± violet; tube up to 8 mm long. **Anthers**: upper ones mostly in mouth or shortly exserted (rarely well so in *S. cinerea*), lower ones usually well or far exserted (sometimes shortly so in *S. polycephala*).

Also see 3b: Group 6b (p. 1528) and 1b: Group 6c (p. 1529).

cinerea L.f.

Woody, dwarf shrub or suffrutex, up to 1 m high; stems branched or ± simple, closely leafy; retrorse-puberulous. **Leaves**: main ones up to 25 × 3 mm, linear-oblong to elliptic, acute to apiculate, base almost petiolate, margins somewhat thickened; glandular-punctate, often puberulous. **Flowers** in many, few-flowered, dense spikes, grouped in a dense, corymbose panicle, sometimes further compound, lax in fruit; peduncles up to 40 mm long. **Bracts** lanceolate, ± acute, concave. **Calyx** deeply 3-lobed, anticous lobes ± widely deltate, fringed with tiny glandular hairs on both surfaces. **Corolla** white or violet-blue. **Anthers**: upper ones shortly to well exserted. **Flowering time** Aug.–Jan. Amongst grass in savanna scrub, in gardens, road- and railway sides; Sub-Escarpment Savanna, Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld, Albany Thicket (Komga S to Gonubie, from Willowmore to Kouga and East London).

congesta Rolfe

Tough, woody, dwarf shrub probably, at least 200 mm high; stems well branched, closely leafy; young ones recurved-puberulous. **Leaves**: main ones 5 × 1.2 mm, elliptic-lanceolate, acute, base half-clasping, margins thick, texture rather thick; ± glabrous. **Flowers** in dense, many-flowered, terminal spikes, ± 10 mm in diam., sometimes in a lax panicle. **Bracts** lanceolate, acute, concave. **Calyx** deeply 2- or 3-lobed, posticous one missing or short and narrow, anticous lobes concave, stiffly pubescent on margins and outside, also with glandular hairs. **Corolla**: colour not known; tube ± 8 mm long. **Anthers** all exserted. Habitat?; Eastern Fynbos-Renosterveld, Albany Thicket (Langkloof to Swartkops River and Humansdorp).

[E]decipiens E.Mey.

Suffrutex, sometimes flowering early, slender, up to 600 mm high; stems loosely branched, leafy; appressed and recurved-puberulous all round. **Leaves** tufted but sometimes weakly so, main ones mostly up to 10 × 1.5 mm, narrowly elliptic, acute or apiculate, base petiolate, margins somewhat thickened, sometimes revolute when dry, texture rather thin, ± glabrous. **Flowers** in dense spikes, lengthening up to 60 mm long in fruit, single or grouped in lax, corymbose panicles. **Bracts** lanceolate, acute, base concave. **Calyx** deeply 3-lobed, anticous lobes ± widely triangular, sometimes bifid, puberulous on margins and outside. **Corolla** ± violet-blue. **Anthers**: upper ones in mouth or somewhat exserted. **Flowering time** all year. Grassland and scrub; Albany Thicket (Uitenhage E to Port Elizabeth, Alexandria and Grahamstown).

[E]polycephala Otto ex Walp.

Suffrutex, at least 400 mm high; stems simple or loosely branched above; patent or somewhat recurved-pubescent, secreting sunken glands often present, leafy. **Leaves**: main ones up to 12 × 1.2 mm, linear-oblong, ± acute to apiculate, base not or hardly narrowing, margins flat, often revolute when dry, indumentum as for stems. **Flowers** in a relatively large, dense, terminal spike 12 × 12 mm at first, lengthening up to 60 mm long in fruit, single or grouped in a lax panicle, sometimes ± corymbose. **Bracts** linear-lanceolate, ± acuminate, obtuse and recurved, indumentum as above. **Pedicel** ± absent. **Calyx** obliquely 3-lobed, anticous lobes widely deltate, margins with long hairs. **Corolla** white. **Anthers**: upper ones in mouth or shortly exserted, lower ones shortly to well exserted. Probably sandy areas; Eastern Fynbos-Renosterveld, Albany Thicket (Uitenhage to Port Elizabeth).

rotundifolia L.f.

Dwarf shrub or suffrutex, up to 800 mm high; stems little branched, long, mainly retrorse-pubescent, closely leafy. **Leaves**: main ones up to 16 × 7 mm, ± rotund, broadly elliptic or widely spathulate, base almost petiolate, margins hardly thickened, texture thin, often fringe-hairs rather coarse. **Flowers** in many-flowered, dense spikes, these grouped in a dense, corymbose panicle, sometimes more lax in fruit. **Bracts** boat-shaped, concave. **Calyx** usually 3-lobed to ± halfway, anticous lobes ± as wide as long, sometimes bifid, pubescent outside. **Corolla** mostly white, also mauve, or blue. **Anthers**: upper ones in mouth or shortly exserted. Forest margins or in valley with fynbos; Eastern Fynbos-Renosterveld (flats between Van Stadens Mts and Kraggakamma in Port Elizabeth District and to Humansdorp).

Group 7

Dwarf shrubs or shrubs, densely leafy; hairs in narrow strips down stem ± recurved. **Leaves** alternate, usually tufted; acute, base not or hardly narrowed, decurrent, entire, glandular-punctate. **Flowers** in racemes arranged in long or corymbose panicles. **Bracts** adnate to at least $^1/_2$ calyx tube, acute, margins with hairs. **Pedicels** absent or minute. **Calyx** either mainly 5-lobed in upper $^1/_2$ (but rarely fused leading to 3- or 4-lobed) or mainly 3-lobed, lateral lobes sometimes bifid, margins with hairs. **Corolla** mauve or violet, rarely white. **Anthers** mostly all well exserted, some far so (some sometimes shortly so: *S. canescens*).

canescens L.f. (also see 3b: Group 6b)

Dwarf shrub to shrub, ± 0.5–1.2 m high; stems branched. **Leaves**: main ones up to 15 × 1 mm, linear, revolute, often glabrous. **Flowers** in terminal racemes with few flowers, arranged in long, narrow, dense panicles. **Bracts** lanceolate, concave below. **Calyx** somewhat obliquely campanulate, usually 5-lobed to halfway, sometimes lobing irregular. **Corolla** violet-blue or lavender, rarely white. **Anthers**: upper ones shortly to well exserted, lower ones well exserted. **Flowering time** all year. Scrub; Eastern Fynbos-Renosterveld, Albany Thicket (Kouga Mts near Studtis to Port Elizabeth S, from Tsitsikamma to Humansdorp, Jeffreys Bay and Skoenmakerskop).

lilacina Hilliard

Perennial, at least 450 mm high; base unknown, stems tufted, simple or branched. **Leaves**: main ones up to 12.5 × 2 mm, narrowly elliptic, usually ± setose, mainly on margins. **Flowers** in terminal racemes, arranged in ± pyramid-shaped group of panicles. **Bracts** ovate, concave. **Calyx** obliquely 3-lobed or rarely lateral lobes bifid. **Corolla** mauve. **Anthers** all well to far exserted. **Flowering time** Sept.–Apr. Scrub, riverbanks or damp areas among rocks; Eastern Fynbos-Renosterveld (Baviaanskloof and northern slopes of Tsitsikamma Mts).

Group 8a

Dwarf shrubs, young stems recurved- or retrorse-puberulous, closely leafy or leafy. **Leaves** opposite, then alternate upwards, mostly tufted (rarely otherwise, see 1b: Group 8b (p. 1529), *S. magnakarooica* and *S. fourcadei*), base often half-clasping, margins entire, thickened and mostly revolute (last not in *S. retropilosa*). **Flowers** in spikes or racemes, either single or in loose panicles. **Bracts** adnate to at least $^1/_2$ calyx tube, margins with hairs. **Pedicels** absent or minute. **Calyx** mostly campanulate and obliquely 5-lobed in upper $^1/_2$, sometimes irregularly 3–5-lobed, rarely 3-lobed; puberulous outside, margins hairy. **Corolla** violet, mauve or white. **Anthers** all well to far exserted.

acocksii Hilliard

Woody, dwarf shrub, up to 300 mm high; much branched. **Leaves**: main ones up to 8 × 1 mm, narrowly oblong, obtuse, base hardly narrowed, margins revolute, sometimes joining. **Flowers** in a dense, terminal spike, up to 25 mm long, longer in fruit. **Bracts** oblong to lanceolate, minutely glandular, outer surface often with hairs. **Calyx** 5-lobed, anticous lobes wider than others. **Corolla** violet or mauve, rarely white. **Flowering time** most months. Karroid dwarf shrub areas, stony places and open flats; Upper Karoo (Middelburg SE to Cradock).

centralis Hilliard

Woody, dwarf shrub, ± 450 mm high; base unknown, much branched. **Leaves**: main ones up to 15(–20) × 2 mm, linear, narrow-oblong or -oblanceolate; glandular-punctate, at least margins finely scabridulous. **Flowers** many in single or sometimes loosely-panicled, terminal spikes, long even when young, up to 110 × 7 mm in fruit, mostly remaining ± dense. **Bracts** lanceolate, acute, margins long-haired. **Calyx** mostly unequally 5-lobed, sometimes irregularly 3 or 4(6 or 7)-lobed, anticous lobes wider than others. **Corolla** violet or mauve shades, sometimes white. **Flowering time** mainly Jan.–May. With grass and shrubs in open areas; Lower Karoo, Upper Karoo, Albany Thicket (Graaff-Reinet, Aberdeen-, Jansenville- and Cradock districts).

fourcadei Hilliard (also see 1b: Group 8b)

Woody, dwarf shrub, up to 600 mm high; often twiggy. **Leaves** hardly tufted, main ones up to 15 × 1.1 mm, narrowly oblong, acute, margins somewhat thick, sometimes revolute; glabrous or with some minute hairs. **Flowers** in many-flowered, terminal spikes, lengthening up to 50 mm long in fruit, usually single, sometimes a few grouped in loose panicles. **Bracts** adnate from halfway to $^{2}/_{3}$ up calyx tube, lanceolate, subacute, lower margins with short hairs. **Pedicels** absent to minute. **Calyx** usually 5-lobed, sometimes irregularly 3–5-lobed, anticous lobes much broader than others. **Corolla** violet, mauve or white. **Flowering time** June–Oct. Karroid areas, often on rocky slopes; Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld (Willowmore District, Gwarriepoort and on road to Klaarstroom).

geniculata L.f.

Waterfinder bush; *aarbossie* (A)

Woody, dwarf shrub, ± 500 mm high; twiggy. **Leaves**: main ones up to 20 × 1.1 mm, linear or narrowly elliptic, acute; glandular-punctate. **Flowers** in mostly single, long, narrow, terminal spikes, up to 150 × 7 mm in fruit, sometimes extra spikes forming a lax, narrow panicle. **Bracts** narrowly deltate, acute to somewhat acuminate, base pouched. **Calyx** irregularly 3–5-lobed. **Corolla** mostly mauve or ± violet or white. **Flowering time** all year, mainly Jan.–May. Karroid areas or open grassland with some bush; Upper Karoo, Sub-Escarpment Grassland, Lower Karoo, Albany Thicket, Dry Highveld Grassland, Indigenous Forests, Eastern Fynbos-Renosterveld (Oviston Reserve S, from Lootsberg to Middelburg and Queenstown, Graaff-Reinet to Fort Beaufort and Pirie Forest, Baviaanskloof and Alexandria Region to Keiskamma River).

magnakarooica Hilliard (also see 1b: Group 8b)

Woody, dwarf shrub, up to 300 mm high; well branched. **Leaves** not or hardly tufted, main ones up to 10 × 1.3 mm, oblong or narrowly elliptic; minutely puberulous all over. **Flowers** in a single, terminal spike or raceme, ± 8 × 8 mm, globular at first, probably staying so in fruit. **Bracts** adnate to $^{1}/_{2}$ calyx tube, or more, lowest oblong, obtuse to subacute, margins with hairs, shorter, retrorse hairs on lower back at least. **Pedicels** absent to minute. **Calyx** 5-lobed, 2 anticous lobes much larger than others, lobes thick. **Corolla** white. **Flowering time** Dec.–Mar. Occasional in karroid areas, often with sandstone; Upper Karoo (Middelburg District).

[E]retropilosa Hilliard

Woody, dwarf shrub, ± 200 mm high; stems tufted, much branched. **Leaves**: main ones small, up to 4 × 1.2 mm, broadly elliptic to lanceolate-elliptic, base hardly narrowed; densely recurved-pubescent all over. **Flowers** in small, dense, few-flowered racemes, ± 5 × 5 mm at first, somewhat longer later, single and terminal, or with several smaller

racemes. **Bracts** narrowly ovate, subacute, lower half concave. **Calyx** obliquely 3-lobed, lateral lobes deltate, sometimes bifid, long-ciliate. **Corolla** white. **Flowering time** at least Nov. Sandstone plateau among rocks; Upper Karoo (Renosterberg near Lootsberg Station).

Group 9

Dwarf shrubs or perennial herbs, stems closely leafy; all, except *S. linearis* with sunken glands, sometimes secreting and 'varnishing' surfaces of stems and other parts. **Leaves** alternate (except for *S. confusa*), ericoid. **Flowers** in small spikes or racemes, mostly in loose, narrow panicles, sometimes single. **Bracts** adnate to at least $^1/_2$ calyx tube, mostly hair-fringed. **Pedicels** mostly absent, minute sometimes in *S. linearis*. **Calyx** obliquely 3–5-lobed, sometimes irregularly (2)3–5(6)-lobed, hair-fringed. **Corolla** white or violet and mauve shades. **Anthers** all well to far exserted.

E?**confusa** Hilliard

Dwarf shrub, stems up to 400 mm long; tufted, simple or loosely branched; patent-puberulous. **Leaves** ± opposite, becoming alternate upwards, up to 14 × 1.3 mm, oblong or oblong-elliptic, obtuse to subacute or apiculate, base broad, margins entire; glandular-punctate, or glabrous. **Flowers** in spikes up to 6 × 6 mm, lengthening up to 25 mm long in fruit, in narrow, terminal panicles; peduncles leafy, up to 15 mm long, often simple or sparsely branched. **Bracts** ovate-elliptic, ± acute, base concave. **Calyx** obliquely 3-lobed, sometimes irregularly 2-, 4- or 5-lobed, short hairs outside, especially on keels. **Corolla** white; tube up to 3 mm long, broad. **Flowering time** all year. Grassland with bush groups or karroid scrub; Albany Thicket (Bedford to Fort Beaufort S, from Suurkop at Greater Addo Elephant National Park to Uitenhage, Port Elizabeth, Grahamstown and Bathurst).

gracilis (Rolfe) Hilliard

Dwarf shrub, up to 450 mm long; stems tufted, erect or decumbent, branching lax, sometimes twiggy; patent- or somewhat recurved-puberulous, margins with tiny hairs. **Leaves**: up to 8 × 0.8 mm, linear, base broad, glabrous or with tiny hairs on margins or all over. **Flowers** in terminal spikes ± 5 × 5 mm, lengthening up to 20 mm long in fruit, single or small branches grouped into panicles. **Bracts** lanceolate, subacute or attenuate, base concave, glabrous or with tiny hairs. **Calyx** obliquely 3-lobed, sometimes 1 or 2 anticous lobes divided, deltate, small hairs on outside. **Corolla** white or mauve. **Flowering time** all year, mainly Sept.–Dec. Little Karoo dominated by *Euclea* and *Searsia* spp. and *Aloe ferox*; Rainshadow Valley Karoo, Albany Thicket (from near Toorwater to Gwarriepoort area near Willowmore, E to Port Elizabeth).

linearis Rolfe

Perennial herb, becoming dwarf shrub, branches up to 500 mm long; puberulous in longitudinal strips. **Leaves**: main ones up to 10 × 1.4 mm long, linear-lanceolate or -oblong, acute to apiculate, base broad, decurrent down stem, margins entire, revolute; glandular-punctate, ± glabrous. **Flowers** in simple, terminal racemes, 10–25 × 6–8 mm, these single or loosely grouped, smaller ones forming a narrow panicle or ± corymb. **Bracts** linear-lanceolate, acute, hardly concave below, hairy on lower margins. **Calyx** obliquely campanulate, irregularly lobed with 3–5(6) lobes, 2 anticous ones the largest. **Corolla** mauve, blue or lavender; tube up to 4 mm long. **Flowering time** all year, Mar.–June. Flat or sloping shrubby areas; Eastern Fynbos-Renosterveld, Albany Thicket (Baviaanskloof, Sandvlakte E to Uitenhage, Port Elizabeth and to Jeffreys Bay).

saxatilis E.Mey.

Dwarf, erect shrub, up to 500 mm long, many-stemmed, simple or branched, patent- or somewhat recurved-puberulous. **Leaves**: main ones up to 5(–10) × 1 mm, oblong or oblong-lanceolate, obtuse to apiculate, base broad, half-clasping, margins entire, flat, with tiny hairs at base. **Flowers** in dense, terminal spikes 3 × 3 mm, lengthening up to 20 mm in fruit, panicles long and narrow or subcorymbose. **Bracts** ovate or ovate-lanceolate, ± acute, concave. **Calyx** obliquely 2- or 3-lobed or irregularly 3–5-lobed, anterior lobes broadly deltate, keeled. **Corolla** white, sometimes mauve; tube up to 1.8 mm long. **Flowering time** Jan.–Mar. Sloping and flat stony places; Upper Karoo, Dry Highveld Grassland, Mesic Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland (Albert and Rhodes Districts S, from Middelburg to Wodehouse District and Graaff-Reinet to Hogsback).

2e Bract adnate to pedicel, if present, and calyx tube (part thereof, probably in upper half)
3a Upper anthers included to not well exserted, lower anthers shortly exserted to well exserted

Group 10

Perennial herbs, dwarf shrubs or shrubs. **Leaves** alternate, mainly elliptic or obovate, often petiolate and toothed, sometimes entire, glandular-punctate. **Flowers** in racemes arranged in large, loose panicles. **Calyx** subequally 5-lobed, or 3- or 5-lobed, lobes longer or shorter than tube. **Corolla** white, mauve or ± violet. **Anthers**: upper ones included or in throat or mouth, lower ones shortly exserted.

[E]baurii (Hiern) Hilliard

Twiggy, dwarf shrub or shrub, up to 1 m high; stems closely leafy; patent-pubescent, hairs up to 0.8 mm long. **Leaves**: main ones up to 12 × 3.5 mm, elliptic, tapering into short petiole, acute, entire, glabrous on upper surface, margins with antrorse hairs, shorter ones on midrib of lower surface. **Flowers** panicle leafy, finally flowers distant. **Bracts** free from pedicel up to 3.5 mm long, lanceolate, entire. **Pedicels**: lowest ones 3.0–4.5 mm long. **Calyx** 2.0–2.5 mm long, unequally 3- or 5-lobed, lobes much shorter than tube, 2 anticous lobes much wider than posticous one, often notched, keeled with marginal hairs. **Corolla** pale mauve; tube 3.3–4.0 mm long. **Anthers**: upper ones in throat. **Flowering time** Nov.–Feb. Scrub at upper edge of forest; Sub-Escarpment Grassland, Indigenous Forests (Baziya Mtn).

flanaganii Rolfe

Shrub, up to 1.5 m high; basally much branched, closely leafy; retrorse-pubescent, hairs up to 0.6–1.0 mm long. **Leaves**: up to 12 × 3 mm, elliptic, ± acute, entire or apically denticulate, glabrous to pubescent, hairs up to 0.3 mm long. **Flowers** in panicles, rachises 80–170 mm long in fruit, leafy below, floriferous above. **Bracts** 3.5–5.0 mm long, elliptic, subacute, entire, glandular-punctate, glabrous to pubescent. **Pedicels** 0.3–1.0 mm long. **Calyx** 1.5–2.0 mm long, ± equally 5-lobed; lobes equalling or shorter than tube, deltate, ± acute, thick, keeled; pubescent outside or on margins. **Corolla** pale to deep mauve or white; tube 5.5–7.2 mm long. **Anthers**: upper ones in mouth. **Style** minutely glandular-puberulous, sparsely hairy. **Flowering time** Dec. High altitude grassland; Drakensberg Grassland, Sub-Escarpment Grassland (Barkly East to Naude's Neck).

immersa Rolfe

Stoloniferous, woody, perennial herb; stems in clumps, up to 600 mm long; retrorse-pubescent, hairs up to 0.25–0.40 mm long, curved. **Leaves** broadly petiolate; up to

10 × 4 mm long, ± obovate, acute; glabrous, glandular-punctate, lower surface with 0.2–0.5 mm long bristles. **Flowers** in panicles, distantly arranged. **Bracts**: free parts up to 2.5–3.7 × 1.7–2.2 mm, lower ones leaf-like, dentate, rarely elliptic, entire, thick, glabrous or with scanty, marginal bristles. **Pedicels** 1.0–3.5 mm long. **Calyx** 1.0–1.8 mm long, ± equally 5-lobed; lobes as long as tube, deltate, acute, thick, keeled; glabrous or with marginal hairs 0.10–0.15 mm long. **Corolla** white; tube 4–5 mm long. **Anthers**: upper ones included. **Flowering time** Oct.–Jan. Rough grassland, valley bottoms and boulder beds; Sub-Escarpment Grassland (Maclear, Engcobo and Cala districts).

3b Anthers all exserted, mostly well or far so

Group 3b

Perennial herbs or dwarf shrubs, rarely shrubs, closely leafy. **Leaves** alternate, mostly ericoid (up to 1.2 mm wide) oblong to elliptic, base hardly narrowed, glandular-punctate (not *S. leptothrix*). **Flowers** in terminal, often dense, corymbose panicles, rarely in single, terminal racemes, mostly leafy. **Bracts** deeply concave, keeled with a light, membranous margin. **Pedicels** absent to minute. **Calyx** campanulate, shallowly and subequally 5-toothed, rarely somewhat unequal or irregularly 3–5-lobed. **Corolla** mostly white, sometimes mauve or ± violet. **Anthers** all well exserted.
Also see 2b: Group 3a.

corymbosa L.

Bitterblombos (A)

Dwarf shrub or shrub, up to 1 m high; branches thick, stiff, ascending to erect, retrorse-pubescent. **Leaves**: main ones up to 12 × 1 mm, linear, subacute, base not narrowed, margins entire, often revolute when dry, puberulous mainly on margins and lower side. **Flowers** crowded in a terminal, leafy corymb, up to ± 80 mm in diam. **Bracts**: basal ones 1.7–2.2 × 0.4–0.7 mm long, narrow, oblong-elliptic, obtuse, margins narrow, minute hairs mainly on midline and margins. **Calyx**: lobes with scattered, tiny, globular glands, puberulous mainly on keels. **Corolla** white. **Flowering time** all year. In scrub or weed of cultivation or along roads; Upper Karoo, Sub-Escarpment Savanna, Albany Thicket, Eastern Fynbos-Renosterveld (Middelburg S, from Cradock to Komga, Uitenhage to Peddie and to Humansdorp).

dolosa Hilliard

Bitterblombos (A)

Bushy, dwarf shrub, 150–600 mm high; stems retrorse-pubescent. **Leaves**: main ones up to 7 × 1.2 mm, linear-oblong to narrowly elliptic, obtuse, margins entire; ± glabrous, secreting glands sometimes present. **Flowers** crowded in a leafy, terminal corymb up to ± 60 mm in diam. **Bracts** elliptic, obtuse, margins broad, glandular-punctate with secretion sometimes present, hairs on margins minute. **Calyx**: lobes obtuse with a few tiny hairs on margins. **Corolla** white, sometimes blue or mauve. **Flowering time** Nov.–May. Grassland, plain or scrubby; Dry Highveld Grassland, Lower Karoo, Sub-Escarpment Savanna, Albany Thicket, Eastern Fynbos-Renosterveld (Lootsberg Pass S, from Graaff-Reinet to King William's Town, Kareedouw to East London and to Humansdorp).

[E]**griquana** Hilliard

Perennial herb, erect or ascending, up to 300 mm high; stolons present; stems in groups, simple or rarely basally branched, densely leafy; pubescent, hairs recurved. **Leaves**:

main ones up to 6.5 × 0.8 mm, lanceolate, ± acute, entire, flat, pubescent. **Flowers** in a dense, terminal, leafy corymb up to 60 mm in diam. **Bracts** elliptic, obtuse. **Calyx**: lobes up to 0.5 mm long. **Corolla** white. **Flowering time** Dec., Jan. Habitat?; Sub-Escarpment Grassland, Sub-Escarpment Savanna (East Griqualand, Kokstad).

[E]**intermedia** Hilliard

Bushy, dwarf shrub, up to 400 mm high; stems thick, patent or somewhat recurved puberulous. **Leaves**: main ones up to 12 × 1 mm, linear, subacute, margins entire, thick, midrib prominent on lower side, tiny hairs present sometimes on margins and midrib below. **Flowers** crowded in a terminal, leafy corymb, up to ± 60 mm in diam. **Bracts** elliptic, obtuse, glabrous except a few tiny hairs on margins. **Calyx**: lobes obtuse, tiny globular glands all over. **Corolla** white. **Flowering time** Nov.–Apr. Stony or rocky soil in grassland; Sub-Escarpment Grassland, Drakensberg Grassland, Sub-Escarpment Savanna (Baziya Mtn S to Komga and Butterworth).

[E]**leptothrix** Hilliard

Perennial erect or decumbent herb, up to 300 mm high; stems with stolons, simple or somewhat branched near base or tufted; pubescent with fine, patent, acute hairs and tiny glandular ones (also on leaves, bracts and calyx). **Leaves**: main ones up to 7 × 1 mm, linear-oblong, subacute, margins entire, flat, veins hidden; not glandular-punctate. **Flowers** crowded in a terminal, leafy corymb, up to ± 45 mm in diam. **Bracts** elliptic, obtuse, margins narrow, pubescent all over with acute and shorter glandular hairs. **Calyx**: lobes somewhat unequal, obtuse, pubescent on outside and margins. **Corolla** pale mauve or white, only tinged violet. **Flowering time** Jan.–Mar. Scrubby grassland; Drakensberg Grassland, Sub-Escarpment Grassland (Matatiele District, summit of Naude's Neck S to Maclear).

[E]**punctata** Rolfe

Perennial herb, with tufted stems up to 350 mm high; simple or little-branched; retrorse pubescent with sunken glands, secreting and giving a varnished appearance. **Leaves**: main ones up to 8 × 1 mm, linear-oblong to narrowly elliptic, margins entire, thick, veins obscured; glandular secretion present, glabrous. **Flowers** in a terminal, compact corymb ± 10–30 mm in diam. **Bracts**: basal ones 3.0–3.5 mm long, elliptic, subacute, margins narrow, glandular-punctate, margins near base with a few tiny hairs. **Calyx**: lobes ± acute, margins with few tiny hairs. **Corolla** white. **Flowering time** Feb.–Apr. Hill slopes, sometimes rocky; Sub-Escarpment Grassland, Albany Thicket (Queenstown SW to Greater Addo Elephant National Park).

[E]**variicalyx** Hilliard

Perennial herb, up to 1 m high; stem erect, thick, simple or somewhat branched; recurved-pubescent. **Leaves**: main ones up to 12 × 1 mm, linear-lanceolate, ± acute, margins entire, pubescent on margins and midrib on lower side. **Flowers** in a terminal, compact corymb ± 30–130 mm in diam. **Bracts**: basal ones up to 3 × 1.1 mm, elliptic, lanceolate, acute, pubescent on margins and sometimes keel. **Calyx** irregularly 3–5-lobed, anticous lobes much longer and broader than posticous one and often unevenly bifid. **Corolla** white. **Flowering time** all year. Grass and shrubs on rocky slopes; Upper Karoo, Albany Thicket, Sub-Escarpment Savanna (Van Stadens Mts to Elandsberg and E to Grahamstown).

Group 4b

As under 2c: Group 4a, but bract adnation perhaps different. **Stems** retrorse-puberulous. **Leaves** opposite, becoming alternate upwards, margins entire, glandular-punctate. **Pedicels** minute. **Bracts**: base ± concave. **Calyx** obliquely campanulate, 3–5-lobed, hair-fringed.

persimilis Hilliard (see 2c: Group 4a above)

witbergensis E.Mey. (see 2c: Group 4a above)

Group 6b

As under 3a: Group 6a (p. 1520), but anthers somewhat different.

cinerea L.f. (see 2d: Group 6a above)

Upper anthers shortly to well exserted.

Group 11

Annual or perennial herbs; stems simple or loosely branched (*S. paniculata*, only in older plants), closely leafy. **Leaves** opposite, becoming alternate upwards, base somewhat tapering, margins entire, thickened. **Flowers** in many small racemes (glomerules), longer in fruit, in long narrow or broad panicles. **Bracts** mostly with pale, membranous margins, sometimes a narrow one or none. **Pedicels** minute. **Calyx** usually obliquely 3-lobed, rarely 4- or 5-lobed, hair-fringed. **Corolla** white, upper lip entire or notched. **Anthers** all well exserted. **Fruit** mostly broadly ovoid in outline cocci, red-brown, all smooth.

densiflora Rolfe

Perennial herb, ± 400 mm high; old plants with stolons, stems tufted, closely leafy; indumentum appressed-puberulous, hairs coarse and recurved. **Leaves**: main ones up to 10 × 1 mm, linear or narrowly elliptic, acute, margins somewhat revolute and coarsely puberulous, glandular-punctuate. **Flowers** borne terminally, starting from $^1/_3$ to halfway up, racemes, up to 3 × 4 mm at first, lengthening up to 40 mm long in fruit; peduncles up to 50 mm long, leafy, grouped in long, narrow, branched, leafy panicles. **Bracts** lanceolate, ± spathulate or acute, margins pale and membranous, up to 0.2 mm wide. **Calyx** obliquely 3-lobed but anterior lobes sometimes bifid. **Flowering time** Nov.–July. **Fruit** orange- to red-brown cocci. Grassland, beside roads and near water, or on limey or doleritic soil; Drakensberg Grassland (Jamestown).

multispicata Hilliard

Perennial herb, up to 300 mm long; stems tufted from a taproot or stolons, leafy; indumentum appressed-puberulous, hairs recurved. **Leaves**: main ones up to 15 × 1.5 mm, narrowly elliptic, ± acute, margins coarsely puberulous. **Flowers** in many, small racemes, up to 5 × 6 mm at first, lengthening up to 80 mm long in fruit, grouped in loose, ± corymbose, terminal panicles. **Bracts** ovate to ovate-lanceolate, acute, margins pale and membranous, up to 0.2 mm wide, pubescent on margins at base. **Calyx** usually obliquely 3(5)-lobed. **Flowering time** Nov.–Mar. Grassland, roadsides, dry slopes with rocks, overgrazed areas; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna (Barkly East S, from Molteno to Maclear District and Katberg Pass to Stutterheim and Komga).

paniculata Thunb.

Perennial herbs, flowering early hence appearing annual, up to 450 mm high; stems several, leafy in young parts; indumentum recurved-puberulous. **Leaves**: main ones

up to 8 × 2.1 mm, oblong or linear-oblong, obtuse to subacute, margins sometimes coarsely puberulous, glandular-punctate. **Flowers** borne almost from base, racemes ± 4 × 4 mm at first, lengthening up to 15 mm long in fruit; peduncles short, ± 5–10 mm long, nude or little leafy, grouped in long, narrow panicles. **Bracts** spathulate or oblong-elliptic, ± obtuse, rather thick with no pale, membranous margins or with narrow ones on upper bracts. **Calyx** obliquely 3(5)-lobed. **Flowering time** all year, rain dependent. **Fruit** pair of cocci ovoid in outline. Damp areas, also grassland, shaly places and roadsides; Upper Karoo, Rainshadow Valley Karoo, Albany Thicket, Eastern Fynbos-Renosterveld (Middelburg to Willowmore, Uitenhage and to Humansdorp).

1b Leaves not or hardly tufted

Group 3c

As under 2b: Group 3a (p. 1516), but leaf tufting different; calyx lobes as long as tube in *S. inconstans*.

[E]inconstans Hilliard (see 2b: Group 3a above)

peduncularis E.Mey. (see 2b: Group 3a above)

Group 4c

As under 2c: Group 4a (p. 1518), but leaf tufting sometimes different.

albida Choisy

Leaves rarely poorly tufted.

Group 6c

As under 2d: Group 6a (p. 1520), but leaf tufting different.

[E]decipiens E.Mey.

Leaves tufted but sometimes weakly so.

Group 8b

As under 2d: Group 8a (p. 1522), but leaf tufting different.

fourcadei Hilliard (see 2d: Group 8a above)

magnakarooica Hilliard (see 2d: Group 8a above)

Group 12

Perennial herbs or suffrutices. **Leaves** not or hardly tufted, linear to elliptic, sessile or shortly petiolate, usually entire, sometimes toothed. **Flowers** in long, dense, terminal spikes or racemes, simple or in a lax panicle. **Bracts** adnate to calyx or it and pedicel, leaf-like. **Pedicels**: lowest 0–3 mm long. **Calyx** subequally 5-lobed. **Corolla** white; tube cylindric below and widening at top. **Anthers**: upper ones in throat or mouth, lower ones shortly exserted.

elongata Hilliard

Perennial herb or suffrutex, erect to procumbent, sometimes flowering early, up to 600 mm long; rootstock woody, stem single, tufted, simple or laxly much branched, densely leafy; recurved-puberulous in young parts. **Leaves** alternate, ± tufted, often little so, main ones up to 40 × 3.0(–5.5) mm, linear or narrowly elliptic, acute, sessile, entire, texture thin; glandular-punctate, scabrid hairs often on margins and midrib below. **Flowers** in single or laxly panicled spikes, lengthening up to 200 mm long in fruit. **Pedicels**

absent to minute. **Calyx** campanulate, lobed to halfway or more; lobes narrowly deltate, acute to acuminate. **Anthers**: upper pair in mouth. **Flowering time** Sept.–Apr. **Fruit** yellowish brown cocci, rough. Grassland, in scrub on edges of forests, gorges or plateaus; Indian Ocean Coastal Belt (Umtamvuna).

trinervia E.Mey.

Perennial herb, up to 750 mm high; stoloniferous, finally woody at base; stems tufted, simple or much branched, leafy; puberulous to pubescent, hairs often recurved. **Leaves** alternate, basal ones up to 55 × 8 mm, elliptic or oblong, ± acute, base often tapering into short petiole, entire or with few, tiny teeth, leathery, 3-veined, glandular-punctate. **Flowers** in racemes up to ± 100 mm long, sometimes in lax panicles. **Pedicels**: lowest up to 3 mm long. **Calyx**: lobes 2× length of tube, narrowly deltate and acuminate or ± equaling or shorter than tube; lobes deltate and acute, keeled. **Corolla**: tube sometimes purplish. **Anthers**: upper ones included. **Flowering time** Oct.–May. **Fruit** light brown, smooth cocci. Grassland, often damp or even marshy; Sub-Escarpment Grassland, Sub-Escarpment Savanna (Kokstad S, from road between Flagstaff and Lusikisiki to Mgodini River).

Group 13

Dwarf shrubs, subshrubs, or unknown, densely leafy. **Leaves** opposite and alternate upwards (slowly so in *S. myrtifolia*), broad, base mostly somewhat narrowed. **Flowers** in dense spikes, sometimes grouped in panicles. **Bracts** adnate to calyx tube, mostly lanceolate, all acute, hair-fringed. **Calyx** 3-lobed, from halfway to deeply, one or both lateral lobes sometimes bifid, hair-fringed. **Corolla** white, magenta-pink or ± violet; tube rarely cylindric and widening at apex (*S. myrtifolia*). **Anthers**: most upper ones included or in mouth, lower ones shortly to well exserted, in one species all well exserted (*S. zeyheri*).

[E]**elsiae** Hilliard

Growth form unknown, up to at least 250 mm high; stems densely leafy; patent-pubescent all round. **Leaves**: main ones up to 19 × 6 mm, elliptic, acute, base with or without short petiole, ± entire, texture thinnish; glandular-punctate, pubescent. **Flowers** in terminal, many-flowered spikes, sometimes with smaller spikes on rachis below, lengthening as flowers open. **Bracts**: lowest ones lanceolate-elliptic, hairy on both margins and keel. **Calyx** deeply 3-lobed. **Corolla** mauve. **Anthers**: lower ones well exserted. **Flowering time** ± Mar. Habitat?; Eastern Fynbos-Renosterveld (Cockscomb in Great Winterhoek Mts).

[E]**myrtifolia** Rchb.

Twiggy, dwarf shrub, up to ± 700 mm high; stems woody; pubescent, hairs ± patent to somewhat recurved along margins of decurrent leaf bases. **Leaves**: main ones up to 25 × 12 mm, ± round, ovate or elliptic, acute, base cuneate, decurrent, young stems narrowly winged, margins entire, glabrous. **Flowers** in a dense, terminal spike ± 20 × 15 mm, longer in fruit, single or grouped in a tight, corymbose panicle. **Bracts**: lowest ones ± ovate, base concave. **Calyx** 3-lobed to ± halfway, anticous lobes sometimes bifid, or split more deeply, these lobes widely deltate, acute. **Corolla** magenta-pink; tube up to 11 mm long, cylindric, widening at apex. **Anthers**: lower ones exserted. **Flowering time** all year. Bushveld, scrub or dense grassland; Albany Thicket, Eastern Fynbos-Renosterveld (Baviaanskloof, Patensie E to Uitenhage, Port Elizabeth and Humansdorp).

[E]recurva E.Mey.

Tufted suffrutex, up to 600 mm high; stems few, simple or loosely branched above, rough as leaf bases persistent; retrorse-pubescent on young stems, hairs spread evenly or decurrent leaf bases glabrous. **Leaves** erect, appressed or apex somewhat recurved, main ones up to 11 × 2.1 mm, lanceolate, acute, base decurrent, margins entire, flat, leathery. **Flowers** in a terminal spike up to 15 mm in diam., lengthening up to 120 mm long in fruit, dense in all stages, often single, sometimes with smaller spikes lower down. **Bracts**: lowest ones lanceolate, concave at base, glandular-punctate. **Calyx** deeply 3-lobed, anticous lobes narrowly deltate. **Corolla** ± violet and blue. **Anthers**: lower ones shortly exserted, drying black. **Flowering time** all year. Grassland with some bush or sandy grassland; Sub-Escarpment Savanna, Albany Thicket (Grahamstown District).

