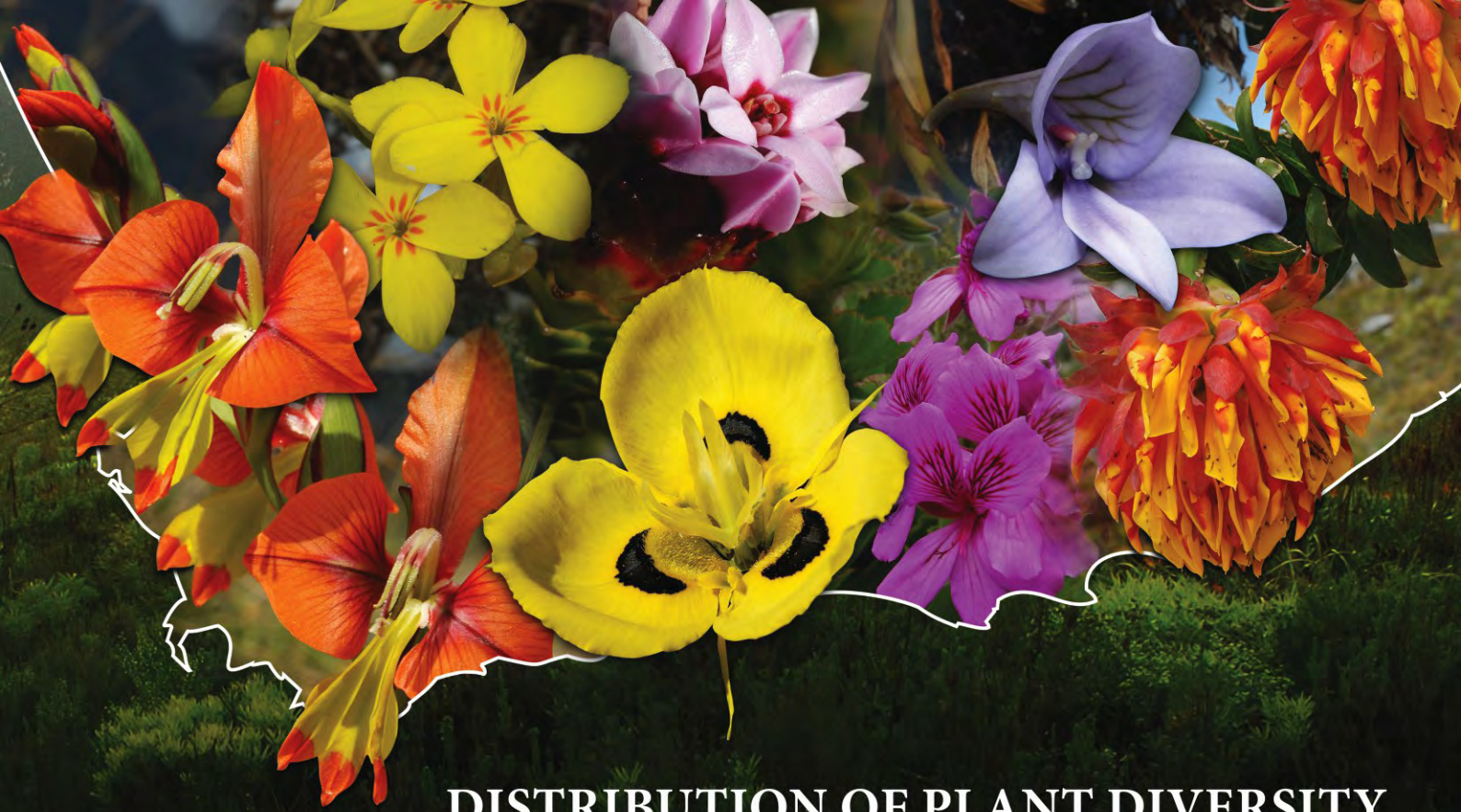


DISTRIBUTION OF PLANT DIVERSITY IN THE CORE CAPE FLORISTIC SUBREGION

Martin Freiberg & John Manning



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SANBI
Biodiversity for Life

Pretoria
2013

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&

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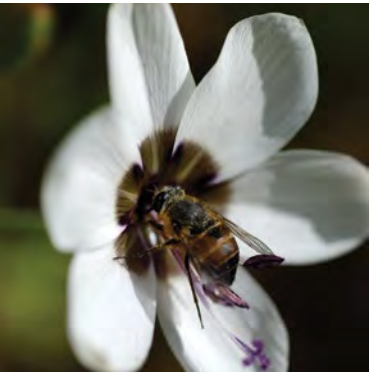
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Introduction

The remarkably diverse Core Cape Floristic Subregion includes an estimated 9 383 species of vascular plants in 997 genera and 178 families (Manning & Goldblatt 2012). The region is dominated by a vegetation of sclerophyllous heathlands, called *fynbos* in South Africa. Similar vegetation types occur in all five Mediterranean-climate regions across the globe. The moderate climate, with winter temperatures rarely dropping below freezing in the lowlands and with summers rarely unbearably hot, makes these climatic regions favourable for human settlement. Indeed, Mediterranean regions are often associated with early settlements and are closely related to human development. Not surprisingly, many cultures have coined their own terms for the sclerophyllous shrublands characteristic of such regions—in Europe it is called *garrigue* in France, *matorral* in Spain, *macchia* in Italy and *phrygana* in Greece; in North America in California it is called *chaparral*; in Australia in the southwest it is called *kwongan*; and in Chile it is termed *matorral*, as in Spain.

The fynbos of South Africa is unique in many respects. Although the plants themselves often resemble those of other sclerophyllous heathlands in habit and foiliage, the actual composition of families, genera and species is quite different. The level of endemism among species (68%) is unusually high for a continental region, and the rates of adaptative radiation in some groups, including the large genera *Erica, Muraltia* and *Aspalathus*, are unparalleled elsewhere.

The singular nature of the fynbos flora is not only of academic interest. The beauty of many fynbos plants—many proteas, ericas and bulbous species as an example—has stimulated an interest in southern African plants among gardeners and enthusiasts all over the world that goes far beyond mere curiosity. The South African flora is well represented in illustrated guides and other picture books—from exquisite watercolours to detailed photographs. The floristic catalogue or florula *Cape Plants: a conspectus of the Cape flora*, published as *Strelitzia* 9 (Goldblatt & Manning 2000) and the updated *Plants of the Greater Cape Floristic Region 1: the Core Cape Flora*, published as *Strelitzia* 29 (Manning & Goldblatt 2012) [hereafter *Plants of the Core Cape Flora*], make it possible to identify even superficially similar species that are not easily distinguishable in illustrated handbooks. This is extremely important for the conservationist who needs to know which plants are growing in an area.

Botanists visiting South Africa with student groups on a field course typically run on very tight budgets, demanding careful planning of excursions to expose students to as many plant families as possible, especially the smaller, endemic fynbos families. The available literature provides some guidance on roughly where to go, but it is nearly impossible to get a more exact indication where to find the most Bruniaceae or Penaeaceae, for instance. Where are the centres of diversity of interesting taxa—areas that often correspond with the centres of evolution of these groups? Do the centres of diversity lie in national parks or protected areas? Is it easy to get there or are they rather remote? Do they still exist as untransformed habitat or does the area of potential occurrence of a taxon as shown in the literature overlap with urban or agricultural areas? If so, then the chance of still finding the species there is remote!

The aim of this series of floristic maps is to answer these questions by visualising the distribution of the Cape Flora at the taxonomic levels of family and genus. Centres of diversity can thus be easily located. Conservationists, botanists and tourists will be able to use the maps for their own purposes.

Although the maps appear rather detailed, they depend on the data available in the literature and include a degree of extrapolation. That is why maps for species are not given: they would present an estimated range and not an absence/presence map verified by field workers for every Cartesian grid of the total map. Nevertheless, we think the database is broad enough to allow the construction of the maps and we hope that they will be of value to many users, especially those working on the Cape Floristic Region (CFR). The arrangement of families and their circumscriptions reflect the taxonomic treatment in *Plants of the Core Cape Flora* (Manning & Goldblatt 2012), and can thus be used directly in conjunction with that book.






Methods in the map design

The maps were created by Martin Freiberg from two primary sources: *Plants of the Core Cape Flora* (Manning & Goldblatt 2012) and SIBIS of SANBI at http://sibis.sanbi.org/faces/Mapping/Map.jsp. Only species native to the Cape Flora were considered; introduced species were disregarded.