[E]zeyheri Choisy

Tufted suffrutex, stems up to 500 mm long, laxly branched above, old ones rough, young ones retrorse-pubescent, in 4 longitudinal strips. **Leaves**: main ones up to 12 × 2.6 mm, elliptic, sharply ascending to recurved above, decurrent, ± acute, base decurrent, margins entire, flat, leathery, ± glabrous. **Flowers** in dense, terminal spikes, up to 10 mm wide, lengthening up to 80 mm long in fruit, single or with smaller spikes on rachis below. **Bracts**: lowest ones lanceolate, concave at base. **Calyx** deeply 3-lobed, anticous lobes narrowly deltate, rarely deeply divided. **Corolla** ± violet. **Anthers** all well exserted, drying green. **Flowering time** all year. Probably grassland; Albany Thicket (Uitenhage to Port Elizabeth, Alexandria Region between Swartkops and Sundays rivers to Suurberg).

Group 14

Dwarf shrubs, hairs on stems in longitudinal strips, or sometimes so. **Leaves** opposite, alternate upwards along stem; glandular-punctate. **Flowers** pedicellate, arranged inracemes, either single or in loose panicles. **Calyx** campanulate, lobed halfway or less to base. **Corolla** white or ± violet.

eckloniana Choisy

Witaarbossie (A)

Woody, dwarf shrub, up to 750 mm high; stems leafy; young branches puberulous, hairs sometimes arranged in longitudinal strips, parts often 'varnished' from secreting glands. **Leaves**: main ones sessile, up to 20 × 1.2 mm, linear or narrowly elliptical, acute, apiculate, entire, elliptic in transect. **Flowers** crowded, in terminal racemes up to 100 × 18 mm long, single or loosely panicled. **Bracts** lanceolate, acute to acuminate. **Calyx** lobed halfway to base. **Corolla** white or purple; tube up to 5.5 mm long. **Anthers** all exserted. **Flowering time** May–Oct. Scrub on slopes of hills and mountains, north of coastal ranges; Rainshadow Valley Karoo (WC to Willowmore District).

[E]marlothii Hilliard

Woody, dwarf shrub, height?; young branches closely leafy; puberulous, hairs recurved. **Leaves**: shortly petiolate, decurrent; largest ones up to 11 × 1.8 mm, linear, ± terete, spreading, acute, mucronate. **Flowers** crowded in single, terminal racemes up to 25 × 15 mm. **Bracts** lanceolate or linear-lanceolate, acute. **Calyx** lobed less than halfway. **Corolla** probably white; tube 6.5 mm long or more. **Anthers**: upper ones in mouth, lower ones well exserted. **Flowering time** Sept. Habitat?; Rainshadow Valley Karoo (Swanepoelspoortberg ENE of Willowmore).

SUTERA Roth (1807), *non* Roth (1821)

Kornhall & Bremer (2004, 2005)

(= *SUTERA* Roth section *Sutera* Hilliard)

Species 3, SA, 1 in Lesotho, NW, FS, L, NC, WC, EC.

cooperi Hiern

Perennial herb, bushy, up to 1 m high; most of plant puberulous, also with larger, patent hairs up to 3 mm long, all hairs glandular. **Leaves** opposite, petiolate; ovate, margins dentate, some margins denticulate. **Flowers** pedicellate; single, in 3-flowered cymules in axils of upper leaves or linear bracts or arranged in racemes or panicles. **Corolla**: tube up to 14 × 2.5 mm, cylindric, orange; limb ± regular, 5-lobed, white; inside of upper tube and base of lobes with dense, clavate hairs. **Stigma** bifid with jelly-like surface on inside of branches. **Flowering time** Aug.–Mar. (in FS, L, EC). Base of cliffs and beneath overhanging rocks; Mesic Highveld Grassland, Drakensberg Grassland (from FS and L borders to Witteberg Mts near Lady Grey, probably in Herschel District).

TEEDIA Rudolphi

Species 2(4?), tropical and sthn Afr., LIM, M, S, KZN, L, NC, WC, EC.

Gandoger's two species, *T. obtusifolia* (from near Grahamstown) and *T. pentheri* (Knysna) are probably conspecific and equal to *T. pubescens* (Dahlgren & Rao 1971).

lucida (Sol.) Rudolphi

Glossy-leaved teedia; *klipkersie*, *predikant-op-die-preekstoel*, *stinkbos* (A)

Perennial, foetid shrub to herb, up to 2 m high; stems narrowly winged at decurrent petioles, leafy; glabrous. **Leaves** opposite, ± ovate to broadly elliptic, finely dentate, shiny. **Flowers** pedicellate in leafy, pedunculate, often 3–7-flowered, terminal or axillary cymes. **Calyx**: lobes 5, lanceolate-oblong. **Corolla** ± regular; tube cylindrical, ± straight; lobes 5, patent, blue, mauve, purple or pink. **Flowering time** mainly July–Jan. **Fruit** a fleshy, ± globose berry or drupe. Rocky sites in grassland or fynbos; Sub-Escarpment Grassland, Indigenous Forests, Drakensberg Grassland, Eastern Fynbos-Renosterveld, Sub-Escarpment Savanna (Dordrecht E to Ntsubane Forest, S to Baviaanskloof Mts, Grahamstown and Humansdorp).

pubescens Burch.

Hairy teedia

Perennial or biennial, foetid, small, soft shrub, up to 0.5 m high; stems little branched, often narrowly winged at decurrent petioles, leafy; most parts of plant oily pubescent. **Leaves** opposite, ovate-lanceolate, serrulate. **Flowers** as above but cymes 3–5-flowered. **Calyx**: lobes 5, ± lanceolate. **Corolla** hairy outside, regular; tube somewhat in-bent, gibbous below; lobes 5, patent, white to light rose-pink with 5 dark purple spots extending down the hirsute throat. **Flowering time** Aug., Sept. **Fruit** a globose berry. Rocky mountain slopes; Eastern Fynbos-Renosterveld (WC to Willowmore, Langkloof and possibly Grahamstown).

TRIEENEA Hilliard

Species 9, sthn Afr., WC, EC.

glutinosa (Schltr.) Hilliard

Annual, sometimes perennial herb or suffrutex, up to 0.4 m high; stems simple or basally branched, often bushy, leafy; glandular hairy. **Leaves** opposite but alternate upwards along stem; petiolate, rhomboid or ovate, largely paired-dentate above. **Flowers** axillary, in dense, bracteate heads, later in long, loose, terminal racemes, often single or with smaller racemes below. **Corolla**: tube cylindric below, suddenly funnel-shaped above; limb white, pale blue or mauvish blue with orange or yellow patch at base of upper lip decurrent in tube. **Flowering time** Nov., Feb. Montane, shady, damp areas under rocks or on S-facing, sandy rock ledges; Dry Highveld Grassland, Eastern Fynbos-Renosterveld (Graaff-Reinet District, Sneeuberg Mts, Nardousberg; Uitenhage, Great Winterhoek and Kouga mts).

*VERBASCUM L.

Species ± 360; mainly Old World, northern temperate regions such as Europe, and Turkey, also Ethiopia and East African highlands; 1 sporadic garden escape or possibly naturalised in sthn Afr., L, WC, EC.

virgatum Stokes

Twiggy mullein

Robust, biennial herbs, up to 2 m high; stems stiff, ± erect, little branched; downy with glandular hairs. **Leaves** alternate, mostly in basal rosette, large but diminishing upwards, oblong to lanceolate, finely crenate or lobed. **Flowers** pedicellate, axillary, lower bracts sometimes with more than one flower per axil, many in a large, lax, simple raceme. **Corolla** yellow; tube short; lobes 5, longer, wide-spreading. **Flowering time** Feb., Sept., Dec. **Fruit** a globose capsule. Origin W Europe; shallow soil over TMS on open plateau ridge; Upper Karoo, Eastern Fynbos-Renosterveld (Middelburg District S to Uitenhage, Groendal Wilderness Reserve and Great Winterhoek Mts).

VERONICA L. see PLANTAGINACEAE

ZALUZIANSKYA F.W.Schmidt

Drumsticks

Species 55, centred in sthn Afr., 1 in East Africa; widespread, but especially in WC where most annual species occur, perennial ones mainly in eastern parts, extending to Zimbabwe, N, LIM, NW, G, M, FS, KZN, L, NC, WC, EC.

Based largely on Hilliard (1994: 460–522).

1a Corolla white above, red below (sometimes pink or wine-red), mostly salverform; lobes deeply notched; opening in low light (except N. microsiphon, *differently coloured, opening in bright light); stems nearly all with retrorse hairs, mostly leafy*

angustifolia Hilliard & B.L.Burtt

Perennial herb, forming small mats or cushions, often with many vegetative buds on crown, forming small rosettes, up to 300(–450) mm high; stems ± prostrate, wiry. **Leaves**: radical ones oblong and short; cauline ones narrow, entire or with a few tiny teeth with few hairs or none. **Flowers** few, up to 15 in a short, crowded spike, lengthening somewhat in fruit. **Corolla**: tube up to 50 mm long; limb regular; mouth with long

hairs all or partway round; lobes deeply notched, glandular inside. **Flowering time** Aug.–May. Rocky areas, often in crevices; Drakensberg Grassland, Indian Ocean Coastal Belt, Eastern Fynbos-Renosterveld (Naude's Neck to Port St Johns S, from Graaff-Reinet to Katberg Pass and across Amatole Mts to Xolora Mts of Stutterheim, and SW to Elandsberg Mts in Baviaanskloof).

capensis (L.) Walp.

Drumsticks

Annual or perennial herb, up to 400 mm high; branches often with leaf tufts in axils. **Leaves** variable, linear to elliptic, spreading. **Flowers** in an often short and dense spike, lengthening in fruit. **Corolla**: tube up to 40 mm long; limb regular; mouth with long hairs all or partway round; lobes deeply notched, sometimes glandular on lobe claw. **Flowering time** July–Oct. Sandy areas, including littoral dunes, often scrubby; Drakensberg Grassland, Sub-Escarpment Savanna, Albany Thicket, Eastern Fynbos-Renosterveld (Mitchell's Pass to Alice S, from Uitenhage to Port Elizabeth, Grahamstown and Bathurst and to Skoenmakerskop).

elongata Hilliard & B.L.Burtt

Perennial herb, up to 600 mm high; stems often simple, sometimes with small vegetative buds that do not form a thick group. **Leaves** oblong-elliptic or linear, ± ascending. **Flowers** many in a long, lax, narrow spike, lengthening as flowers open. **Corolla**: tube up to 44 mm long; limb somewhat zygomorphic, held vertically; mouth with long hairs all or only partway round. **Flowering time** Nov.–Feb. Rocky places, including scree; Sub-Escarpment Grassland, Drakensberg Grassland (Kokstad to Mthatha and Fort Cunynghame near Stutterheim).

glareosa Hilliard & B.L.Burtt

Perennial herb, flowering when young and appearing annual, up to 450 mm high; stems with basal vegetative buds that do not form a thick group; often with leaf tufts in axils; indumentum of patent or retrorse hairs. **Leaves** linear to broadly elliptic, spreading, few-haired. **Flowers** in a dense, often few-flowered spike, lengthening in fruit. **Corolla**: tube up to 50 mm long; limb regular; mouth with long hair ring; inside of lobes glabrous or with a few minute hairs near base. **Flowering time** Dec.–Apr. Montane areas; Drakensberg Grassland, Sub-Escarpment Grassland, Upper Karoo, Sub-Escarpment Savanna (Rhodes District to Baziya Mtn S, from Graaff-Reinet to King William's Town).

maritima (L.f.) Walp.

Annual or sometimes perennial herb, up to 300 mm high; stem or branches often with leaf tufts. **Leaves** elliptic, spreading, somewhat fleshy. **Flowers** few to many in a dense head, sometimes lengthening in fruit. **Corolla**: tube up to 50 mm long; limb regular; mouth with ring of long hairs. **Flowering time** all year. Mainly littoral sandy areas, also grassy slopes near sea; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Albany Thicket (Komga to Kei River Mouth southwards, from Van Stadens River Mouth to Port Alfred).

microsiphon (Kuntze) K.Schum.

Perennial herb, up to 400 mm high; stems 1–few, erect, often simple with crowded vegetative buds on crown. **Leaves**: radical ones rosulate, oblanceolate to elliptic; cauline ones ascending, oblong or elliptic, grading into bracts; somewhat hairy. **Flowers** many in a terminal, crowded spike, sometimes with small ones on rachis below, opening

in bright light. **Corolla**: tube up to 52 mm long; limb zygomorphic, held vertically; mouth nearly glabrous; lobes sometimes twice notched, pink or red outside, greenish or cream-coloured inside. **Flowering time** Jan.–Mar. Grassland with rocks; Drakensberg Grassland, Sub-Escarpment Grassland (Ongeluksnek to Kokstad District S, from Maclear to Baziya Mtn).

natalensis Bernh.

Perennial herb, up to 350 mm high; one stem developing, simple, erect, with crowded group of vegetative buds on crown. **Leaves** grading into bracts, upper leaves ascending, sparsely hairy. **Flowers** in a crowded, short, terminal, bracteate spike, not elongating in fruit. **Calyx** up to 30 mm long. **Corolla**: tube up to 50 mm long; limb regular; mouth ringed with long hairs. **Flowering time** Jan.–Mar. Grassland; Sub-Escarpment Grassland (uMzimkhulu District).

ovata (Benth.) Walp.

Twiggy, dwarf shrub in lax clumps, up to 450 mm high; stems much branched; spreading long hairs and short glandular ones present. **Leaves** ovate or variously elliptic, long-haired. **Flowers**: 1–several flowers crowded into spikes. **Corolla**: tube up to 58 mm long; limb regular; mouth with ring of long hairs or partly so; lobes outside red to pink, inside sometimes with orange or red band near base. **Flowering time** Sept.–Mar., mainly Nov. Montane, high altitude bare ground or on partly shaded cliffs lower down; Mesic Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland, Upper Karoo (Herschel to Barkly East and Naude's Neck S, Renosterberg near Middelburg to Andriesberg near Queenstown and Koueveldberge near Graaff-Reinet).

pulvinata Killick

Perennial herb, up to 100(–300) mm high; forming small cushions or mats, by way of stems from several leaf rosettes on crown or by spreading rhizomes; stems single per leaf rosette, leafy, gradually bracteate to apex. **Leaves**: radical, long-petiolate, linear, elliptic or spathulate; cauline ones similar but broad-based; sparsely hairy. **Flowers** many grouped in a spike, usually not elongating in fruit. **Corolla**: tube up to 50 mm long; limb regular; mouth ringed by long hairs. **Flowering time** Oct.–Jan. Bare rocky, montane areas; Drakensberg Grassland, Upper Karoo, Sub-Escarpment Grassland (Barkly East S, from Graaff-Reinet to Maclear).

schmitziae Hilliard & B.L.Burtt

Perennial herb, up to 300 mm high; mostly erect, several-stemmed, not or little branched, lacking group of vegetative buds on crown, leafy, leaf tufts axillary. **Leaves**: radical ones rare, together with lowest cauline ones petiolate, ± spreading, linear to elliptic and somewhat hairy. **Flowers** rarely seen opening in strong light; up to 25 in a spike, often elongating in fruit. **Corolla**: tube up to 39 mm long; limb regular; mouth encircled by long hairs; lobes eglandular. **Flowering time** Jan.–Mar. Montane, rocky places, scree or grassland on basalt or dolerite; Mesic Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland, Upper Karoo (Lady Grey to Barkly East and Ongeluksnek S, from Graaff-Reinet to Queenstown).

spathacea (Benth.) Walp.

Perennial herb, up to 400 mm high; stems 1–few, ± erect with crowd of vegetative buds on crown, often retrorse-haired or glabrous, leafy. **Leaves** basally elliptic or oblanceolate, becoming narrower or more oblong upwards, strongly ascending. **Flowers** in a terminal

spike, elongating in fruit. **Calyx** up to 20 mm long. **Corolla**: tube up to 60 mm long; limb regular, held horizontally; mouth with thick ring, or part ring of long hairs; lobes inside glabrous or glandular, especially in lower $^1/_2$. **Flowering time** Dec.–Feb. Grassland, especially with rocks; Sub-Escarpment Grassland, Drakensberg Grassland (Maclear S, from Mount Thomas to Hogsback and King William's Town District, Pirie).

1b Corolla not white and red as above; lobes rounded to bifid; opening in low or strong light; stem hairs various
2a Corolla cream-coloured to bright yellow, dark purplish brown outside, limb ± regular, lobes rounded; opening in little light; stem hairs mostly retrorse

peduncularis (Benth.) Walp.

Annual herb, up to 250 mm high; single to several-stemmed, not or little branching, stems often leafless above basal rosette or with a few leaves; hairs retrorse and appressed. **Leaves** petiolate; radical ones ovate to elliptic; cauline ones elliptic, hairy on margins. **Flowers** up to 15, in terminal heads, ± same size in fruit, sometimes cleistogamous. **Corolla**: tube up to 25 mm long; mouth glabrous with yellow to bright red ring extending into throat; lobes rounded at tips, shades of yellow inside, maroon to purplish brown outside. **Flowering time** Sept., Oct. Stony and sandy places; Drakensberg Grassland, Sub-Escarpment Savanna, Albany Thicket (Stutterheim to King William's Town S, from Uitenhage to Alexandria).

rubrostellata Hilliard & B.L.Burtt

Annual herb, simple or branching near base, branches up to 140 mm long; laxly leafy, ± retrorse-haired. **Leaves**: lower ones petiolate; spathulate, oblong or elliptic, margins hairy. **Corolla**: tube up to 31 mm long; mouth glabrous or with small clavate hairs; lobes rounded at apex. **Flowering time** Dec.–Mar. Basalt gravel; Drakensberg Grassland, Sub-Escarpment Grassland (Barkly East, Naude's Neck and Maclear).

2b Corolla with shades of white, pink, mauve or orange inside, shades of yellow, orange or brown outside, limb regular, lobe tips deeply bifid to retuse or rounded; opening in high light; stems with minute glandular hairs or with minute and longer acute ones

crocea Schltr.

Annual herb, stems up to 120 mm long; main one erect, branches decumbent, moderately leafy. **Leaves** spathulate, subacute, well toothed. **Flowers** in terminal, dense spikes. **Corolla**: tube up to 32 mm long; mouth thickened and ringed by stiff hairs; lobes spathulate, tips rounded to somewhat retuse, inside white becoming pinkish mauve, 'star' around mouth yellow, becoming orange/red, outside coppery orange. **Flowering time** Dec.–Apr. In montane areas; damp gravel around rock sheets; Drakensberg Grassland, Dry Highveld Grassland, Sub-Escarpment Grassland (Naude's Neck to Ben Macdhui and Matatiele S, from Molteno to Stormberge).

karrooica Hilliard

Annual herb, stems up to 130 mm long, main one erect, branches decumbent, distantly leafy. **Leaves** elliptic to ovate-elliptic, petiolate, subacute. **Flowers** in terminal, dense spikes, elongating in fruit. **Corolla**: tube up to 27 mm long; mouth ringed by stiff, acute hairs; lobes spathulate, tips rounded to slightly retuse, inside white to mauve, 'star' around mouth yellow to red with long rays, outside orange to dark brown. **Flowering time** mainly July–Oct. Sandy areas in grasslands or scrub; Upper Karoo, Dry Highveld Grassland, Drakensberg Grassland (Middelburg, Cradock and Winterberge).

synaptica Hilliard

Annual herb, main stem up to 240 mm long; branches ascending or decumbent, laxly leafy; acute hairs retrorse to patent. **Leaves** petiolate; elliptic to ovate-elliptic, subacute. **Flowers** in terminal, dense spikes, elongating in fruit. **Corolla**: tube up to 26 mm long; mouth ringed with acute hairs; lobes spathulate, apex bifid to retuse or subentire, inside white (sometimes orange), mouth with yellow/orange, shortly-rayed patch, outside yellowish to coppery orange. **Flowering time** Aug.–Oct. Shaly or sandy places in scrub; Lower Karoo, Eastern Fynbos-Renosterveld, Rainshadow Valley Karoo (Graaff-Reinet S to Willowmore District, Antoniesberg and Steytlerville).

[E]vallispiscis Hilliard

Annual herb, stems up to 150 mm long; main stem erect, branches decumbent or ascending, moderately leafy; acute hairs patent. **Leaves** petiolate; elliptic, ± acute. **Flowers** up to 30 in terminal, dense spikes, elongating in fruit. **Corolla**: tube up to 28 mm long; lobes spathulate, tips rounded to retuse or shallowly bifid, inside white to mauve, mouth with a yellow to orange/red, short-rayed 'star' and ring of acute hairs; outside deep coppery orange. **Flowering time** May–Nov. Habitats various e.g. in karroid scrub, damp ditches or disturbed ground; Albany Thicket (Albany District, Great Fish River Valley).

COOK, C.D.K. 2004. *Aquatic and wetland plants of southern Africa*: 248–254. Backhuys, Leiden.

CULLEN, J. 2000. *Verbascum*. In J. Cullen, J.C.M. Alexander, C.D. Brickell, J.R. Edmondson, P.S. Green, V.H. Heywood, P.-M. Jørgensen, S.L. Jury, S.G. Knees, H.S. Maxwell, D.M. Miller, N.K.B. Robson, S.M. Walters & P.F. Yeo, *The European Garden Flora*: 283–287. Cambridge University Press, Cambridge.

DAHLGREN, R. & RAO, V.S. 1971. The genus *Oftia* Adans and its systematic position. *Botaniska Notiser* 124: 451–472.

FISCHER, E. 1992. Systematik der afrikanischen Lindernieae (Scrophulariaceae). *Tropische und subtropische Pflanzenwelt* 81: 365.

FISCHER, E. 2004. Scrophulariaceae. In K. Kubitzki, *The families and genera of vascular plants* 7: 333–432. Springer-Verlag, Berlin.

GOLDBLATT, P. & MANNING, J. 2000. Cape plants: a conspectus of the Cape flora of South Africa. *Strelitzia* 9: 643–673. National Botanical Institute, Cape Town & Missouri Botanical Garden.

GRANT, A.L. 1938. A monograph of the genus *Hemimeris*. *Annals of the Missouri Botanical Garden* 25: 435–453.

HIERN, W.P. 1904. Scrophulariaceae. In W.T. Thiselton-Dyer, *Flora capensis* 4,2: 121–420. Reeve, London.

HILLIARD, O.M. 1990. A brief survey of Scrophulariaceae – Selagineae. *Edinburgh Journal of Botany* 47: 315–337.

HILLIARD, O.M. 1994. *The Manuleae. A tribe of Scrophulariaceae*. Edinburgh University Press, Edinburgh.

HILLIARD, O.M. 1995. *Pseudoselago*, a new segregate from *Selago*. *Edinburgh Journal of Botany* 52: 243–332.

HILLIARD, O.M. 1999. *The tribe Selagineae (Scrophulariaceae)*. The Board of Trustees of the Royal Botanic Garden Edinburgh.

HILLIARD, O.M. 2000. *Selago*. In P. Goldblatt & J. Manning, Cape Plants. *Strelitzia* 9: 663–669.

HILLIARD, O.M. & BURTT, B.L. 1979. Notes on some plants of southern Africa chiefly from Natal: VIII. Scrophulariaceae. *Notes from the Royal Botanic Garden Edinburgh* 37: 311–315.

HILLIARD, O.M. & BURTT, B.L. 1984. A revision of *Diascia* section Racemosae. *Journal of South African Botany* 50: 269–340.

HILLIARD, O.M. & BURTT, B.L. 1986a. Notes on some plants of southern Africa chiefly from Natal: XII. Scrophulariaceae. *Notes from the Royal Botanic Garden Edinburgh* 43: 212–218.

HILLIARD, O.M. & BURTT, B.L 1986b. Notes on some plants of southern Africa chiefly from Natal: XIII. Scrophulariaceae, *Nemesia*. *Notes from the Royal Botanic Garden Edinburgh* 43: 385–401.
KORNHALL, P. & BREMER, B. 2004. New circumscription of the tribe Limoselleae (Scrophulariaceae) that includes the taxa of the tribe Manuleeae. *Botanical Journal of the Linnean Society* 146: 453–467.
KORNHALL, P. & BREMER, B. 2005. New circumscription of the tribe Limoselleae (Scrophulariaceae) that includes the taxa of the tribe Manuleeae, Appendix 5. *Botanical Journal of the Linnean Society* 147: 385, 386.
LEEUWENBERG, A.J.M. 1979. The Loganiaceae of Africa XVIII: *Buddleja* L. II, revision of the African and Asian species. *Mededelingen van de Landbouwhogeschool Wageningen* 79,6: 5–163.
LEEUWENBERG, A.J.M. 1983. Loganiaceae. *Flora zambesiaca* 7,1: 327–374.
LEISTNER, O.A. (ed.) 2000. Seed plants of southern Africa: families and genera. *Strelitzia* 10. National Botanical Institute, Pretoria.
MABBERLEY, D.J. 2008. *Mabberley's plant-book*. 3rd edn. Cambridge University Press, Cambridge.
MANNING, J. & GOLDBLATT, P. 2012. Plants of the Greater Cape Floristic Region 1: the Core Cape Flora, *Strelitzia* 29. South African National Biodiversity Institute, Pretoria.
PHILCOX, D. 1990. Scrophulariaceae. In E. Launert & G.V. Pope, *Flora zambesiaca* 8: 1–179.
ROESSLER, H. 1967. Buddlejaceae. *Prodromus einer Flora von Südwestafrika* 125: 1, 2.
ROESSLER, H. 1979. Revision der Gattungen *Hebenstretia* L. und *Dischisma* Choisy (Scrophulariaceae – Selagineae). *Mitteilungen der Botanischen Staatssammlung München* 15: 1–160.
ROLFE, R.A. 1901. Selagineae. In W.T. Thiselton-Dyer, *Flora capensis* 5,1: 95–180. Reeve, London.
STEINER, K.E. 1989a. A second species of the amphi-atlantic genus *Alonsoa* (Scrophulariaceae) in South Africa. *Annals of the Missouri Botanical Garden* 76: 1152–1159.
STEINER, K.E. 1989b. *Diascia alonsooides*. *Flowering Plants of Africa* 50: t. 1990.
STEINER, K.E. 1992. Two new *Diascia* species (Scrophulariaceae) from the Little Karoo. *South African Journal of Botany* 58: 39–47.
STEINER, K.E. 1994. A new *Nemesia* from the interior of the southern Cape, South Africa. *South African Journal of Botany* 60: 211–213.
STEINER, K.E. 1996. Chromosome numbers and relationships in the tribe Hemimerideae (Scrophulariaceae). *Systematic Botany* 21: 63–76.
STEINER, K.E. 1999. A new species of *Diascia* (Scrophulariaceae) from the Eastern Cape (South Africa), with notes on other members of the genus in that region. *South African Journal of Botany* 65: 223–231.
STEINER, K.E. 2000. *Diascia*. In P. Goldblatt & J. Manning. Cape Plants. *Strelitzia* 9: 645–648.
STEINER, K.E. 2010. Two new species of *Nemesia* (Scrophulariaceae) from the southern Cape, South Africa. *Bothalia* 40: 161–166.
STEVENS, P.F. 2008 Angiosperm Phylogeny Website. Version 9. Internet. http://www.mobot.org/MOBOT/APweb/ (accessed 20 Sept. 2011).
SUTTON, D.A. 1988. *A revision of the tribe Antirrhineae*. Oxford University Press, London.
TAKHTAJAN, A. 1997. *Diversity and classification of flowering plants*. Columbia University Press, New York.
TANK, D.C., BEARDSLEY, P.M., KELCHNER, S.A. & OLMSTEAD, R.G. 2006. L.A.S. Johnson Review No. 7. Review of the systematics of Scrophulariaceae *s.l.* and their current disposition. *Australian Systematic Botany* 19: 289–307.
TURCZANINOW, P.K.N.S. 1843. *Gomphostigma*. *Bulletin de la Société des Naturalistes de Moscou* 16: 53.
VAN JAARSVELD, E.J. 1991. *Freylinia crispa*. *Flowering Plants of Africa* 51: t. 2033.
VAN JAARSVELD, E.J. & KIMPTON, J. 1995. *Freylinia densiflora*. *Flowering plants of Africa* 54: 68–72 (t. 2114).
VENTENAT, E.P. 1804. *Nemesia foetens* and *N. linearis*. *Jardin de la Malmaison* 1: t. 41 and notes sub t. 41.
VERDOORN, I.C. 1963. Loganiaceae. *Flora of southern Africa* 26: 135–171.

SOLANACEAE

(Order Solanales)

Compiled by W.G. Welman & A.M. Venter (*Lycium*)

1a Calyx becoming enlarged, inflated and bladdery and enclosing fruit:
2a Calyx lobes with wings down the back..... ***Nicandra**
2b Calyx lobes not winged:
3a Flowers fascicled..... **Withania**
3b Flowers solitary..... ***Physalis**
1b Calyx not inflated and bladdery:
4a Fruit a berry:
5a Stamens arising in corolla mouth or throat; anthers dehiscing by pores or slits..... **Solanum**
5b Stamens arising near base of corolla tube; anthers dehiscing by slits:
6a Shrubs or shrublets usually with thorn-like branchlets; ovary not on stout foot within disc ..... **Lycium**
6b Shrubs unarmed; ovary on short, stout foot within disc..... ***Cestrum**
4b Fruit a capsule:
7a Capsule armed with spines, containing many seeds in 4 locules, splitting into 4 valves at the top .....
..... ***Datura**
7b Capsule unarmed:
8a Capsule ± 15 mm long; leaves broadly lanceolate, ovate to elliptic..... **Nicotiana**
8b Capsule 4 mm long; leaves linear..... ***Nierembergia**

*CESTRUM L.

Species 175, tropical America; some cultivated and 3 naturalised in sthn Afr., eastern areas.

laevigatum Schltdl.

Inkberry; *inkbessie* (A)

Evergreen shrub or tree, up to 15 m high, sparsely hairy, bad smell when bruised. **Leaves** elliptic-lanceolate, entire, up to 150 × 50 mm. **Petioles** up to 15 mm long. **Flowers** sessile in axillary clusters. **Calyx** tubular, up to 6 mm long, subtruncate, sinuate or shortly dentate, enlarged in fruit. **Corolla**: tube 17 mm long, narrowly funnel-shaped, light green, lobes 3 mm long, triangular, creamy yellow. **Flowering time** Oct.–June. **Fruit** ovoid berry, up to 10 mm long, juicy, green turning purple-black. **Seeds** ± 6, linear-oblong, ± 4 mm long, irregularly flattened and angled, grey-brown. Coastal dunes, streambanks, disturbed and natural areas; poisonous; origin Brazil, declared weed (Category 1); Indigenous Forests, Albany Thicket, Eastern Fynbos-Renosterveld (± coastal, Bizana SW to Humansdorp).

*DATURA L.

Species ± 8, New World, some cultivated; 4 in sthn Afr., naturalised and widespread.

Capsules hard, ovoid, up to 50 mm long, 40 mm in diam., ± pubescent, covered with stout, spreading spines up to 25 mm long

ferox L.

Large thorn apple; *grootstinkblaar* (A)

Erect, branched, subherbaceous annual, up to 1.5 m high, ± pubescent; bad smell when crushed. **Stems** round to angled, green or ± brown. **Leaves** ovate, up to 200 × 200 mm, margins sublobed, irregularly dentate, dark green above, paler below; petioles up to 80 mm long. **Flowers** solitary, axillary on pedicels up to 15 mm long. **Calyx** up to 30 mm long, cylindrical, bases reflexed and enlarged in fruit. **Corolla** narrowly funnel-shaped,

up to 65 mm long, white or cream-coloured. **Flowering time** Oct.–May. **Seeds** compressed kidney-shaped, 4 mm long, finely pitted, large depressions on backs, grey-brown. Disturbed areas, damp places, riverbanks, -beds; irritant, poisonous; origin Americas, declared weed (Category 1); Upper Karoo, Drakensberg Grassland, Sub-Escarpment Savanna, Albany Thicket (Albert to Middelburg, Hogsback, Alice, King William's Town, Suurberg in Greater Addo Elephant National Park).

Capsules hard, ovoid, up to 50 mm long, 30 mm in diam., ± pubescent, covered with dense thin, spreading spines, up to 10 mm long.

stramonium L.

Common thorn apple; *gewone stinkblaar* (A); *uvumbangwe* (X)

Erect, branched, subherbaceous annual, up to 1.5 m high, ± pubescent; bad smell when crushed. **Stems** striate, pale brown, green or ± purple. **Leaves** ovate, up to 200 × 200 mm, dark green or purple, paler below, margins sublobed, irregularly dentate; petioles up to 80 mm long. **Flowers** solitary, axillary on stout peduncles 5 mm long, elongating in fruit. **Calyx** up to 40 mm long, cylindrical, bases reflexed and enlarged in fruit. **Corolla** narrowly funnel-shaped, up to 100 mm long, white, mauve or ± purple. **Flowering time** mostly Oct.–Mar. **Seeds** compressed kidney-shaped, 3 mm long, finely pitted, ± brown. Disturbed areas, damp places, riverbanks, -beds; poisonous, irritant; origin N America, declared weed (Category 1); Upper Karoo, Sub-Escarpment Grassland, Albany Thicket (mainly Middelburg to Engcobo, Albany).

LYCIUM L.

Boxthorn; *kriedoring*, *wolwedoring*, *muisbos*, *slangbessie* (A)

Species 85, fairly cosmopolitan in warm and temperate regions, especially the Americas; 23 in sthn Afr., widespread.

1a Stamens included in corolla tube or just visible in corolla throat; corolla lobes spreading
2a Corolla tube short (< 10 mm long)

acutifolium E.Mey. ex Dunal

Shrub or straggler, up to 3 m high, young branches pendulous. **Leaves** elliptic to narrowly obovate, 10–23 mm long, glabrous. **Flowers** bisexual; calyx 2–3 mm long; corolla 7–8 mm long, white with purple veins; nectary orange-red, inconspicuous. **Flowering time** Aug.–Dec. **Fruit** ovoid, red berry. Moist subtropics and savanna on flood plains, sandy to doleritic soils, alt. 5–1 795 m; Indian Ocean Coastal Belt, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Albany Thicket (Umtamvuna River S, from Egoso to Port St Johns, Fort Beaufort to Willowvale and Grahamstown to Peddie).

arenicola Miers

Shrub, up to 4 m high, young branches pendulous. **Leaves** densely fascicled, oblong to narrowly obovate, 14–35 mm long, glabrous. **Plants** functionally dioecious. **Flowers**: calyx 2.3–3.0 mm long; corolla 5–6 mm long; male flower with stamens fertile, style absent or stunted; female flowers with stamens sterile, style longer than stamens, nectary orange-red, prominent. **Flowering time** Nov.–Apr. **Fruit** ovoid, red or black berry. Near water in grassland, on cooler slopes of hills and mountains, in deep sand to calcrete soils, alt. 650–2 000 m; Upper Karoo, Dry Highveld Grassland, Sub-Escarpment Grassland, Drakensberg Grassland, Albany Thicket (Aliwal North S, from Middelburg to Barkly East, and Stutterheim to Grahamstown).

horridum Thunb.

Shrub, up to 1.8 m high, densely thorny. **Leaves** elliptic to obovate, 10–28 mm long, glabrous. **Flowers** bisexual; calyx 3.0–3.5 mm long; corolla 6–9 mm long; nectary red, conspicuous. **Flowering time** Apr.–Aug. **Fruit** ovate to globose, red berry. Karroid veld, open grassland, along watercourses, depressions on floodplains, sandy to clayey soils, often over limestone, alt. 5–1 670 m; Upper Karoo, Dry Highveld Grassland, Mesic Highveld Grassland, Sub-Escarpment Grassland, Lower Karoo, Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld, Albany Thicket (Aliwal North to Graaff-Reinet, S to Willowmore and Port Alfred).

2b Corolla tube long (> 10 mm long)

hirsutum Dunal

Shrub, up to 3 m high, bark creamish white. **Leaves** elliptic to obovate, 10–28 mm long, herbaceous, densely hirsute. **Flowers** bisexual; calyx ± half as long as corolla tube, lobes up to 6 mm long; corolla 14–28 mm long, white, densely hirsute; nectary red, prominent. **Flowering time** Apr.–Aug. **Fruit** ovate to globose, red berry. Alluvial silt along watercourses, alt. 245–2 000 m; Upper Karoo, Dry Highveld Grassland, Sub-Escarpment Grassland (along Orange River, Aliwal North District, rarely S to Queenstown).

oxycarpum Dunal

Wolwedoring (A)

Shrub or occasionally small tree, up to 3–5 m high, with curved branches. **Leaves** narrowly obovate to oblong-elliptic, 20–30 mm long, herbaceous, glabrous. **Flowers** bisexual; calyx tubular, 3–5 mm long; corolla 20–24 mm long; nectary green, inconspicuous. **Flowering time** May–Oct. **Fruit** elliptic, red berry. Along stream- and riverbanks, moist depressions in open karroid veld, alt. 120–1 290 m; Upper Karoo, Sub-Escarpment Grassland, Lower Karoo, Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld, Albany Thicket (Middelburg to Queenstown S, from Graaff-Reinet to King William's Town, and from Uitenhage to Grahamstown and Peddie).

1b Stamens conspicuously exserted from corolla tube; corolla lobes recurved
3a Nectary brownish yellow

cinereum Thunb.

Shrub, up to 2 m high, densely thorny, bark purplish brown. **Leaves** densely fascicled, narrowly oblong to spathulate, 7–17 mm, succulent, glabrous. **Flowers** bisexual; calyx 2.5–3.0 mm long; corolla 5–7 mm long; nectary brownish yellow, inconspicuous. **Flowering time** Aug.–Apr. **Fruit** ovoid or globose, red berry. Dry sandy or calcareous plains and hills, often on disturbed areas, sand of limestone, calcrete and quartzite, alt. 5–1 785 m; Upper Karoo, Dry Highveld Grassland, Mesic Highveld Grassland, Sub-Escarpment Grassland, Drakensberg Grassland, Sub-Escarpment Savanna, Rainshadow Valley Karoo, Albany Thicket (Aliwal North S, from Middelburg to Queenstown, Graaff-Reinet to Butterworth and Steytlerville to Grahamstown).

pilifolium C.H.Wright

Shrublet, up to 1 m high, with thorns perpendicular to stems. **Leaves** obovate to narrowly obovate, 3–10 mm long, with glandular trichomes. **Flowers** bisexual; calyx 6–7 mm long; corolla 8–10 mm long; nectary brownish yellow, prominent. **Flowering time** Aug.–Nov. **Fruit** globose, yellow berry. Sandy, calcareous soils and weathered granite or dolerite gravel, in scrub savanna and dry grassland, alt. 1 015– 1 370 m; Sub-Escarpment Grassland, Lower Karoo (Cathcart S to Grahamstown).

schizocalyx C.H.Wright

Shrub or shrublet, 0.5–2.0 mm high. **Leaves** obovate to narrowly obovate, 9–15 mm long, glabrous. **Flowers** bisexual; calyx 6–7 mm long, lobes 3–4 mm long; corolla 8–10 mm long; nectary brownish yellow, prominent. **Flowering time** Aug.–Nov. **Fruit** globose, red berry. Sandy calcareous soils and weathered granite or dolerite gravel, in scrub savanna and karroid veld, alt. 610–1 600 m; Upper Karoo, Lower Karoo, Dry Highveld Grassland, Sub-Escarpment Grassland, Albany Thicket (Middelburg S, from Graaff-Reinet to Bedford and Jansenville to Uitenhage).

3b Nectary red

ferocissimum Miers

Shrub, up to 3 m high, with stout peg-thorns. **Leaves** elliptic to broadly obovate, 12–24 mm long, glabrous. **Flowers** bisexual; calyx tubular, ± as long as corolla tube; corolla 6–8 mm long; nectary red, inconspicuous. **Flowering time** Oct.–Jan. **Fruit** globose, large, red berry. Sand dunes and flats of coastal regions, sandy areas on arid grassy planes, alt. 90–1 835 m; Sub-Escarpment Savanna, Drakensberg Grassland, Eastern Fynbos-Renosterveld, Albany Thicket (coastal region, Mthatha S, from Seymour to Stutterheim District, and from Enon to Uitenhage, Port Elizabeth, Grahamstown and Peddie).

pumilum Dammer

Shrub, up to 2 m high, stems zigzag, bark purplish brown and glossy. **Leaves** narrowly elliptic to narrowly obovate, 10–15 mm long, glaucous, glabrous. **Flowers** bisexual; calyx 3–4 mm long; corolla 4–5 mm long; nectary red, inconspicuous. **Flowering time** Sept., Oct., Jan.–Apr. **Fruit** globose, red berry. Sandy flats and streambeds to gravely hillsides, alt. 15–1 535 m; Upper Karoo, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Rainshadow Valley Karoo (Middelburg SE to Cradock and Alice, S to Willowmore and Steytlerville).

*NICANDRA Adans.

Species 1, Peru, now naturalised in most warm countries, also sthn Afr., mainly eastern parts.

physalodes (L.) Gaertn.

Apple of Peru; *basterappelliefie* (A); *umpungempu* (X)

Erect, annual herb or shrub, up to 1.5 m high. **Stems** glabrous, angled and grooved, green or ± brown. **Leaves** ovate, up to 140 × 120 mm, margins irregularly dentate; petioles ± 40 mm long, ± pubescent. **Flowers** solitary, axillary; pedicels up to 30 mm long. **Calyx** up to 25 mm long, membranous, green, ± 5-winged. **Corolla** campanulate with lobes up to 40 mm in diam., blue or white. **Flowering time** mostly Nov.–May. **Fruit** globose berries, 10–15 mm in diam., ± yellow, glabrous, in enlarged, bladder-like calyces. **Seeds** many, ± lenticular, 1.5 mm in diam., glabrous, finely pitted, light brown. Origin Peru, almost cosmopolitan weed in disturbed and cultivated areas; Sub-Escarpment Savanna, Albany Thicket (Bizana to Bathurst, rare).

NICOTIANA L.

Species ± 67, mainly America; 3 naturalised in sthn Afr. and 1 endemic to N.

***glauca** Graham

Wild tobacco; *wilde tabak* (A); *umgqomagqoma* (X)

Glabrous, glaucous, slender shrub or small tree, up to 5 m high. **Stems** green, brown, ± purple. **Leaves** broadly lanceolate, ovate to elliptic, up to 200 × 120 mm, margins

entire; petioles up to 100 mm long. **Flowers** pendulous, in terminal and axillary racemes. **Calyx** ± 10 mm long. **Corolla** cylindrical, up to 40 mm long, ± widened above, under 10 mm in diam., lobes 3–4 mm long, yellow, ± pubescent outside. **Flowering time** all months, mainly Sept.–Nov. **Fruit** oblong-elliptical capsules, ± 15 mm long, ± brown, glabrous, splitting into 4 valves above, 2-loculed, in ± enlarged calyces. **Seeds** many, oblong, ± 0.5 mm long, finely reticulate, golden-brown. Riverbanks, dunes, roadsides, disturbed places, poisonous; origin S. America, now ± cosmopolitan, declared weed (Category 1); Mesic Highveld Grassland, Upper Karoo, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Lady Grey S, from Middelburg to Mthatha, Cradock to Komga, Patensie to Port Elizabeth and Grahamstown, and to Skoenmakerskop).

*NIEREMBERGIA Ruiz & Pavón

Species 20, S. America; 1 rare garden escape in sthn Afr.

linariifolia Graham var. **glabriuscula** (Dunal) Cocucci & Hunziker

Cup-flower, purple robe

Erect, shrubby perennial, up to 350 mm high, many shoots rooting at base. **Leaves** linear, up to 25 × 2 mm, glabrous to very hairy, sessile. **Inflorescence** a lax cyme; pedicels up to 6 mm long. **Calyx** up to 11 mm long, tube ± campanulate, lobes oblong, up to 3.5 mm long. **Corolla** tube up to 15.5 mm long, narrow, elongate, abruptly expanded, shallow limb up to 20 mm in diam., white to purple. **Flowering time** July–Dec. **Fruit** a 2-celled capsule, 4 mm long, with deeply bifid valves. **Seeds** 1 mm long, angular with netted-pitted surface. Grassland, disturbed areas, garden escape, rare; poisonous; Drakensberg Grassland, Dry Highveld Grassland (Burgersdorp, very rare).

*PHYSALIS L.

Species ± 80, mostly New World; 5 naturalised in sthn Afr., widespread.

1a Plants glabrescent

angulata L.

Wild gooseberry; *wilde appelliefie* (A); *impungempu* (X)

Erect, annual herb, up to 0.9 m high. **Stems** strongly angled and grooved, green. **Leaves** ovate to elliptical, up to 100 × 60 mm, margins dentate, base unequal, often decurrent on petiole; petioles up to 50 mm long. **Flowers** solitary, axillary; pedicels slender, up to 10 mm long. **Calyx** 5 mm long, shortly lobed above. **Corolla** spreading, ± 6 mm long, ± 10 mm in diam., yellow, centres often mauve. **Flowering time** Dec.–May. **Fruit** globose berries, ± 10–15 mm in diam., glabrous, ± yellow, inside ovoid, inflated calyces 30 mm long. **Seeds** many, lenticular, 2.5 mm in diam., glabrous, very finely pitted, golden-brown. Cultivated and disturbed areas; origin Americas; Upper Karoo, Eastern Fynbos-Renosterveld, Albany Thicket (Venterstad to Burgersdorp S, from Suurberg in Greater Addo Elephant National Park to Bushman's River).

1b Plants glandular-pubescent
2a Erect herb up to 1 m high; leaves up to 100 mm long

peruviana L.

Cape gooseberry; *Kaapse appelliefie* (A); *iguzu* (X)

Perennial herb, up to 1 m high, ± erect, much-branched, densely glandular-hairy. **Leaves** ovate to triangular, base cordate, up to 100 mm long, margins entire to coarsely

toothed; petioles up to 60 mm long. **Flowers** solitary, axillary. **Calyx** 8 mm long, 10-veined, lobes ± triangular. **Corolla** campanulate, up to 15 mm long, lobed, yellow, centre purple-spotted. **Flowering time** Nov.–May. **Fruit** globose berries, 10–15 mm in diam., yellow, inside inflated calyx, up to 30 mm long. **Seeds** many, lenticular, 2.5 mm in diam., glabrous, brown, finely pitted. Crop plant, weedy, garden escape in cultivated and disturbed areas; origin S. America; Upper Karoo, Indigenous Forests, Sub-Escarpment Savanna, Albany Thicket (Middelburg District S, from Seymour to Kentani, Uitenhage and Port Elizabeth).

2b Erect to decumbent herb up to 0.3 m high; leaves up to 60 × 30 mm

viscosa L.

Sticky gooseberry; *klewerige appelliefie* (A)

Erect to decumbent herb, extensive perennial underground rhizomes. **Stems** annual, branched. **Leaves** ovate to elliptical, margins entire or ± dentate, yellow-green, base often unequal, decurrent on ± 10 mm long petiole. **Flowers** solitary, axillary; pedicels up to 15 mm long. **Calyx** ± 6 mm long, lobes ± triangular. **Corolla** campanulate, lobes spreading up to 20 mm in diam., yellow, sometimes with green or ± purple marks in throat. **Flowering time** Oct.–Mar. **Fruit** globose berries, 12 mm in diam., yellow, inside inflated membranous calyces up to 25 mm long. **Seeds** many, lenticular, 1 mm in diam., very finely pitted, yellow-brown. Widespread weed in warm countries, moist places in natural and disturbed areas; origin tropical America; Dry Highveld Grassland, Upper Karoo, Sub-Escarpment Grassland, Albany Thicket, (Aliwal North S, from Middelburg to Queenstown and Dordrecht, and to Graaff-Reinet and Port Elizabeth).

SOLANUM L.

Species ± 1 400, cosmopolitan, mainly in tropics; ± 25 indigenous in sthn Afr., widespread in all regions, ± 15 introduced, have become widespread weeds.

1a Indumentum of simple, acute or gland-tipped and/or branched hairs; unarmed; anthers mostly stout, rarely tapering, opening by subapical introrse pores becoming longitudinal slits
2a Inflorescence simple, few-flowered, compressed in leaf axils of condensed lateral shoots or in branch forks of longer shoots; corolla broadly campanulate with a long tube (section Solanum*); filaments at least as long as anthers*

guineense L.

Unarmed, erect shrub or dwarf shrub, up to 1.5 m high, ± glabrous. **Leaves** ± succulent, ovate to elliptic, up to 70 × 40 mm, margins entire or ± repand, base long cuneate, midrib prominent; petioles up to 20 mm long. **Inflorescence** sessile, 1–3 flowers on short branches; pedicels up to 25 mm long, nodding in fruit. **Calyx** campanulate, 6 mm long, hairy outside, lobes oblong, 3 mm long, tips hairy. **Corolla** stellate, 20 mm in diam., lobes ovate-lanceolate, lilac, violet. **Flowering time** May–Sept. **Fruit** globose, 10–15 mm in diam., yellow. **Seeds** few, compressed. Thickets, scrub, dune vegetation; Lower Karoo, Albany Thicket, Eastern Fynbos-Renosterveld (Graaff-Reinet S, Willowmore, Dispatch and Alexandria).

2b Inflorescence diverse, leaf usually remote or opposite; flowers stellate or campanulate; filaments < $^1/_2$ length of anthers
3a Erect herbs, bases rarely woody (section Solanum*)*
4a Leaves pinnatisect

***triflorum** Nutt.

Annual, suffrutescent herb, spreading, unarmed, hairs simple, multicelled, scattered. **Stems** up to 1 m long, sometimes rooting at nodes. **Leaves** up to 40 × 25 mm, out-

line ovate or elliptic, pinnatisect, margins ± recurved, thickened; petioles up to 10 mm long. **Inflorescence** short, subumbellate, 1–3-flowered; peduncle 10–30 mm long; pedicels 3–5 mm long. **Calyx** 5 mm in diam., larger in fruit, lobes ± lanceolate, 3–5 mm long. **Corolla** stellate, 5–6 mm in diam., white, pale lavender. **Flowering time** Jan.–Mar. **Fruit** globose, up to 15 mm in diam., whitish green marbled; stone grains many, spherical, 1 mm in diam. **Seeds** many, ovoid, flattened, reticulate, 1–2 mm long, light brown-yellow. Disturbed areas, also natural vegetation; origin N America; Upper Karoo, Albany Thicket (Graaff-Reinet, Middelburg, Uitenhage, rare).

4b Leaves entire or lobed/incised but never pinnatisect
5a Leaves prominently repand-serrate; corolla lobes with a narrow purple line outside

retroflexum Dunal

Black nightshade; *nastergal* (A)

Spreading, rounded, annual herb, bright green, up to 0.5 m high, 1 m in diam., pubescent, hairs simple, eglandular. **Stems** angular or ± winged. **Leaves** ± ovate or rhomboid, up to 80 × 50 mm, incised up to 5 pairs of triangular lobes, margins sinuate-dentate, bases tapering onto petiole, ± discolorous; petioles ± winged, up to 40 mm long. **Inflorescence** simple, umbellate cymes, 3–6-flowered, fruiting peduncles erect, up to 13 mm long; pedicels deflexed, 4–6 mm long. **Calyx** 2–5 mm long, lobes triangular, ± 1 mm long, reflexed in fruit. **Corolla** stellate, 9–12 mm in diam., white. **Flowering time** mainly Dec.–Apr. **Fruit** globose, 6–9 mm in diam., dull purple-black, opaque. **Seeds** many, up to 2 mm long, light brown or purple. Shady, disturbed and natural areas, weedy; Upper Karoo, Drakensberg Grassland, Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Sub-Escarpment Savanna, Albany Thicket, Indigenous Forests (Oviston Nature Reserve to Rhodes S, from Middelburg to Mkambati Nature Reserve, Amatole Mts to Mazeppa Bay, Suurberg to Carlisle Bridge and from Storms River Bridge to Tsitsikamma Coastal National Park).

5b Leaves and corolla lobes not as above
6a Calyx enlarged in fruit up to 8 mm long

***sarrachoides** Sendtn.

Pubescent, annual herb, aromatic, up to 0.75 m high, hairs spreading, up to 2 mm long, viscid, glandular-headed. **Leaves** ovate, up to 110 × 80 mm, base ± unequal, attenuate to petiole, margins sinuate-dentate; petioles up to 35 mm long. **Inflorescence** 3–5-flowered umbellate cymes; peduncle up to 25 mm in fruit; pedicels reflexed, up to 10 mm long. **Calyx** campanulate, up to 6 mm long, lobes ± triangular, up to 5 mm long; enlarged in fruit up to 8 mm long, later reflexed. **Corolla** ± pentagonal, 10–15 mm in diam., lobes broadly triangular, mainly white. **Flowering time** Mar. **Fruit** globose, up to 9 mm in diam., pale green, shiny, later dull, opaque, inside papery calyx; stone grains 4–6, ± 1 mm wide. **Seeds** many, flattened, pale yellow, up to 1.5 mm long. Shady places; origin S. America, weed in Europe and N America; Drakensberg Grassland, Sub-Escarpment Savanna (Amatole Mts, Butterworth, very rare).

6b Calyx not enlarged in fruit
7a Leaves discolorous; whitish below

***chenopodioides** Lam.

Black nightshade; *nastergal* (A); *umsobo* (X)

Short-lived, perennial herb, up to 1 m high, grey-green, hairs soft, appressed, multicellular. **Stems** ridged. **Leaves** elliptic to lanceolate, up to 70 × 40 mm, margins entire

to sinuate; petioles up to 50 mm long. **Inflorescence** simple, umbellate cymes, 4–8-flowered; fruiting peduncles up to 50 mm long, deflexed; pedicels 8–12 mm long. **Calyx** 2.5–3.5 mm long, lobes ± 1 mm, adherent to ripe fruit. **Corolla** stellate, 12–20 mm in diam., white, basal star yellow. **Flowering time** Sept.–June. **Fruit** globose to broadly ovoid, 6.5–10.0 mm in diam., purple, dull, opaque. **Seeds** 25–50, ± lenticular, compressed, 1.0–1.8 mm long, ± yellow. Cultivated and natural areas, shade and full sun, weedy; origin S. America, now ± cosmopolitan; Mesic Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Albany Thicket, Eastern Fynbos-Renosterveld (Lady Grey to Matatiele S, from Queenstown to Dordrecht, Alice to King William's Town, and from Alexandria District to Tsitsikamma Forest).

7b Leaves not discolorous

*nigrum L.

Black nightshade; *nastergal* (A); *umsobo* (X)

Variable, erect herb, annual or short-lived perennial, much branched, up to 0.85 m high, glabrescent to villous, hairs eglandular. **Stems** ridged, ± dentate. **Leaves** ovate-elliptic or -lanceolate, up to 80 × 40 mm, margins entire to serrate-repand, glabrescent; petioles up to 30 mm long, ± winged. **Inflorescence** 5–10-flowered cymes; peduncle erecto-patent, ± 15 mm long; pedicels up to 10 mm long, recurved in fruit, deflexed. **Calyx** 1.5–2.0 mm long, lobes triangular, up to 1 mm long. **Corolla** stellate, 8–18 mm in diam., lobes acute, white. **Flowering time** mainly Oct.–Apr. **Fruit** ovoid-globose, 5–10 mm in diam., dull, purple to ± black; stone grains 0–2. **Seeds** 25–35 per fruit, 1–2 mm, fawn. Origin Eurasia; Mesic Highveld Grassland, Sub-Escarpment Grassland, Albany Thicket, Drakensberg Grassland, Eastern Fynbos-Renosterveld, Indigenous Forests (Lady Grey, Queenstown and Engcobo S, from Graaff-Reinet to Kentani District, Willowmore to Grahamstown, and to Humansdorp).

3b Woody climbers, creepers or shrubs
8a Erect shrubs; inflorescence axillary, leaf opposed or remote from leaves, up to 5-flowered; peduncle up to 5 mm long or absent

*pseudocapsicum L.

Jerusalem cherry, Madeira cherry; *Jerusalemkersie* (A); *umthuma* (X)

Unarmed shrub, up to 2 m high, ± glabrous, young stems green. **Leaves** lanceolate, up to 105 × 18 mm, subentire or repand, decurrent at base, paler green below, midrib prominent below; petioles up to 10 mm long. **Inflorescence** lateral, ± sessile, 1–5-flowered; pedicels ± 8 mm long. **Calyx** campanulate, up to 6 mm long, deeply lobed, lobes linear-lanceolate; later larger. **Corolla** rotate-stellate, 10–15 mm in diam., deeply lobed, lobes broad, up to 5 mm long, white. **Flowering time** Oct.–Mar. **Fruit** globose, shiny, 10–15 mm in diam., bright orange-red, fleshy. **Seeds** lenticular, compressed, shiny, 3–4 mm long, ± yellow. Disturbed areas, weedy, also cultivated; origin S. America, now ± cosmopolitan; Upper Karoo, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Middelburg and Mthatha S, from Alice to King William's Town and Baviaanskloof, Grahamstown and East London).

8b Creepers, climbers, rarely erect, inflorescences terminal or towards ends of branches; cymes often compound with several to many flowers
9a Plants often somewhat succulent; stems angular; leaves decurrent onto flattened petioles

africanum Mill.

Climbing, unarmed, semi-succulent shrub, up to 3 m high, glabrous to ± hairy. **Stems** quadrangular, rough. **Leaves** lanceolate to ovate, base cuneate, also ± lobed or hastate, up to 60 × 50 mm, apex obtuse, midrib prominent, margins ± revolute, ± undulate; petioles up to 20 mm long. **Inflorescence** terminal, paniculate with up to 30 flowers; peduncle 3 mm long; pedicels up to 10 mm long. **Calyx** cup-shaped, 2.5 mm long, shallowly lobed, lobes rounded. **Corolla** stellate, up to 10 mm long, up to 20 mm in diam., deeply lobed, lobes lanceolate-oblong, purple, violet. **Flowering time** mainly Feb.–July. **Fruit** spherical, up to 15 mm in diam., ripening purple-black. **Seeds** ± round, flattened, ± 3 mm in diam., reticulate, brown. Forest margins, coastal bush, fairly common; Sub-Escarpment Savanna, Albany Thicket, Eastern Fynbos-Renosterveld (Bizana S, Uitenhage, Albany, Kenton on Sea and Humansdorp).

9b Plants not as above; inflorescence pedunculate; calyx cup-shaped; corolla < 18 mm in diam.; leaves membranous

terminale Forssk. subsp. **terminale**

Climbing shrub, up to 4 m high, glabrous to ± hairy. **Stems** slender. **Leaves** lanceolate to narrowly elliptic, up to 120 × 45 mm, thin, glabrescent; petioles up to 60 mm long. **Inflorescence** terminal, many–50-flowered cymes, often branched; pedicels fascicled in groups, up to 15 mm long. **Calyx** ± glandular, ± 3 mm long, irregularly lobed. **Corolla** stellate, ± 8 mm long, up to 15 mm in diam., hairy both sides, lobes acute, oblong, white to violet or purple. **Flowering time** Oct.–Feb. **Fruit** globose or ellipsoid, up to 10 mm in diam., red. **Seeds** ± globose-compressed, 2.5 mm in diam., reticulate, light brown. Forests, riverbanks; Indigenous Forests (Port St Johns, very rare).

1b Indumentum of simple to stellate, multi-angular or rigid hairs; usually armed with prickles and sometimes bristles; anthers usually lanceolate, tapering towards apices (except for S. mauritianum *Scop. which has stout anthers), opening with small terminal pores which only rarely become introrse slits*
10a Unarmed shrubs or small trees with branching pattern of forked, plurifoliate sympodia; leaves entire; indumentum of stellate or branched hairs; inflorescence terminal, dichotomously branched, each of several branches terminating in a many-flowered cyme

***mauritianum** Scop.

Bugweed; *luisboom* (A); *umbangabanga* (X)

Shrub, small tree, up to 5 m high; vegetative parts and calyces densely whitish, felty hairy. **Stems** later ± glabrous, striate. **Leaves** ovate to elliptical, up to 250 × 100 mm, unequal base decurrent on petiole, green velvety stellate-hairy above; petioles ± 40 mm long; stipules ovate, 20 × 15 mm, discolorous. **Inflorescence** dense; peduncles up to 100 mm long. **Calyx** 7 mm long, lobes ± triangular. **Corolla** ± saucer-shaped, 10 mm long, 15 mm in diam., purple, very hairy outside. **Flowering time** all year. **Fruit** globose berries, turning yellow, 10 mm in diam., densely hairy, calyces persistent. **Seeds** lenticular, 2 mm in diam., finely pitted, golden-brown. Disturbed and natural areas; poisonous, irritant; origin S. America, now cosmopolitan, declared weed (Category 1); Indigenous Forests, Albany Thicket, Sub-Escarpment Savanna [Port St Johns (Mzwane Forest) S, Albany District, Grahamstown].

10b Plants not as above
11a Corolla stellate; fruit red or orange, juicy with thin pericarp; seeds pale brown
12a Shrubs viscid-villous with simple glandular hairs; leaves deeply pinnatifid; corolla 40 mm in diam.; fruit enclosed by large prickly calyx lobes

*sisymbriifolium Lam.

Dense-thorned bitter apple; *digdoring bitterappel*, *wildetamatie* (A)

Annual or short-lived, perennial shrub, up to 1.5 m high, most parts with both glandular and stellate hairs. **Prickles** many, broad-based, straight, orange-red, up to 20 mm long. **Leaves** ovate-lanceolate, up to 200 × 100 mm, lobes oblong, dentate, prickles mainly on midrib and veins; petioles prickly, up to 50 mm long. **Inflorescence** a lateral raceme, few–12-flowered; peduncles up to 40 mm long. **Calyx** very prickly outside, 6–12 mm long, lobes lanceolate, 4–7 mm long. **Corolla** rotate-stellate, glabrous inside, white, cream-coloured or ± blue. **Flowering time** all year. **Fruit** ovoid, up to 20 mm in diam., bright red, glabrous, shiny. **Seeds** many, lenticular, 2.5 mm in diam., pitted, yellow-brown. Overgrazed, disturbed, cultivated areas, poisonous; origin S. America, ± cosmopolitan weed, declared weed (Category 1); Eastern Fynbos-Renosterveld, Albany Thicket (Port Elizabeth, Grahamstown, East London).

12b Plants not as above
13a Leaves entire or ± repand, up to 250 × 100 mm, terminal, discolorous; inflorescence cymose, dense, 20–60-flowered

giganteum Jacq.

Healing-leaf tree; *geneesblaarboom* (A); *icubalasendle* (X)

Shrub, small tree, up to 6 m high; most parts whitish stellate-hairy. **Prickles** 0–several, 1–5 mm long, stout, ± straight, flat, triangular. **Stems** hairy to glabrescent. **Leaves** elliptic to oblanceolate, velvety white-tomentose both sides, above soon ± glabrous, shiny dark green. **Inflorescence** up to 100 mm long, hairy to glabrescent; peduncle up to 45 mm long; pedicels 5–20 mm long. **Calyx** 4–6 mm long, lobes up to 4 mm long, ± triangular. **Corolla** rotate, up to 16 mm in diam., lobes lanceolate, 5–7 mm long, mauve to purple. **Flowering time** Oct.–Apr. **Fruit** many, globose, 5–10 mm in diam., smooth, shiny, red to purple. **Seeds** many, reniform, flat, up to 4 mm long, white. Forest margins, clearings, riverbanks; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indigenous Forests, Indian Ocean Coastal Belt, Drakensberg Grassland, Albany Thicket, Eastern Fynbos-Renosterveld (Engcobo to Port St Johns S, from Seymour to Kentani, Suurberg in Greater Addo Elephant Park to East London, and to Humansdorp).

13b Leaves entire or quite deeply lobed, usually < 100 mm long; flowers solitary, paired or few and generally with a single rachis; usually armed shrubs, not drought-deciduous (section Oliganthes*)*
14a Prickles recurved, broad-based

capense L.

Umthuma (X)

Prostrate or ± erect shrublet, up to 0.5 m high, hairs sessile, stellate. **Prickles** laterally compressed, recurved, broad-based, ± yellow, up to 4 mm long. **Stems** glabrescent. **Leaves** elliptic, up to 60 × 30 mm, deeply lobed, base ± cuneate, unequal, glabrescent above; petioles up to 10 mm long. **Inflorescence** ± sessile, 2- or 3-flowered. **Calyx** up to 3 mm long, lobes ± lanceolate, hairy and prickly outside, larger in fruit. **Corolla** 10 mm in diam., up to 6 mm long, lobes ovate, hairy outside, white. **Flowering**

time Dec.–Feb. **Fruit** globose, up to 10 mm in diam., ripening orange-red, glabrous, shiny. **Seeds** light brown, finely pitted, round, compressed, 2.5 mm in diam. Grassland, disturbed places; Sub-Escarpment Grassland, Drakensberg Grassland, Sub-Escarpment Savanna, Albany Thicket [Maclear to Mount Frere, from Queenstown to Indwe, Nico Malan Pass to Komga and Melkhoutboom (Elands River) to Grahamstown].

14b Prickles not as above, straight
15a Flowers solitary; calyx enlarged in fruit

supinum Dunal var. **supinum**

Bitter apple; *bitterappel* (A)

Sprawling shrublet, up to 0.5 m high, vegetative parts and calyx stellately hairy. **Prickles** many, straight, thin, up to 6 mm long. **Leaves** up to 60 × 20 mm, outline elliptic, lobed or pinnatifid, margins sinuate, base decurrent on short petiole, indumentum variable. **Flowers** solitary, away from leaves. **Calyx** 5 mm in diam., lobes ovate-triangular, acute. **Corolla** 6–8 mm in diam., lobes ovate, acute, hairy outside, white or mauve. **Flowering time** Nov.–Mar. **Fruit** globose, 15 mm in diam., glabrous, green and cream-coloured, ripening yellow, half covered by prickly enlarged calyx. **Seeds** round, compressed, 2.5 mm in diam., finely pitted, light brown. Grassland, karoo; Upper Karoo, Sub-Escarpment Grassland (Middelburg to Queenstown and Indwe).

[E]**supinum** Dunal var. **leucophaeum** (Dunal) Bitter

Leaves less lobed. **Indumentum** sparser than typical variety.

Flowering time Jan.–Mar. Grassland, karoo; Sub-Escarpment Grassland (Queenstown, Macubeni and Indwe, very rare).

15b Flowers not solitary; calyx not enlarged in fruit
16a Indumentum thickly and densely yellow-brown tomentose to woolly or felty

tomentosum L. var. **tomentosum**

Slangappelbos (A)

Shrub or dwarf shrub, up to 1.5 m high; vegetative parts and calyx tomentose, stellate hairs stalked. **Prickles** ± brown, thin, straight, up to 9 mm long. **Leaves** ovate, obtuse, base unequally cordate, up to 80 × 60 mm, margins sinuate, prickles few on midrib; petioles up to 25 mm long. **Inflorescence** 2–5-flowered cymes; peduncles and pedicels up to 10 mm long. **Calyx** campanulate, 6 mm in diam., lobes unequal, ± prickly outside. **Corolla** stellate, 15–20 mm in diam.; lobes ovate, acute, violet. **Flowering time** Oct.–Mar. **Fruit** globose, 10–20 mm in diam., glabrous, shiny, orange or red. **Seeds** ± round, flat, 3 mm in diam., ± pitted, beige. Fynbos, grass- and shrubland, thickets, forests, disturbed areas, ± common; in all bioregions, except Indian Ocean Coastal Belt (Albert and Lady Grey Districts S, from Middelburg to Queenstown and Macubeni, Graaff-Reinet to Komga and from Willowmore to Baviaanskloof, Port Elizabeth, Grahamstown and Bushman's River).

16b Indumentum not as above
17a Corolla 20–30 mm in diam.

rubetorum Dunal

Wildelemoentjie (A)

Shrub, up to 2 m high; indumentum of stalked, stellate hairs. **Prickles** straight, narrow, up to 10 mm long, ± yellow. **Leaves** elliptic, up to 80 × 30 mm long, base unequal, sinuately 5–7-lobed, lower side densely hairy; petioles up to 20 mm long. **Inflorescence**

racemose, 4–8-flowered; pedicels up to 12 mm long. **Calyx** 9 mm long, deeply lobed, lobes lanceolate, hairy and prickly outside. **Corolla**: lobes ovate-lanceolate, up to 12 mm long, mauve to purple, ± hairy outside. **Flowering time** Aug.–Apr. **Fruit** globose, up to 10 mm in diam., glabrous, shiny, ripening orange-red. **Seeds** ± round, flattened, up to 4 mm in diam., finely pitted, yellowish. Grass- and shrubland, coastal and riverine bush, forest margins, disturbed areas; Sub-Escarpment Grassland, Indigenous Forests, Eastern Fynbos-Renosterveld (Queenstown to Port St Johns and Humansdorp).

17b Corolla up to 15 mm in diam.
18a Leaves under 40 mm long; inflorescence 2–5-flowered

tomentosum L. var. **coccineum** (Jacq.) Willd.
Kleingrysbitterappeltjie (A)

Stems usually more prickly than typical variety (see above). **Leaves** smaller. **Indumentum** much sparser. **Flowers** up to 10 mm in diam., white to purple. **Fruit** up to 10 mm in diam. **Flowering time** Sept.–Mar. Shrubland, grassland, weed in disturbed areas, common; Upper Karoo, Mesic Highveld Grassland, Albany Thicket, Drakensberg Grassland, Eastern Fynbos-Renosterveld (Albert and Lady Grey S, from Graaff-Reinet and Stutterheim to Willowmore and Uitenhage, and to Skoenmakerskop).

18b Leaves up to 200 mm long; inflorescence 1–10-flowered

anguivi Lam.
Slender shrub, up to 2 m high; vegetative parts and calyx with stellate indumentum; ± armed. **Prickles** straight, thin, straw-coloured, up to 8 mm long. **Leaves** elliptic-ovate, up to 200 × 100 mm, entire to sinuate, prickles few; petioles up to 60 mm long. **Inflorescence** racemose, 1–10-flowered; peduncle up to 6 mm long; pedicels 4–15 mm long. **Calyx** hairy, up to 4 mm long, deeply lobed, lobes ± triangular. **Corolla** ± 10 mm long, 9–13 mm in diam., deeply lobed; lobes lanceolate, stellate hairs outside, white to mauve. **Flowering time** Nov.–May. **Fruit** ± globose, juicy, up to 15 mm in diam., smooth, white or green, ripening orange to red; pedicel 8–15 mm long, mostly erect. **Seeds** ± ovate, compressed, up to 2 × 3 mm, finely pitted, light brown. Montane, forest margins, clearings; Indigenous Forests (Engcobo, very rare).

11b Corolla stellate or pentagonal; fruit yellow, vermillion or brown (also dark purple) with thick or tough pericarp, fleshy or dry; seeds pale or dark brown or black
19a Spreading shrubs; flowers yellow; stamens unequal, filaments equal

***rostratum** Dunal
Buffalo bitter apple; *buffelbitterappel* (A)

Stout, annual shrub, up to 1 m high, all parts with stellate and simple glandular hairs, except inside calyx and corolla. **Prickles** many, straight, narrow, up to 15 mm long, yellow. **Leaves** ovate, up to 150 × 70 mm, deeply 5–7-lobed or pinnate, lobes obtuse, sinuses broad, prickles mainly on midrib and veins; petioles up to 50 mm long. **Inflorescence** a lateral raceme, few- to ± 12-flowered, 100 mm long. **Calyx**: tube 3–4 mm long; lobes subulate, 3–5 mm long. **Corolla** rotate, lobes unequal, up to 30 mm in diam., yellow. **Flowering time** Feb, Mar. **Fruit** globose, ± 10 mm in diam.; inside enlarged, very prickly calyx, ± black. **Seeds** many, compressed, 3 mm long, grey-brown, rugose and finely pitted. Nearly cosmopolitan weed in waste places; origin N America; Sub-Escarpment Grassland (Queenstown).

19b Shrubs, usually erect; flowers never yellow; stamens equal
20a Pericarp of berries usually thickened and fleshy or bony; fruit 10–60 mm in diam.
21a Hairs simple, often gland-tipped; prickles usually needle-shaped although some compressed; flowers stellate

*aculeatissimum Jacq.

Devil's apple; *umthuma* (X)

Annual herb or shrub, up to 1.5 m high; hairs sparse to dense, up to 4 mm long. **Prickles** straight, spreading, up to ± 15 mm long, yellow, dense. **Stems** green, tinged purple. **Leaves** ovate, base ± cordate, up to 160 × 180 mm, dentately or doubly lobed to $^1/_3$, lobes 6 or 8, midrib, veins prickly; petioles up to 80 mm long. **Inflorescence** 3–6-flowered; peduncles up to 5 mm long; pedicels ± 10 mm long. **Calyx** hairy, prickly, ± 6 mm long, lobes accrescent. **Corolla** up to 15 × 30 mm, white to yellow-green. **Flowering time** Nov.–Mar. **Fruit** globose, up to 30 mm in diam., smooth, striped green, or white with green reticulation, later dirty yellow or ± brown. **Seeds** ± round, ± flat, 2–4 mm, ± brown. Forest margins, disturbed areas, weedy; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indigenous Forests, Albany Thicket (Mthatha to Port St Johns S, from Katberg Mts to Kei River Mouth and to Grahamstown).

21b Hairs stellate; prickles straight or recurved; flowers stellate or pentagonal; (section Melongena*)*
22a Leaves not discolorous

linnaeanum Hepper & Jaeger

Apple of Sodom

Shrub, up to 1.5 m high, young stems violet, vegetative parts, outside of calyx and corolla stellately pilose. **Prickles** subulate, ± broad-based, straight, ± yellow, up to 13 mm long. **Leaves** elliptic, up to 150 × 100 mm, sinuately lobed to pinnatifid with rounded lobes, ± glabrous, nerves prickly; petioles up to 30 mm long, prickly. **Inflorescence** 3–10-flowered. **Calyx** campanulate, up to 10 mm long, lobed ± halfway, prickly outside, enlarged in fruit. **Corolla** stellate, up to 25 mm in diam., mauve to purple, lobes broadly ovate. **Flowering time** Mar.–Dec. **Fruit** globose, glabrous, up to 30 mm in diam., green and white, ripening yellow. **Seeds** ± round, ± flat, up to 3 mm in diam., brown, finely pitted. Forest margins, clearings, grassland, riverbanks, disturbed areas; Sub-Escarpment Grassland, Drakensberg Grassland, Indigenous Forests, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Queenstown to Engcobo S, across Amatole Mts to Mazeppa Bay, from Patensie to Port Elizabeth, Grahamstown, Port Alfred and East London, and to Humansdorp).

22b Leaves discolorous, lower surface lighter than upper
23a Leaves ± entire

delagoense Dunal

Geelbitterappel (A)

Perennial herb, shrublet or shrub, up to 1.5 m high, single-stemmed to branched. **Stems** stellate-hairy, glabrescent, ± yellow to grey or brown. **Prickles** subulate, broad-based, up to 6 mm long, brown. **Leaves** lanceolate to elliptic, up to 150 × 50 mm, green above, paler below, also ± yellow; petioles up to 30 mm long. **Inflorescence** few-flowered. **Calyx** 4–7 mm long, ± enlarged in fruit. **Corolla** rotate, hairy outside, 15–40 mm in diam., lobes acute, purple to mauve, white. **Flowering time** Nov.–Mar. **Fruit** globose, glabrous, 15–25 mm in diam., pericarp fleshy, dark green with light mottled

stripes ripening yellow. **Seeds** ± round, ± flat, 3 mm in diam., finely pitted, brown. Grass-, bushland, savanna, coastal scrub, disturbed places; Sub-Escarpment Savanna, Albany Thicket (Mthatha, Bathurst, very rare).

23b Leaves not entire
24a Prickles broad-based, straight to recurved, laterally compressed, sharp, up to 15 mm long

aculeastrum Dunal subsp. **aculeastrum**

Goat bitter apple; *bokbitterappel* (A)

Shrub or small tree, up to 5 m high. **Prickles** many, brown. **Stems** grey to dark brown, hairy, glabrescent. **Leaves** ovate, base unequal, up to 150 × 130 mm, deeply 5–7-lobed, green glabrescent above, hairs below thick, stellate, white, ± prickly on midrib; petioles up to 20 mm long. **Inflorescence** few–10-flowered; pedicels ± 15 mm long. **Calyx** cup-shaped, 10 mm long, prickly, hairy outside, enlarged in fruit. **Corolla** rotate-stellate, up to 25 mm in diam., hairy outside, lobes oblong, ± 10 mm long, white, mauve. **Flowering time** Sept.–July. **Fruit** globose, smooth, up to 50 mm in diam., pericarp fleshy, surface often warty, green ripening yellow. **Seeds** ovate, compressed, brown. Grassland, bushland, forest margins, disturbed places; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indigenous Forests, Albany Thicket (Engcobo to Port St Johns, from Katberg to Kei River Mouth and from Grahamstown to Coldstream).