Data from *Plants of the Greater Cape Floristic Region*

The distribution information for each species was gathered from the relevant entry in *Plants of the Core Cape Flora*, e.g. *Aspalathus calcarata* 900–1 000 m, NW (Bokkeveld Mtns to Cedarberg). This information was translated into two bit pixel-oriented maps of the Cape Flora as defined in *Plants of the Core Cape Flora*. The base map used represents a geographic height model of the CFR with a precision of 50 m, constructed with the help of the National Geophysical Data Center of the National Oceanic and Atmosphere Administration (NOAA) of the USA at http://www.ngdc.noaa.gov/mgg/topo/globe.html. Available altitudinal parameters were marked on this map, e.g. for *Aspalathus calcarata* the regions between 900 and 1 000 m above sea level were highlighted. The geographical distribution, e.g. 'Bokkeveld Mtns to Cedarberg', was then projected onto the altitudinal map for the species.

The geographical information was of several different types:

- A single point location (e.g. 'Swellendam').
- An area between two points (e.g. 'Swellendam to Bredasdorp').
- A geographical area (e.g. 'Langeberg Mtns').
- An area between two geographical areas (e.g. 'Bokkeveld Mtns to Cedarberg').
- Centres of endemism (e.g. 'NW' or 'KM').

The distribution information was extracted using different resources, including topographic maps or data provided by 'google maps'. Ranges between two points or areas were extrapolated manually. The maps constructed in this way were then overlaid onto the altitudinal map of the species. The resultant overlap of both maps was accepted as the species range.

Data from SIBIS

SIBIS provides species occurrences on a WGT grid base of roughly 40 × 40 km². This grid is often a bit cruder than the data from *Plants of the Core Cape Flora*, but especially for species with a wide range (e.g. 'Clanwilliam to Port Elizabeth') these data helped to verify the data from that source, e.g. when altitudinal data were missing.

The grid squares were projected onto the map derived from the distribution information in *Plants of the Core Cape Flora*.

Synthesis and final maps

During the final step, a composite distribution range was drawn manually from all data and for all species, with black indicating occurrence and white indicating absence of a species in a particular pixel. The distribution maps for genera, families or other taxa were obtained by summing the occurrence in a particular pixel of all species from the relevant taxon. In the end, a colour code in the familiar rainbow palette was assigned to a pixel, the lowest number of species in a pixel coloured in the lowest colour code (blue) and the highest number of species in the highest colour code (light red), with pixels between these extremes coloured correspondingly.

The colour coding is different for every map. In this way, it is possible to distinguish differences in taxa with few species. Using an absolute coding for each map would have resulted in many maps coloured in nearly indistinguishable blue pixels or various hues. So please be aware that a certain shade of red on one map may represent five species, but the same shade of red on another map may represent 200 species!

The diversity map for a family may differ from those for the component genera and species. To visualize this, the distribution for each genus was calculated and added up in the same way as for species maps and is included as an inset map within the species map.

Discussion

The centre of diversity for the endemic species of the six endemic and near-endemic families of the Core Cape Flora (Bruniaceae, Geissolomataceae, Grubbiaceae, Lanariaceae, Penaeaceae and Roridulaceae) lies in the largely mountainous region between Stellenbosch, Kleinmond, Caledon and Worcester. It includes the greater Hottentots-Holland Nature Reserve and the Kogelberg Reserve but not the Cape Peninsula and the Langeberg and Cedarberg mountain ranges, which fall largely or completely outside of it, although they are important centres of diversity for other endemic taxa. Identified as the heart of the Cape flora (Manning 2004), the Hottentots-Holland/Kogelberg centre occupies a pivotal position in the complex of sandstone ranges that constitutes the Cape Fold Mountains and which protrude from this hub northwards to the Bokkeveld Escarpment and eastwards to Port Elizabeth. The Hottentots-Holland/Kogelberg area is also evident as a centre of diversity in the species density maps for all Cape Flora species, for eudicots, and for monocots. In contrast, the ferns, the palaeodicots and especially the gymnosperms become more abundant towards the east. These three groups are closely associated with the forested habitats that are more extensive in the eastern than in the western part of the Core Cape Region.

Although the numbers of families and genera decline towards the north, there are no clearly defined distribution centres for these two taxonomic categories. This is reflected in the low percentage endemism in the Cape Flora for families (2.3% endemic) as well as genera (15.5%) (Manning & Goldblatt 2012).

Centres of species diversity generally have sharper boundaries than centres of generic diversity, e.g. Iridaceae, Proteaceae. This is most simply interpreted as the result of the fact that a genus patch usually represents several to many species, but a species patch represents only one species. Diversity maps for genera generally overestimate genera with one or few species, but underestimate those with many species. In many families, centres of diversity for genera largely coincide with centres of diversity for species, e.g. Bruniaceae, Molluginaceae, Penaeaceae. Exceptions to this rule are illuminating. In Aizoaceae, generic diversity is centred in the Little Karoo whereas species diversity is highest in the northern Cedarberg. Similarly, generic diversity in Boraginaceae is also highest in the Little Karoo, but species diversity is concentrated in the southwestern mountains. In Cyperaceae, the centre of generic diversity is along the wider southern

coast from Cape Town to Port Elizabeth, but species diversity is concentrated around False Bay. Most orchid genera are also concentrated along the southern coast between Knysna and Port Elizabeth, while most orchid species occur between Cape Town, Stellenbosch and Kleinmond.

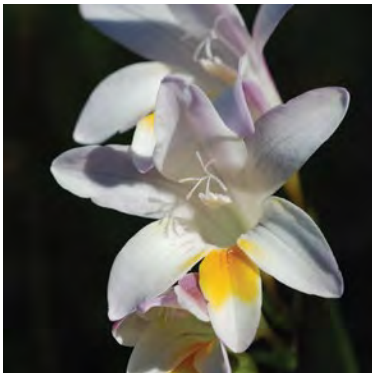
Generic circumscriptions are essentially anthropogenic constructions and generally more liable to change than species delimitations, either to adjustment as additional phylogenetic data are accumulated or to more subjective alterations flowing from philosophical paradigms. In strictly phylogenetic classifications, there is no doubt that two species in the same genus are more related to one another than are two species in different genera in the same tribe or family. The family circumscriptions applied here are demonstrably phylogenetic in being derived from molecular phylogenetic analysis, but this is not the case for all genera, some of which are certainly not. To the extent that they are, however, maps showing different species and generic distribution centres also give us a simple hypothesis about migration (from generic centre to species centre) and some indication of where the most recent speciation is likely to have taken place. An environmentalist concerned with determining which region to protect must be aware that regions with many species are not necessarily those with the highest genetic diversity and thus evolutionary potential. This situation was first dramatically highlighted by Forest *et al.* (2007), who showed that although species diversity in the Core Cape Region was highest in the west, phylogenetic or evolutionary diversity was highest in the east. The ability of a natural system to adapt to changing conditions is much greater if it incorporates lots of different evolutionary options, as measured by lots of unrelated organisms rather than lots of related ones. Conserving existing species is crucial for our short-term survival since on them depends the functioning of the whole ecosystem under present conditions. Under different conditions, however, such as we are going to experience as a result of climate change, it is advisable to ensure that we also conserve those areas with the greatest potential for change. In this case it seems to be the Eastern Cape rather than the southwestern Cape.

Distribution of plant diversity in the Core Cape Floristic Region shows the added value that can be derived from the fusion of totally different data sets for the distribution of plants by visualising otherwise rather hidden information. The quality of results naturally depends on the precision of the original data, and we urge authors and collectors to be as precise as possible in their distribution information. The identification of discontinuities in the ranges, or gaps in the distribution, of species would certainly assist in generating more precise distribution maps.

Acknowledgements

Horticulturists and curators at the Botanical Gardens in the Western Cape, namely Ernst van Jaarsveld of Kirstenbosch, Deon Viljoen of Karoo Desert, and Jane Forrester of Harold Porter, answered a lot of questions and helped with field logistics. Financial assistance for field work was kindly provided by *Freundeskreis des Botanischen Gartens Leipzig*. Publication of this volume was made possible by the generous assistance of Elizabeth Parker of Elandsberg Nature Reserve, whose ongoing support for botanical and other biological study in southern Africa has greatly furthered our understanding and appreciation of the biodiversity of the region.