24b Prickles broad-based, straight (mainly on leaves) to recurved (mainly on stems), not longer than 4 mm

lichtensteinii Willd.

Thorn bitter apple; *grysbitterappel* (A)

Dwarf shrub or shrub, up to 2 m high; dense, ± white, ± yellow or ± purple stellate hairs on branches, petioles, undersides of leaves, outside of calyx and corolla. **Prickles** few to many. **Leaves** ± ovate, strongly sinuate, up to 125 × 75 mm, green, ± hairy above, base unequal; petioles up to 40 mm long. **Flowers** 1–few, nodding; peduncle ± 10 mm long. **Calyx** cup-shaped, prickly outside, ± 10 mm long, lobes lanceolate, enlarged in fruit. **Corolla** stellate, white to purple, up to 30 mm in diam., lobes ovate. **Flowering time** mainly Jan., Feb. **Fruit** ± globose, smooth, glabrous, up to 30 mm in diam., yellow. **Seeds** ± round, ± flat, up to 3 mm in diam., finely pitted, light brown. Grassland, shrubland, disturbed places, poisonous, weedy; Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Dry Highveld Grassland, Sub-Escarpment Savanna, Albany Thicket (Queenstown to Port St Johns S, from Somerset East to Komga and to Grahamstown).

20b Pericarp of berries tough but not thickened; fruit usually < 15 mm in diam.
25a Large shrubs up to 3 m high; pubescence red-brown; leaves large (up to 300 × 400 mm) angular or deeply lobed; inflorescence a much-branched corymb of 30–50 flowers; corolla white

*__chrysotrichum__ Schltdl.

Shrub or small tree, up to 3 m high; stellate, red-brown hairs on all parts. **Prickles** 2–6 mm long, stout, sparse, flattened, straight or ± recurved. **Stems** grooved. **Leaves** broadly ovate to elliptic, margins sinuate, 7–13-lobed, base unequal, upper side scabrid and appressed-hairy, underside densely hairy; petioles up to 180 mm long. **Inflorescence** dense; peduncles 10–25 mm long; pedicels 10–15 mm long. **Calyx** densely hairy; tube 3–4 mm long; lobes linear-lanceolate, 4–6 mm long, larger in fruit. **Corolla** stellate, 30–50 mm in diam.; lobes 10–15 mm long. **Flowering time** all year. **Fruit** globose, 10–15 mm in diam., ripening ± yellow, glabrous, glossy, hard. **Seeds** 100–250, 2–3 mm

in diam., flat, ± brown, shiny. Disturbed areas, riverbanks, hills, also cultivated; origin Americas, declared invader (Category 1b, NEMBA); Indigenous Forests, Sub-Escarpment Savanna, Albany Thicket (Baziya Forest and Libode S to Willowvale, and from Albany to Bathurst).

25b Shrubs up to 0.6 m high, often armed with red needle-shaped prickles; pubescence silvery-white; leaves 10–100 mm long, entire or sinuate; inflorescence 3–6-flowered; corolla blue (rarely white)

*elaeagnifolium Cav.

Silver-leaf bitter apple; *satansbos* (A)

Annual, herbaceous shrublet; roots perennial, deep, spreading; vegetative parts, calyx and corolla with silvery-white, dense pubescence outside. **Prickles** few to many, straight, up to 5 mm long. **Leaves** linear to sublanceolate, plicate, glaucous-green, stellate-pubescent above; petioles up to 25 mm long. **Inflorescence** with peduncles short, woolly; pedicels up to 40 mm long. **Calyx** 10 mm long, 5-ribbed, deeply lobed, long-acuminate, enlarged in fruit. **Corolla** up to 15 × 30 mm, white, mauve, blue inside. **Flowering time** Oct.–Mar. **Fruit** globose, ± 12 mm in diam., smooth, shiny, green with white patches to ± yellow. **Seeds** many, lenticular, 3 mm in diam., ± smooth, green-brown. Disturbed areas; poisonous; origin Americas, declared weed (Category 1); Sub-Escarpment Grassland, Lower Karoo (Bizana to Flagstaff S and from Molteno to Graaff-Reinet).

WITHANIA Pauquy

Species ± 10, Old World; 1 in sthn Afr., widespread.

somnifera (L.) Dunal

Winter cherry; *bitterappelliefie*, *geneesblaarbossie* (A)

Erect, perennial shrub, up to 1 m high; vegetative parts with whitish branched hairs. **Stems** ± striate, ± brown, densely and shortly pubescent. **Leaves** ovate-oblong to elliptic, up to 80 × 35 mm, margins entire to ± wavy, narrowed into ± 20 mm long petioles, glabrescent. **Flowers** in small, axillary clusters; pedicels 5 mm long. **Calyx** densely pubescent. **Corolla** campanulate, 7 mm long, yellow or yellow-green. **Flowering time** all year, mainly Nov. **Fruit** globose berries, ± 8 mm in diam., bright red, inside 20 mm long enlarged membranous calyces. **Seeds** kidney-shaped, 2.5 mm in diam., reticulated, very pale brown. Mountain slopes, coastal dunes, near water, cultivated and disturbed areas; In all bioregions, except Indigenous Forests (Bethulie District to Lady Grey S, from Middelburg to Matatiele, Cradock to Mazeppa Bay, Witteberg Mts to East London, and to Humansdorp and St Francis Bay).

DOLD, A.P. & COCKS, M.L. 1999. Preliminary list of Xhosa plant names from Eastern Cape, South Africa. *Bothalia* 29: 267–292.
EDMONDS, J.M. & CHWEYA, J.A. 1997. Black nightshades. *Solanum nigrum* L. and related species. *Promoting the conservation and use of underutilized and neglected crops 15.* Institute of Plant Genetics and Crop Plant Research, Gatersleben/International Plant Genetic Resources Institute, Rome.
GONÇALVES, A.E. 2005. Solanaceae. *Flora zambesiaca* 8,4: 1–130.
HENDERSON, M. & ANDERSON, J.G. 1966. Common weeds in South Africa. *Memoirs of the Botanical Survey of South Africa* No. 37.
HUNZIKER, A.T. 2001. *The genera of Solanaceae.* Koeltz Scientific Books, Koenigstein.
JAEGER, P.-M.L. 1985. *Systematic studies in the genus* Solanum *in Africa*. Unpublished Ph.D. thesis, University of Birmingham, England.
SHAW, J.M.H. 2000. *Solanum.* In J. Cullen *et al.*, *The European garden flora*, Vol. VI, Dicotyledons (part IV), Cambridge University Press, Cambridge.

SMITH, C.A. 1966. Common names of South African plants. *Memoirs of the Botanical Survey of South Africa* No. 35.
SYMON, D.E. 1982. Solanaceae. In R.W. Purdie, D.E. Symon & L. Haegi, *Flora of Australia*, Vol. 29.
VENTER, A.M. 2000. *Taxonomy of the genus* Lycium *L. (Solanaceae) in Africa*. Unpublished Ph.D. thesis, University of the Free State.
WHALEN, M.D. 1984. Conspectus of species groups in *Solanum* subgenus *Leptostemonum*. *Gentes Herbarum* 12: 179–282.
WRIGHT, C.H. 1904. Solanaceae. *Flora capensis* 4,2: 87–121.
WRIGHT, C.H. 1906. Solanaceae. *Flora of tropical Africa* 4,2: 207–261.

STERCULIACEAE see MALVACEAE *s.l.*

STILBACEAE

(Order Lamiales)

Compiled by C.L. Bredenkamp

1a Leaves usually 3-nate ..... **Nuxia**
1b Leaves usually opposite:
2a Corolla without pouch ..... **Halleria**
2b Corolla with pouch:
3a Hairs stellate; calyx with valvate aestivation ..... **Anastrabe**
3b Hairs simple; calyx with imbricate aestivation ..... **Bowkeria**

ANASTRABE E.Mey. ex Benth.

Pambati tree; *pambatieboom* (A); *isiphambathi* (X, Z)

Monotypic, Mozambique and sthn Afr., KZN, EC.

integerrima E.Mey. ex Benth.

Small tree, shrub or scrambler, 1.5–10.0 m high; stellate hairs present on many parts. **Leaves** lanceolate or narrowly obovate, bicoloured. **Flowers** in terminal and axillary cymes. **Corolla** bilabiate, upper lip erect, bilobed, lower lip a much inflated deep pouch, mouth open, yellow with dark reddish marks or buff-coloured centre. **Flowering time** Nov.–July. Along coast on edges of forests, kloofs, in sandy loam; Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Sub-Escarpment Savanna, Indigenous Forests (Mount Frere SE to Port Edward, Port St Johns, Butterworth and East London).

BOWKERIA Harv.

Shell-flower bush

Species 3, sthn Afr., mostly eastern part, montane, usually near streams and on forest margins, LIM, M, S, FS, KZN, L, EC.

verticillata (Eckl. & Zeyh.) Schinz

Southern shell-flower; *suidelike skulpblombos* (A); *igqabi-lesiduli*, *isiduli* (X); *umbaba*, *isiphambathi* (Z)

Shrub or small tree, up to 6 m high. **Leaves** ovate to broadly lanceolate or elliptic, bicoloured. **Flowers** in 1–many-flowered, cymose inflorescences. **Corolla** waxy white, bilabiate, up to 20 mm long with marked pouch on anticous side (remote from axis) and mouth slit-like; inside with purple spots. **Flowering time** mainly Nov.–Apr. On forest margins or in clearings therein; Sub-Escarpment Grassland, Drakensberg Grassland, Albany Thicket (Kokstad SW, Elliot to Engcobo, Fort Beaufort to King William's Town and Pirie).

HALLERIA L.

Species 5, Madagascar, tropical and sthn Afr.; 3 in sthn Afr., widespread, but not in N or NC.

lucida L.

Tree fuchsia, notsung; *kinderbessie*, *wildedruiwe* (A); *umbinza* (X); *iminza* (Z)

Evergreen, dwarf shrub to tree, up to 13 m high; often many stems and branches drooping. **Leaves** ovate, acuminate, margins serrulate, petiolate. **Flowers** in axillary clusters, mostly on old wood. **Calyx** cup-shaped, 3–5-lobed. **Corolla** up to 40 mm long, tube funnel-shaped, usually curved and mouth oblique, orange to brick-red or pink, yellow at base. **Flowering time** mainly July–Oct. Montane to riverine forest, scrub and bush, in hills, along streams or flat plains; in all bioregions, except those on dry western side of EC, Upper Karoo, Lower Karoo, Rainshadow Valley Karoo (Lady Grey to York S, from Queenstown to Port St Johns, Somerset East to Komga, Witelsbos to Keiskamma and to Humansdorp).

NUXIA Comm. ex Lam.

Wild elders; *wildevlierbome* (A)

Species ± 40, Africa, Madagascar and Mascarene Islands; 5 in sthn Afr., B, LIM, NW, G, M, S, FS, KZN, WC, EC.

congesta R.Br. ex Fresen.

Wild elder; *wildevlier* (A); *mothlabare* (NS); *mokwêrêkwêrê* (T); *umkhobeza* (X); *umkhobeza* (Z)

Tree or shrub, 1–20 m high, with stringy, shredding bark. **Leaves** 3-nate, variously pubescent, hairs simple, branched or gland-tipped; blade elliptic-oblong to suborbicular, short or long, dense or sparse, acuminate or emarginate at apex, base cuneate, decurrent into petiole, margins entire or coarsely crenate-dentate; petioles 2–10 mm long. **Inflorescences** congested, terminal panicles. **Corolla** whitish, sometimes with mauve tint; tube cylindrical; lobes 4, reflexed, apical portion cucullate (forming a peak or umbo in bud). **Ovary** pubescent at apex. **Flowering time** Oct.–June. Dry rocky crests, wooded, stony slopes, forest margins, rocky gorges near coast; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Albany Thicket (Umtamvuna Nature Reserve in broad coastal belt S to Bathurst and Port Alfred).

floribunda Benth.

Forest elder; *bosvlier* (A); *mothlabare* (NS); *isikhali* (X); *umhlambandlazi* (Z)

Tree or shrub, 2–17 m high, bark grey or grey-brown fissured, branchlets glabrous, angled, leaf scars prominent. **Leaves** 3-nate, blade oblong-elliptic, base cuneate, shortly or long acuminate at apex, margins entire or obscurely dentate; petioles 13–45 mm long. **Inflorescences** of many small white flowers in large, repeatedly dichotomous-branched panicles. **Corolla** white; tube included in calyx; lobes 4, erect in lower part, midway reflexed over calyx (not forming a peak or umbo in bud). **Ovary** glabrous. **Flowering time** most of the year. Forest areas and margins; Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Sub-Escarpment Grassland, Indigenous Forests, Drakensberg Grassland, Eastern Fynbos-Renosterveld, Albany Thicket (Port Shepstone and Maclear districts, SW to Kouga Mts, E to Port Elizabeth).

HILLIARD, O.M. 1969. *Bowkeria* and *Anastrabe*: two woody South African Scrophulariaceae. *Notes from the Royal Botanic Garden Edinburgh* 29: 1–13.
LEEUWENBERG, A.J.M. 1983. Loganiaceae. *Flora zambesiaca* 7,1: 327–374.
VERDOORN, I.C. 1963. Loganiaceae. *Flora of southern Africa* 26: 135–171.

STRYCHNACEAE

(Order Gentianales)

Compiled by C.L. Bredenkamp & N. Madlokazi

STRYCHNOS L.

Species ± 400, cosmopolitan under tropical and subtropical conditions; 9 in sthn Afr., N, B, LIM, NW, G, M, S, KZN, WC, EC.

decussata (Pappe) Gilg

Cape teak; *Kaapse kiaat* (A); *umkhangele* (X); *umlahlankozi* (Z)

Tree or shrub, 1.5–16.0 m high, pale grey bark. **Leaves** decussate on ultimate branchlets, obovate to narrowly elliptic, apex acuminate, margins entire; petioles glabrous. **Inflorescence** terminal or axillary; pedicels slender, cymes simple. **Flowers** white-green. **Calyx** 4-lobed. **Corolla** 4-lobed, creamy white, densely bearded inner surface; lobes valvate; tube puberulous. **Stamens** 4, on corolla tube, exserted; filaments short. **Ovary** with up to 10 ovules; style straight, stigma capitate, small. **Flowering time** Oct.–Jan. **Fruit** globose berries, green to orange, 2 × 1.9 mm in diam. **Seeds** pulp edible, flattened, ellipsoid. Forests, river mouths; Indian Ocean Coastal Belt, Indigenous Forests, Drakensberg Grassland, Eastern Fynbos-Renosterveld, Albany Thicket (Port St Johns S, from Kei Road to Kentani, and Uitenhage to Grahamstown, Alexandria Forest Station, Bushman's River, Port Alfred and Great Fish River).

henningsii Gilg

Red bitterberry; *rooi-bitterbessie* (A); *umhlabalala* (X); *umqalothi* (Z)

Tree or shrub, 1.5–18.0 m high, bark yellowish to brown. **Leaves** decussate, glabrous, up to 3 mm long, shiny above, elliptic, oblong or ovate, apex acuminate, margins entire; petioles short. **Inflorescence** terminal or axillary; pedicels short; bracts small. **Flowers** 5-merous, greenish creamy. **Calyx** green, connate at base, apex obtuse, 4-lobed. **Corolla** 4-lobed, cream-coloured, inner surface pilose, outer surface glabrous; tube short. **Stamens** 4, exserted on corolla tube; anthers elliptic; filaments short. **Ovary** with up to 12 ovules; style straight, stigma capitate. **Flowering time** Oct.–Dec. **Fruit** 1-seeded, ellipsoid, yellow-orange, 0.8 × 1.5 mm in diam. **Seeds** pale brown, ellipsoid. Forests; Sub-Escarpment Grassland, Indigenous Forests, Indian Ocean Coastal Belt, Drakensberg Grassland, Sub-Escarpment Savanna (Ngangelizwe District E to Port St Johns, S to Stutterheim District).

mitis S.Moore

Yellow bitterberry; *geel-bitterbessie* (A); *umnqonqodi* (X); *umphathankosi* (Z)

Tree or shrub, 4–35 m high, bark grey-brown. **Leaves** decussate, glabrous, shiny both sides, elliptic, oblong or narrowly ovate, apex acuminate, margins revolute; petioles short. **Inflorescence** terminal or axillary, dense; peduncle pubescent, short. **Flowers** 5-merous, cream-coloured. **Calyx** green, connate at base, apex obtuse, 4-lobed, ovate. **Corolla** 4-lobed, creamy white, villose inner surface, glabrous outer surface; tube short,

campanulate. **Stamens** 4, exserted on corolla tube; anthers oblong; filaments glabrous, short. **Ovary** with up to 15 ovules; style straight, stigma capitate, small. **Flowering time** Dec.–Mar. **Fruit** 1-seeded, subglobose, yellow-orange, small. **Seeds** subellipsoid, testa thin, hilum at central flattened side. Forests; Indigenous Forests (Port St Johns).

spinosa Lam.

Green monkey-orange; *groen-klapper* (A); *umhlalakolontshe* (X); *umhlala* (Z)

Tree or shrub, 1–10 m high. **Leaves** decussate, glabrous, shiny both sides, elliptic, oblong or narrowly ovate, apex apiculate, margins revolute; petioles up to 10 mm long. **Inflorescence** terminal, dense. **Flowers** 5-merous, cream-coloured. **Calyx** green, connate at base, apex acuminate, 4-lobed. **Corolla** 4-lobed, green, glabrous; tube short, campanulate. **Stamens** inserted on corolla tube; anthers oblong; filaments glabrous, short. **Ovary** with up to 120 ovules; style straight, stigma oblong. **Flowering time** Oct.–Jan. **Fruit** 1-seeded, globose, yellow, hard, small. **Seeds** elliptic or ovate, testa thick. Seashore, river mouths; Indian Ocean Coastal Belt, Albany Thicket (Port Edward S to East London).

usambarensis Gilg

Blue bitterberry; *blou-bitterbessie* (A); *undlunye* (X); *undlulunye* (Z)

Tree, shrub or climber, 1–15 m high, bark dark grey. **Leaves** dark green above, slightly shiny, ovate or narrowly elliptic, apex acuminate; petioles glabrous; tendrils solitary. **Inflorescence** axillary, solitary, lax, few-flowered. **Flowers** 4- or 5-merous, bisexual, cream-coloured. **Calyx** pale green, connate at base, acute or obtuse, glabrous both sides. **Corolla** 4-lobed, yellow-white, inner surface puberulent, outer surface minutely glabrous; tube short, campanulate. **Stamens** exserted on corolla tube; anthers oblong; filaments glabrous. **Ovary** 1- or 2-locular; style short, stigma capitate, bilobed. **Flowering time** Sept.–Feb. **Fruit** 1-seeded, globose, yellow-orange. **Seeds** pale brown, ellipsoid, testa thin, hilum at central side. Ravines, forests; Indigenous Forests (Ntsubane Forest).

LEEUWENBERG, A.J.M. 1983. Loganiaceae. *Flora zambesiaca* 7,1: 327–374.
ROESSLER, H. 1967. Loganiaceae. *Prodromus einer Flora von Südwestafrika* 109: 1, 2.
VERDOORN, I.C. 1957. *Strychnos usambarensis*. *The Flowering Plants of Africa* 32: t. 1242.
VERDOORN, I.C. 1963. Loganiaceae. *Flora of southern Africa* 26: 135–171.

TALINACEAE

(Order Caryophyllales)

Compiled by C.L. Bredenkamp

TALINUM Adans.

Species ± 40, widespread in Africa, North and South America; 5 in sthn Afr., widespread in summer rainfall areas.

caffrum (Thunb.) Eckl. & Zeyh.

Porcupine root; *osbossie* (A); *khutsana* (SS); *uMpunyu* (Z)

Dwarf shrub, 0.03–0.60 m high; root fleshy, tuberous. **Leaves** succulent, linear to oblong, mostly 20–40 × 3–6 mm, apex mucronate, margins revolute, petiolate; stipules linear, caducous. **Inflorescences** axillary, cymose 1(2)-flowered; peduncle 5–15 mm long; pedicels mostly 15 mm long. **Flowers** bisexual, yellow. **Sepals** 2, lanceolate. **Petals** 5, obovate, ephemeral. **Stamens** 25–30(–50). **Ovary** superior, 1-locular with 3 carpels;

conical ovules 25–40. **Flowering time** Nov.–Feb. **Fruit** a shiny capsule, ochre, chartaceous, 1-locular, many-seeded, ovoid. **Seeds** spherical to comma-shaped, ± 1 mm long, dark brown or black, ridged, perpendicular grooves between ridges, hilum distinct, aril small, basal. Rocky outcrops; Dry Highveld Grassland, Upper Karoo, Sub-Escarpment Grassland, Albany Thicket, Sub-Escarpment Savanna (Venterstad and Bethulie, southwards to Middelburg, Grahamstown and Komga).

*paniculatum (Jacq.) Gaertn.

Fame flower, jewels-of-Opar

Dwarf shrub, 0.2–0.5 m high. **Leaves** elliptic, up to 100 × 42 mm, apex acute, margins entire; petioles ± 5 mm long. **Inflorescences** much-branched, terminal panicles, many-flowered; peduncle up to 210 mm long; pedicels 10 mm long. **Flowers** bisexual, pink. **Flowering time** Nov.–Feb. **Fruit** a shiny capsule, ochre, chartaceous, 3 mm in diam., 1-locular, many-seeded, spherical. **Seeds** spherical to comma-shaped, ± 0.7 mm long, black, muricate. Recorded as a garden escapee, waste places, rocky outcrops; origin North America; Dry Highveld Grassland, Upper Karoo, Sub-Escarpment Grassland, Albany Thicket, Sub-Escarpment Savanna (Venterstad and Bethulie, southwards to Middelburg, Mthatha, Grahamstown and Komga).

CAROLIN, R.C. 1987. A review of the family Portulacaceae. *Australian Journal of Botany* 35: 383–412.
CAROLIN, R.C. 1993. Portulacaceae. In K. Kubitzki, J.G. Rohwer & V. Bittrich, *The families and genera of vascular plants — dicotyledons* 2. Springer-Verlag, Berlin.
MCNEILL, J. 1974. Synopsis of a revised classification of the Portulacaceae. *Taxon* 23: 725–728.
POELLNITZ, K. VON. 1933. Zur Kenntnis der Gattung *Talinum* Adans. (Portulacaceae). *Berichte der Deutschen Botanischen Gesellschaft* 51: 112–127.
POELLNITZ, K. VON. 1934a. Monographie der Gattung *Talinum* Adans. *Feddes Repertorium* 35: 1–34.
POELLNITZ, K. VON. 1934b. Versuch zu einer Monographie der Gattung *Portulaca* L. *Feddes Repertorium* 37: 240–320.
SONDER, O.W. 1862. Portulacaceae. *Flora capensis* 2: 381–386.
TOELKEN, H.R. 1969. The genus *Talinum* (Portulacaceae) in southern Africa. *Bothalia* 10: 19–28.
WALTERS, S.M. 1964. Portulacaceae. *Flora europaea* 1: 114, 115.
WILD, H. 1961. Portulacaceae. *Flora zambesiaca* 1: 361–372.
WILD, H. & DINIZ, M.A. 1973. Portulacaceae. *Flora de Moçambique* 21: 1–13.

TAMARICACEAE

(Order Caryophyllales)

Compiled by C.L. Bredenkamp

TAMARIX L.

Species ± 55, Mediterranean basin, westwards to England, Canary Isles, eastwards to China; 3 (2 invasive) in sthn Afr., N, G, FS, NC, WC, EC.

*chinensis Lour.

Chinese tamarisk; *Chinese tamarisk* (A)

Tree 1.5–5.0 m high; bark brown to black, glabrous. **Leaves** sessile, base narrow, 1.5–3.0 mm long. **Inflorescence** 20–60 mm long racemes, initially pyramidal, later loose. **Bracts** ± equaling pedicels in length, upper ones narrowly triangular, acuminate, herbaceous. **Flowers** bisexual, pentamerous. **Sepals** trullate-ovate, subentire. **Petals** persistent, ovate-elliptic, pink. **Disc** fleshy, dark-coloured, margins 5-lobed. **Stamens** 5,

antisepalous, inserted beneath disc, alternating with lobes (disc hololophic). **Flowering time** Mar.–Nov. Riverbanks, humid plains, mountain slopes; origin Mongolia, China, Japan, potential transformer, declared weed (Category 1, only NC, WC, EC); Upper Karoo, Lower Karoo, Albany Thicket (Steynsburg, Schoombee, S and E to Lake Mentz and Grahamstown).

*ramosissima Ledeb.

Pink tamarisk; *perstamarisk* (A)

Shrub to shrubby tree, 1.5–5.0 m high; bark reddish brown, glabrous. **Leaves** sessile, base narrow, 1.5–3.5 mm long. **Inflorescence** 15–70 mm long racemes, initially simple and loose, later dense. **Bracts** longer than pedicels, triangular-trullate, acuminate, margins ± denticulate. **Flowers** bisexual, pentamerous. **Sepals** narrowly-trullate, acute, margins irregularly denticulate to erose. **Petals** persistent, broadly elliptic-obovate, inequilateral, pink. **Disc** fleshy, dark-coloured, margins 5-lobed. **Stamens** 5, antisepalous, inserted beneath disc, alternating with lobes (disc hololophic). **Flowering time** May–Oct. Sandy shores of lakes and marshes, salty riverbanks; origin Russia, Mongolia, China, Iraq, Iran, potential transformer, declared weed (Category 1, only NC, WC, EC); Upper Karoo, Lower Karoo, Albany Thicket (western and southern parts of EC).

usneoides E.Mey. ex Bunge

Wild tamarisk, abiqua tree; *abiekwas-geelhout*, *daweep* (A)

Dioecious tree, 1.5–5.0 m high; bark brown, later grey. **Leaves** vaginate, with small herbaceous point, ± 1.25 mm long. **Inflorescence** less dense, 20–60 mm long racemes. **Bracts** leaf-like. **Flowers** unisexual, pentamerous. **Sepals** entire, outer 2 ovate-acute, inner trullate-ovate. **Petals** persistent, inequilateral, ovate to ± elliptic, creamy white. **Disc** fleshy, dark-coloured, 5-lobed. **Stamens** 5, antisepalous, inserted on periphery of disc. **Male flowers**: stamens alternating with lobes (disc hololophic) or each lobe deeply bipartite with each half lobe fusing to the adjacent filament (disc paralophic). **Female flowers**: half lobes of bipartite discal lobes very strongly fused to adjacent filaments, filaments seemingly broad-based (disc synlophic). **Flowering time** July–Oct.(–May). Sandy, salty dunes, flats, riverbeds; Rainshadow Valley Karoo, Albany Thicket (Graaff-Reinet S to Willowmore, Steytlerville, Baviaanskloof and Uitenhage, riverbeds of Grootrivier).

usneoides E.Mey. ex Bunge × *T. ramosissima Ledeb.

Shrub to shrubby tree, 0.6–6.1 m high; bark grey to reddish brown; growth form prolific, branchlets feathery, internodes long. **Leaves** amplexicaul or with narrow leaf bases; sometimes vaginate, apices widening and rim-shaped, herbaceous point elongating. **Inflorescence** racemes more dense (than in *T. ramosissima*). **Bracts** with sharp, long point, not becoming indurated and papery with age. **Flowers** bisexual or unisexual. **Petals** tinged pinkish. **Stamens** with anthers always pink. Extensive hybridisation reported in NC, especially near watercourses, hybrids prolific, threatening natural vegetation; Rainshadow Valley Karoo, Albany Thicket (Steytlerville, Baviaanskloof, Jansenville District, at junction of Skoenmakersrivier and Lake Mentz).

BAUM, B.R. 1978. *The genus* Tamarix. The Israel Academy of Sciences and Humanities, Jerusalem.
HARVEY, W.H. 1860. Tamaricineae. *Flora capensis* l: 119, 120.
HUNT, D.R. 1966. *Flora of tropical East Africa*. Tamaricaceae: 1–4.
OBERMEYER, A.A. 1976. Tamaricaceae. *Flora of southern Africa* 22: 36–39.
PODLECH, D. 1968. Tamaricaceae. *Prodromus einer Flora von Südwestafrika* 90: 1.

THEOPHRASTACEAE

(Order Primulales)

Compiled by C.L. Bredenkamp

Includes the genus *Samolus* previously placed under Primulaceae (Stevens 2006).

SAMOLUS L.

Water pimpernel

Species 15, America, the Antipodes, Europe, tropical to temperate, especially salt marshes; 2 in sthn. Afr., N, B, LIM, NW, G, M, S, KZN, NC, WC, EC.

Stiff slender stems; cauline leaves usually few with upper ones reduced; racemes terminal, unbranched, long or short; pedicel with basal bracteole; corolla up to 10 mm long

porosus (L.f) Thunb.

Perennial herb, 0.3–0.6 m high; rhizomes short, horizontal; stems densely covered with raised dots (scales). **Leaves** radical, ± rosulate, obovate-spathulate, tapering into winged petiole; cauline linear to subulate. **Calyx** 5-fid, persistent. **Corolla** white to pale pink; tube cylindric; lobes oblong, 5-partite, with 5 narrow scales (staminodes) alternating with corolla lobes and 5 stamens. **Ovary** half-inferior, many-seeded; style filiform. **Fruit** a capsule opening by 5 apical valves, brown. Fairly widespread in moister districts, mudbanks of estuaries, coastal marshes; Indian Ocean Coastal Belt, Indigenous Forests, Eastern Fynbos-Renosterveld, Albany Thicket (Port Shepstone, SW along coast to Kei River Mouth, from Tsitsikamma to Port Elizabeth and East London).

Softly herbaceous; cauline leaves somewhat small, but not differing much from basal ones; racemes or panicles terminal, usually much branched; pedicels with a bracteole in the middle; corolla minute

valerandi L.

Brook weed

Perennial herb, 0.3–0.6 m high; stems glabrous. **Leaves** radical, ± rosulate, oval or obovate, tapering into winged petiole; cauline smaller, spathulate. **Calyx** half-superior, 5-fid, lobes triangular. **Corolla** white; tube 1 mm long; lobes oblong, 1.5 mm long; stamens included, staminodes subulate, opposite calyx lobes. **Ovary** half-inferior, many-seeded; style filiform. **Fruit** a capsule opening by 5 apical valves, yellowish brown. Moist areas, river- and streambanks; Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Indigenous Forests, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Port St Johns S, from Alice to Komga, southwards to Tsitsikamma, Port Elizabeth and Grahamstown).

DYER, R.A. 1963. Primulaceae. *Flora of southern Africa* 26: 9–15.
FRIEDRICH-HOLZHAMMER, M. 1967. Primulaceae. *Prodromus einer Flora von Südwestafrika* 104: 1, 2.
GUILLAUMET, J.L. 1981. Primulacées. *Flore des Mascareignes* 114: 1–5.
HARVEY, W.H. & WRIGHT, C.H. 1906. Primulaceae. *Flora capensis* 4,1: 426–431.
KUPICHA, F.K. 1983. Primulaceae. *Flora zambesiaca* 7: 184–197.
PELTIER, M. 1981. Primulacées. *Flore de Madagascar et des Comores* 162: 3–14.
STEVENS, P.F. 2006. Angiosperm Phylogeny Website. Version 7. Internet. http://www.mobot.org/MOBOT/research/APweb/ (accessed July 2007).
TAYLOR, P. 1958. Tropical African Primulaceae. *Kew Bulletin* 13: 133–149.

THYMELAEACEAE

(Order Malvales)

Compiled by C.L. Bredenkamp

1a Ovary 2-locular; glabrous shrubs with pedicelled flowers in small, terminal umbels..... **Peddiea**
1b Ovary 1-locular; flowers sessile or subsessile:
2a Petaloid floral outgrowths either fleshy glands or membranous scales, situated at mouth of hypanthium:
3a Petaloid floral scales free, 4, 5, 8 or 12; mainly shrublets, often ericoid:
4a Stamens 8 or 10; flowers mainly in heads; perigonal hairs absent:
5a Flowers 4-merous..... **Gnidia**
5b Flowers 5-merous..... **Lasiosiphon**
4b Stamens 4; flowers mainly in axils of upper leaves; perigonal hairs surrounding base of petaloid floral scales..... **Struthiola**
3b Petaloid floral scales usually ± united at base or in pairs; erect or scandent shrubs or small trees, with expanded, sometimes membranous leaves; flowers 4-merous, in ebracteate, terminal heads..... **Englerodaphne**
2b Petaloid floral outgrowths absent at mouth of hypanthium:
6a Hypanthium with scales below stamen attachment..... **Lachnaea**
6b Hypanthium without scales below stamen attachment:
7a Flowers 4(5)-merous; disc absent; mostly shrublets, often ericoid:
8a Stamens included; leaves not involute, glabrous or hairy..... **Gnidia**
8b Stamens exserted; leaves involute and woolly-lined..... **Passerina**
7b Flowers 5-merous, in pedunculate, bracteate heads; shrubs or small trees, with expanded, glossy leaves..... **Dais**

DAIS L.

Pompon tree; *basboom* (A)

Species 2, one each in Africa and Madagascar; 1 in sthn Afr., LIM, G, M, S, KZN, L, EC.

cotinifolia L.

Shrub or small tree. **Leaves** opposite, expanded. **Flowers** pink, in dense, pedunculate heads, subtended by involucre of 2–6 broad bracts. **Sepals** hairy, 5-lobed, lanceolate; hypanthium tube cylindric, often slightly curved. **Petaloid floral outgrowths** 0. **Stamens** 10, arising from hypanthium, of different lengths; anthers bright yellow, oblong. **Disc** fleshy, cupular, unequal-sided. **Ovary** sessile, 1-locular; ovule solitary, long hairs on upper part; style somewhat exserted; stigma green, globose, with glandular hairs. **Flowering time** Nov.–Feb. **Fruit** dry, enclosed in base of hypanthium. Stony, rocky soil; Indigenous Forests (Port Edward along coast SW, from Hogsback to Willowvale and to East London).

ENGLERODAPHNE Gilg

Species 3, Africa; endemic to sthn Afr., S, KZN, EC, especially near East London.

1a Leaves glabrous; flowers white

subcordata (Meisn.) Engl.

Smooth fibre-bush; *gladdeveselbos* (A)

Perennial shrub or small tree, 1.80–3.05 m high; much-branched; branches slender, glabrous. **Leaves** opposite, ovate or suborbicular, base rounded or truncate, sometimes subcordate, apex acute, rounded or truncate; green above, glaucous-green beneath. **Inflorescence** terminal, in 2–8-flowered, ebracteate fascicles. **Flowers** 4-merous, shortly pedicelled. **Hypanthium**: tube constricted below middle, glabrous or with few silky hairs;

sepals oblong, spreading during flowering. **Petaloid floral glands** 8, somewhat fleshy lobes, linear-spathulate. **Stamens** subsessile. **Ovary** shortly stalked, densely hirsute. **Flowering time** Nov.–May. Dry evergreen forest and associated bushland, wooded grassland, alt. 5–610 m; Indigenous Forests, Sub-Escarpment Savanna, Albany Thicket (Fort Grey Forest, Kentani District, East London).

Peterson (1978) placed both *E. subcordata* (Meisn.) Engl. and *E. leiosiphon* Gilg in synonymy under *Gnidia subcordata* Meisn. The latter combination was not accepted by the botanical fraternity in South Africa and omitted from publications on trees.

1b Leaves hairy; flowers pale yellow to greenish yellow
2a Leaves relatively small, scarcely white-hairy

ovalifolia (Meisn.) E.Phillips

Broad-leaved fibre bush; *breëblaarveselbos* (A)

Perennial shrub or small tree. **Leaves** opposite, expanded, 15–50 mm long, membranous, scarcely white-hairy on venation above and below. **Flowers** 5–7 in heads, cream-coloured to pale yellow. **Hypanthium** 4-lobed; tube cylindric, ± 9 mm long, base silky white-hairy, neck shortly hairy; sepals ± 4 mm long, ovate or lanceolate. **Petaloid floral scales** 4, bipartite, appearing as 8 linear or oblong lobes, almost as long as sepals, membranous. **Stamens** 8. **Flowering time** Dec.–May. **Fruit** a nut, enclosed in persistent base of hypanthium. Understorey shrub occurring in coastal forest; Indigenous Forests (Uvongo River, along Pondoland coast S to East London).

2b Leaves relatively large, pilose

pilosa Burtt Davy

Silky fibre-bush; *syhaarveselbos* (A)

Perennial shrub or small tree, up to 4 m high; branches drooping. **Leaves** 24–75 mm long, white-hairy on venation above and below. **Flowers** pale orange-yellow. **Hypanthium**: tube ± 10 mm long, shortly hairy; sepals 5 mm long. **Flowering time** Dec.–May. Understorey of evergreen and riparian forest, growing at high altitude and mist belt areas; Indigenous Forests (Kokstad District, S to Hogsback and Isidenge Forests and to East London).

GNIDIA L.

(= *ARTHROSOLEN* C.A.Mey. in part, *BASUTICA* E.Phillips, *PSEUDOGNIDIA* E.Phillips, *STRUTHIOLOPSIS* E.Phillips)

Saffron bush; *saffraan* (A)

Species ± 105 (after reinstatement of genus *Lasiosiphon* by Beaumont et al. 2009), mainly Africa, few extending to Madagascar and India; ± 62 in sthn Afr., widespread.

Floral glands absent

[E]**fraterna** (N.E.Br.) E.Phillips

Perennial, dwarf shrub, 0.18–0.30 m high; branches many, slender, appressed-pilose. **Leaves** opposite, subsessile, narrowly lanceolate, flat, erect, glabrous; spike ebracteate. **Hypanthium**: appressed-pilose outside; tube very slender; sepals 4, oblong, obtuse, yellowish purple at tip. **Stamens** 8, narrowly ovoid, smooth, enclosed in persistent membranous base of hypanthium. **Flowering time** Dec., Jan. Grassland, grazed, stony/rocky, alt. ± 1 667 m; Sub-Escarpment Grassland (Queenstown E, between Indwe and Lady Frere).

phaeotricha Gilg

Perennial, dwarf shrub, up to 0.5 m high; stems slightly branched, at first hirsute, at length glabrous or nearly so, reddish brown. **Leaves** alternate, usually oblong, acute, entire, densely long-silky beneath, more sparingly so above. **Flowers** in short, terminal spike. **Hypanthium**: urceolate, not expanded in upper part, densely hairy outside, cylindrical above; sepals 4, oblong, rounded at apex, all alike. **Stamens** 8 in 2 series. **Anthers** dark brown, subsessile. **Ovary** ovoid, compressed, with terminal tuft of straight hairs. **Style** excentric, filiform, reaching to lower anthers. **Stigma** slightly enlarged. **Flowering time** Dec.–Feb. Plantation, grassland, recently burned, alt. 945–1 740 m; Drakensberg Grassland (Maclear District S, from Seymour to Stutterheim).

polycephala (C.A.Mey.) Gilg

Janewariebos, *besembossie*, *perdebossie*, *waaibossie*(A)

Perennial, dwarf shrub or herb, 0.05–1.05 m high, much branched; branches erect, virgate, terete, glabrous. **Leaves** linear-lanceolate, acute, slightly constricted at base, glabrous. **Inflorescences** terminal, ovoid, 4–6-flowered; inner bracts broadly ovate, all obtuse and silky outside, concave. **Hypanthium** rich yellow, narrowly ovoid, upper part cylindrical or only slightly swollen at insertion of lower anthers, silky. **Anthers** oblong. **Ovary** oblong, silky especially above. **Style** filiform, reaching to hypanthium throat. **Flowering time** July–Dec. Roadside, grassland, karoo, alt. 607–1 830 m; Upper Karoo, Dry Highveld Grassland, Lower Karoo (Oviston to Aliwal North S, from Nieu-Bethesda to Middelburg and from Graaff-Reinet to Mountain Zebra National Park).

Floral glands present

baurii C.H.Wright

Perennial herb, 0.15–0.35 m high; branches slender, pilose at first, leaf scars small but prominent. **Leaves** opposite, lanceolate, acuminate, appressed-silky on undersurface, glabrous above. **Flowers** paired, at ends of branches. **Hypanthium** silky outside; tube ovoid below, narrowly funnel-shaped above; sepals ovate, acute. **Petaloid floral glands** 8, oblong, obtuse, rather thick. **Anthers** shortly oblong, very small, upper exserted on short, slender filaments. **Ovary** oblong, hairy at top. **Style** slender, shorter than hypanthium tube. **Stigma** small. **Flowering time** Nov.–Mar.? Grassland, stony/rocky, alt. 743–2 438 m; Sub-Escarpment Grassland, Drakensberg Grassland (uMzimkhulu District S to Msikaba Gorge, across Amatole Mts to Hogsback).

coriacea Meisn.

Perennial shrub or dwarf shrub, 0.15–0.75 m high; much branched, glabrous in all its parts; branches short, divergent, slender, terete, smooth, leaf scars inconspicuous. **Leaves** opposite, sessile, ovate-oblong to nearly lanceolate, acute, submucronate; base obtuse; 1-nerved on upper side, 3–5-nerved beneath, dark brown when dry. **Flowers** 2–4 in terminal heads. **Hypanthium** glabrous; tube slightly widening upwards, smooth; sepals ovate-oblong, acute. **Petaloid floral scales** 4, subhyaline, elliptic. **Ovary** ovoid, compressed, with terminal tuft of hairs. **Style** excentric, as long as hypanthium tube. **Stigma** capitate. **Flowering time** Sept.–May. Fynbos, sandy, stony/rocky, alt. 45–1 005 m; Sub-Escarpment Savanna, Albany Thicket, Eastern Fynbos-Renosterveld (Kei River Mouth SW, from Willowmore to Uitenhage and to Humansdorp).

denudata Lindl.

Perennial shrub or small tree, up to 3 m high; branches moderately slender, densely pilose. **Leaves** opposite, ovate-oblong, obtuse, 3–5-veined from base; densely pilose

at first on both surfaces, finally almost glabrous on back. **Inflorescences**: terminal and lateral clusters, 4–6-flowered. **Hypanthium** yellowish, densely pilose outside; tube ovoid and discoloured below; sepals oval, acute, glabrous inside. **Petaloid floral scales** 8, narrowly oblong. **Anthers** twice as long as petaloid floral outgrowths. **Ovary** compressed, glabrous except at apex. **Style** excentric. **Stigma** subcapitate. **Flowering time** Dec.? Margins of afromontane forest; Eastern Fynbos-Renosterveld, Albany Thicket? [Willowmore District, Elands River at Tsitsikamma, Grahamstown? and Humansdorp (Edwards et al. 2001)]

flanaganii C.H.Wright (insufficiently known)

Perennial, dwarf shrub, up to 0.25 m high; erect, glabrous. **Leaves** opposite, ovate-lanceolate, acute, glabrous, 3-nerved. **Flowers** in terminal clusters. **Hypanthium** glabrous; tube slightly inflated below, widened above; sepals ovate, acute. **Petaloid floral scales** 4, membranous. **Anthers**: upper exserted on short thick filaments. **Ovary** oblong, compressed. **Style** as long as hypanthium tube, rigid. **Stigma** penicillate. **Flowering time** May. Streams, sandy slopes, alt. 15–30 m; Indian Ocean Coastal Belt (Kentani District).

galpinii C.H.Wright

Diffusely branched shrublet, up to 0.6 m high; branches glabrous, reddish, wiry. **Leaves** opposite, oblong-lanceolate, acuminate. **Flowers** in pairs at apex of branches, yellow. **Hypanthium** funnel-shaped, glabrous. **Petaloid floral scales** 4, membranous, pale. **Flowering time** Sept.–May. Sandstone slopes; Albany Thicket, Eastern Fynbos-Renosterveld (Studtis District, Kouga Mts, Joubertina).

juniperifolia Lam.

Perennial shrub or dwarf shrub, 0.1–3.0 m high; entirely glabrous; branches slightly angular, leaf scars conspicuous. **Leaves** scattered, linear-subulate, convex, smooth. **Flowers** terminal, solitary or more frequently in pairs, surrounded by a cluster of ordinary leaves. **Hypanthium** glabrous; tube dilated above; sepals acute, nearly as long as hypanthium tube. **Flowering time** June? Black sandy soils, alt. 30–2 200 m; Eastern Fynbos-Renosterveld (Steytlerville District, Baviaanskloof).

microcephala Meisn.

Perennial shrub or dwarf shrub, 0.15–0.80 m high; stems many, from woody base, virgate, glabrous. **Leaves** alternate, subulate-linear, slightly incurved, channelled above, faintly keeled below. **Flowers** many; yellow; in terminal heads; involucral bracts ovate-lanceolate, glabrous except sometimes on margins. **Hypanthium**: tube with basal glabrous swelling, deciduous part hairy outside; sepals oblong, hairy outside, obtuse. **Petaloid floral scales** 4, clavate. **Ovary** ovoid, glabrous except for tuft of long silky hairs from base. **Style** short. **Stigma** capitate. **Flowering time** Jan.? Karoo, stony/rocky, alt. 30–1 740 m; Upper Karoo (Hofmeyr and Cradock districts).

microphylla Meisn.

Perennial shrub or dwarf shrub, 0.2–1.0 m high; branched from base; branches slender, rigid, glabrous. **Leaves** alternate, rather distant, appressed to stem, linear-oblong, obtuse, glabrous. **Flowers** in terminal heads; involucral bracts broadly ovate, acute, puberulous. **Hypanthium**: tube with long silky hairs below, puberulous or glabrous above; sepals elliptic, obtuse. **Petaloid floral outgrowths** small. **Anthers** oblong. **Ovary** shortly stalked, ovoid, glabrous. **Style** nearly as long as hypanthium tube. **Flowering time** Dec.–June. Nama karoo, gravel, disturbed soil, roadside, alt. 914–1 371 m;

Upper Karoo, Lower Karoo (Gariep Dam, Albert and Steynsburg districts, Karoo and Mountain Zebra National Parks).

myrtifolia C.H.Wright

Perennial shrub or dwarf shrub, 0.2–0.5 m high; densely branched; branches short, slender, reddish, at first hirsute, soon glabrescent, leaf scars small. **Leaves** opposite, ovate or ovate-oblong, acuminate, coriaceous, finely verrucose on margins of upper part, otherwise glabrous, 3–5-nerved beneath. **Flowers** few at ends of branches. **Hypanthium**: pubescent outside; tube narrowly funnel-shaped; sepals ovate-lanceolate, acute and thick at apex. **Petaloid floral scales** 4, membranous. **Anthers** oblong, obtuse, upper exserted on filaments. **Ovary** ovoid, hairy at top. **Style** longer than hypanthium tube, stout. **Stigma** papillose. **Flowering time** July–Dec. Grassland, recently burned, grazed, alt. 15–365 m; Indian Ocean Coastal Belt, Eastern Fynbos-Renosterveld, Albany Thicket (Lusikisiki District, Mkambati Nature Reserve S, from Patensie to Port Alfred).

nana (L.f.) Wikstr.

Perennial shrub or dwarf shrub, 0.15–3.00 m high; erect; branches few, fastigiate. **Leaves** alternate, imbricate, linear, convex, obtuse, at first pilose, finally glabrous, upper purplish, with white hairs. **Flowers** many, terminal. **Hypanthium** hirsute-tomentose; sepals lanceolate, acute. **Petaloid floral outgrowths** many. **Stamens** 4. **Flowering time** June–Nov. Grassland, alt. 25–1 675 m; Drakensberg Grassland (Katberg E to Hogsback and Keiskammahoek).

nodiflora Meisn.

Perennial shrub or dwarf shrub, 0.1–1.5 m high; branched from base; branches erect, terete, leaf scars not prominent. **Leaves** alternate, subopposite or verticillate, linear-oblong, acute, rarely obtuse, usually flat, first densely hairy, glabrescent. **Flowers** in sessile, terminal or axillary clusters. **Hypanthium** densely silky outside; tube inflated below; sepals ovate, acute. **Petaloid floral scales** 8, linear, half as long as sepals. **Anthers** rounded at both ends. **Ovary** compressed, pubescent. **Style** as long as hypanthium tube. **Stigma** capitate. **Flowering time** Aug.–Apr. Grassland, recently burned, grazed, alt. 5–2 150 m; Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Drakensberg Grassland, Sub-Escarpment Savanna, Albany Thicket (Queenstown to Mkambati Nature Reserve S, from Katberg Pass to East London District and from Grahamstown to Kenton on Sea).

obtusissima Meisn.

Perennial shrub or dwarf shrub, 0.45–1.50 m high; branches virgate, pilose when young, leaf scars prominent, rather distant. **Leaves** opposite, oblong-lanceolate, obtuse, coriaceous, convex or complicate, glabrous, midrib prominent beneath; involucral leaves rather longer, ovate. **Flowers** in terminal clusters; white. **Hypanthium** pubescent outside; tube slightly widened upwards, ribbed; sepals ovate, obtuse. **Petaloid floral glands** 8, half as long as sepals, oblong, obtuse, rather fleshy. **Anthers** oblong, acute. Rivers, slopes, alt. 45–675 m; Eastern Fynbos-Renosterveld (Uitenhage District).

oppositifolia L.

Gonnatou, *kannabas* (A)

Perennial shrub or dwarf shrub, 0.01–2.40 m high; much branched; branches virgate, slender, glabrous, reddish when young. **Leaves** decussate, longer than internodes, ovate or ovate-lanceolate, acute, quite glabrous, 1-nerved beneath, upper often reddish

especially at margins. **Flowers** in clusters of 4–6 at branches. **Hypanthium** pubescent outside; tube articulated below, slightly widened upwards, ribbed; sepals obovate, obtuse. **Petaloid floral glands** 4, fleshy, 2-lobed in front. **Anthers** narrower than floral glands, all included. **Ovary** compressed, densely hairy at top. **Style** half as long as hypanthium tube. **Stigma** capitate. **Flowering time** Aug.–May. Fynbos, recently burned, alt. 10–1 830 m; Eastern Fynbos-Renosterveld, Albany Thicket (Storms River at Tsitsikamma E, from Otterford Forest Reserve to Grahamstown and to Humansdorp).

orbiculata C.H.Wright

Perennial shrub, up to 3 m high; branches corymbose, erect, glabrous. **Leaves** opposite, orbicular, shortly cuspidate, 1-nerved, glabrous. **Flowers** few at apex of branches. **Hypanthium** tomentose outside, pale yellow; tube subcylindrical, ribbed; sepals orbicular. **Petaloid floral glands** 4, anther-like, very thick, shortly stalked. **Anthers** oblong, obtuse. **Flowering time** Mar.? Fynbos, humus rich, alt. ?–915 m; Eastern Fynbos-Renosterveld (Uitenhage, Swartkops River Catchment).

pinifolia L.

Perennial shrub or dwarf shrub, 0.25–1.20 m high; branches forked or fastigiate, glabrous, rather slender. **Leaves** alternate, pungent-acuminate, glabrous. **Flowers** many. **Hypanthium**: densely hairy outside; tube lower quarter inflated and triangular in section, upper part subcylindrical; sepals oblong or obovate, obtuse. **Petaloid floral glands** 4, anther-like, fleshy, densely hairy all over. **Anthers** oblong, obtuse. **Ovary** shortly stipitate, glabrous. **Style** nearly as long as hypanthium tube. **Stigma** capitate. Hill slopes, alt. 10–750 m; Sub-Escarpment Grassland (Queenstown District).

polyantha Gilg

Perennial shrub or dwarf shrub, 0.4–0.9 m; ± branched from base; branches rather stout, pilose at first, leaf scars prominent. **Leaves** alternate, oblong, oval or ovate, acute, 5-nerved, densely appressed-silky on both surfaces. **Flowers** in terminal heads, sessile, up to 40-flowered. **Hypanthium** spreading-pilose outside; slender, subcylindrical; sepals yellow, oblong-lanceolate or oblong. **Petaloid floral outgrowths** minute, oblong. **Anthers** oblong, twice as long as floral outgrowths. **Ovary** oblong. **Style** slightly shorter than hypanthium tube. **Stigma** capitate. **Flowering time** Nov., Dec. Grassland, recently burned, alt. 60–2 250 m; Indian Ocean Coastal Belt, Sub-Escarpment Savanna (Mkambati Nature Reserve SW to Coffee Bay, from Willowvale District to Dwessa Nature Reserve).

propinqua (Hilliard) B.Peterson

Perennial, dwarf shrub, 0.15–0.50 m high; many stemmed, robust. **Leaves** alternate, congested, sessile, lanceolate, subacute, coriaceous, glabrous. **Flowers** solitary in leaf axils. **Hypanthium** pale yellow-brown, pilose outside; tube funnel-shaped, 5 mm long, 2 mm in diam.; sepals 4, broadly ovate. **Petaloid floral glands** 4, somewhat succulent, depressed-ovate, emarginate. **Stamens** 4, orientated 0.5 mm below floral glands, filaments minute. **Anthers** narrowly oblong. **Ovary** ellipsoid, upper part pilose, uniloccular with 1 ovule. **Style** filiform, 2 mm long. **Stigma** capitate, papillose. Among rocks on mountain summit, alt. ?–3 200 m; Drakensberg Grassland (Barkly East, Ben Macdhui).

pulchella Meisn.

Perennial shrub, 1–2 m high; branches virgate, slender, glabrous. **Leaves** alternate, linear-lanceolate or subspathulate, mucronate or obtuse, glabrous. **Flowers** many,

in sessile heads or shortly stalked; involucral bracts 8–12, spathulate, scarcely wider than cauline bracts. **Hypanthium** densely appressed-silky; sepals narrowly oblong. **Flowering time** Mar.–July. Open shrubland, alt. 823–1 128 m; Drakensberg Grassland (Amatole Mts).

racemosa Thunb.

Perennial shrub or dwarf shrub, 0.4–1.5 m high; branches sparse, glabrous; branchlets filiform. **Leaves** ovate, obovate or obovate-lanceolate, obtuse, glabrous, unequal, erecto-patent, lower larger, subpetiolate. **Flowers** racemose, axillary towards apex of branches. **Hypanthium** hirsute. **Petaloid floral outgrowths** 8, anther-like, glabrous, yellow. **Anthers** yellow, sessile. **Flowering time** Aug.–Apr. Closed woodland, grassland, alt. 46–700 m; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Albany Thicket (Queenstown to Tsitsa River Bridge and S to Alice, from Riebeek East to Kowie West).

sericea L.

Brandbasbossie (A)

Perennial shrub or dwarf shrub, 0.30–0.75 m high; erect; branches densely silky-pubescent, finally with raised leaf scars. **Leaves** densely imbricate, uniform, opposite, oval, densely appressed-silky on both surfaces when young, upper soon becoming glabrous, veins obscure. **Flowers** white, few at apex of branches, surrounded by an involucre of ± 4 leaves similar to lower ones. **Hypanthium** pubescent outside; tube slightly inflated below, subcylindrical above; sepals ovate, subobtuse. **Petaloid floral outgrowths** 8, subulate. **Anthers** oblong, small. **Ovary** ovoid, compressed. **Style** excentric. **Stigma** subcapitate. **Flowering time** Aug.–Jan.? Roadsides, clay and gravel soil, alt. 185–1 234 m; Drakensberg Grassland, Albany Thicket (Amatole Mts, Hogsback, Grahamstown?).

squarrosa (L.) Druce
(= *Gnidia polystachya* P.J.Bergius)

Perennial shrub or dwarf shrub, 0.15–2.00 m high; lax, much branched. **Leaves** alternate, linear-lanceolate, margins sometimes ciliate. **Involucral bracts** whorled. **Flowers** 6–30 at branch tips, pale cream-coloured. **Hypanthium** pilose; ovary portion and sepal tips often pink. **Petaloid floral scales** 8, finger-like. **Flowering time** Aug.–Apr. Coastal limestone, sandy slopes, alt. 5–3 475 m; Eastern Fynbos-Renosterveld, Albany Thicket, Sub-Escarpment Savanna (Suurberg E to Uitenhage, Port Elizabeth, Grahamstown and Port Alfred).

styphelioides Meisn.

Perennial shrub or dwarf shrub, 0.15–0.90 m high; branches obscurely angled, pubescent when young, with moderately prominent leaf scars. **Leaves** opposite, lanceolate, pungent, glabrous, 3–5-nerved. **Flowers** 1–3, terminal, sessile. **Hypanthium** yellow, puberulous outside, pubescent inside; tube funnel-shaped; sepals oblong, acute. **Petaloid floral scales** 4, membranous, half as long as sepals; upper anthers exserted, all oblong, obtuse. **Ovary** ovoid, compressed, with terminal tuft of hairs. **Style** excentric, nearly as long as hypanthium tube. **Stigma** capitate. **Flowering time** all year. Open and closed woodlands, grassland, sandy soil, alt. 30–610 m; Indian Ocean Coastal Belt, Eastern Fynbos-Renosterveld, Albany Thicket, Sub-Escarpment Savanna (Mkambati Nature Reserve S, from Kareedouw Pass to Port Alfred, and to Humansdorp).

thesioides Meisn.

Perennial shrub or dwarf shrub, 0.45–1.00 m high; branches slender, at first pilose, terete, straight, corymbosely branched above, leaf scars small, but rather promi-

nent. **Leaves** alternate, rarely opposite or whorled, linear or nearly lanceolate, rather obtuse, flat, 1-nerved, glabrous. **Flowers** solitary (rarely in pairs) in axils of upper leaves. **Hypanthium** densely hairy outside; tube inflated below, narrowly funnel-shaped above; sepals rounded. **Petaloid floral scales** 8, clavate, half as long as sepals. **Anthers** obtuse. **Ovary** compressed, hairy at apex. **Stigma** subcapitate. **Flowering time** all year. **Fruit** surrounded by ovoid, pubescent base of hypanthium. Open woodland, grassland, alt. 155–1 000 m; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Zele E to Shawbury Mission S, from Alice to Komga and from Suurberg in Greater Addo Elephant National Park to Bathurst).

woodii C.H.Wright

Perennial, dwarf shrub, up to ± 0.7 m high; erect; branches virgate, at first with a few long hairs, soon glabrous, leaf scars small. **Leaves** alternate, lanceolate or oblong-lanceolate, acuminate, quite glabrous, 1-nerved. **Flowers** few at apex of branches. **Hypanthium** hirsute outside, yellow; tube slightly inflated below, cylindrical above; sepals ovate, acute. **Petaloid floral scales** 8, lanceolate. **Anthers** oblong, obtuse. **Ovary** oblong, hairy at apex. **Stigma** capitate. **Flowering time** Aug., Jan.? Roadsides, alt. 50–1 371 m; Indian Ocean Coastal Belt (Mkambati Nature Reserve and Port Grosvenor).

LACHNAEA L.

Mountain carnation; *bergangelier*, *letjiesbos* (A)

Species 40, sthn Afr., WC, EC.

Shrub up to 1.5 m high; leaves alternate

diosmoides Meisn.

Moderately branched, flexuose shrub to 1.5 m high; single-stemmed at base, reseeder. **Leaves** ascending to patent, linear elliptic to narrowly elliptic. **Flowers** cream-coloured. **Hypanthium** 2.0–2.8 mm long, upper portion funnel-shaped, tomentose outside; basal portion oblong to ovate, sericeous outside. **Sepals** ascending, ovate to widely elliptic. **Floral scales** exserted, clavate, ovoid or ellipsoid. **Anthers** widely ellipsoid to suborbicular. **Ovary** ellipsoid or ovoid, glabrous. **Stigma** capitate, papillate. **Flowering time** all year. Lower and middle mountain slopes; Eastern Fynbos-Renosterveld (WC to Tsitsikamma and Storms River Forest Reserve).

Shrublet up to 0.45 m high; leaves decussate

burchellii Meisn.

Erect to sprawling shrublet, up to 0.3 m high; single-stemmed at base, reseeder. **Leaves** occasionally subopposite, ascending to spreading, lanceolate to narrowly elliptic. **Flowers** apparently bracteate on short, lateral branches, cream-coloured to pale pink. **Hypanthium** 2.3–4.6 mm long, upper portion funnel-shaped, sericeous outside; basal portion ellipsoid or ovoid, with obtuse hairs outside. **Sepals** patent, subequal, elliptic or ovate. **Floral scales** exserted, capitate. **Ovary** ellipsoid, glabrous. **Stigma** brush-like. **Flowering time** June–Mar. Mountain slopes; Eastern Fynbos-Renosterveld (WC, Albertinia to Port Elizabeth).

glomerata Fourc.

Erect, moderately branched shrub, to 0.45 m high; multi-stemmed at base, resprouter. **Leaves** ascending to spreading, linear-elliptic to elliptic or obovate. **Flowers** apparently bracteate on short, reduced, lateral branches, cream-coloured or pale pink, tomentose

outside, sweetly skunk-scented. **Hypanthium** 1.5–1.9 mm long, upper portion funnel-shaped, tomentose outside; basal portion ellipsoid, tomentose outside. **Sepals** patent, subequal, elliptic to widely elliptic. **Floral scales** exserted, clavate. **Ovary** ellipsoid, glabrous. **Stigma** capitate, elongate-papillate. **Flowering time** Aug.–Oct. Sandstone slopes; Eastern Fynbos-Renosterveld (Rooiberg to Humansdorp).

LASIOSIPHON Fresen. *emend.* A.J.Beaumont

(= *ARTHROSOLEN* C.A.Mey. in part, *GNIDIA* L. in part)

Species ± 35, mostly in tropical and sthn Afr., 5 or 6 species in Madagascar and 1 in India; 21 in sthn Afr., widespread.

Beaumont et al. (2009) reinstated the genus *Lasiosiphon*, arguing that Fresenius established the genus *Lasiosiphon* in 1838 for species with pentamerous flowers, ten stamens, small petaloid floral scales, hairy floral tubes (hypanthium tubes) with long, silky basal hairs, involucral leafy bracts surrounding heads of many yellow flowers and alternate leaves. Results also included the two pentamerous species *Gnidia calocephala* and *G. sericocephala*, previously placed in the genus *Arthrosolen* because they lack petaloid floral glands. The authors are of the opinion that the absence of petaloid floral glands should not exclude these two species from the genus *Lasiosiphon*. Manning & Boatwright (2013) mention that the combination *L. calocephalus* (C.A.Mey.) Domke already exists and provides the new combination *L. sericocephalus* (Meisn.) J.C.Manning & Boatwr.

anthylloides (L.f.) Meisn.

[= *Gnidia anthylloides* (L.f.) Gilg]

Brandbossie (A); *indolo*, *intozwane*, *isidikili esikhulu* (Z)

Perennial shrub or dwarf shrub, 0.15–1.00 m high; branches at first densely villous, leaf scars small but prominent. **Leaves** alternate, imbricate, lanceolate or oblong, appressed-silky on both surfaces. **Flowers** in dense, terminal, sessile heads. **Hypanthium**: tube densely woolly outside, gradually widened upwards; sepals elliptic, obtuse. **Petaloid floral outgrowths** minute and tooth-like, or obsolete. **Anthers** oblong, obtuse. **Ovary** oblong. **Style** filiform, nearly as long as the hypanthium tube. **Stigma** capitate. **Flowering time** June–Apr. Habitat variable, alt. 15–1 940 m; Indian Ocean Coastal Belt, Drakensberg Grassland, Albany Thicket, Eastern Fynbos-Renosterveld, Sub-Escarpment Savanna (Msikaba River to Mkambati Nature Reserve southwards, from Amatole Mts to Gonubie, Suurberg in Greater Addo Elephant National Park to East London and to Humansdorp).

burchellii Meisn.

[= *Gnidia burchellii* (Meisn.) Gilg]

Repuisboshout, *kamdebooharpuisbos* (A); *isiDikili* (Z)

Perennial shrub or dwarf shrub, 0.25–1.35 m high; much branched; branches villous. **Leaves** alternate, lanceolate, densely appressed-pubescent on both surfaces, somewhat glabrescent. **Flowers** many, in terminal heads; sessile. **Hypanthium**: tube densely villous outside, slightly inflated below; sepals oval, obtuse. **Petaloid floral scales** minute, clavate. **Anthers** oblong, obtuse. **Ovary** oblong, compressed, glabrous. **Style** nearly as long as hypanthium tube. **Stigma** capitate. Grassland, recently burned, alt. 20–2 650 m; Dry Highveld Grassland, Drakensberg Grassland, Eastern Fynbos-Renosterveld, Albany Thicket (Bethulie to Naude's Neck and Jamestown S, from Van Stadens River Mouth to East London).

caffer Meisn.
[= *Gnidia caffra* (Meisn.) Gilg]

Gifbossie (A)

Perennial, dwarf shrub, 0.1–0.5 m high; branches slender, erect, glabrous, terete; subterraneous tuber. **Leaves** ± dense, alternate, linear, acute, fairly hairy. **Inflorescences** in terminal, few-flowered heads; involucral leaves ovate, acuminate. **Flowers** sessile, lemon-yellow. **Hypanthium** densely silky outside; tube slender, relatively long, cylindrical; sepals oblong, obtuse. **Petaloid floral scales** linear. **Ovary** oblong, compressed, hairy at top. **Style** as long as hypanthium tube. **Stigma** capitate. **Flowering time** Dec.? Stony/rocky soils; Indian Ocean Coastal Belt (Umtamvuna River, Port St Johns).

calocephalus (C.A.Mey.) Domke (Domke 1934 & Tropicos)
[= *Arthrosolen calocephalus* (Meisn.) C.A.Mey., *Gnidia calocephala* (C.A.Mey.) Gilg]

Indola, *isidikili esimhlophe* (Z)

Perennial shrub or dwarf shrub, 0.01–1.50 m high; branches virgate, simple, slender, terete, pilose. **Leaves** oblong-lanceolate, uppermost sometimes elliptic, acute or subacute; with many appressed hairs on both surfaces; involucral leaves similar to upper leaves, long silky. **Flowers** few, in terminal heads; receptacle hemispherical. **Hypanthium** white, densely villous outside; sepals 5, ovate or oblong. **Ovary** oblong. **Flowering time** July–Apr. **Fruit** an oblong achene. Grassland, grazed, alt. 155–1 676 m; Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Albany Thicket, Eastern Fynbos-Renosterveld (Lusikisiki District southwards, from Queenstown to Port St Johns and Grahamstown and Humansdorp).

capitatus (L.f.) Burtt Davy
(= *Gnidia capitata* L.f., *Lasiosiphon linifolius* Decne)

Kerrieblom (A)

Herbaceous shrublet, up to 0.7 m high; many-stemmed, from fleshy rhizome. **Leaves** linear-lanceolate, acute, bluish green, ± glabrous; involucral leaves similar but with robust bases. **Inflorescences**: 10–15-flowered, laxly arranged, terminal heads. **Flowers** mustard-yellow. **Petaloid floral scales** 0–5, membranous. **Flowering time** Sept.–Apr. Recently burned grassland, valley bushveld on gentle slope, grassland, fynbos; Sub-Escarpment Grassland, Dry Highveld Grassland, Sub-Escarpment Savanna, Albany Thicket, Eastern Fynbos-Renosterveld (Alice E to Maclear southwards, from Somerset East to Kei River Mouth, Suurberg Mts to Grahamstown and to Humansdorp).

deserticola (Gilg) C.H.Wright
[= *Gnidia deserticola* (C.H.Wright) Gilg]

Saffraanbos, *verfbossie* (A)

Perennial shrub or dwarf shrub, 0.2–0.9 m high; much branched; branches spreading, woody, pubescent when very young, soon glabrous, grey, leaf scars small but prominent. **Leaves** usually clustered at ends of branches, oblong, obtuse, acute, subcoriaceous, hispidulous; involucral leaves rather wider, velvety. **Flowers** 5–7, terminal. **Hypanthium** densely silky outside, basal part furnished with long hairs; tube subcylindrical; sepals oblong, rounded at apex, yellow. **Petaloid floral outgrowths** very small, membranous, hyaline. **Anthers** oblong, obtuse, larger than petaloid floral outgrowths. **Ovary** small,

oblong, glabrous. **Style** much shorter than hypanthium tube, rigid. **Stigma** capitate. **Flowering time** Sept.–Dec. Roadsides, stony areas, alt. 853–1 025 m; Lower Karoo, Rainshadow Valley Karoo, Albany Thicket (SW of Aberdeen, Willowmore District, Grahamstown).

kraussianus (Meisn.) Burtt Davy
[= *Gnidia kraussiana* Meisn., *Lasiosiphon kraussii* (Meisn.) Meisn.]

Inhlashane, *umfukuzane* (Z)

Perennial shrub or dwarf shrub, 0.1–3.0 m high; stems stout, herbaceous from woody base, glabrous or pubescent. **Leaves** lanceolate to oval, quite glabrous to densely pilose, acute or obtuse. **Flowers** in terminal, peduncled head; bracts ovate, acute, silky. **Hypanthium**: tube cylindrical, silky outside and with long, white hairs at base; sepals oval, obtuse. **Petaloid floral scales** half as long as sepals, lanceolate, acute, membranous. **Anthers** oblong. **Ovary** ovate, compressed, hairy, especially at top. **Style** ± as long as hypanthium tube. **Stigma** capitate. **Flowering time** July–Mar. Closed shrubland, grassland, recently burned, alt. 30–2 200 m; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests (Ramatseliso's Gate to Maclear District southwards, from Elliot District to Bizana at Umtentu Mouth and to Fort Cunynghame).

meisnerianus Endl.
(= *Gnidia cuneata* Meisn.)

Koorbossie (A); *isiDikili* (Z)

Perennial shrub or dwarf shrub, 0.4–1.2 m high; much branched; branches stout, pubescent at first, leaf scars not very prominent. **Leaves** alternate, spathulate-oblong or lanceolate; base narrowed; upper scarcely larger; appressed-silky on both surfaces. **Flowers** in terminal heads. **Hypanthium**: tube cylindrical, with long, straight hairs below, pubescent above, sepals lanceolate, obtuse. **Petaloid floral scales** minute, bifid, membranous. **Anthers** oblong, obtuse. **Ovary** oblong, glabrous. **Style** nearly as long as hypanthium tube. **Stigma** capitate. **Flowering time** all year. Roadside, disturbed areas, alt. 610–1 000 m; Sub-Escarpment Grassland, Albany Thicket, Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld (Tabankulu southwards, from Somerset East District S to Steytlerville and Baviaanskloof, and eastwards to Suurberg in Greater Addo Elephant National Park, Uitenhage and Grahamstown).

similis C.H.Wright
(= *Gnidia similis* C.H.Wright)

Perennial shrub, 0.20–3.05 m high; from woody rootstock, pubescent. **Leaves** alternate, lanceolate, acute, hairy on both surfaces, midrib conspicuous; involucral leaves ovate, acute. **Flowers** in terminal heads. **Hypanthium** appressed-silky outside; tube slightly inflated below; sepals shortly elliptic, obtuse. **Petaloid floral outgrowths** minute, tooth-like. **Anthers** oblong, obtuse. **Ovary** oblong, glabrous. **Style** filiform, shorter than hypanthium tube. **Stigma** capitate. **Flowering time** Oct.–Apr. Forest, closed woodland; Sub-Escarpment Grassland, Drakensberg Grassland, Indigenous Forests, Sub-Escarpment Savanna, Albany Thicket (Clydesdale near Mzimkhulu River S, from Hogsback Forest Reserve to Keiskammahoek, Kei River Mouth and East London).

triplinervis (Meisn.) Decne
(= *Gnidia triplinervis* Meisn.)

Perennial shrub or dwarf shrub, 0.45–2.00 m; much branched; branches glabrous, slender, leaf scars small but prominent. **Leaves** alternate, oblanceolate, very shortly cuspidate, quite glabrous, midrib prominent beneath. **Flowers** many in terminal clusters; involucral bracts ovate, acute, ciliate. **Hypanthium**: tube cylindrical, silky outside, hairs longer below; sepals oblong, obtuse. **Petaloid floral scales** 5, membranous, obovate. **Anthers** linear. **Ovary** ovate, compressed. **Style** longer than hypanthium tube. **Stigma** small. **Flowering time** Sept.–Apr. Grassland, grazed, alt. 170–1 150 m; Indian Ocean Coastal Belt, Indigenous Forests (Flagstaff E to Mkambati Nature Reserve).

wilmsii C.H.Wright
[= *Gnidia wilmsii* (C.H.Wright) Engl.]

Perennial shrub, 0.45–1.80 m high; much branched; branches at first pilose, reddish, leaf scars small. **Leaves** alternate, very shortly petiolate, oblong, acute, glabrous, coriaceous, midrib prominent beneath. **Flowers** many in terminal heads, very sweet-scented in evenings; involucral bracts rather larger than cauline bracts, pilose. **Hypanthium** densely silky outside; tube cylindrical; sepals orange, oblong, obtuse. **Petaloid floral outgrowths** minute. **Anthers** obtuse. **Ovary** oblong, glabrous. **Style** ± as long as hypanthium tube. **Stigma** capitate. **Flowering time** July–Nov. Humus-rich, sandy soil; Indigenous Forests, Indian Ocean Coastal Belt, Drakensberg Grassland (Ntsubane Forest to Mkambati Nature Reserve and to Hogsback).

PASSERINA L.

(= *CHYMOCOCCA* Meisn.)

Sparrow-wort, ganna bush; *gonna* (A)

Species ± 20, mostly sthn Afr., but 2 extending into Zimbabwe along the eastern escarpment; N, LIM, NW, M, S, FS, KZN, L, WC, EC.

1a Inflorescences comprising terminal subcapitulate spikes; proliferating growth (inflorescence apex growing out and returning to vegetative growth) uncommon
2a Leaves linear-lanceolate, base diamond-shaped to rounded, apex rounded to acute

montana Thoday
Mountain gonna, false heather; *berggonna* (A)

Shrub or dwarf shrub, 0.2–3.0 m high. **Leaves**: abaxial surface of young leaves glabrous. **Bracts** ovate to obovate, lamina villous on inside, glabrous on outside, obscurely ribbed on each side of main vein, thinly coriaceous, 4.0 × 0.9 mm. **Hypanthium**: neck tomentose, ± 0.8 mm long. **Flowering time** Oct.–Jan. **Fruit** an achene. Bordering on montane forest, rocks and hills; Dry Highveld Grassland, Mesic Highveld Grassland, Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Albany Thicket (Aliwal North District E to Kokstad and S to Grahamstown).

quadrifaria Bredenk. & A.E.van Wyk

Low shrub, up to 1 m high. **Leaves**: abaxial surface of young leaves tomentose. **Bracts** ovate to widely ovate, lamina densely hairy on inside, sparsely hairy on outside, ± 3-ribbed on each side of main vein, coriaceous and rugose, ± 4.9 × 1.5 mm. **Hypanthium**: neck tomentose, ± 1.4 mm long. **Flowering time** Aug.–Jan. **Fruit** an achene.

High altitudes, summits of peaks and SE-facing rocky slopes; Albany Thicket, Lower Karoo, Eastern Fynbos-Renosterveld (S and W parts of EC, including Kouga, Tsitsikamma and Great Winterhoek Mts).

2b Leaves narrowly oblong to oblong, base sessile, dilated, apex truncate or truncate to rounded, keeled, often appearing humped on the back

truncata (Meisn.) Bredenk. & A.E.van Wyk
(= *Passerina glomerata* Thunb.)

Shrub or dwarf shrub, 0.3–1.5 m high. **Leaves**: adaxial surface concave, tomentose, surface laterally compressed, glabrous. **Bracts** obovate to widely obovate, 3 × 1.4 mm, lamina villous on inside, glabrous on outside, coriaceous, ribbed or ribbed and reticulate-veined on each side of main vein. **Hypanthium**: neck tomentose, ± 0.7 mm long. **Flowering time** Sept.–Nov. **Fruit** an achene. Low-lying plains and mountain ranges; Eastern Fynbos-Renosterveld (Baviaanskloof near Patensie).

1b Inflorescences comprising extended spikes, number of spikes often reduced or many compound, multiflowered spikes present; proliferating growth common

3a Fruit fleshy

rigida Wikstr.

Dune gonna; *duine gonna* (A)

Shrub, 0.3–3.0 m high, growing point nodding, fertile branchlets often pendulous and secund. **Leaves** narrowly lanceolate to ovate, apex acute with main vein visible as a blunt keel. **Bracts** widely ovate, apex acute. **Flower** yellow and membranous. **Hypanthium** glabrous at ovary, tomentose at neck. **Flowering time** July–Dec. **Fruit** a bright yellow berry. Littoral sand dunes above level of spring tide; Indian Ocean Coastal Belt, Albany Thicket, Eastern Fynbos-Renosterveld (endemic to coastlines of KZN, EC and WC).