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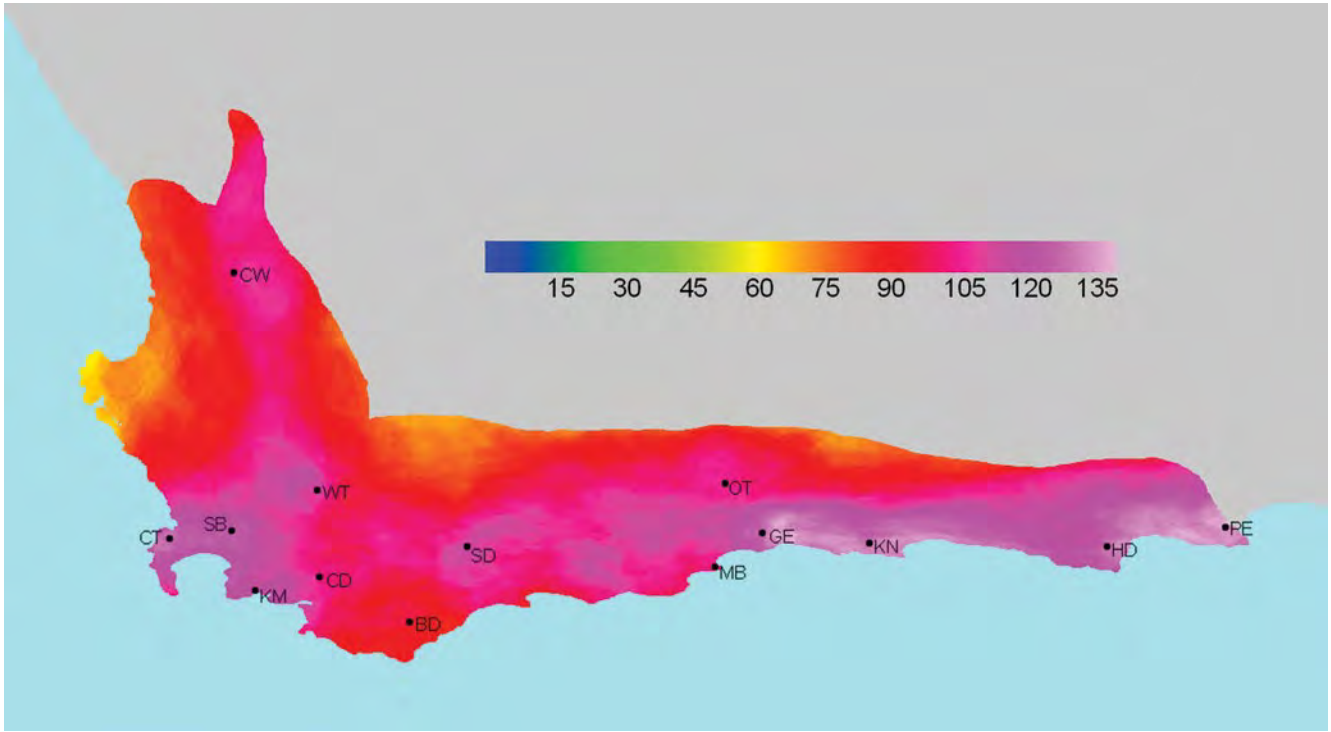



Maps

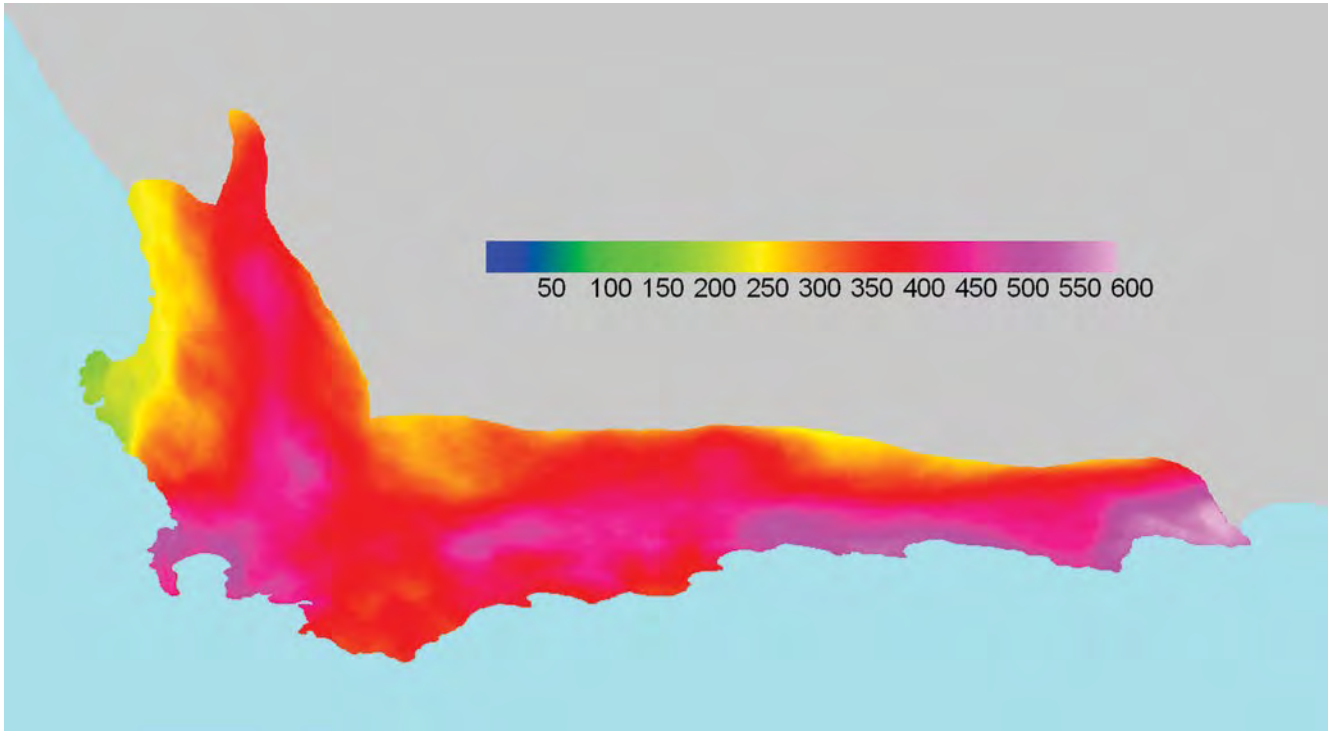
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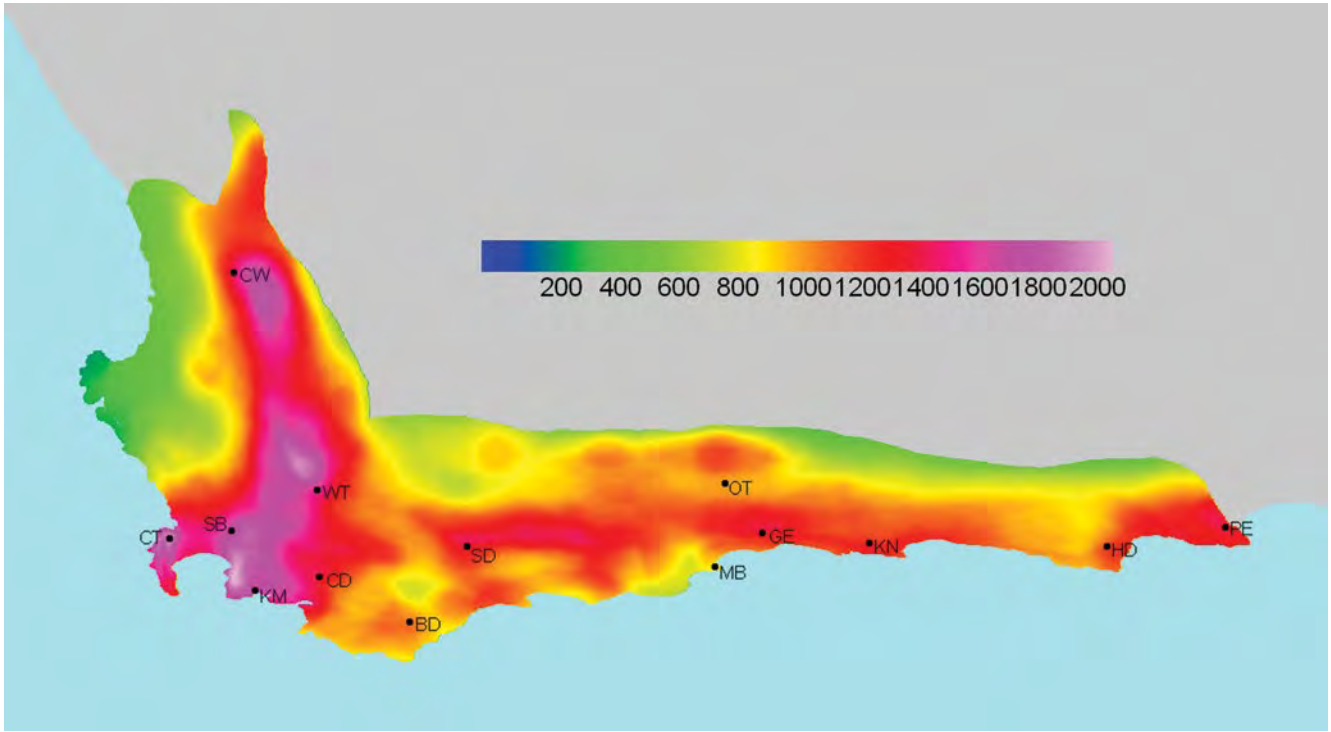