3b Fruit dry
4a Bracts < 4.5 mm long

pendula Eckl. & Zeyh. ex Thoday

Shrub or dwarf shrub, 1.0–1.5 m high, branchlets often pendulous. **Leaves** rhombic, 2.5 × 1.0 mm, softly coriaceous, smooth, glabrous. **Bracts** rhombic in outline, softly coriaceous, wings membranous, margins brownish ciliate. **Spikes** 6–16-flowered. **Flowers** membranous, yellow-pink, turning red. **Hypanthium** glabrous at ovary, neck tomentose, ± 0.6 mm long. **Flowering time** Oct.–Dec. Mountain slopes, riverbanks and gravelly, sandy loam; in belt between valley thicket and mountain fynbos; Eastern Fynbos-Renosterveld, Albany Thicket (Kouga and Great Winterhoek Mts; watercourses of KwaZunga Catchment Basin).

4b Bracts > 4.5 mm long

corymbosa Eckl. ex C.H.Wright
[= *Passerina vulgaris* (Meisn.) Thoday]

Shrub or dwarf shrub, 0.3–2.5 m high, branchlets often pendulous. **Leaves** greyish green, drying greyish brown, linear to narrowly lanceolate, 3.2 × 4.4 mm, adaxial surface concave, tomentose, abaxial surface glabrous. **Bracts** greyish green, rhombic to obtrullate, distinctly angled, 5.1 × 1.4 mm, shortly villous inside, glabrous outside; wings distinctly 4- or 5-ribbed; midrib shortly extended into acute apex. **Spikes** 10–16-flowered. **Flowers** papyraceous, yellow-pink, turning red. **Hypanthium** glabrous at ovary; neck scantily tomentose, ± 1.6 mm long. **Flowering time** Aug.–Jan. Moun-

tain slopes and passes, common as a pioneer along roadsides, rear dunes at coastal regions; Upper Karoo, Dry Highveld Grassland, Sub-Escarpment Grassland, Albany Thicket, Eastern Fynbos-Renosterveld, Sub-Escarpment Savanna (endemic to WC and EC, with Kompasberg in Graaff-Reinet District as most northern distribution).

falcifolia (Meisn.) C.H.Wright

Outeniqua gonna; *Outeniekwa-gonna* (A)

Tree or shrub, 0.9–6.1 m high. **Leaves** greyish green, falcate, linear to narrowly lanceolate, 3.9–0.6 mm, adaxial surface tomentose, abaxial surface glabrous. **Bracts**: adaxial surface of bracts completely villous, midrib extended, leaf-like point falcate; wings 4-ribbed. **Spikes** lax, often arcuate, up to 16-flowered. **Flowers** papyraceous, yellow-pink, turning red. **Hypanthium**: neck tomentose, often arcuate, ± 3.0 mm long. **Flowering time** Oct.–Dec. Mountain plateaus and SE-facing slopes on Table Mountain Sandstone in sandy, loamy soil; Eastern Fynbos-Renosterveld, Albany Thicket, Sub-Escarpment Savanna (along Outeniqua, Tsitsikamma and Great Winterhoek mts to Grahamstown area).

montivaga Bredenk. & A.E.van Wyk
(= *Passerina filiformis* L. in part)

Shrub, 1–2 m high. **Leaves** greyish green, coriaceous, smooth, adaxial surface tomentose, abaxial surface glabrous, lanceolate, 5.6 × 0.7 mm. **Bracts** adaxially hairy, abaxially glabrous, coriaceous, ovate to obovate, narrowing gradually into sturdy leaf-like point of extended main vein; wings chartaceous, 3-ribbed. **Spikes** 10–20-flowered. **Flowers** papyraceous, yellow-pink, turning red. **Hypanthium**: neck tomentose, ± 2.3 mm long. **Flowering time** Oct.–Dec. Forest margins, rocky mountain peaks and slopes, river valley and gorges; Drakensberg Grassland, Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Eastern Fynbos-Renosterveld, Albany Thicket (Mossel Bay to EC).

obtusifolia Thoday

Karoo gonna

Shrub or dwarf shrub, 0.3–3.0 m high. **Leaves** greyish green, linear, straight or incurved, 4.0–0.9 mm, apex obtuse, adaxial surface concave, comose, abaxial surface convex, coriaceous, glabrous. **Bracts** adaxially concave, hairy; abaxially convex, glabrous, coriaceous, narrowly obtrullate, closely 2-ribbed at margins, midrib extending into leaf-like point, wings absent. **Spikes** 8–16-flowered. **Flowers** papyraceous, yellow-pink, turning red. **Hypanthium**: neck tomentose, ± 1.8 mm long. **Flowering time** Oct.–Dec. Drier karoo habitats and N-facing aspect of mountains; Mesic Highveld Grassland, Upper Karoo, Dry Highveld Grassland, Eastern Fynbos-Renosterveld, Rainshadow Valley Karoo, Albany Thicket, Sub-Escarpment Savanna (from WC to Grahamstown).

rubra C.H.Wright

Shrub or dwarf shrub, 0.3–1.1 m high. **Leaves** greyish green, decussate, rigid, narrowly lanceolate or oblong, longitudinally folded, 2.4–0.7 mm long, apex obtuse, adaxial surface concave, tomentose, abaxial surface glabrous. **Bracts**: adaxial surface completely villous; midrib shortly extended into a short point, apex acute, wings ± 5-ribbed. **Spikes** robust, rigid and extended, glaucous, with up to 30 fertile, enlarged bracts. **Flowers** papyraceous, yellow-pink, turning red. **Hypanthium**: neck ± 2.0 mm long, glabrous to sparsely pubescent. **Flowering time** Oct.–Dec. Ancient dunes and flats abounding in limestone, also in grassland on sandstone and semi-karroid, dry, rocky hillsides;

Upper Karoo, Eastern Fynbos-Renosterveld, Rainshadow Valley Karoo, Albany Thicket, Sub-Escarpment Savanna (Steytlerville, Humansdorp, Port Elizabeth, Cradock and Grahamstown areas).

PEDDIEA Harv.

Species ± 10, tropical and SE Africa and 1 (endemic) to Madagascar; 1 in sthn Afr., LIM, M, S, KZN, EC.

africana Harv.

Poison-olive, green-flower tree; *gifolyf* (A)

Tree or shrub, 3–5 m high. **Leaves** spirally arranged, often clustered at end of branchlets, subsessile, elliptic or lanceolate. **Flowers** pedicelled, in 3–9-flowered, terminal umbels. **Hypanthium** cylindric, 4- or 5-lobed, ribbed. **Sepals** ovate, spreading, shorter than tube. **Petaloid floral outgrowths** 0. **Stamens** 8–10, in 2 whorls arising from upper portion of hypanthium. **Disc** cup-shaped. **Ovary** 2-locular, glabrous, or hairy on upper part. **Stigma** capitate or ± saucer-shaped. **Flowering time** Feb.–Oct. **Fruit** an ovoid berry, ± the size of a pea. **Seeds** with papery testa. Evergreen and coastal forest and forest margins, in shade; sandy, stony soil; Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Sub-Escarpment Savanna, Drakensberg Grassland, Eastern Fynbos-Renosterveld, Albany Thicket (Port Shepstone, SW through Pondoland to Groendal Wilderness near Uitenhage and Port Elizabeth).

STRUTHIOLA L.

Featherhead; *katstertjie*, *roemenaggie*, *veertjie* (A)

Species ± 42, sthn Afr., mostly restricted to coastal regions, southern KZN, NC, WC, EC.

Petaloid floral outgrowths 8

eckloniana Meisn.

Shrub or dwarf shrub, 0.3–2.0 m high, with tetragonal, glabrous or sparsely appressed-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. **Flowering time** all year. Mountain slopes; Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld (Aasvoëlberg, Antoniesberg, Willowmore District).

hirsuta Wikstr.

Shrub or dwarf shrub, 0.3–1.8 m high, with stiffly hairy branches. **Leaves** alternate, densely appressed-hairy to glabrous beneath, ciliate. **Flowers** axillary, white, scented. **Petaloid floral glands** ovoid, longer than perigonal hairs. **Flowering time** Oct.–Aug. Coastal hills and lower slopes, gravel, stony soil, well drained; Eastern Fynbos-Renosterveld, Albany Thicket (Hankey, S to Tsitsikamma, Storms River and to Humansdorp).

macowanii C.H.Wright

Shrub or dwarf shrub, 0.2–1.5 m high, hairy on young branches. **Leaves** opposite or ternate. **Flowers** axillary, white, pale yellow to reddish. **Petaloid floral glands** ovoid, as long as or shorter than perigonal hairs. **Flowering time** all year. Mountain slopes and coastal hills, sandy soil to bare rock; Eastern Fynbos-Renosterveld, Albany Thicket, Sub-Escarpment Savanna (Willowmore S to Baviaanskloof and Humansdorp, E along Great Winterhoek Mts to Port Elizabeth and Grahamstown).

myrsinites Lam.
Shrub or dwarf shrub, 0.25–2.50 m high, with tetragonous branches. **Leaves** opposite, narrowly elliptic, acute. **Flowers** axillary, twice as long as leaves, white or pale pink. **Petaloid floral glands** narrowly ellipsoid, longer than perigonal hairs. **Flowering time** all year. Mountain slopes, sandy soil; Eastern Fynbos-Renosterveld, Indigenous Forests (Storms River Forest, Joubertina).

parviflora Bartl. ex Meisn.
Straggling shrublet, up to 0.6 m, with tetragonous 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 golden-yellow perigonal hairs. **Flowering time** all year. Flats or lower slopes, sand, gravel, stony soil; Drakensberg Grassland, Sub-Escarpment Savanna, Eastern Fynbos-Renosterveld, Albany Thicket (Stutterheim S, from Willowmore E to Port Elizabeth and Grahamstown, and S to Humansdorp).

[E]pondoensis Gilg ex C.H.Wright
Shrub, 0.9–2.0 m high, branches with white, bulbous-based hairs, leaf scars and old hair bases conspicuous. **Leaves** initially decussate, short petioles scabrid, narrowly elliptic, striate below, becoming scabrid. **Flowers** axillary, white. **Hypanthium** glabrous. **Petaloid floral glands** oblong, longer than perigonal hairs. **Flowering time** July–Jan. Hillsides, rocky outcrops above waterfalls and streambanks, sandy, stony or rocky soil; Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Umtamvuna Nature Reserve, Lusikisiki, Port St Johns District).

Petaloid floral outgrowths 12

argentea Lehm.
Aandgonna (A)
Shrub or dwarf shrub, 0.3–2.0 m high, with appressed-hairy branches. **Leaves** opposite, imbricate, elliptic to suborbicular, sometimes narrowly elliptic, faintly ribbed below, white-ciliate. **Flowers** axillary, yellow, sometimes reddish orange. **Petaloid floral glands** ovoid, longer than perigonal hairs. **Flowering time** Mar.–Dec. Coastal flats or slopes, sandy loam and rocky soil; Lower Karoo, Albany Thicket, Eastern Fynbos-Renosterveld, Rainshadow Valley Karoo, Sub-Escarpment Grassland (Willowmore District E to Port Elizabeth and Grahamstown).

garciana C.H.Wright
Shrub, up to 1 m high, with appressed-hairy branches. **Leaves** opposite, lanceolate, acute, 5- or 7-ribbed below. **Flowers** yellow, cream-coloured or pinkish. **Petaloid floral glands** narrowly ellipsoid, as long as or shorter than perigonal hairs. **Flowering time** Mar.–Nov. Forest margins and slopes; Eastern Fynbos-Renosterveld (WC and Little Karoo to Humansdorp).

martiana Meisn.
Shrub, up to 2 m high, 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. **Petaloid floral scales** linear, as long as or shorter than perigonal hairs. **Flowering time** May–Jan. Upper slopes; Eastern Fynbos-Renosterveld (WC to Humansdorp).
Species excluded – Poorly known and probably conspecific with one of the above: **S. tuberculosa** Lam.

THYMELAEACEAE

BEAUMONT, A.J., EDWARDS, T., MANNING, J., MAURIN, O., RAUTENBACH, M., MOTSI, M.C., FAY, M.F., CHASE, M.W. & VAN DER BANK, M. 2009. *Gnidia* (Thymelaeaceae) is not monophyletic: taxonomic implications for Thymelaeoideae and a partial new generic taxonomy for *Gnidia*. *Botanical Journal of the Linnean Society* 160: 402–417.
BEYERS, J.B.P. 2001. The Cape genus *Lachnaea* (Thymelaeaceae): a monograph. *Strelitzia* 11: 1–115. National Botanical Institute, Pretoria.
BOND, P. & GOLDBLATT, P. 1984. Thymelaeaceae. Plants of the Cape flora. *Journal of South African Botany*, Suppl. Vol. 13: 429–434.
BREDENKAMP, C.L. 2003. Taxonomy of the genus *Passerina* (Thymelaeaceae). *Bothalia* 33: 59–98.
BRETELER, F.J. 1994. Novitates gabonenses (15) — The genus *Peddiea* (Thymelaeaceae) present in Gabon. *Bulletin du Jardin Botanique National de Belgique*, *Brussels* 63: 205–207.
DOMKE, W. 1934. Untersuchungen über die systematische und geographische Gliederung der Thymelaeaceen. *Bibliotheca Botanica* 27,3: 1–148.
EDWARDS, T.J., BEAUMONT, A.J. & STYLES, D. 2001. New records and distributional disjunctions in South Africa, Zimbabwe and Mozambique. *Bothalia* 31: 199–202.
GILG, E. 1894. Thymelaeaceae africanae. *Botanische Jahrbücher* 19: 256–277.
HILLIARD, O.M. & BURTT, B.L. 1987. Thymelaeaceae. The botany of southern Natal Drakensberg. *Annals of Kirstenbosch Botanic Gardens*, Vol. 15.
LEVYNS, M.R. 1950. Thymelaeaceae. In R.S. Adamson & T.M. Salter, *Flora of the Cape Peninsula*. Juta, Cape Town.
MANNING, J.C. & BOATWRIGHT, J.S. 2013. Thymelaeaceae. *Lasiosiphon rigidus*, a new species from the Tankwa Karoo and two new combinations in the genus for South Africa. *Bothalia* 43: 84–88.
MEISNER, C.F. 1857. Thymelaeaceae. In A. de Candolle, *Prodromus* 14. Victor Masson, Paris.
OLIVER, D. 1870. *Synaptolepis*. *Hooker's Icones Plantarum* 11: 59, t. 1074.
PEARSON, H.H.W. 1910. Thymelaeaceae. *Flora of tropical Africa* 6,1: 212–255.
PETERSON, B. 1958. Beiträge zur Kenntnis der Flora von Süd-Rhodesia X. *Botaniska Notiser* 111: 623–631.
PETERSON, B. 1959a. Notes sur les Thyméléacées de Mozambique. *Boletim da Sociedade Broteriana* 33,2: 207–221.
PETERSON, B. 1959b. Some interesting species of *Gnidia*. *Botaniska Notiser* 112: 465–480.
PETERSON, B. 1978. *Flora of tropical East Africa*. Thymelaeaceae: 1–37.
PHILLIPS, E.P. 1944. Notes on some genera of the Thymelaeaceae. *Journal of South African Botany* 10: 61–65.
THODAY, D. 1924. A revision of *Passerina*. *Kew Bulletin* 4: 146–168.
TROPICOS. Missouri Botanical Garden. Internet. http://www.tropicos.org/Name/50316467 (accessed 8 Feb. 2011).
VERDOORN, I.C. 1942. *Dais cotinifolia*. *Flowering Plants of South Africa* 22: t. 869.
WIKSTRÖM, J.E. 1818. Granskning af de till Thymelaearum växtordnung hörande slägten och arter. *Kungliga Svenska vetenskapsakademiens handlingar* 4: 263–349.
WRIGHT, C.H. 1915. Thymelaeaceae. *Flora capensis* 5,2: 1–81.

TILIACEAE see MALVACEAE *s.l.*

ULMACEAE
(= CELTIDACEAE)
(Order Rosales)

Compiled by M. Jordaan, M. Struwig & C.J. Cilliers (*Celtis*, *Chaetachme* and *Trema*)

In their revised and updated classification for the families of flowering plants, APGII (2003) regards the Celtidaceae Link as synonymous to the Cannabaceae Martynov. This opinion is shared by Stevens (2008) pointing out that the Cannabaceae may be recognised by their two-ranked, serrate leaves with ascending veins that do not proceed straight into

the teeth, more or less intrapetiolar stipules, and prominent prophyllar buds. The fruit is a rounded drupe. SANBI prefers to maintain the Celtidaceae under the family Ulmaceae (Todzia 1993).

1a Plants with axillary spines; stipules connate along one margin ..... **Chaetachme**
1b Plants without spines; stipules free:
2a Ovary stipitate; fruit a flat samara with the wing surrounding the fruit; embryo straight..... ***Ulmus**
2b Ovary sessile; fruit a thinly, fleshy drupe; embryo curved:
3a Leaves serrate almost from base; male flowers with induplicate valvate perianth lobes; styles 0.5–1.0(2.0) mm long ..... **Trema**
3b Leaves entire, coarsely toothed or serrate in the upper two-thirds; male flowers with imbricate perianth lobes; styles 2–5 mm long..... **Celtis**

CELTIS L.

White stinkwood; *witstinkhout* (A)

Species ± 60, widespread in tropical and temperate regions mostly of the northern hemisphere, < 10 in Africa; 3 in sthn Afr., B, LIM, NW, G, M, S, FS, KZN, L, NC, WC, EC.

Celtic australis and *C. sinensis* have been introduced as garden subjects and are hybridising with *C. africana*, particularly in G, where hybrids are germinating freely. They are proposed declared invaders.

1a Leaves with lateral veins extending well into upper half of blade; main lateral veins 1 or 2 on each side of midrib

africana Burm.f.

White stinkwood; *witstinkhout* (A); *motibadifate* (NS); *nodutu* (T); *umvumvu* (X, Z)

Deciduous tree or shrub, 2–30 m high, crown spreading, branches without spines, bark mostly grey and smooth. **Leaves** alternate, base rounded, slightly asymmetrical, margins serrate in upper $^{2}/_{3}$, basal lateral veins one on each side; young foliage often tawny-pubescent on both sides. **Inflorescence**: male cymose or fasciculate; female axillary, solitary or few-flowered clusters. **Flowers** usually unisexual, male and female on same plants, along with a few bisexual flowers; pedicellate on branches of current year, appearing with leaves in mid- or late spring. **Perianth**: lobes 4 or 5; tepals pubescent. **Fruit** orange to blackish, pubescent pedicels up to 18 mm long. **Flowering time** Sept.–Dec. Stony or rocky soil, open and closed woodland and closed shrubland; Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Upper Karoo, Lower Karoo, Eastern Fynbos-Renosterveld, Albany Thicket (Oviston S to Graaff-Reinet, Queenstown and Humansdorp).

1b Leaves with basal lateral veins not or scarcely extending into upper half of blade; main lateral veins (2)3–6 each side of midrib
2a Stigmas unbranched; stem pubescence (when present) whitish; fruit conical-ovoid, 5–6(–7) mm long

gomphophylla Baker

Mock white stinkwood; *valswitstinkhout* (A); *umvumvu* (X, Z)

Deciduous tree, 3–30 m high, bark smooth, light grey, young twigs whitish pubescent. **Leaves** oblong elliptic, tip long acuminate, base cuneate to rounded, margins entire, basal lateral veins extending a little into upper half, upper lateral veins extending well into upper half, lateral veins below as prominent as midrib; young foliage often tawny-pubescent on both sides. **Inflorescence**: male flowers in many cymes; female and bisexual flowers few or solitary. **Tepals** pubescent. **Flowering time** May? **Fruit** dark yellowish, conical-ovoid; pedicels 3–10 mm long. Forests; Drakensberg Grassland, Indian Ocean Coastal Belt (Port St Johns S to Umtamvuna Nature Reserve).

2b Stigmas branched once or twice; stem pubescence (when present) tawny; fruit ovoid-ellipsoid, 7–10 mm long

*australis L.

Nettle tree; *netelboom* (A)

Deciduous tree, 10–30 m high, bark grey and smooth, lenticels smooth minute. **Leaves** alternate, simple, narrowly ovate, apices acuminate, base rounded**,** slightly asymmetrical, margins usually serrate throughout, grey-pubescent beneath and drying bright yellow-green above; petioles 5–15 mm long, densely pubescent. **Inflorescence** appearing with leaves; buds pubescent. **Fruit** a glabrous, ellipsoid drupe, 10–12 mm in diam., purple-black when ripe. Origin Mediterranean, China, Korea, Japan; Drakensberg Grassland (Aliwal North District, Jamestown).

mildbraedii Engl.

Redwhite stinkwood; *rooivrugwitstinkhout* (A); *uzinhlu* (Z)

Evergreen to deciduous tree, 3–40 m high, buttressed, branches often drooping, bark pale, smooth or scaling in discs; young twigs tawny-pubescent. **Leaves** elliptic to elliptic-obovate, acuminate, ± mucronate, base cuneate, obscurely crenate to coarsely dentate in upper half. **Inflorescence**: male flowers in many cymes, often crowded; female and bisexual flowers 1–few at apex. **Tepals** pubescent. **Fruits** red ovoid-ellipsoid; pedicels 3–13 mm long. Isolated patches of lowland rainforest, uncommon; Indigenous Forests (Port St Johns).

*sinensis Pers.

Chinese hackberry

Deciduous tree, 10–30 m high, bark smooth to warty, pale grey, twigs puberulous, lenticels conspicuous. **Leaves** bright to dark green, glossy above, hairless or softly hairy on underside. **Inflorescence** yellowish, small, axillary; buds glabrous. **Fruit** ellipsoid, dark orange when mature on long stalk. Origin Mediterranean, China, Korea, Japan; Drakensberg Grassland, Sub-Escarpment Grassland (Jamestown).

CHAETACHME Planch.

Species 4, confined to tropical and sthn Afr. and Madagascar; 1 in sthn Afr., B, LIM, NW, G, M, S, KZN, WC, EC.

aristata Planch.

Thorny elm; *doringolm* (A); *umkhovothi* (X); *umkhovothi* (Z)

Scrambling tree or shrub, 1–13 m high, branches ± drooping, zigzag, twigs pubescent to glabrous, becoming spinose at apex, axillary spines single or paired. **Leaves** long elliptic to elliptic-ovate, base broadly cuneate to rounded, apex acute to shortly acuminate, margins entire or with irregular disposed mucronate teeth; midrib prominent beneath, lateral veins ± 10, indistinct, glabrous and glossy above. **Inflorescence** greenish cream-coloured; male flowers with 5 stamens; female flowers? **Flowering time** Sept.–May. **Fruit** green, ripening to yellowish orange, ovoid or depressed-globose. Common in forest, woodland, scrub and coastal areas; Albany Thicket, Eastern Fynbos-Renosterveld, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Indigenous Forests (Kokstad to Port St Johns and Elliotdale S, from Hankey to East London).

TREMA Lour.

Species ± 15, in tropical and subtropical regions of Old and New World; only 1 in tropical and sthn Afr., N, LIM, NW, M, S, KZN, EC.

orientalis (L.) Blume

Pigeonwood; *hophout* (A); *modutu* (NS); *umvangazi* (X); *umsekeseke* (Z)

Tree or shrub, 1.5–18.0 m high, branches spreading or drooping. **Bark** smooth, grey, becoming longitudinally fissured, lenticels conspicuous, twigs densely pubescent. **Leaves** ovate-attenuate to ovate-lanceolate, base rounded to cordate, not crenate, rest of margins closely crenate, apex acute; midrib and veins compressed above, prominent below, lamina pubescent below. **Inflorescence** greenish cream-coloured; male, female and few bisexual; subtending bracts triangular. **Tepals** 1.0–1.5(–2.0) × 0.5 mm. **Flowering time** Oct.–Mar. **Fruit** purple or black, ovoid-globose, glabrous. Forest and closed shrubland; Sub-Escarpment Savanna, Indigenous Forests (Lusikisiki District, Port Edward S to Port St Johns).

*ULMUS L.

Species 20 to 45, temperate and boreal regions of the northern hemisphere; the centre of distribution is apparently central and N Asia; 2 in sthn Afr., cultivated as ornamentals and occur as escapees.

parvifolia Jacq.

Chinese elm

Perennial tree, 2–25 m high, bark grey, smooth. **Leaves** pinnately veined, ovate to elliptic, surface glossy, apex acute, up to 40 × 20 mm; petioles up to 6 mm long, glabrous. **Inflorescences** pendent fascicles, axillary. **Perianth** deeply lobed. **Stamens** 3–5, usually exserted; anthers reniform. **Fruit** a glabrous samara with 2 wings, brown, up to 8 mm long. **Seeds** compressed, ovate. Roadsides**,** railway sides; Drakensberg Grassland, Albany Thicket (Jamestown District and Grahamstown).

procera Salisb.

English elm

Perennial tree, 2–40 m high; deciduous; bark brown to grey, rough, flaking. **Leaves** alternate, pinnately veined, broadly ovate, discolorous; rough and dull above, puberulous below, apex acuminate; petioles up to 11 mm long. **Inflorescences** pendent fascicles, axillary. **Perianth** deeply lobed. **Stamens** 3–5, usually exserted; anthers reniform. **Fruit** a glabrous samara with 2 wings, rind brown, up to 17 mm long. **Seeds** flattened, ovate. **Flowering time** Mar. Roadsides**,** railway sides; Upper Karoo, Drakensberg Grassland (between Burgersdorp and Molteno, S to road between Tarkastad and Fort Beaufort).

ANGIOSPERM PHYLOGENY GROUP [APG]. 2003. An update of the Angiosperm Phylogeny Group classification for the orders and families of flowering plants: APG II. *Botanical Journal of the Linnean Society* 141: 399–436.

BROWN, N.E. 1925. Ulmaceae. *Flora capensis* 5: 516–521.

CHERNIK, V.V. 1975. Arrangement and reduction of perianth and androecium parts in representatives of the Ulmaceae Mirbel and Celtidaceae Link. *Botanicheskii Zhurnal (Moscow & Leningrad)* 60: 1561–1573.

GRUDZINSKAYA, I.A. 1967. The Ulmaceae and reasons for distinguishing Celtidoideae as a separate family Celtidaceae Link. *Botanicheskii Zhurnal (Moscow & Leningrad)* 52: 1723–1749.

POLHILL, R.M. 1964. Enumeration of the Ulmaceae in Africa south of the Sahara. *Kew Bulletin* 19: 139–145.
POLHILL, R.M. 1966. *Flora of tropical East Africa.* Ulmaceae: 1–12.
POLHILL, R.M. 1989. Ulmaceae. *Flora of Ethiopia* 3: 266–269.
RENDLE, A.B. 1916. Ulmaceae. *Flora of tropical Africa* 6,2: 1–14.
SCHREIBER, A. 1967. Ulmaceae. *Prodromus einer Flora von Südwestafrika* 15: 1.
STEVENS, P.F. 2008. Angiosperm Phylogeny Website. Version 9. Internet. http://www.mobot.org/MOBOT/research/APweb/ (accessed Feb. 2012).
TODZIA, C.A. 1993. Ulmaceae. In K. Kubitzki, J.G. Rohwer & V. Bittrich, *The families and genera of vascular plants – dicotyledons* 2: 603–611. Springer-Verlag, Berlin.
TUTIN, T.G. 1964. Ulmaceae. *Flora europaea* 1: 65, 66.
VON BREITENBACH, J., DE WINTER, B., POYNTON, R., VAN DEN BERG, E., VAN WYK, B. & VAN WYK, E. 2001. *Pocket List of Southern African Indigenous trees.* Briza, Pretoria.
WILMOT-DEAR, C.M. 1991. Ulmaceae. *Flora zambesiaca* 9,6: 1–10.
ZAVADA, M.S. & KIM, M. 1996. Phylogenetic analysis of Ulmaceae. *Plant Systematics and Evolution* 200: 13–20.

URTICACEAE

(Order Rosales)

Compiled by N. Madlokazi & C.L. Bredenkamp

1a Plants with stinging hairs, at least on the inflorescences and petioles:
2a Leaves opposite ..... **Urtica**
2b Leaves alternate:
3a Stipules free, lateral; shrubs or small trees with soft wood ..... **Obetia**
3b Stipules fused, intrapetiolar; woody climbers or erect, short-lived or perennial herbs:
4a Woody climbers with adventitious or axillary roots from climbing stems; stinging hairs mostly restricted to petioles and inflorescences; female perianth with tepals accrescent, becoming fleshy and orange or red in fruit; stipules soon deciduous ..... **Urera**
4b Erect, short-lived or perennial herbs, not climbing and without adventitious or axillary roots from stems; usually with stinging hairs on all aerial parts of plant; female perianth membranous in fruit ... **Laportea**
1b Plants completely without stinging hairs:
5a Leaves opposite:
6a Flowers all free, not enclosed in involucre; male flowers with 2–4 stamens; stipules fused, interpetiolar ..... **Pilea**
6b Flowers enclosed in an involucre; male flowers with only 1 stamen; stipules free, lateral ..... **Droguetia**
5b Leaves alternate:
7a Stipules absent; leaves with entire margins; very delicate herbs ..... **Parietaria**
7b Stipules present, lateral and free; leaves entire or toothed; delicate to coarse herbs:
8a Flowers all free, none enclosed in an involucre of bracts:
9a Male flowers with 4 or 5 stamens; female flowers with a tubular perianth; annual or perennial herbs or shrubs ..... **Pouzolzia**
9b Male flowers with 1 stamen; female flowers without a perianth; delicate annual herbs ..... **Didymodoxa**
8b Flowers enclosed in an involucre of bracts:
10a Coarse herbs; lobes of involucre much longer than flowers ..... **Forsskaolea**
10b Delicate herbs; lobes of involucre much shorter than flowers ..... **Droguetia**

DIDYMODOXA E.Mey. ex Wedd.

Species 2, mountains of eastern tropical Africa, as far north as N Ethiopia; 2 in sthn Afr., N, LIM, G, FS, KZN, L, NC, WC, EC.

caffra (Thunb.) Friis & Wilmot-Dear

Annual herb, up to 0.5 m high, stiff or slender curly hairs. **Leaves** alternate, lanceolate, base cuneate, apex acuminate, margins crenate, upper surface with sparse stiff hairs,

lower surface with many hairs on veins; petioles ± 47 mm long; stipules ± 5 × 0.6 mm, lanceolate. **Inflorescence** usually bisexual; bracts narrowly lanceolate. **Male flowers** ± 1 mm long, with up to 3 apical bristles. **Female flowers** 2 mm long with a narrow, unilateral wing along one side, either side rounded; stigma sessile. **Flowering time** Nov.–Feb. **Fruit** an ovoid, brownish achene, occasionally double fruits up to ± 3 × 2.5 mm. Forest margins, river mouths, kloofs; Indigenous Forests, Lower Karoo, Sub-Escarpment Grassland (Queenstown E to Port St Johns S, from Hogsback southwards to Uitenhage).

DROGUETIA Gaudich.

Species 7, in the mountains of east tropical Africa, Madagascar, Mascarenes, South India, Java; 2 in sthn Afr., LIM, KZN, WC, EC.

ambigua Wedd.

Perennial herb, 0.2–0.4 m high. **Leaves** mostly opposite, but uppermost and side branches sometimes alternate, broadly ovate, up to 40 × 22 mm, but usually much less, glabrous above, margins crenate to bluntly serrate; petioles pubescent, up to 14 mm long; stipules green, broadly lanceolate, up to 2 × 1.5 mm, ciliate, apex acute. **Inflorescence** axillary, involucres pubescent, globular in upper leaf axils, up to 2.5 mm in diam.; up to 10 male flowers and 1 or 2 female flowers; lower axils small and ovoid, each involucre with 1 or 2 female flowers. **Flowering time** Nov.–May. **Fruit** enclosed achenes in markedly lanate involucres. Seashores, thicket, forests, river mouths; Albany Thicket, Indian Ocean Coastal Belt, Indigenous Forests, Sub-Escarpment Grassland, Sub-Escarpment Savanna [Port St Johns S, from Seymour to East London (Bulura River Mouth) and Grahamstown to Port Alfred].

iners (Forssk.) Schweinf.

Perennial herb, monoecious, 0.1–1.5 m high. **Leaves** mostly opposite, ovate to lanceolate, toothed, up to 60 × 25 mm, upper surface slightly hispid, lower surface with soft hairs, apex acuminate, margins serrate; petioles pubescent, up to 25 mm long; stipules lanceolate to ovate, with elongated tip, up to 3 mm long. **Inflorescence** 2 or 3 clustered in upper axils, usually bisexual, up to 4 mm in diam., in lower axils often only female flowers. **Flowers** in small axillary clusters, bisexual, greenish. **Male flowers** many, up to 2 mm long. **Female flowers** few; ovary erect, up to 1.5 mm long; stigma up to 3 mm long. **Flowering time** Aug.–Feb. **Fruit** a compressed, brownish achene, up to 1.5 mm long. Forest margins, thicket, seaside; Indigenous Forests, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Eastern Fynbos-Renosterveld, Albany Thicket (Tsitsikamma E to Port Alfred).

FORSSKAOLEA L.

Species 6, Canary and Cape Verde Islands, S Spain, India, North and South Africa; 3 in sthn Afr., N, LIM, WC, EC.

Many orthographic variants of the name *Forsskaolea* exist in the literature.

candida L.f.

Kwaaibul (A)

Monoecious, softly woody subshrub, up to 1.5 m high. **Leaves** alternate, discolorous, ovate and long acuminate at base, often whitish-tomentose beneath, lower surface with scattered curved hairs, apex broadly acute, margins with up to 7 pairs of broad irregular teeth; petioles up to 30 mm long; stipules broadly ovate. **Inflorescences** axillary clus-

ters, with greenish involucres. **Male flowers** many at periphery of inflorescence, stalked; perianth club-shaped in bud, becoming irregularly 3-toothed; terminal lobe inflexed; stamen 1; rudimentary ovary 0. **Female flowers** sessile, 1–5 in centre of male involucre; perianth 0; ovary erect; stigma filiform, papillose-hispid, long-persistent. **Flowering time** Aug.–Oct. **Fruit** shortly stipitate achenes, ovoid, dark brown, up to 3 × 2 mm. Riverbeds, karoo; Dry Highveld Grassland, Lower Karoo (Graaff-Reinet District).

LAPORTEA Gaudich.

Species ± 22, pantropical but extending into temperate regions of North America and East Asia; 3 in sthn Afr., LIM, M, S, KZN, WC, EC.

alatipes Hook.f.

Annual or perennial herb, 0.5–1.5 m high; monoecious, stinging hairs. **Leaves** alternate, ovate, stinging hairs above, stiff hairs along veins below, base cordate, apex acuminate, margins coarsely serrate, up to 40 teeth; petioles up to 125 mm long; stipules lanceolate, up to 15 mm long. **Inflorescence** of loosely branched panicles; male inflorescence in axils of lower leaves, ± 100 mm long; female inflorescence in axils of upper leaves, ± 180 mm long. **Male flowers** pedicellate, in clusters up to 1 mm in diam., 4-merous, usually with stinging hairs. **Female flowers** with broadly winged pedicels, stinging hairs dense to sparse; stigma filiform. **Flowering time** Jan.–Mar. **Fruit** shortly stipitate achenes, ± 1 mm long, pale brown, centre of flattened side irregularly rugose. Forests; Indigenous Forests, Sub-Escarpment Grassland (Kokstad southwards to Willowvale District).

grossa (Wedd.) Chew

Annual herb, 0.3–1.0 m high; monoecious. **Leaves** ovate, 130 × 120 mm, stinging hairs in centre, glabrous above, few stinging hairs below, base truncate, with white blotches, apex acuminate, margins serrate; petioles up to 125 mm long; stipules minute, early caducous. **Inflorescence** paniculate, with few stinging hairs. **Male flowers** 4- or 5-merous, 2 mm in diam. **Female flowers** 1.5 mm long. **Flowering time** Dec.–Mar. **Fruit** smooth achenes, circular ridge near edge, ± 175 mm long. Forests; seashore, thicket, river mouths; Indigenous Forests, Sub-Escarpment Savanna, Albany Thicket (Port St Johns southwards, from Alexandria District to East London).

peduncularis (Wedd.) Chew

River nettle; *bosbrandnetel* (A); *ubazi* (X); *imbabazane* (Z)

Annual herb, 0.5–1.5 m high; monoecious. **Leaves** triangular to rhomboid, stiff hairs above, stiff hairs on veins below, base truncate, apex acuminate, margins serrate, up to 25 teeth; petioles up to 110 mm long, glabrous; stipules linear-lanceolate, up to 10 mm long. **Inflorescences** small cymose clusters, usually dichotomously branched; male inflorescence in axils of lower leaves, up to 35 mm long; female inflorescence in axils of upper leaves, up to 110 mm long. **Male flowers** of 2 or more glomerules, with narrow dorsiventral wing. **Female flowers** in small dichasial clusters. **Flowering time** Jan.–Mar. **Fruit** sessile, ovoid achenes, ± 1.5 mm long, with smooth, circular, marginal ridge. Forests; seashore, riverbanks; Indigenous Forests, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Drakensberg Grassland, Indian Ocean Coastal Belt, Albany Thicket, Eastern Fynbos-Renosterveld (Clydesdale to Port St Johns southwards, from Hogsback to Kentani, Port Elizabeth to Grahamstown and to Humansdorp).

OBETIA Gaudich.

Species ± 8, east tropical and sthn Afr., Madagascar, the Mascarenes and Aldabra Islands, most in dry habitats; 2 in sthn Afr., N, B, LIM, NW, G, M, S, KZN, EC.

tenax (N.E.Br.) Friis

Mountain nettle; *bergbrandnetel* (A); *umbabazane* (X); *imbati* (Z)

Perennial, small tree or shrub, 2–7 m high. **Leaves** round to ovate, 50–150 × 30–100 mm, sometimes slightly 3-lobed, covered with stinging hairs above, pubescent when young, later glabrescent, apex rounded to acute, margins coarsely toothed; petioles up to 80 mm long; stipules up to 8 mm long, free, lanceolate. **Inflorescence** mostly in axils of fallen leaves; male inflorescence up to 150 mm long; peduncle with stinging hairs. **Male flowers** 5-merous, bracteate, ± 1 mm in diam. **Female flowers** 4-merous, pedicellate, glabrous, ± 1.25 mm long. **Flowering time** Nov. **Fruit** small achenes, up to 3 mm in diam., with persisting perianth, ochre to brown. Forest margins, rocky hillsides, thicket; Upper Karoo, Sub-Escarpment Savanna, Albany Thicket (Nieu-Bethesda District, Komga, East London).

PARIETARIA L.

Species ± 10, subcosmopolitan in temperate and subtropical regions; 1 in sthn Afr., N, FS, KZN, L, EC.

debilis G.Forst.

Annual herb, 0.17–0.45 m high; nonstinging hairs. **Leaves** alternate, broadly ovate, glabrous or stiff hairs on veins and margins, base subcordate to truncate, apex obtuse or acute, margins entire; petioles glabrous. **Inflorescence** in leaf axils, pedicellate. **Flowers** with bracts, bisexual or unisexual. **Female flowers** 4-merous; perianth ± 0.5 × 1.5 mm long; stigma linear. **Male flowers** 4-merous, subsessile, up to 1.5 mm in diam. **Bisexual flowers** ± 1 mm long; perianth with short hairs on outside. **Flowering time** Nov.–Jan. **Fruit** smooth achenes, dark brown, ovoid, shiny, stipitate. Forests, mountains, damp or boggy patches; Indigenous Forests, Drakensberg Grassland (Rhodes to Naude's Neck, Amatole Mts, Hogsback Mtn).

PILEA Lindl.

Species ± 250, almost pantropical; 2 (1 naturalised) in sthn Afr., LIM, M, KZN, EC.

rivularis Wedd.

Perennial herb, 0.15–0.60 m high, creeping rhizome, erect. **Leaves** opposite, broadly ovate, up to 75 × 60 mm, glabrous on both sides with dense linear cystoliths, base subcordate, apex acuminate, margins serrate to dentate, up to 11 pairs of teeth; petioles up to 55 mm long; stipules broadly ovate, up to 5 mm long, membranous. **Inflorescences** dense, cymose clusters in leaf axils, pedicellate. **Male flowers** ± 2 mm long, 3-merous, glabrous except for sessile glands; tepals equal. **Female flowers** ± 1.5 mm long, tepals with prominent dorsal horn; stigma penicillate. **Fruit** flattened achenes, ± 2 mm long, ovoid, narrow rim around apex, stipitate, pale ochre to brown. Forests, forest margins, streambanks; Indigenous Forests (one recorded from E coast).

POUZOLZIA Gaudich.

Species ± 70, mainly in the Old World tropical regions, occurring in both dry and humid habitats; 2 in sthn Afr., N, B, LIM, NW, G, M, S, KZN, EC.

parasitica (Forssk.) Schweinf.

Perennial herb, 0.45–1.00 m high. **Leaves** alternate, lanceolate to ovate, up to 125 × 70 mm, both surfaces with scattered hairs, base cuneate, apex tooth longer than broad, margins serrate; petioles slender, up to 80 mm long; stipules lanceolate, persistent, up to 10 × 3 mm. **Flowers** either in axils of unmodified leaves or subtended by reduced, bract-like leaves; each flower subtended by a triangular, chaffy, reddish bract. **Female flowers** pubescent, ± 2 mm long, with tubular perianth constricted below stigma. **Male flowers** with perianth deeply 4-lobed, acuminate, pubescent, ± 2.5 mm long. **Flowering time** Feb. **Fruit** fusiform achenes, up to 2.5 mm long. **Seeds** pale cream-coloured, smooth. Margins of subtropical forests; Sub-Escarpment Savanna (Lusikisiki District).

URERA Gaudich.

Species 35, widespread in tropical Africa, Madagascar, tropical America and the Pacific Islands; 1 in sthn Afr., KZN, EC.

trinervis (Hochst.) Friis & Immelman

Tree climbing-nettle; *boom-ranknetel* (A)

Perennial climber, 3–10 m high. **Leaves** alternate, elliptic to ovate, glabrous above, elongated cystoliths present, pubescent or scattered hairs below, base cuneate or slightly cordate, margins entire; petioles up to 50 mm long; stipules brown, ± 10 mm long. **Inflorescence** lax, paniculate; peduncle with stinging hairs. **Flowers** unisexual. **Male flowers** on pedicels ± 1 mm long, glabrous, 4-merous, up to 1.75 mm in diam. **Female flowers** sessile; tepals 4, perianth cylindrical, ± 1 mm long. **Flowering time** Oct., Nov. **Fruit** an achene, ± 2 mm long, enclosed in fleshy, orange perianth, stipitate. Forests; Indigenous Forests, Sub-Escarpment Savanna (Port St Johns, Dwessa Forest).

URTICA L.

Species ± 80, subcosmopolitan but mostly in northern temperate regions, with a few in the tropics and southern temperate regions; 3 (2 introduced weeds) in sthn Afr., N, G, M, FS, KZN, L, NC, WC, EC.

***dioca** L.

Common nettle, Swedish hemp; *brandnetel* (A); *bobatsi* (SS); *umbabazane* (Swati, X)

Perennial herb, 0.3–1.0 m high; dioecious. **Leaves** opposite, lanceolate, margins dentate or serrate with stinging hairs above, on veins below, (3–)5–7-nerved; petioles up to 40 mm long; stipules oblong to broadly lanceolate, 6 × 3 mm. **Inflorescences** in lax, axillary, paniculate clusters, up to 90 mm long; peduncle ± 15 mm long. **Flowers** bisexual or functionally unisexual, minute, often ebracteate. **Male flowers**: tepals 4, with stinging hairs; ± 1.5 mm in diam. **Female flowers**: tepals 4, pubescent; stigma penicillate-capitate, up to 1.5 mm long. **Flowering time** Oct.–Mar. **Fruit** a sessile, laterally compressed achene, ovate or oblong in outline, pale ochre. Forests, rivers; origin Europe; Drakensberg Grassland, Upper Karoo, Dry Highveld Grassland, Sub-Escarpment Grassland, Indigenous Forests (Naude's Neck S, from Middelburg to Queenstown and Mountain Zebra National Park to Alexandria between Canon Rocks and Ocean View).

lobulata Blume

Annual herb, 0.3–0.8 m high. **Leaves** broadly ovate, margins trilobed, dentate, scattered hairs above, scattered stiff hairs on veins below; petioles up to 112 mm long, with stiff hairs; stipules narrowly lanceolate, pubescent, 3 × 1 mm, acute. **Inflorescences**

cylindrical, axillary, up to 100 mm long, with cymose clusters; peduncle ± 15 mm long with stinging hairs. **Flowers** bisexual or functionally unisexual, minute, often ebracteate. **Male flowers** ± 2 mm in diam.; pedicels up to 1 mm long. **Female flowers** up to 2 mm long; pedicels with stinging hairs. **Flowering time** Aug.–Dec. **Fruit** a laterally compressed achene, smooth to rugose, ovate or oblong in outline, dark brown. Forests, seashores, thicket; Dry Highveld Grassland, Indigenous Forests, Albany Thicket [Molteno (Broughton) S, Sea View, Alexandria Forest].

*urens L.

Stinging nettle; *bosbrandnetel* (A); *isibathi* (Swati); *ububaze* (X); *imbabazane* (X, Z)

Annual herb, 0.1–0.5 m high, monoecious. **Leaves** elliptic, margins often trilobed, with stinging hairs scattered above and on veins below; petioles up to 50 mm long with stinging hairs; stipules narrowly lanceolate, pubescent, up to 1.5 × 0.5 mm, acute. **Inflorescences** cylindrical, dense, later lax, bisexual, with cymose clusters, up to 20 × 5 mm; peduncle short. **Male flowers** ± 1 mm in diam.; pedicels up to 0.5 mm long. **Female flowers** ± 1.75–2.00 mm long; pedicels with stinging hairs. **Flowering time** Aug.–Feb. **Fruit** a smooth or minutely punctate achene, pale ochre. Mountains, karoo, thicket; origin Europe; Dry Highveld Grassland, Upper Karoo, Sub-Escarpment Savanna, Sub-Escarpment Grassland, Drakensberg Grassland, Eastern Fynbos-Renosterveld, Albany Thicket (Aliwal North S to Middelburg and Lusikisiki, from Cradock to King William's Town, and from Uitenhage to Grahamstown and Alexandria District).

BALL, P.W. 1964. Urticaceae. *Flora europaea* 1: 67–69.
BROWN, N.E. 1925. Urticaceae. *Flora capensis* 5,2: 541–561.
CHEW, W.-L. 1965. *Laportea* & allied genera. *Gardens' Bulletin*, *Singapore* 21: 195–208.
CHEW, W.-L. 1969. A monograph of *Laportea* (Urticaceae). *Gardens' Bulletin*, *Singapore* 25: 111–178.
FRIIS, I. 1983. A synopsis of *Obetia* Gaud. (Urticaceae). *Kew Bulletin* 38: 221–228.
FRIIS, I. 1989a. *Flora of tropical East Africa.* Urticaceae: 1–64.
FRIIS, I. 1989b. A revision of the genus *Pilea* (Urticaceae) in tropical Africa. *Kew Bulletin* 44: 557–600.
FRIIS, I. 1991. Urticaceae. *Flora zambesiaca* 9,6: 79–114.
FRIIS, I. 1993. Urticaceae. In K. Kubitzki, J.G. Rohwer & V. Bittrich, *The families and genera of vascular plants — dicotyledons* 2. Springer-Verlag, Berlin.
FRIIS, I., IMMELMAN, K. & WILMOT-DEAR, C.M. 1987. New taxa and combinations in Old World Urticaceae. *Nordic Journal of Botany* 7: 125, 126.
FRIIS, I. & WILMOT-DEAR, C.M. 1988. A revision of the tribe Forsskaoleae (Urticaceae). *Nordic Journal of Botany* 8: 25–59.
MERXMÜLLER, H. & ROESSLER, H. 1980. Merkmals-Introgressionen bei *Forsskaolea* (Urticaceae). *Mededelingen Landbouwhogeschool Wageningen*, *Miscellaneous Papers* 19: 263–280.
ROESSLER, H. 1967. Urticaceae. *Prodromus einer Flora von Südwestafrika* 17: 1–6.
WILMOT-DEAR, C.M. & FRIIS, I. 1995. The New World species of *Boehmeria* and *Pouzolzia* (Urticaceae, tribus Boehmerieae). A taxonomic revision. *Opera Botanica* 129: 5–103.

VAHLIACEAE

(Order Vahliales)

Compiled by N. Madlokazi & C.L. Bredenkamp

VAHLIA Thunb.

Verkleurmannetjiekruid (A)

Species 5, distribution elsewhere; 2 with 6 intraspecific taxa in sthn Afr., widespread in drier western parts and very variable, N, B, LIM, NW, G, FS, KZN, L, NC, WC, EC.

capensis (L.f.) Thunb. subsp. vulgaris Bridson var. vulgaris

Annual or perennial herb, 0.07–0.38 m high; erect. **Leaves** opposite, narrowly to linear lanceolate, 7–45 × 0.5–4.0 mm, pubescent, apex acute, margins entire. **Inflorescence** axillary; peduncle 2–15 mm long; pedicels up to 4 mm long. **Calyx tube** glabrous to densely glandular-hairy, campanulate, valvate, 1.1–2.0(3.0) mm long. **Petals** bright yellow, irregularly dentate, usually hairy inside, entire, apex acuminate. **Stamens** 5, alternating with petals; filaments free, subulate; anthers 2-thecous, dehiscing longitudinally, introrse. **Ovary** inferior, 1-locular; styles 2 or 3, up to 8 mm long, glabrous; stigma capitate. **Flowering time** Dec.–Mar. **Fruit** a subglobose capsule, up to 2.9 mm long. **Seeds** ovoid, straw-coloured to pale brown, up to 0.55 mm long, with distinct longitudinal ridges. Sandstone, granite slopes; Dry Highveld Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna (Aliwal North, Engcobo District and Kei River).

BRIDSON, D.M. 1975a. A revision of the family Vahliaceae. *Kew Bulletin* 30: 163–182.
BRIDSON, D.M. 1975b. *Flora of tropical East Africa.* Vahliaceae: 1–5.
BRIDSON, D.M. 1978. Vahliaceae. *Flora zambesiaca* 4: 48–53.
BULLOCK, A.A. 1966. *Bistella* Adans. versus *Vahlia* Thunb. (Vahliaceae). *Acta Botanica Neerlandica* 15: 84, 85.
DANDY, J.E. 1959. Vahliaceae. In J. Hutchinson, *The families of flowering plants*, edn 2,1. Clarendon Press, Oxford.
FRIEDRICH-HOLZHAMMER, M. 1968. Vahliaceae. *Prodromus einer Flora von Südwestafrika* 53: 1.

VALERIANACEAE

(Order Dipsacales)

Compiled by W.G. Welman

VALERIANA L.

Species ± 200, widespread in north temperate regions, western South America; 1 in sthn Afr., LIM, NW, G, M, S, FS, KZN, L, WC, EC.

capensis Thunb. var. capensis

Cape valerian; *wildebalderjan* (A); *motetele* (SS); *umvuthuza* (Z)

Perennial herb, glabrous. **Stems** erect, single, unbranched, hollow, ribbed, nodes hairy, up to 1.5 m high. **Leaves** pinnate to pinnatipartite, up to 200 mm long, terminal leaflets biggest, margins irregularly, bluntly toothed; basal leaves in a rosette, petioles up to 180 mm; stem leaves few, opposite, upper ± sessile. **Inflorescence** a dichasial thyrse, expanding up to 300 × 100 mm, terminating stem, branched, many sessile flowers in dense clusters; bracts linear to linear-lanceolate, up to 3 mm long. **Calyx** limbs

forming a feathery pappus in fruit. **Corolla** white, lilac, mauve, pink, up to 5 mm long, funnel-shaped, 5-lobed, ± irregular. **Flowering time** Oct.–Jan. **Fruit** an achene, ± ovoid, compressed, glabrous, 6-ribbed, up to 5 mm long, pappus 4 mm long. Swamps, streambanks, grassland, damp places; Drakensberg Grassland, Sub-Escarpment Grassland, Sub-Escarpment Savanna (Ben Macdhui to Matatiele S, from Queenstown to Mjika, Amatole Mts to Komga and to Grahamstown).

capensis Thunb. var. **lanceolata** N.E.Br.
Stems up to 0.75 m high, usually in a small clump. **Basal leaves** lanceolate, entire or with 1 or 2 lobes near base. **Inflorescence** branches often arising from middle of main stem. **Flowering time** Nov.–Jan. Damp grassland, well drained; Drakensberg Grassland, Sub-Escarpment Grassland (Barkly East to Mount Ayliff and uMzimkhulu, very rare).

capensis Thunb. var. **nana** B.L.Burtt
Stems up to 300 mm. **Basal leaves** smaller than var. *lanceolata*, mostly broadly elliptic, entire. **Flowering time** Nov.–Jan. Montane, damp grassland; Drakensberg Grassland, Sub-Escarpment Grassland (Barkly East, Maclear, very rare).

CANNON, J.F.M. 1983. 95. Valerianaceae. *Flora zambesiaca* 7,1: 75–77.
COMPTON, R.H. 1966. An annotated check list of the flora of Swaziland. *Journal of South African Botany*, Suppl. Vol. 6.
VAN WYK, B.-E., VAN OUDTSHOORN, B. & GERICKE, N. 1997. *Medicinal Plants of South Africa*. Briza, Pretoria.

VERBENACEAE

(Order Lamiales)

Compiled by C.L. Bredenkamp & N. Ngoepe

Key after Fernandes (2005)

1a Fruit drupaceous, purple-black or lavender in colour, usually with a thick, fleshy exocarp and hard endocarp ..... **Lantana**
1b Fruit dry, dehiscing into 2 or 4 portions (mericarps), occasionally in *Chascanum* the mericarps remaining united:
2a Fruit dehiscing into 4 mericarps, each 1-seeded..... ***Verbena**
2b Fruit dehiscing into 2 mericarps, occasionally these remaining united (*Chascanum*):
3a Mericarps usually 2-locular and 2-seeded (rarely 1-locular and 1-seeded), each mericarp with 2 combs of spines on the dorsal face; calyx covered with hooked hairs, persistent and becoming inflated and enveloping the mature fruit ..... **Priva**
3b Mericarps usually 1-locular and 1-seeded, not echinate-spinulose on the dorsal face; calyx without hooked hairs and not becoming inflated:
4a Flowers in long terminal spikes or short spike-like racemes; mericarps ± strongly reticulately ribbed, separating from one another or remaining united when mature; calyx tubular, conspicuous ..... **Chascanum**
4b Flowers mostly in axillary cylindric or subcapitate pedunculate spikes, these often elongating in fruit; mericarps smooth, separating from one another; calyx campanulate or compressed, inconspicuous:
5a Erect perennial herbs, undershrubs or shrubs ..... **Lippia**
5b Trailing herb, rooting at the nodes ..... ***Phyla**

CHASCANUM E.Mey.

Species 25, mainly from Africa, extending to Madagascar, Arabia, Pakistan and India; 14 in sthn Afr., N, B, LIM, NW, G, M, FS, NC, EC.

cuneifolium (L.f.) E.Mey.
Perennial, dwarf shrub, 0.2–0.6 m high; base woody, branches tetragonal with 2 opposite lines of pubescence. **Leaves** petiolate; broadly- to oblong-cuneate, 13–25 × 6–13 mm,

base cuneate, apex rounded, coarsely dentate; puberulous on margins and midrib, glandular. **Inflorescence** a lax raceme, 76–152 mm long. **Flowers** white; bracts linear-subulate. **Calyx** 5-toothed; tube narrow, 5-ribbed. **Corolla**: tube curved, up to 23 mm long, slender, widened at apex; 5-lobed, lobes oblong or obovate. **Stamens** 4, didynamous, in upper part of corolla tube, included. **Ovary** 2-locular; style linear, heel-shaped bend above. **Flowering time** Sept.–May. **Fruit** dry, straw-coloured to black, oblong mericarps. Closed woodland, gravel, stony/rocky soil, alt. 50–1 341 m; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Albany Thicket (Queenstown S, from Graaff-Reinet to Komga and Greater Addo Elephant National Park to East London).

pinnatifidum (L.f.) E.Mey. var. **pinnatifidum**

Perennial herb, 0.1–0.5 m high; taproot woody; stems few to many, branched from near base, spreading. **Leaves** subsessile to shortly petiolate; deeply pinnatipartite to pinnati-lobed, 25–38 × 19 mm; leaf segments narrowly oblong to linear or sometimes oblong-triangular; obtuse or subacute, entire; hispidulous on both surfaces. **Inflorescence** of 1–many-flowered racemes, terminal on branches and branchlets. **Flowers** white. **Calyx** straight, puberulous outside; fruiting calyx oblong-ovoid, yellowish. **Corolla**: tube straight, slender, abruptly expanded into a flat limb. **Flowering time** Nov.–Apr. **Fruit**: mericarps broader and thicker at base, rounded at apex, prominently reticulate-alveolate with an irregularly dentate margin. Grassland, karoo, stony/rocky soil, alt. 290–1 850 m; Upper Karoo, Sub-Escarpment Grassland, Albany Thicket (Oviston Nature Reserve to Bethulie S, Middelburg to Queenstown, Graaff-Reinet to Tarkastad).

LANTANA L.

Species and infraspecific taxa 270, native to subtropical and tropical America with a few in Old World tropics; several species cultivated as garden ornamentals; 4 in sthn Afr., widespread.

Stems nearly always covered with recurved prickles; spikes not elongating after flowering; all leaves opposite

***camara** L.

Bird's brandy, tickberry; *boesmandruiwe*, *wilderoosmaryn* (A); *ubutywala bentaka* (X); *ubukhwebezane* (Z)

Spreading weed, 0.5–3.0(–5.0) m high; stems 4-angled. **Leaves** petiolate; broadly ovate to oblong-ovate; 20–120 × 20–70 mm, apex acute, base ± rounded, margins closely crenate-serrate; upper surface scabrid with coarse tubercle-based hairs, rugose, venation impressed; lower surface glabrescent, scabrid on raised venation. **Inflorescences**: flat heads, 20–30 mm in diam. **Flowers** orange, red, pink, mauve, pure yellow or white. **Calyx** thin, obscurely 4-toothed. **Corolla**: tube slightly curved; limb oblong to rounded. **Flowering time** Sept.–Apr. **Fruit** globose drupes; pyrene ovoid. Causing dense thickets at roadsides, forest clearings, pine plantations, deciduous woodlands and grassland, alt. 6–1 350 m; origin American tropics, declared weed (Category 1); Indigenous Forests, Indian Ocean Coastal Belt, Sub-Escarpment Savanna, Albany Thicket (Port St Johns to Port Edward S, Stutterheim to Butterworth and Klipkoppies to East London).

Stems without prickles; spikes elongating after flowering; leaves opposite or in whorls of 3

rugosa Thunb.

Bird's beer; *voëlbrandewyn* (A); *utyani-bentaka* (X); *impema* (Z)

Aromatic shrub, up to 1 m high; much branched, woody; stems and branches 4-angled, strigose. **Leaves** petiolate; lanceolate, ovate or oblong-ovate, apex acute, base rounded

to cuneate into petiole, margins crenate; profusely punctate glandular, strigose on upper surface, densely shortly whitish hispid beneath. **Inflorescence**: spikes subspherical or ovoid; lower bracts ovate-lanceolate to broadly ovate. **Flowers** pale rose, lilac to red-purple or violet with yellow throat, rarely white. **Calyx** appressed-pilose, thinly membranous. **Corolla**: tube dilated about middle; lower lip 3-lobed. **Flowering time** Aug.–May. **Fruit** drupaceous, purple, pulp edible. Moist soil in riverine vegetation, at dams, grassland and woodland, alt. 30–2 160 m; widespread in all bioregions, except Drakensberg Grassland and Mesic Highveld Grassland (Aliwal North to Umtamvuna River S, Middelburg to Port St Johns, Graaff-Reinet to Kentani District and Baviaanskloof to East London).

LIPPIA L.

Species ± 207, mainly south and central America, also tropical Africa; 5 in sthn Afr., B, LIM, NW, G, M, S, FS, KZN, EC.

javanica (Burm.f.) Spreng.

Lemon bush, fever tea; *koorsbossie*, *maagbossie* (A); *inzinziniba* (X); *umsuzwane* (Z)

Much-branched shrub, 0.7–5.0 m high; many-stemmed, stems erect, striate; hairs tubercle-based, appressed or spreading, short, stiff, glands small. **Leaves** petiolate; opposite or 3-whorled; lanceolate to obovate, 10–100 × 3–43 mm, base rounded then cuneate, apex subacute or obtuse, margins crenate-serrate, papyraceous; strongly rugose and scabrid above, softly and densely velvety below. **Inflorescence**: spikes 1–5 per axil, conical or oblong. **Flowers** white, creamy white, throat yellow. **Calyx** 2-lobed, ovate-campanulate. **Corolla**: tube narrowly funnel-shaped from narrow base; limb 2-lipped. **Flowering time** Sept.–Apr. **Fruit** of half-ovoid nutlets (mericarps), smooth. Wooded grassland, in riverine vegetation, weedy in derived range lands, alt. 5–1 920 m; Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Indigenous Forests, Sub-Escarpment Savanna, Albany Thicket (Engcobo to Port St Johns S, Alice to Kei River Mouth and Grahamstown to East London).

wilmsii H.Pearson

Erect shrub, 0.6–1.3 m high; rootstock stout, woody; stems subangular, scabrid-pubescent, glandular. **Leaves** opposite-decussate, shortly petiolate; narrowly elliptic to elliptic-oblong, base cuneate, apex acute to obtuse, margins crenulate to serrate; scabrid-pubescent above and on primary and secondary nerves beneath, elsewhere punctate glandular. **Inflorescence**: spikes subglobose, many-flowered; peduncles solitary; bracts appressed imbricate, ovate-lanceolate. **Flowers** whitish, greenish white to pale yellow, usually with a deep yellow centre. **Calyx** truncate, obscurely 4-toothed. **Corolla** narrowly funnel-shaped, ± 2× as long as calyx. **Flowering time** Nov.–Jan.? **Fruit** a shortly oblong, plano-convex pyrene. Grassland (recently burned) and plantations, well-drained soils, alt. 135–1 950 m; Sub-Escarpment Grassland, Albany Thicket (Mount Fletcher District to Clydesdale S, Maclear District, Klipkoppies).

*__PHYLA__ Lour.

Species 10, mainly American, dispersed in warm and tropical areas; 1 in sthn Afr., LIM, G, M, FS, NC, EC.

nodiflora (L.) Greene var. **nodiflora**

Frog fruit, mat grass

Trailing, perennial herb, up to 20–45 mm long; rootstock woody, stems creeping, rooting

at nodes, slender, purplish. **Leaves** opposite; shortly petiolate; oblanceolate or obovate, 5–50 × 2–30 mm, base cuneate, apex subacute, margins entire, sharply serrate at apex; thinly pubescent. **Inflorescence**: spikes purplish, cylindrical, 3–25 mm long; bracts closely imbricate, broadly obovate. **Flowers** mauve-pink, white with yellow throat, often white and purple in same inflorescence. **Calyx** compressed, membranous. **Corolla** tube ± 1.5 mm long; lobes unequal, upper lip 2-lobed, erect. **Stamens** 4 didynamous. **Flowering time** June, Dec.? **Fruit** obovoid, divided into 2 smooth mericarps. Lake and dam shores, riverbanks, floodplains, pan margins, coastal dunes and swamp margins, mud, sands and heavy black clays, alt. 2–1 525 m; Indian Ocean Coastal Belt, Albany Thicket (Mkambati Nature Reserve, Graaff-Reinet).

PRIVA Adans.

Species 20, tropical and subtropical Asia, Africa and parts of America; 10 in Africa all in the section *Priva*; 5 in sthn Afr., B, NW, G, M, S, FS, KZN, EC.

meyeri Jaub. & Spach var. **meyeri**

Blasieklits, *blasieklitsbossie* (A)

Perennial, straggling herb, 0.5–1.0 m high; rootstock woody; stems 1–several, herbaceous. **Leaves** opposite; ovate-lanceolate, base subtruncate, apex subobtuse, margins crenate-serrate. **Inflorescence**: slender racemes, young flowers densely spaced towards apex; bracts linear-lanceolate. **Flowers** white, pale pink or pale mauve with purple or red lines on lower lip. **Calyx** persistent; tube truncate with 5 small teeth at apex. **Corolla**: tube glabrous outside, hairy within; 5-lobed, ± 2-lipped, lobes obovate. **Stamens** 4 didynamous, arising at middle of corolla tube. **Flowering time** Oct.–Apr. **Fruit** dry, enclosed in calyx tube, separating into two 2-locular, 2-seeded mericarps. Woodland, forest margins, riverine vegetation, between long grasses, streambanks, alt. 15–1 675 m; Sub-Escarpment Grassland, Indigenous Forests, Albany Thicket (Mthatha to Port St Johns S, Mpofu Game Reserve to Kentani and Enon to East London).

***VERBENA** L.

Species and infraspecific taxa 350, in tropical and temperate America, 2 or 3 species in the Old World; 6 introduced in sthn Afr., mainly along roadsides and in waste places, B, LIM, NW, G, M, S, FS, KZN, L, NC, WC, EC.

1a Leaves deeply divided

aristigera S.Moore

Perennial, prostrate, trailing herb, 0.2–0.3 m high; stems woody at base. **Leaves** petiolate; triangular or ovate, 20–35 × 20–30 mm, 2-pinnatisect or 3-sect, segments also pinnatisect or 3-sect; ultimate segments linear, ± acute, margins revolute. **Inflorescences**: solitary, terminal spikes, ovoid, densely flowered; bracts ovate-lanceolate. **Flowers** many; mauve, lilac, mauve-blue, purple, purple-red, deep pink or sometimes white. **Calyx** tubular; teeth ovate at base, abruptly contracted into long seta, unequal. **Corolla**: tube 10–11 mm long, exserted, throat hairy inside; lobes broadly obcordate, emarginate. **Stamens** included or glands just exserted. **Flowering time** Sept.–Feb. **Fruit** dry, separating into four 1-seeded nutlets (mericarps), crustaceous. Woodland, grassland, old cultivation and roadsides, alt. 254–2 500 m; Sub-Escarpment Grassland, Albany Thicket (UMzimvubu S, Mountain Zebra National Park to Middeldrift and Grahamstown to Peddie).

officinalis L.

Wild verbena; *Europese verbena* (A)

Annual herb, up to 1.6 m high; stem woody and unbranched below, with a few long inflorescence branches above, leafy. **Leaves** ovate in outline, 20–70 × 8–85 mm, 3-partite to pinnatifid; lobes with apex acute or obtuse, base narrowly cuneate, semi-amplexicaul; bluntly serrate; leaves of upper branches lanceolate or oblanceolate to linear. **Inflorescences** of many, elongate, terminal and axillary, slender spikes; bracts ovate-lanceolate, attenuate-acuminate. **Flowers** lilac or mauve to magenta, purple, violet or blue, glabrous. **Calyx** subcylindric, glandular-pubescent outside. **Corolla**; tube narrowly cylindric; limb subequally 5-lobed. **Flowering time** Dec.–Apr.? **Fruit** of 4, dry, brown, oblong nutlets. Damp soil, stream margins, wooded grassland, old cultivation and on roadsides, alt. 45–1 675 m; Sub-Escarpment Grassland, Albany Thicket (Clydesdale S, Van Ryneveld's Pass to Queenstown District and to East London).

1b Leaves not deeply divided but distinctly toothed
2a Leaves petiolate, or if sessile, then not amplexicaul, attenuate towards base; spikes not dense (except at top), elongate, up to 200 mm long, slender, lax below in fruiting specimens

litoralis Humb., Bonpl. & Kunth

Perennial herb or shrub, 1–2 m high; stem erect or suberect, branched above, 4-angled, with whitish angles and flat faces. **Leaves** ovate, rhombic-ovate, spathulate or oblanceolate, 20–50 × 10–20 mm, apex acute, base tapering into narrow petiole, margins serrate to double serrate, teeth sometimes obtuse; both surfaces scabrid with sparse, short-appressed, antrorse, tubercle-based hairs, bristles more numerous on lower surface. **Inflorescences** much branched, with several to many corymbose-paniculately arranged spikes; spikes slender or filiform; bracts lanceolate. **Flowers** lavender or lilac to violet or violet-blue. **Calyx** hirsute, hispidulous or tomentose. **Corolla**: tube exserted from calyx; limb inconspicuous, with subequal, obtuse lobes. **Fruit** dry, enclosed in calyx, separating at maturity into four 1-seeded, crustaceous nutlets. In damp soil in grassland, headwaters of streams and riverbanks, old cultivation and on roadsides, alt. 230–1 800 m; Sub-Escarpment Grassland (between Cala and Maclear).

2b Leaves sessile, at least median ones widening or subcordate at base, amplexicaul; spikes dense and shorter, even in fruiting specimens
3a Corolla limb 5–7 mm wide; tube 8–10 mm long; spikes solitary or few; tips of leaf-serrations more spreading

rigida Spreng.

(= *Verbena venosa* Gillies & Hook.)

Perennial herb, mat-forming, rhizome creeping, aerial stems 0.2–0.6 m high; scabrous-pubescent. **Leaves** oblong-lanceolate, oblong or narrowly obovate, 30–120 × 10–25 mm, apex acute, margins coarsely incised-serrate, teeth rather distant; hispidulous on both surfaces. **Inflorescences** of 3–5 spikes in dichotomous cymes; spikes cylindrical; bracts lanceolate to long attenuate-subulate. **Flowers** purple to violet, blue-violet or mauve. **Calyx** cylindric, glandular-hairy, red or green. **Corolla**: tube 8–10 mm long, slender, cylindric, curved; limb 7–10 mm in diam., lobes broad and emarginate, median one longer. **Stamens** inserted near middle of tube. **Flowering time** Sept.–Apr. **Fruit**: mericarps ± 2 mm long, raised-reticulate in upper part. Garden escape, grassland on rocky dry slopes, alt. 140–1 875 m; Sub-Escarpment Grassland, Indian Ocean Coastal Belt, Albany Thicket, Sub-Escarpment Savanna (Maclear to Port St Johns S, Alice to Komga and to Grahamstown).

3b Corolla limb mostly much narrower; tube 2.5–7.0 mm long; spikes many; tips of leaf-serrations more ascending

bonariensis L.

Purple top; *blouwaterbossie* (A)

Perennial herb, 1–2 m high; ascending erect, 4-angled; scabrid, hairs bristle-like intermixed with glandular hairs. **Leaves** ovate-lanceolate to oblong, 50–120 × 30 mm, base semi-amplexicaul, apex acute, margins serrate to double serrate; scabrid with patent tubercle-based hairs above, indumentum densest below. **Inflorescence** of many, cymosely arranged spikes, in dense flat-topped or rounded clusters; bracts lanceolate, attenuate. **Flowers** deep purple. **Calyx** 30–35 mm long. **Corolla**: tube exserted from calyx; limb ± 3 mm in diam. **Flowering time** Oct.–Mar. **Fruit** of 1.5–2.1 mm long mericarps. Disturbed or grazed grassland, streams, riverbanks, old cultivation, roadsides, alt. 46–2 135 m; Sub-Escarpment Grassland, Drakensberg Grassland, Indian Ocean Coastal Belt, Sub-Escarpment Savanna, Albany Thicket, Eastern Fynbos-Renosterveld (Queenstown to Port St Johns S, across Amatole Mts to Willowvale, Suurberg in Greater Addo Elephant National Park to East London and to Humansdorp).

brasiliensis Vell.

Perennial herb, 0.5–1.0 m high; suberect, forming wide V with stem, 4-angled, scabrid, hairs tubercle-based, bristles whitish, denser along angles. **Leaves** lanceolate to ovate-oblong or oblong, 50–80 × 12–35 mm, base semi-amplexicaul, apex acute, margins serrate to double serrate, teeth ± acute. **Inflorescence** of many cymosely arranged spikes, in dense flat-topped or rounded clusters; bracts lanceolate, apex acute, ± filiform. **Flowers** mauve, purple or bluish purple. **Calyx** 20–28 mm long, teeth acute. **Corolla**: tube exserted above calyx teeth; limb up to 3 mm in diam. **Flowering time** Jan.–May? **Fruit** of 1.2–1.7 mm long mericarps, 3–5-ribbed on back, slightly raised-reticulate in upper part. Grassland, drainage channels between mountains, riverbanks, old cultivation, roadsides, alt. 580–1 722 m; Sub-Escarpment Grassland, Albany Thicket (Indwe to Lady Frere S, Cathcart, Rooikrantz Dam, East London).

BAKER, J.G. 1900. Verbenaceae (excl. *Cyclocheilon* by O. Stapf). *Flora of tropical Africa* 5: 273–332.
CANTINO, P.D. 1992. Toward a phylogenetic classification of the Labiatae. *Advances in Labiate Science*: 27–37. Royal Botanic Gardens, Kew.
CHAMISSO, L.K.A. 1832. *Bouchea. Linnaea* 7: 252.
FERNANDES, R. 2005. Verbenaceae. *Flora zambesiaca* 8,7: 8.
FRANCO, J. DO AMARAL. 1972. *Verbena. Flora europaea* 3: 122, 123.
GREENE, E.L. 1899. Neglected generic types. 1. *Phyla. Pittonia* 4: 45–48.
MOLDENKE, H.N. 1938. A monograph of the genus *Chascanum*. I. *Feddes Repertorium* 45: 113–160.
PEARSON, H.H.W. 1901. Verbenaceae. *Flora capensis* 5,1: 180–226.
VERDCOURT, B. 1992. *Flora of tropical East Africa*. Verbenaceae: 1–155.

VIOLACEAE

(Order Violales)

Compiled by N. Madlokazi

1a Flowers regular; trees or shrubs ..... **Rinorea**
1b Flowers irregular, the anterior petal longer or shorter, often spurred; herbs or subshrubs:
2a Pedicels articulate; stipules entire, linear-acuminate; anterior petal much longer than the other 4; with or without a spur ..... **Hybanthus**
2b Pedicels inarticulate; stipules with 2 basal teeth or foliaceous, laciniate; anterior petal shorter than the other 4, spurred ..... **Viola**

HYBANTHUS Jacq.

Lady's slipper

Species ± 100, distributed in tropical and subtropical regions, predominantly in South and Central America; 4 (2 naturalised) in sthn Afr., N, B, LIM, NW, G, M, S, KZN, NC, WC, EC.

capensis (Thunb.) Engl.

Perennial herb, 0.01–0.25 m high. **Leaves** ovate to obovate, up to 70 × 30 mm, apex obtuse, margins crenate, base attenuate into a petiole; stipules ovate-acuminate, membranous. **Flowers** solitary in axils, on long pedicels; 2 bracteoles subopposite below articulation. **Sepals** fimbriate, narrowly ovate. **Petals** white to mauve, with cream-coloured throat, 15 mm long, tomentose near base. **Stamens** short, glabrous filaments, connective-appendage oblong; anthers connivent, petaloid. **Ovary** globose; style long; stigma capitate. **Flowering time** Sept.–May. **Fruit** a capsule with 3 elastic valves, ± 10 mm long. **Seeds** obovoid, basal aril, smooth. Riverine areas, mountains, forests; Indigenous Forests, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt, Eastern Fynbos-Renosterveld (Alfred District to Umtamvuna Pont southwards, from Cala to Port St Johns, Amatole Mts to Kentani and Uitenhage to Port Elizabeth).

*enneaspermus (L.) F.Muell. var. enneaspermus

Perennial herb, 0.2–0.5 m high. **Leaves** elliptic to linear-lanceolate, up to 76 × 10 mm, apex acute, margins serrate, teeth gland-tipped, base attenuate into a petiole or petiole absent; stipules subulate, ± 2 mm long. **Flowers** axillary; pedicels articulated; 2 bracteoles opposite. **Sepals** free, 3–6 mm long, membranous. **Petals** pink to bluish, 5–20 mm long. **Stamens** 5, short, 2 anterior tomentose with caudate, hairy appendages; anthers connivent, petaloid. **Ovary** ovoid; style terete; stigma capitate. **Flowering time** Oct.–Feb. **Seeds** 3 or 4, fusiform to ovoid, shiny, 1.5 mm long, yellow, testa hygroscopic. River mouths, mountain slopes; Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Lusikisiki, Mkambati Nature Reserve, Umtamvuna and Ngonyama Rivers).

RINOREA Aubl.