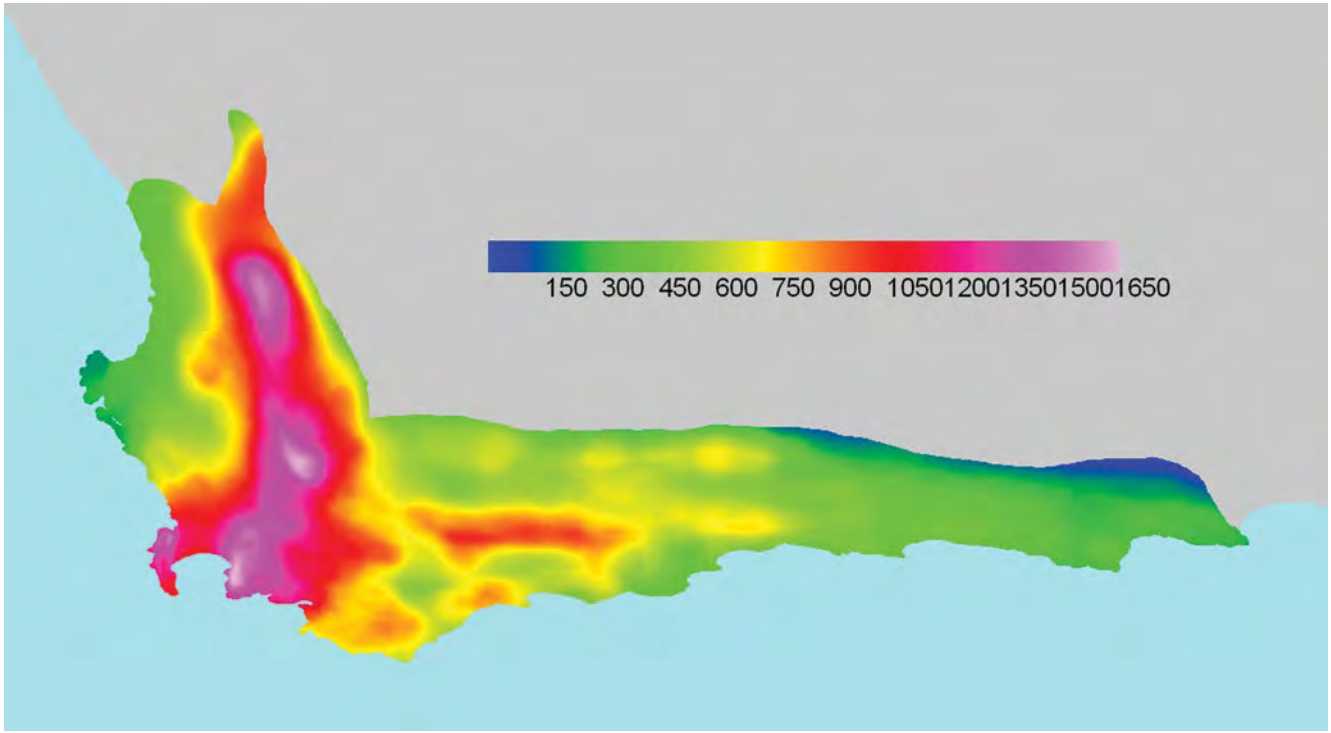
Families (175 families)



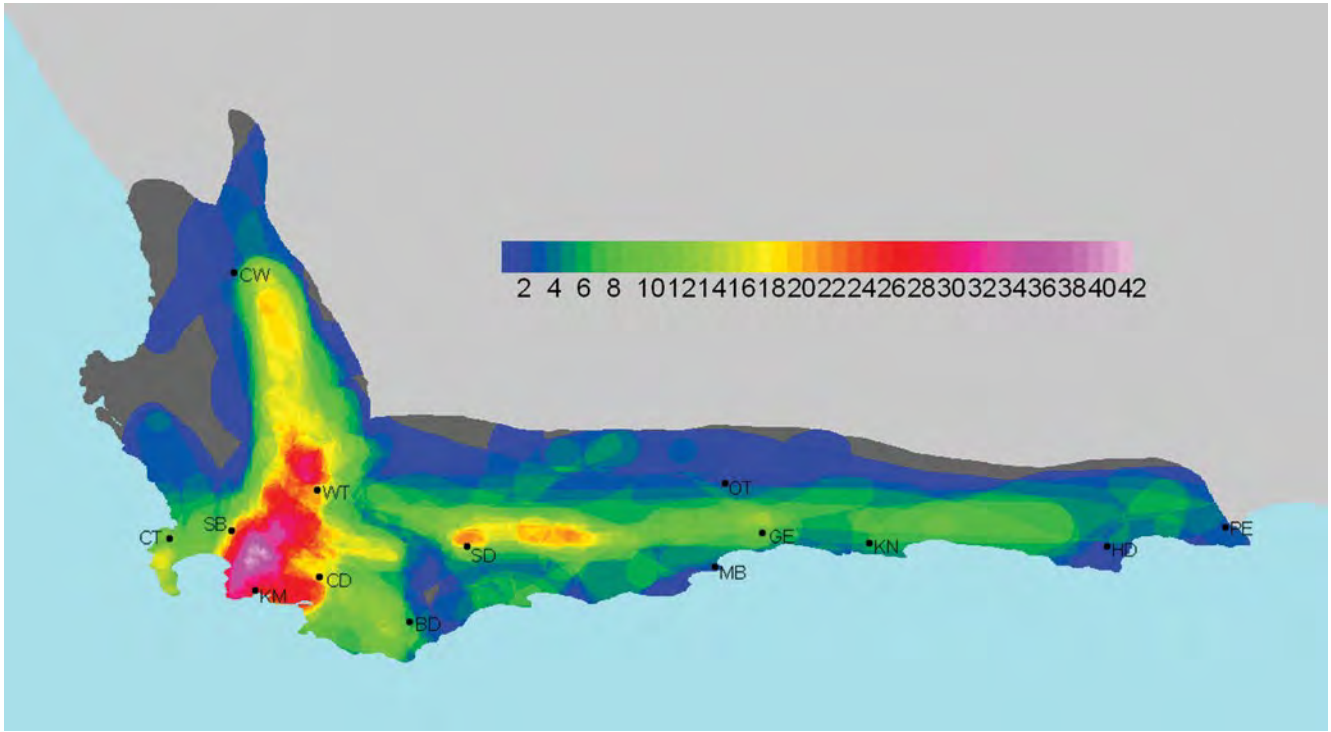
Genera (988 genera)



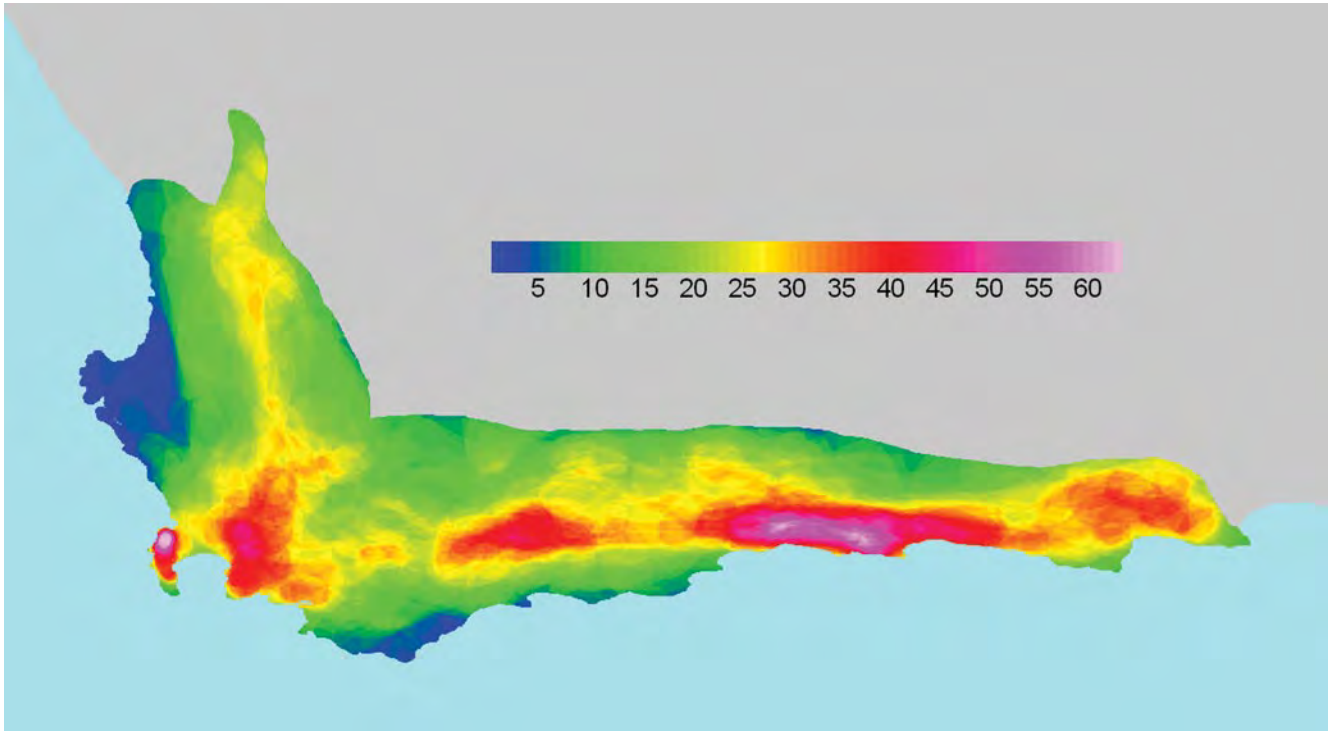
Species (8 727 spp.)



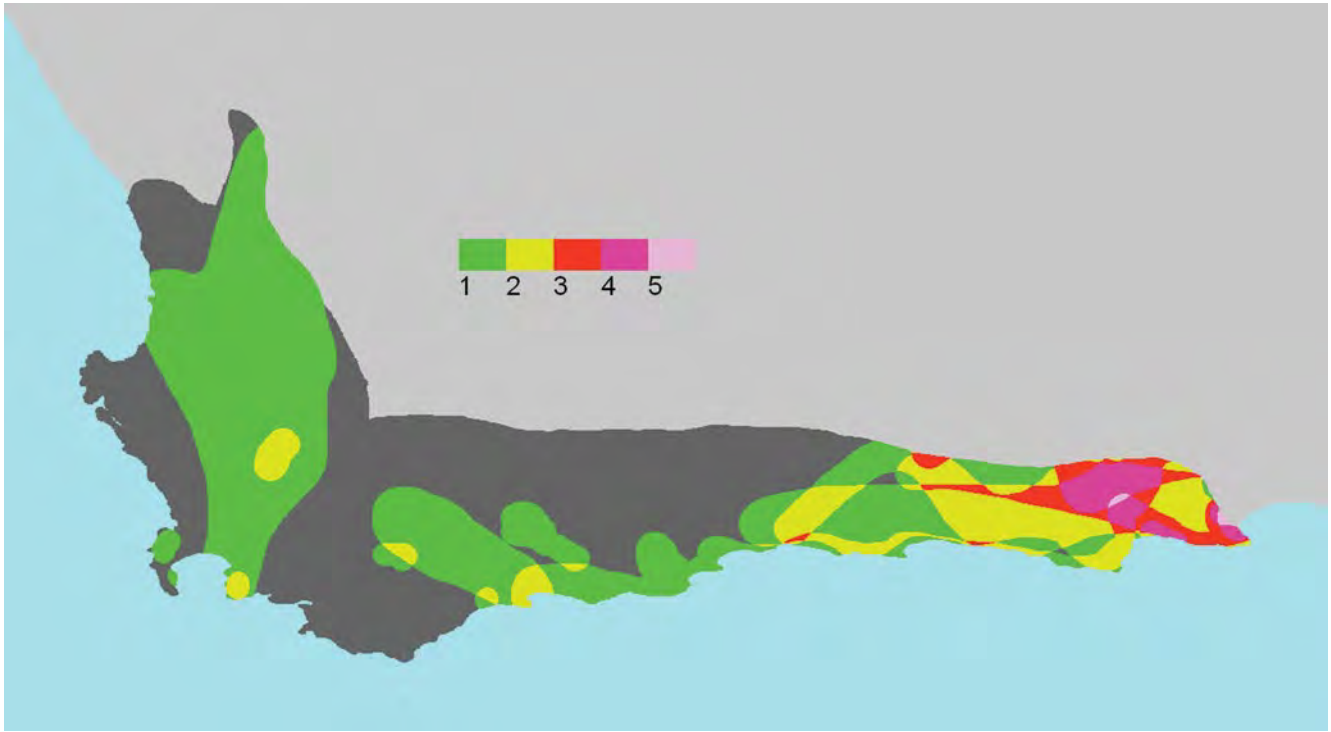
Endemic species (7 187 spp.)



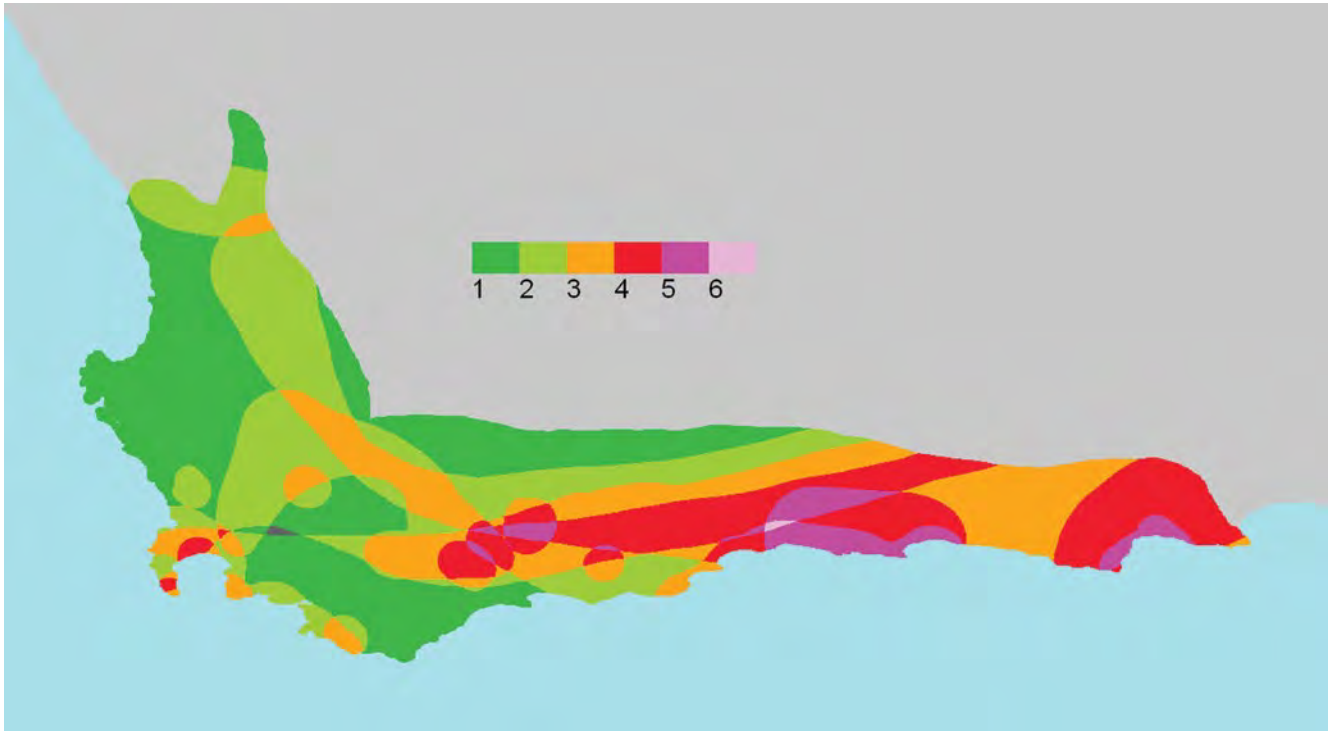
Species of the endemic and near-endemic families Bruniaceae, Geissolomataceae, Grubbiaceae, Lanariaceae, Penaeaceae and Roridulaceae (108 spp.)