Violet-bushes; *viooltjiebosse* (A)

Species ± 250, tropics and subtropics; 3 in sthn Afr., LIM, M, S, KZN, EC.

angustifolia (Thouars) Baill. subsp. natalensis (Engl.) Grey-Wilson

White violet-bush; *wit-viooltjiebos* (A); *ukutyakwemfene* (X); *ithwakele* (Z)

Perennial tree or shrub, 1.5–7.6 m high. **Leaves** alternate, elliptic to oblong, ± 70 × 25 mm, glossy dark green above, paler below, veins prominent both sides, base cuneate, apex acuminate, margins serrate, teeth gland-tipped; petioles short, ± 3 mm long; stipules

caducous, ± 3 mm long. **Inflorescence** axillary, corymbose. **Flowers** small. **Sepals** persistent, 2 mm long. **Petals** 7 mm long, sweetly scented, curling backwards. **Stamens** with filaments fused below and dorsal appendages; anthers exserted, petaloid. **Ovary** with style ± 4 mm long. **Flowering time** Aug.–Nov. **Fruit** an ellipsoid capsule, 1.3 mm long, obtusely 3-lobed, reddish brown. **Seeds** 1(2) per valve, pale yellow, 5 mm long, compressed-ovoid. Forests, riverbanks; Indigenous Forests, Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indian Ocean Coastal Belt [East Pondoland (Egoso), Umtentu River, Mntafufu River and Port St Johns].

domatiosa A.E.van Wyk

Pondo violet-bush; *Pondo-viooltjiebos* (A)

Evergreen tree or shrub, 1.5–8.0 m high. **Leaves** narrowly elliptic to oblong, ± 70 × 30 mm, slightly leathery, with translucent gland dots, lateral veins slightly ridged below, rusty brown hair-tuft domatia in their axils, base rounded, apex acuminate, margins bluntly toothed with gland-tipped teeth; petioles 3–6 mm long; stipules small. **Inflorescence** axillary, simple. **Flowers**: pedicels ± 20 mm long. **Sepals** 1.5–2.0 mm long, margins ciliate. **Petals**: upper part reflexed, whitish-pubescent. **Stamens** with filaments connate below, anthers 1.5 × 2.0 mm, connective appendages. **Ovary** with style 5.5 mm long. **Flowering time** Sept., Oct. **Fruit** an ovate capsule, 2 mm long, 3-lobed, yellowish green. **Seeds** 1 per valve, ellipsoid, 8 mm long, yellowish brown. Forests, rivers, streambanks; Sub-Escarpment Savanna, Indigenous Forests, Indian Ocean Coastal Belt (Lusikisiki and Port St Johns districts).

VIOLA L.

Violet

Species ± 300, cosmopolitan but mainly north temperate; 4 (2 naturalised) in sthn Afr., LIM, KZN, WC, EC.

Two naturalised species are popular garden plants.

***arvensis** Murray

Pansy, heartsease

Annual herb, up to 0.3 m high. **Leaves** oblong-spathulate, up to 50 mm long, pubescent both sides, apex acute or obtuse, margins crenate; petioles with deflexed hairs, up to 7 mm long; stipules 0.50–0.75× as long as leaf, coarsely pinnatifid. **Flowers** with bracts in upper $^1/_3$ of peduncle, axillary. **Sepals** lanceolate, subequal. **Petals** yellow to bluish violet, up to 15 mm long; spur equaling calycine appendages. **Stamens** with very short, free filaments; anthers with nectariferous appendages, petaloid. **Ovary** unilocular with 3 parietal placentas, stigma terminal. **Flowering time** Oct.–Dec. **Fruit** a 3-lobed capsule. **Seeds** globose, pointed below and above. Forests, mountains; Indigenous Forests (Hogsback District).

GREY-WILSON, C. 1981. Note on African Violaceae. *Kew Bulletin* 36: 103–110.
GREY-WILSON, C. 1984. Further notes on East African Violaceae. *Kew Bulletin* 39: 771–773.
OBERMEYER, A.A. 1976. Violaceae. *Flora of southern Africa* 22: 42–52.
ROBSON, N.K.B. 1958. Violaceae. The genus *Hybanthus* in Africa and Madagascar. *Boletim da Sociedade Broteriana* 32: 164–173.
ROBSON, N.K.B. 1960. Violaceae. *Flora zambesiaca* 1: 246–260.
SONDER, W. 1860. Violarieae, DC. *Flora capensis* 1: 72–75.
VALENTINE, D.H. 1968. Violales: CX Violaceae. *Flora europaea* 2: 270–282.
VAN WYK, A.E. 1983. A new species of *Rinorea* (Violaceae) from southern Natal and northern Transkei. *South African Journal of Botany* 2: 168–172.

VISCACEAE see SANTALACEAE

VITACEAE

(Order Rhamnales)

Compiled by E. Retief

1a Flower bud cylindric, constricted ± in the middle; disc divided into 4 glands ..... **Cyphostemma**
1b Flower bud conical or subglobose, not constricted in the middle; disc annular:
2a Flower bud conical to ovoid; petals 4 ..... **Cissus**
2b Flower bud subglobose; petals 5 or 6 ..... **Rhoicissus**

CISSUS L.

Species ± 200, fairly cosmopolitan in tropical and subtropical regions; 8 in sthn Afr., N, B, LIM, M, S, KZN, EC.

fragilis E.Mey. ex Kunth

Climber. **Stems** herbaceous. **Leaves** simple; petiolate; blade ovate, up to 100 × 90 mm, apex acute to acuminate, base cordate, margins regularly toothed, teeth ending in glands, fleshy but thin; petioles up to 70 mm long. **Flowers** in pseudo-umbels at apices of flowering branches. **Petals** yellow or cream-coloured. **Flowering time** Jan.–Mar. **Fruit** obovoid, ± 8 mm long, glabrous. Coastal forest, dune bush, along watercourses; Indigenous Forests (Mqanduli District, Lusikisiki District, Msikaba Gorge, Port St Johns, Qora River Mouth).

CYPHOSTEMMA (Planch.) Alston

Species ± 250, cosmopolitan in tropical and subtropical regions; 34 in sthn Afr., widespread, except WC.

Leaves simple

humile (N.E.Br.) Desc. ex Wild & R.B.Drumm. subsp. **humile**

Succulent scrambler. **Stems** with unbranched, multicellular hairs and scattered, stalked glands. **Leaves** petiolate; blade obovate, up to 140 × 40 mm long, margins regularly dentate, teeth large; petioles ± 15 mm long. **Flowers** in cymes on short branchlets. **Petals** yellow. **Flowering time** Oct., Nov. **Fruit** ovoid, 10–12 mm long, with unbranched, multicellular hairs. Grassland; Sub-Escarpment Grassland (Tsolo).

Leaves compound

cirrhosum (Thunb.) Desc. ex Wild & R.B.Drumm.

Climber. **Stems** with fine multicellular hairs. **Leaves** petiolate; blade 5-foliolate, obovate, terminal leaflet up to 50 × 28 mm long, margins unevenly dentate; petioles < 30 mm long. **Flowers** in terminal much-branched panicles. **Flowering time** Dec., Jan. **Fruit** globose, 8–10 mm long, with multicellular hairs. Forest margins, coastal dunes, scrub; Sub-Escarpment Savanna, Albany Thicket (Bizana, Komga, Alice, Port Alfred, Kowie, East London).

hypoleucum (Harv.) Desc. ex Wild & R.B.Drumm.

Climber. **Stems** with unbranched, multicellular hairs and scattered, red, stalked glands. **Leaves** discolorous; petiolate; 5-foliolate; blade with terminal leaflet obovate, up to 115 × 60 mm long, margins regularly toothed; petioles up to 60 mm long. **Flowers** in panicles. **Petals** pale yellowish green. **Flowering time** Oct.–Dec. **Fruit** subglobose, ± 10 mm long, with unbranched, multicellular hairs. Forest, forest margins, scrub; Indian Ocean Coastal Belt, Indigenous Forests (Mkambati River Mouth, Port St Johns).

natalitium (Szyszyl.) J.J.M.van der Merwe

Utywala bentsikizi (X)

Climber or straggler. **Stems** with scattered, shortly stalked, glandular hairs. **Leaves** petiolate; 3-foliolate with leaflets divided in 3 again, margins toothed, teeth sharp. **Flowers** in panicles; peduncles and rachis glandular-hairy. **Petals** cream-coloured. **Fruit** subglobose or ovoid, 7–10 mm long, glabrous. Rocky grassland, forest margins, disturbed places; Sub-Escarpment Savanna, Indian Ocean Coastal Belt (Shawbury Hill, Libode, Port St Johns, Kentani, Willowvale District: Ngqaqini).

quinatum (Dryand.) Desc. ex Wild & R.B.Drumm.

Wilde druif (A)

Perennial herb, succulent. **Stems** scrambling or erect. **Leaves** petiolate; 5-foliolate; blade with terminal leaflet up to 75 × 55 mm long, leaflets with a few, large teeth along margins; petioles up to 30 mm long. **Flowers** at apices of short branches. **Petals** yellow. **Flowering time** Nov.–Feb. **Fruit** ovoid, up to 14 mm long, glabrous. Dry watercourses, hill slopes, rocky soil; Albany Thicket, Upper Karoo, Sub-Escarpment Savanna (Queenstown, Jansenville, Cradock, Fort Beaufort, Alice, Greater Addo Elephant National Park, Olifantskop Pass, Fort Brown, Grahamstown).

rubroglandulosum Retief & A.E.van Wyk

Climber. **Stems** with multicellular, stalked, red glandular hairs. **Leaves** petiolate; blade 3- or 5-foliolate, terminal leaflet obovate to broadly obovate, 80–125 × 50–75 mm, apex acute to acuminate, base cuneate, margins regularly toothed; petioles up to 60 mm long. **Flowers** in leaf-opposed cymes. **Petals** yellow. **Flowering time** Oct.–Dec. **Fruit** subglobose, 14 × 11 mm, with simple, multicellular hairs. Forest, forest margins; Indigenous Forests, Indian Ocean Coastal Belt (Port St Johns).

sp. A

Creeper. **Leaves** fleshy; petiolate; 5-foliolate; terminal leaflet with blade up to 105 × 70 mm, apex acute, apiculate, base cuneate, margins regularly lobed; petioles up to 55 mm long. **Petals** ± 3 mm long. **Flowering time** Dec., Jan. **Fruit** globose to subglobose, 10–14 mm in diam. Grassland, forest, among rocks, along rivers; Indigenous Forests, Sub-Escarpment Savanna, Albany Thicket (Mpofu Game Reserve, Ngqaqini, Port Alfred).

RHOICISSUS Planch.

Species 10, in Africa; 7 in sthn Afr., the eastern parts, and absent from N, B and NC.

Leaves simple

[E]**kougabergensis** Retief & Van Jaarsv.

Kouga grape

Shrub, up to 1 m high. **Stems** sprawling. **Leaves** petiolate; blade narrowly obovate, 30–50 × 10–22 mm, apex obtuse or slightly emarginate, base cuneate, margins entire; discolorous with lower surface reddish brown, upper surface glaucous green, or both surfaces ± same colour; petioles 2–4 mm long. **Flowers** in reddish brown, hairy cymes. **Petals** greenish yellow. **Flowering time** Oct., Nov. **Fruit** globose, 8–10 mm in diam. Sandstone slopes; Albany Thicket (Kouga Dam).

[E]microphylla (Turcz.) Gilg & M.Brandt

Shrub, up to 2 m high. **Leaves** petiolate; blade ovate to elliptic, margins entire; indumentum prominently ferruginous on lower surface, lower surface with domatia; petioles up to 5 mm long. **Flowers** usually in 3-flowered clusters on peduncles in axils of leaves. **Petals** rusty brown. **Flowering time** Nov.–Mar. **Fruit** subglobose, ± 10 mm long, with scattered, simple hairs. Rocky places, mountain grassland; Sub-Escarpment Grassland, Drakensberg Grassland (Queenstown, Seymour–Wittlesea Road, Gaika's Kop, Cathcart).

tomentosa (Lam.) Wild & R.B.Drumm.

Vigorous climber. **Stems** and leaves densely felted with rusty, red hairs when young. **Leaves** petiolate; blade broadly ovate to reniform, up to 90 × 110 mm, base cordate to truncate, apex obtuse, margins shallowly toothed, 3-veined from base; upper surface dark green, lower surface hairy; petioles up to 70 mm long. **Flowers** in dense clusters on a short peduncle, densely felted with reddish brown hairs. **Petals** reddish brown, hairy. **Flowering time** Oct.–Feb. **Fruit** globose, up to 20 mm long, dark red tinged black. Forests; Indigenous Forests (Elliotdale, Egoso Forest, Port St Johns, Port Edward, Fort Jackson, Komga, Kentani, Suurberg, Uitenhage, Port Elizabeth, Storms River Mouth, Humansdorp).

Leaves compound

digitata (L.f.) Gilg & M.Brandt *s.l.*

Climber or scandent shrub. **Stems** woody. **Leaves** petiolate; 3- or 5-foliolate, sometimes 3-foliolate on old growth, 5-foliolate on young growth; terminal leaflet obovate to narrowly obovate, up to 85 mm long, base cuneate, apex acute, obtuse or emarginate, margins entire; lateral leaflets sessile or with short petiolules, blade leathery, often densely reddish brown-pubescent, domatia prominent. **Flowers** in lax cymes or dense clusters. **Petals** yellowish green. **Flowering time** Nov.–Apr. **Fruit** subglobose, up to 20 mm in diam., glabrous when ripe, sometimes white-dotted. Forests, dunes, kloofs, scrub; Indian Ocean Coastal Belt, Indigenous Forests, Sub-Escarpment Savanna, Albany Thicket, Eastern Fynbos-Renosterveld (Mkweni River Mouth S, from Alice to Willowvale, Komga, Kentani, Kei River Mouth, Haga Haga and Bonza Bay, and from Uitenhage to Port Elizabeth, Alicedale, Alexandria, Kenton on Sea, Kowie, Bathurst and East London).

rhomboidea (E.Mey. ex Harv.) Planch.

Bastard forest grape; *basterbosdruif* (A)

Tall climber. **Stems** with young parts ferruginous-villous. **Leaves** petiolate; 3-foliolate; leaflets with petiolules, terminal leaflet rhomboid, up to 70 × 60 mm, base cuneate, apex acuminate, margins dentate in upper half of blade, each dentition with a distinct mucro, ± 1 mm long, lateral leaflets with asymmetrical bases; petioles up to 25 mm long. **Flowers** in leaf-opposed clusters. **Petals** green. **Flowering time** Sept.–Jan. **Fruit** ± globose, 10 mm in diam., dark red to purple. Forest, forest margins; Indigenous Forests (Elliotdale E to Port St Johns S, from Hogsback to Pirie Forest and Kei River Mouth, and from Witelsbos to Grahamstown).

tridentata (L.f.) Wild & R.B.Drumm. *s.l.*

Wild grape; *droog-my-keel*, *wildedruif* (A); *isinwazi* (Z)

Climber or shrub. **Stems** scandent or erect; ± 0.5–1.0 m or indefinite. **Leaves** petiolate or sessile; 3-foliolate; terminal leaflet sessile or with a petiolule, blade narrowly to broadly obovate, base cuneate, apex acute or truncate, lateral leaflets sessile or with short

petiolules, apex acute, base asymmetrical, margins entire, toothed or crenate, glabrescent or grey-hairy. **Flowers** in leaf-opposed cymes or on tendrils. **Petals** yellowish green. **Flowering time** Nov.–Mar. **Fruit** subglobose, 8–10 mm in diam., red to purplish when ripe. Forests, grassland; absent in drier western part of EC, in all bioregions, except Upper Karoo, Dry Highveld Grassland, Mesic Highveld Grassland, Lower Karoo, Rainshadow Valley Karoo (Egoso S, from Queenstown to Cala, Mngazi River Mouth and Port St Johns, Graaff-Reinet to Somerset East, and from Suurberg Pass to Alicedale, Baviaanskloof, Addo, Winterhoek Mountains, Port Elizabeth, Grahamstown Port Alfred and East London, and to Humansdorp).

R. tridentata, an extremely polymorphic species, is usually divided into 2 subspecies: subsp. *tridentata* and subsp. *cuneifolia* (Urton et al. 1986). The leaf blade varies in shape, size, indentation of margins and the length of the petiole.

sp. A

Climber, robust. **Stems** woody. **Leaves** petiolate; 3-foliolate; terminal leaflet obovate, up to 65 × 30 mm, base cuneate, apex acute to acuminate, lateral leaflets with base asymmetrical, one side of leaflet prominently broader than the other one, up to 50 × 27 mm, blade leathery, dark green, glossy, domatia present in axils. **Flowers** in dense clusters, young clusters densely reddish brown. **Petals** white, buds pinkish white. **Flowering time** Aug.–Nov. **Fruit** ± globose or subglobose, up to 12 mm long, with scattered simple hairs, 1- or 2-seeded. Forests, loam or sandy soil; Indigenous Forests (Dontsa Forest Reserve, Zingcuka Forest, Bestershoek, Hogsback Forest).

BAKER, J.J. 1868. Vitaceae. *Flora of tropical Africa* 1: 385–416.
MERXMÜLLER, H. & SCHREIBER, A. 1969. Vitaceae. *Prodromus einer Flora von Südwestafrika* 80: 1–8.
RETIEF, E. & VAN JAARSVELD, E.J. 1997. A new species of *Rhoicissus* from the Eastern Cape. *Bothalia* 27: 49–51.
URTON, N.R., OLIVIER, M.C. & ROBERTSON, B.L. 1986. The taxonomy of the *Rhoicissus tridentata* (Vitaceae) complex in southern Africa. *South African Journal of Botany* 52: 389–396.
VERDCOURT, B. 1993. *Flora of tropical East Africa*. Vitaceae: 1–149.
WILD, H. & DRUMMOND, R.B. 1963. Vitaceae. *Flora zambesiaca* 2: 439–492.

ZYGOPHYLLACEAE

(Order Zygophyllales)

Compiled by E. Retief & C.L. Bredenkamp

1a Leaves paripinnate, leaflets in 5–10 pairs, non-succulent ..... **Tribulus**
1b Leaves simple or bifoliolate, succulent:
2a Petals 3-fid; ovary 10-locular ..... **Augea**
2b Petals entire; ovary 4- or 5-locular ..... **Zygophyllum**

AUGEA Thunb.

Volstruiskougoed

Monotypic, sthn Afr., in the southern part of N and in arid areas of NC, WC, EC.

capensis Thunb.

Annual herb, 0.20–0.55 m high; glabrous, succulent. **Stems** branched or unbranched; dull yellow. **Leaves** opposite, simple, connate, subterete. **Flowers** a few in a fascicle at nodes of branches, shortly pedicellate. **Calyx** with an obconic tube; lobes 5, narrowly ovate to ovate, with an apical membranous appendage, margins membranous. **Petals** 5,

linear, 3-fid, with the middle lobe shortest; greenish white. **Disc** cup-shaped, with 10 filiform processes on rim. **Stamens** 10, arising on margin of disc and alternating with processes; filaments terete, with deeply 2-partite, toothed appendages; anthers oblong, obtusely mucronate at apex. **Flowering time** June–Mar. **Fruit** a capsule, irregularly septicidal. **Seeds** obovate in outline, somewhat compressed, densely woolly. Along river- or streambanks, in sandy soil; Lower Karoo, Rainshadow Valley Karoo (farm Willowdale, along Kariega River, S to Steytlerville, farm Noorspoort).

TRIBULUS L.

Devil's thorn; *dubbeltjie*, *volstruisdoring* (A); *inkunzane* (Z)

Species ± 25, fairly cosmopolitan in warm, somewhat arid areas; 5 in sthn Afr., N, B, LIM, NW, G, S, FS, KZN, NC, WC, EC.

terrestris L.

Annual herb, pubescent; branches procumbent, spreading. **Leaves** opposite; members of a pair unequal in size; paripinnate; leaflets in 5–10 pairs, one of each pair longer than the other, sessile, oblong to ovate, margins entire; stipules 2. **Flowers** axillary, solitary, subtended by smaller leaf. **Calyx** of 5 semi-persistent sepals; narrowly ovate, hairy outside. **Petals** 5, ± ovate, 3–12 mm long, yellow. **Stamens** 10, in 2 whorls; intrastaminal glands 10, free; anthers oblong-cordate. **Flowering time** Sept.–Mar. **Fruit** 5-angled, splitting at length into 5 indehiscent mericarps; mericarps with 2 lateral divergent acute spines and 2 shorter spines directed downwards. Grassland, disturbed areas; in all bioregions, except Lower Karoo, Rainshadow Valley Karoo, Eastern Fynbos-Renosterveld, Indigenous Forests (Oviston Nature Reserve to Rhodes S, Schoombee District to Cala, Cradock to Komga and Greater Addo Elephant National Park to Grahamstown).

ZYGOPHYLLUM L.

Species ± 150, Mediterranean region to central Asia, mostly in the drier parts of Africa and Australia; 55 in sthn Afr., mainly in dry, brackish areas of the southern part of N, also in B, FS, NC, WC, EC.

Molecular research by Bellstedt et al. (2008) on 53 sthn Afr. *Zygophyllum* species suggests that the proposal to move the southern African species to the genera *Roepera* and *Tetraena* (Beier et al. 2003) may have been premature. The EC species are therefore retained in the genus *Zygophyllum*.

1a Petals not marked at base; nectar disc smooth; fruit dividing into 5 mericarps
2a Annual or biennial, procumbent herb

simplex L.
[= *Roepera simplex* (L.) Beier & Thulin]

Brakkies, *brakspekbos*, *panspekbos*, *rankspekbos*, *volstruisdruiwe*, *volstruisslaai* (A)

Annual or biennial herb, in dense mats, up to 0.1 m high. **Stems**: old stems yellow, smooth, when dry, displaying many, embedded crystals and a warty surface; young stems green or yellow, leafy with a prominent ventral groove. **Leaves** sessile, simple; blade narrowly to broadly ovate, 4–12 × 1.5–4.0 mm, base cuneate, apex rounded. **Stipules** triangular. **Flowers** solitary or 2 together, axillary. **Sepals** 5, ovate to obovate. **Petals** 5, spathulate, 3–4 × 0.5–2.0 mm, apex round, base with a long claw, yellow. **Flowering time** all year. **Fruit** schizocarp, mericarps 5, narrowly to broadly obovoid, succulent when young; when dry, walls thin, nearly transparent, displaying dark tubercles, scattered or in several rows. Disturbed places; Lower Karoo (south of Aberdeen on road to Willowmore).

chrysopteron Retief
[= *Tetraena chrysopteron* (Retief) Beier & Thulin; *Zygophyllum retrofractum* Thunb.] (Goldblatt & Manning 2000, Manning & Goldblatt 2012)
Kleinskilpadbos (A)
Shrub or dwarf shrub, up to 0.7 m high. **Stems**: old stems scarred, young stems smooth; repeatedly branched, slightly arched. **Leaves** petiolate; leaflets oblong or obovate, 2.0–2.5 × 1.5–2.0 mm, apex and base obtuse; petioles 2.0–2.5 mm long. **Stipules** triangular. **Flowers** solitary or 2 together. **Sepals** 5, oblong. **Petals** 5, spathulate, 3–4 × 0.5–1.0 mm, base long-clawed, apex obtuse. **Flowering time** July–Oct. **Fruit** erect, subspherical, 3–4 × 3.5–4.0 mm, 5-winged, wings reticulately veined. Karoo plains, on gravelly sand, dry conditions, grazed; Lower Karoo, Albany Thicket, Rainshadow Valley Karoo (Graaff-Reinet to Aberdeen S, from Willowmore to Steytlerville and Jansenville Districts).

2b Dwarf shrubs or shrubs

microcarpum Cham.
[= *Tetraena microcarpa* (Cham. & Schltdl.) Beier & Thulin]
Gannabos, *armoedsbos*, *sandrapuis*, *ouooibos* (A)
Dwarf shrub or shrub, up to 1.5 m high. **Stems**: old stems dark to light grey or white, bark finely cracked; young stems green, leafy. **Leaves** petiolate, bifoliolate; leaflets narrowly obovate, 6–11 × 2–3 mm; petioles flat, 4–8 mm long. **Stipules** subulate. **Flowers** solitary, axillary. **Sepals** 5, ovate or obovate. **Petals** 5, spathulate, 7–8 × 1.5–2.5 mm, white or pale yellow. **Flowering time** all year. **Fruit** erect or semi-erect, oblong, 5-winged, breaking up in 5 compressed mericarps, each mericarp 11–13 × 7–8 mm, reticulately veined. Along riverbeds, roadsides, in flats on clay; Upper Karoo, Lower Karoo, Albany Thicket, Dry Highveld Grassland (Hofmeyr S, from Graaff-Reinet District to Aberdeen and Somerset East).

1b Petals marked at base; nectar disc papillate; fruit a loculicidal capsule, disintegrating when mature.
3a Leaves sessile

divaricatum Eckl. & Zeyh.
[= *Roepera divaricata* (Eckl. & Zeyh.) Beier & Thulin]
Dwergskilpadbos (A)
Shrub or dwarf shrub, succulent, 0.3–0.9 m high. **Stems**: old stems nude, bark rough, grey, young stems smooth with prominent ridges. **Leaves** sessile; bifoliolate; leaflets obovate to broadly obovate, 5–8 × 3.5–4.5 mm, base oblique or somewhat cuneate, apex rounded. **Stipules** triangular, 0.5 mm long. **Flowers** solitary, axillary. **Sepals** 5, ovate or obovate, 3.5–4.5 × 2–3 mm. **Petals** 5, obovate, 9–14 × 4–8 mm, apex obtuse, base with a long claw; yellow, with red or reddish brown markings. **Flowering time** Aug., Sept.? **Fruit** drooping, subspherical, 8–10 × 6–8 mm, ridged. Roadsides, sandy bush clumps; Albany Thicket, Eastern Fynbos-Renosterveld (Addo, Uitenhage District between Sundays and Coega Rivers, Redhouse, Port Elizabeth).

fulvum L.
[= *Roepera fulva* (L.) Beier & Thulin]
Spekbos (A)
Shrub or dwarf shrub, 0.2–1.0 m. **Stems**: old stems nude, bark rough, grey, cracked, young stems smooth. **Leaves** sessile; bifoliolate; leaflets narrowly to widely obovate, 10–30

× 3–15 mm, base obtuse or narrowed, apex acute or obtuse. **Stipules** narrowly triangular, spinescent. **Flowers** solitary or 2 together, axillary. **Sepals** 5, ovate. **Petals** 5, obovate or broadly obovate, 10–18 × 6–11 mm, apex rounded, emarginate, base with a short claw, dull yellow, yellow or white, red, brownish red or brown marked at base. **Flowering time** May–Jan. **Fruit** drooping, subspheroid or oblong, 8–20 × 9–14 mm, 5-lobed, each lobe with a fine central ridge. Open sandy flats, rocky and sandy hills; Eastern Fynbos-Renosterveld, Albany Thicket (Antoniesberg, Kouga Mts, Misgund, Baviaanskloof, Joubertina, Port Elizabeth and Humansdorp).

pygmaeum Eckl. & Zeyh.

Shrub, up to 50 mm high. **Leaflets** sessile; grey-green, finger-like, ± 10 × 3 mm. **Flowers** yellow, ± 15 mm in diam.; petals marked red at base. **Flowering time** in winter and spring. **Fruit** 5-angled and ribbed when dry. In loamy or clayey soils in Apronveld, Kalkveld and Gwarrieveld, highly palatable and grazed to small stumps by game and stock; Eastern Fynbos-Renosterveld (Vanrhynsdorp to Port Elizabeth).

3b Leaves petiolate
4a Fruit not winged or ridged

maritimum Eckl. & Zeyh.
[= *Roepera maritima* (Eckl. & Zeyh.) Beier & Thulin; incl. *Z. uitenhagense* Sond.]

Dwarf shrub. **Stems**: old stems nude, bark rough, grey, cracked, young branches scrambling, up to 2 m long, smooth, leafy. **Leaves** petiolate, bifoliolate; leaflets obovate or elliptic, 14–19 × 5–10, base cuneate, apex rounded or acute; petioles 1–3 mm long. **Stipules** narrowly triangular, reflexed. **Flowers** solitary or 2 together, axillary; pedicels 8–25 mm long. **Sepals** 5, ovate or obovate. **Petals** 5, widely obovate, 11–14 × 7–9 mm, apex obtuse or emarginate, base short-clawed, cream-coloured or yellow; base markings darker yellow, red or brown. **Flowering time** Mar.–Nov. **Fruit** drooping, oblong or spheroid, 12–15 × 10–13 mm, sutures visible, sunny side brick-coloured. Rocky places, near clay pits, scrub, sand dunes, margins of dune thicket; Albany Thicket, Eastern Fynbos-Renosterveld (Grahamstown, Peddie, Bushman's River Mouth, Port Alfred S, from Cape St Francis to Cape Recife).

4b Fruit ridged or winged
5a Fruit ridged

foetidum Schrad. & J.C.Wendtl.
[= *Roepera foetida* (Schrad. & J.C.Wendtl.) Beier & Thulin]

Jakkalspisbos, *slymbos* (A)

Shrub, up to 1.5 m high. **Stems**: old stems grey, young stems pale green, smooth. **Leaves** petiolate, bifoliolate; leaflets obovate, 25–43 × 16–30 mm, base oblique, apex rounded; petioles 6–20 mm long. **Stipules** triangular, membranous. **Flowers** solitary or 2 together, axillary. **Sepals** 5, ovate or obovate. **Petals** 5, obovate, 15–22 × 7–12 mm, base with a short claw, apex obtuse; deep yellow with red or brown markings at base. **Flowering time** June–Dec. **Fruit** drooping, subspheroid, 8–12 × 6–10 mm, 5-lobed each with a bony ridge. Succulent Karoo on conglomerate hillsides, kloofs and river valleys, closed woodland, grassland; Albany Thicket, Eastern Fynbos-Renosterveld (Baviaanskloof, Patensie, Glenconnor, Addo, Uitenhage, Alicedale, Committees Drift, Grahamstown and Humansdorp).

incrustatum Sond.
[= *Roepera incrustata* (E.Mey. ex Sond.) Beier & Thulin]
Skeleton bush; *witkaree*, *spekboskareedoring* (A)
Dwarf shrub or shrub, up to 1 m high. **Stems**: old stems nude, grey, bark rough; young stems spreading, curved, white with short, spike-like branchlets. **Leaves** petiolate, bifoliolate; leaflets conduplicate or open, elliptic, 5–7 × 2–3 mm. **Stipules** widely triangular, 1–2 × 2–3 mm. **Flowers** solitary, axillary. **Sepals** 5, obovate. **Petals** 5, obovate, 9–10 × 3–4 mm, apex obtuse, emarginate, base clawed, deep yellow, unmarked. **Flowering time** Oct.–Apr. **Fruit** drooping, ovoid, 9–10 × 6 mm, 5-lobed, lobes ridged. Slopes of rocky karroid koppies, grassland, grazed; Upper Karoo, Albany Thicket, Dry Highveld Grassland (Oviston to Aliwal North S, from Middelburg to Steynsburg, Graaff-Reinet to Mountain Zebra National Park near Cradock and Somerset East).

5b Fruit winged

debile Cham.
[= *Roepera debilis* (Cham. & Schltdl.) Beier & Thulin]
Dwarf shrub or shrub, up to 1.5 m high. **Stems**: scrambling; old stems nude, bark rough; young stems smooth with ridges. **Leaves** bifoliolate, leaflets asymmetrical, obovate, ovate or elliptic, 11–26 × 4–7 mm, base narrowed, apex rounded or acute; petioles 1–4 mm long. **Stipules** narrowly triangular. **Flowers** solitary or 2 together. **Sepals** 5, ovate or obovate. **Petals** 5, widely obovate, 13–14 × 6–8 mm, apex rounded, emarginate, undulate, claw short; cream-coloured or yellow, base variously marked red, deep yellow or brown. **Flowering time** Mar.–Nov. **Fruit** drooping, oblong, 12–26 × 9–14 mm, 5-winged, wings 2 mm wide. Hillsides, roadsides, between rocks or in rocky soil; Eastern Fynbos-Renosterveld, Albany Thicket, Sub-Escarpment Savanna (Willowmore, Greater Addo Elephant National Park, Uitenhage, Alicedale, Grahamstown, Port Alfred, East London).

lichtensteinianum Cham.
[= *Roepera lichtensteiniana* (Cham. & Schltdl.) Beier & Thulin]
Vaalspekbossie, *spekbos*, *teebos* (A)
Shrub, up to 1 m high, **Stems**: old stems grey, bark rough, young stems smooth. **Leaves** petiolate, bifoliolate; leaflets obovate, 8–17 × 5–6 mm, base oblique, apex obtuse. **Stipules** widely triangular. **Flowers** solitary. **Sepals** 5, ovate or obovate. **Petals** 5, suborbicular or widely obovate, 8–11 × 3–6 mm, base with a short claw, apex rounded, emarginate; pale yellow with reddish brown, rhombic markings at base. **Flowering time** all year. **Fruit** erect, subspheroid 6–7 × 6–8 mm, 5-winged, wings reticulately veined, 2–3 mm wide. Disturbed places, roadsides, flats; Upper Karoo, Albany Thicket, Dry Highveld Grassland, Rainshadow Valley Karoo (Middelburg, Hofmeyr, Graaff-Reinet, Somerset East, Steytlerville).

morgsana L.
[= *Roepera morgsana* (L.) Beier & Thulin]
Leeubos, *skilpadbos*, *spekbossie*, *vetbos* (A)
Shrub, up to 1.5 m high. **Stems**: old stems nude, grey, young stems green, smooth. **Leaves** bifoliolate; leaflets obovate or subrotund, 15–30 × 12–19 mm, base cuneate or obtuse, apex rounded; petioles 2–3 mm long. **Stipules** widely triangular. **Flowers** 2 together. **Sepals** 4, obovate or ovate. **Petals** 4, obovate or elliptic, 13–19 × 5–9 mm, base with a short claw, apex rounded; pale yellow with red or brown markings at base.

Flowering time May–Oct. **Fruit** drooping, roundish, 26–40 × 26–40 mm, 4-winged, wings 10–15 mm wide, with a deep sinus at apex and base. Sandy soil, disturbed areas, closed shrubland; Eastern Fynbos-Renosterveld, Albany Thicket (between Willowmore and Baviaanskloof, Addo, Uitenhage, Despatch, Port Elizabeth, Humansdorp and Cape Recife).

BEIER, B.-A., CHASE, M.W. & THULIN, M. 2003. Phylogenetic relationships and taxonomy of subfamily Zygophylloideae (Zygophyllaceae) based on molecular and morphological data. *Plant Systematics and Evolution* 240: 11–39.

BELLSTEDT, D.U., VAN ZYL, L., MARAIS, E.M., BYTEBIER, B., DE VILLIERS, C.A., MAKWARELA, A.M. & DREYER, L.L. 2008. Phylogenetic relationships, character evolution and biogeography of southern African members of *Zygophyllum* (Zygophyllaceae) based on three plastid regions. *Molecular Phylogenetics and Evolution* 47: 932–949.

GOLDBLATT, P. & MANNING, J.C. 2000. Cape Plants: A Conspectus of the Cape Flora of South Africa. *Strelitzia* 9. African National Biodiversity Institute, Pretoria and Missouri Botanical Garden, Missouri.

LAUNERT, E. 1963. Zygophyllaceae. *Flora zambesiaca* 2: 125–130.

MANNING, J. & GOLDBLATT, P. 2012. Plants of the Greater Cape Floristic Region Vol. 1: the Core Cape flora. *Strelitzia* 29. South African National Biodiversity Institute, Pretoria.

SCHWEICKERDT, H.G. 1937. An account of the South African species of *Tribulus* Tourn. ex Linn. *Bothalia* 3: 159–178.

VAN ZYL, L. 2000a. *A systematic revision of* Zygophyllum *(Zygophyllaceae) in the southern African region*. Unpublished Ph.D. thesis, University of Stellenbosch, Stellenbosch.

VAN ZYL, L. 2000b. Zygophyllaceae. In P. Goldblatt & J. Manning, Cape Plants. A conspectus of the Cape Flora of South Africa. *Strelitzia* 9: 688–690. National Botanical Institute, Pretoria.

VLOK, J. & SCHUTTE-VLOK, A. 2010. *Plants of the Klein Karoo*. Umdaus Press, Pretoria.

End of Volume 2

Monocotyledons

AGAPANTHACEAE

(Order Asparagales)

Compiled by C.L. Bredenkamp & Z.L. Magwaza

AGAPANTHUS L'Hér.

Bloulelie (A)

Monotypic family endemic to sthn Afr.; species 10, variable, widespread, except N, B and NC, mainly at higher altitudes, some species are grown as ornamentals.

campanulatus F.M.Leight.

Bell agapanthus; *bloulelie* (A); *leta-laphofu* (SS); *ugebeleweni* (X); *ubani* (Z)

Perennial herb, geophyte, 0.4–1.5 m high. **Leaves** glaucous or glossy green, purple at base, deciduous, 6–12 per individual plant, 150–500 × 10–25 mm, apex obtuse. **Peduncle** 400–700 mm high. **Inflorescence** not densely flowered; pedicels 20–70 mm, spreading. **Perianth** pale to medium blue or rarely white; segments 20–35 mm long, spreading, not recurving; tube 5–10 mm long. **Stamens** with lilac pollen. **Flowering time** Dec.–Mar. Grassland, loamy soil and rocky mountain ledges, full sun or semi-shade; Sub-Escarpment Grassland, Sub-Escarpment Savanna, Indigenous Forests, Indian Ocean Coastal Belt (Matatiele District S to Maclear and Mkambati Waterfall).

caulescens Spreng.

Perennial herb, geophyte, 0.6–1.7 m high; **Leaves** bright green or glossy green, deciduous, 7–15 per individual plant; basal leaves 50–150 × 15 mm, upper leaves



A Flora of the Eastern Cape Province is a comprehensive book, the first to describe the vascular plants occurring in the Eastern Cape Province. From an evolutionary perspective, this flora evolved during the formation of the Karoo Supergroup and reached a phase of maturity in the latter half of the Cretaceous. Geology and soils, together with climate, form the basis for the existence of plants and animals, a symbiosis that can rightfully be described as a symphony. The introduction to the *Flora* leads the reader through the 12 bioregions and the lustre thereof is reflected in the twelve accompanying photographic plates. A broad perspective of the bioregions in the Eastern Cape is provided by Prof. Richard Cowling in the chapter *Vegetation of the Eastern Cape: navigating a transition zone*. This *Flora* contains descriptions of all families (226), genera (1 440) and species (6 611) occurring in the Eastern Cape Province, compiled by 77 contributors, of whom many are specialists on specific taxa.



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VOLUME 2

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