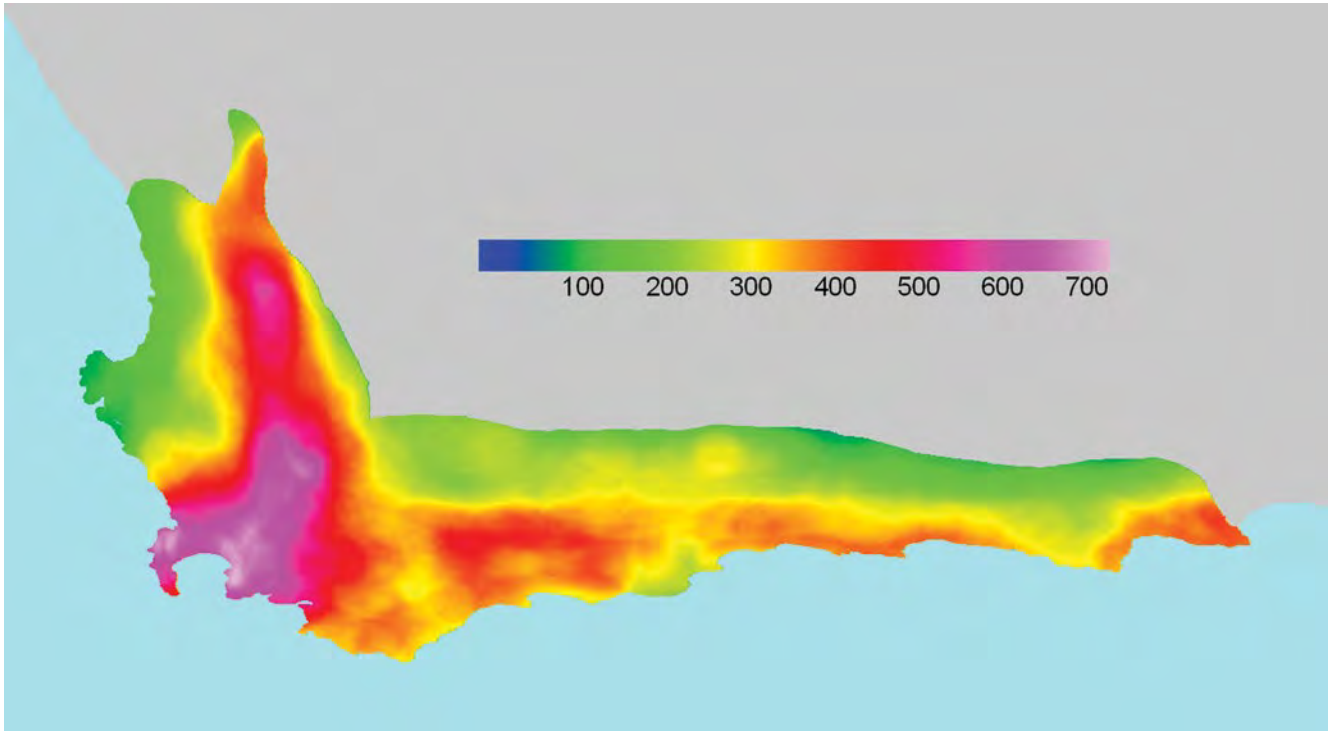
Ferns and fern allies (lycopodiophytes and pteridophytes) (115 spp.)



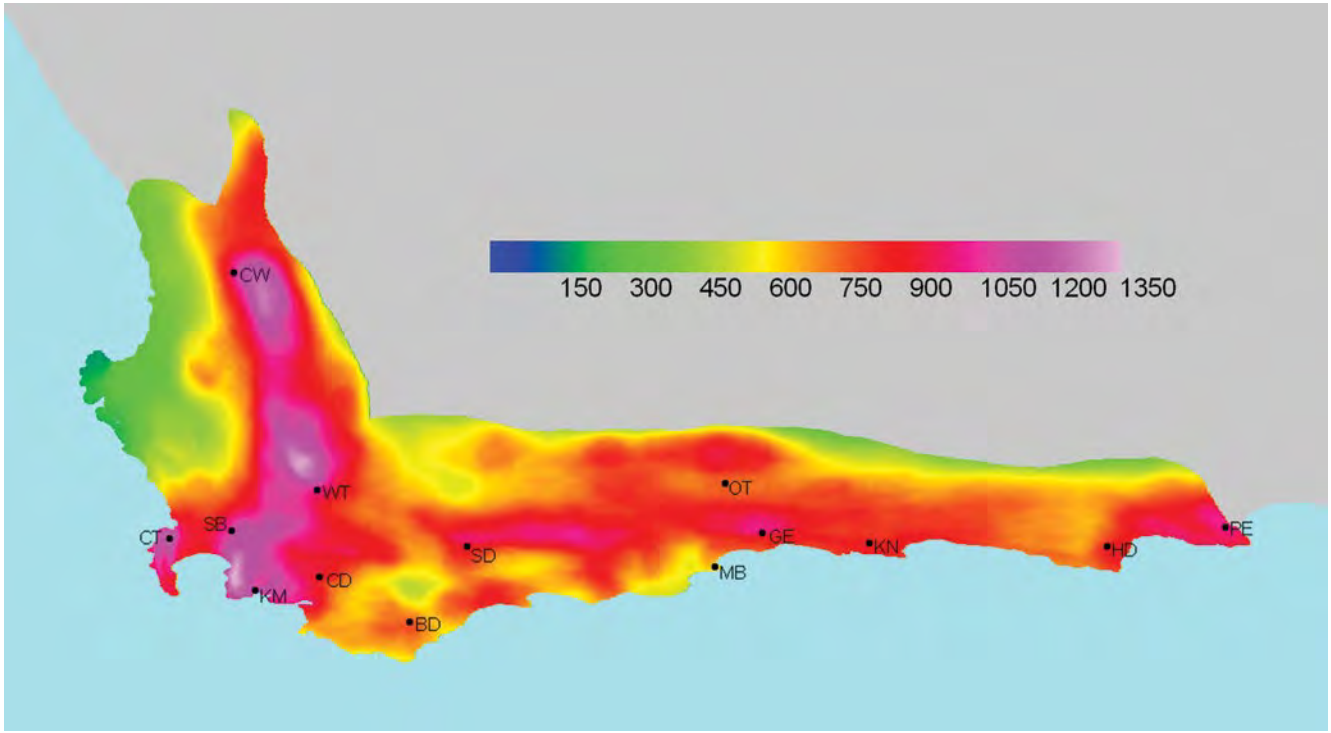
Gymnosperms (7 spp.)



Palaeodicots (8 spp.)



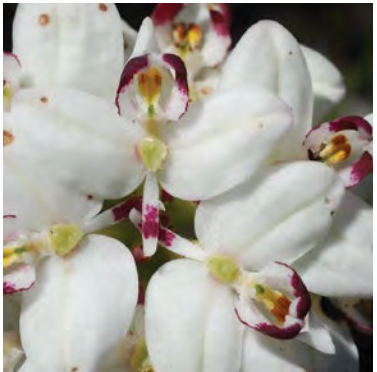
Monocots (2 466 spp.)

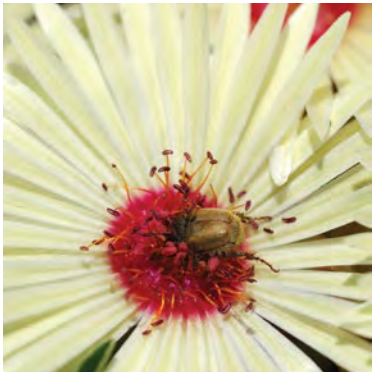


Eudicots (6 126 spp.)

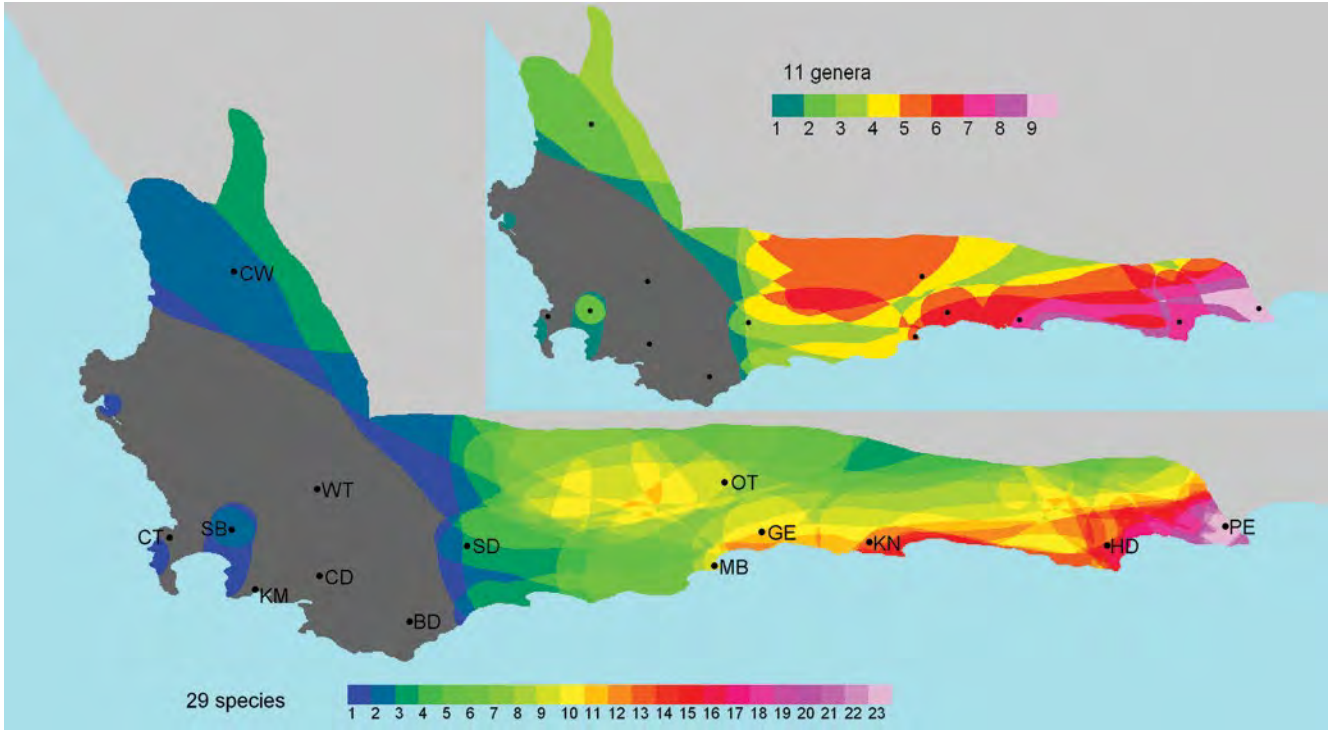


Family Maps

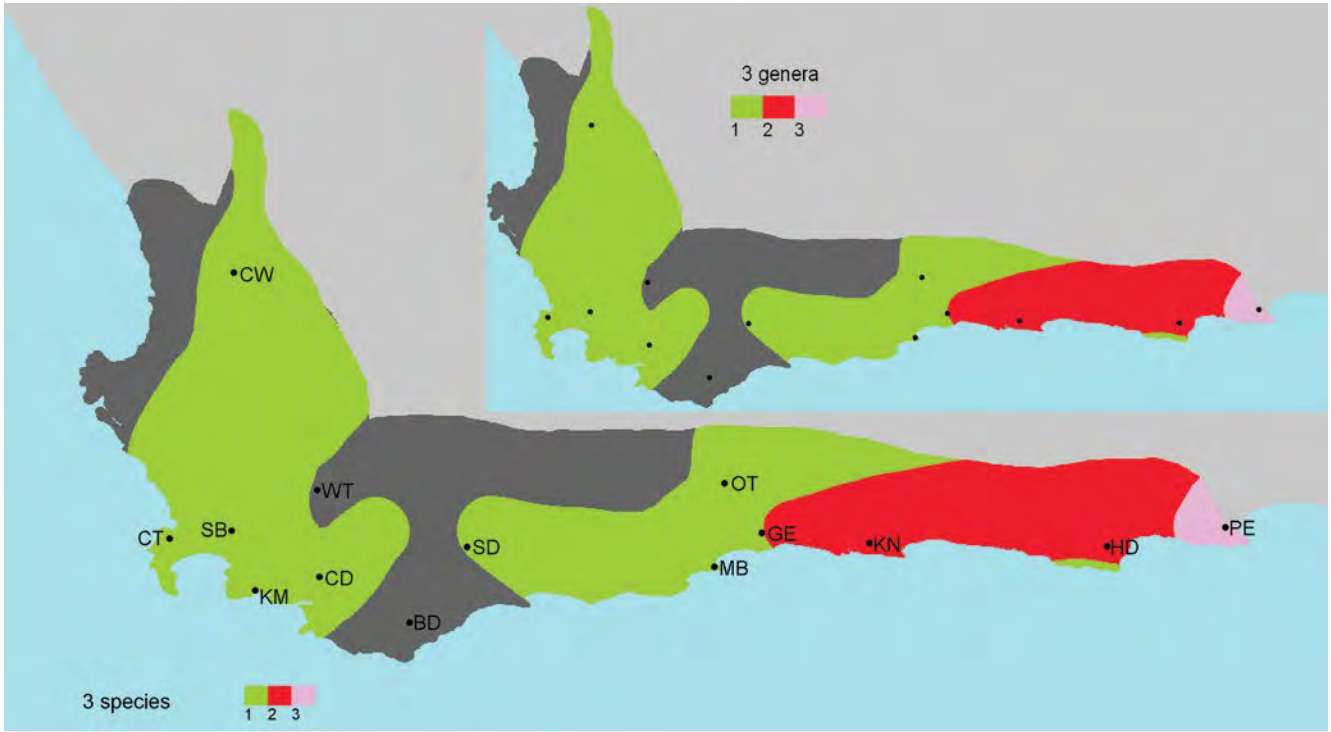


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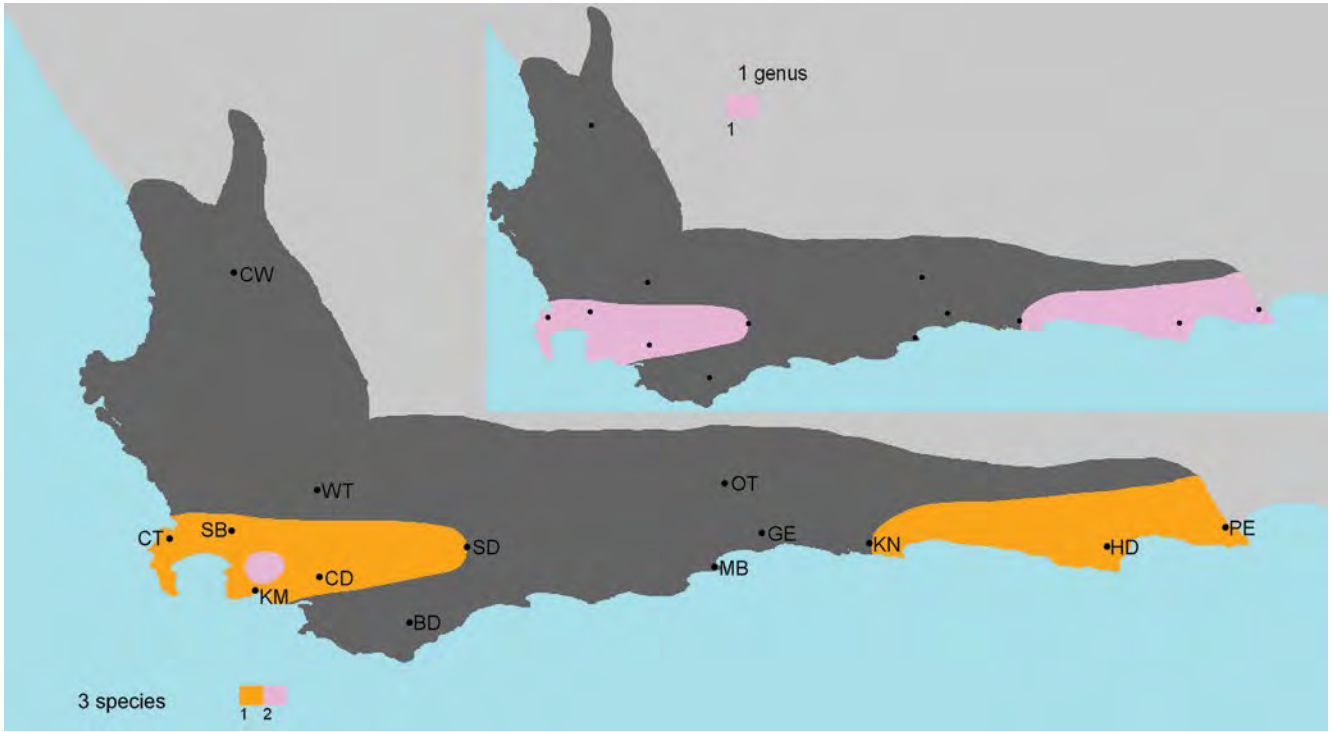
Acanthaceae

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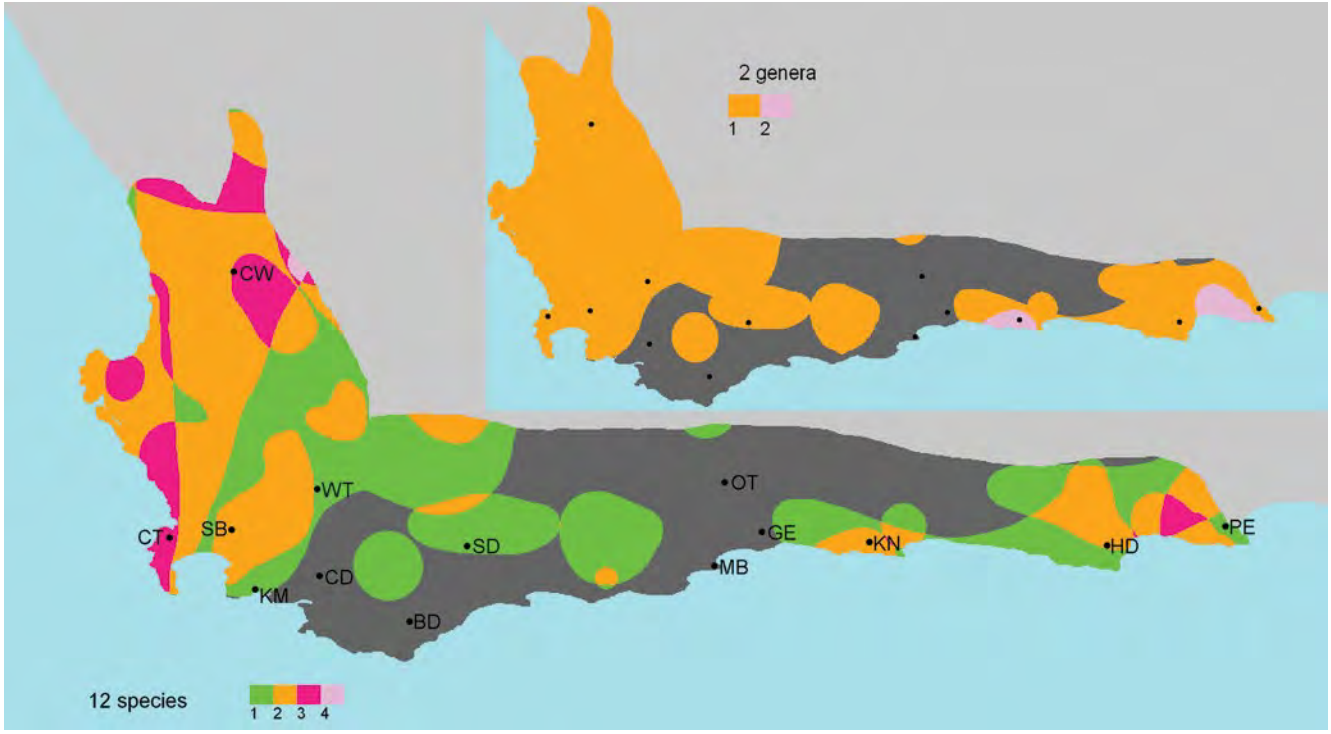
Achariaceae

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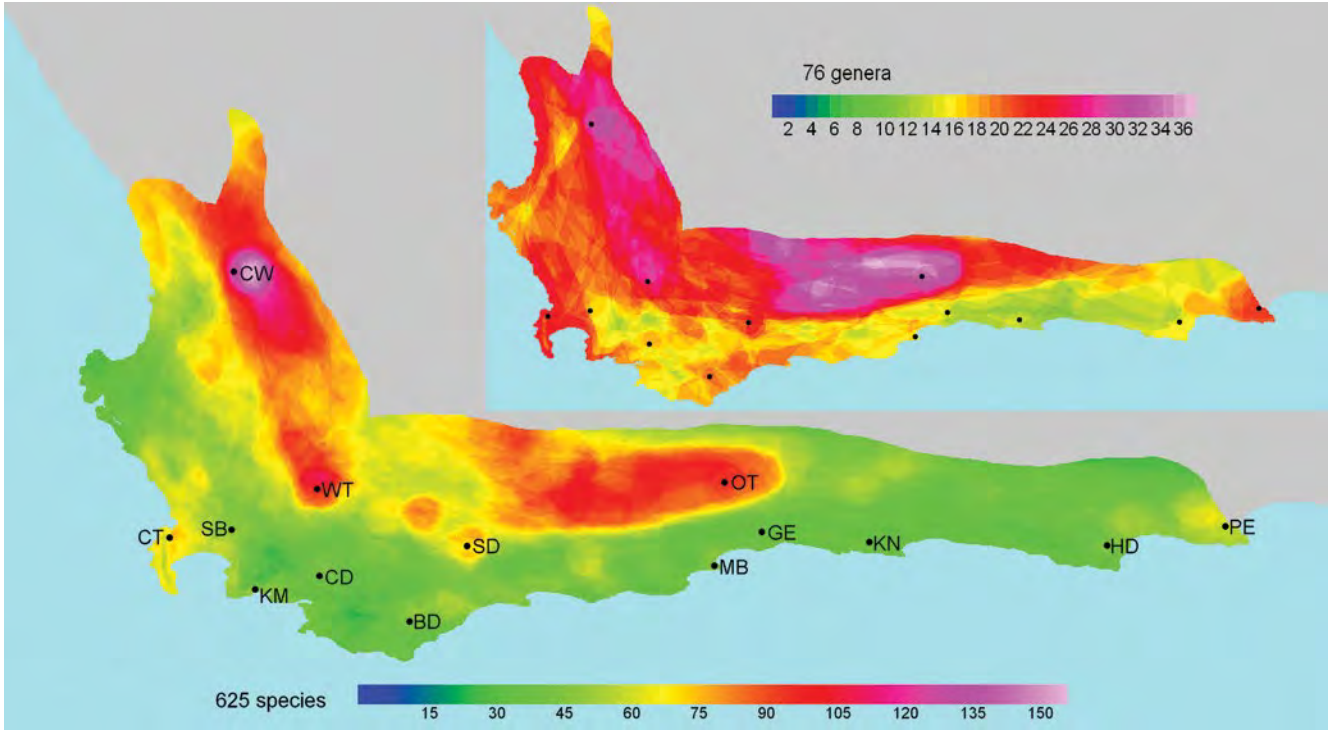
Agapanthaceae

A


2 genera
1 2
CW
WT
CT
SB
SD
CD
KM
BD
OT
GE
KN
MB
HD
PE
12 species
1 2 3 4

Agavaceae

A


76 genera
2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36
CW
WT
OT
CT
SB
SD
GE
KN
HD
PE
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MB
KM
BD
625 species
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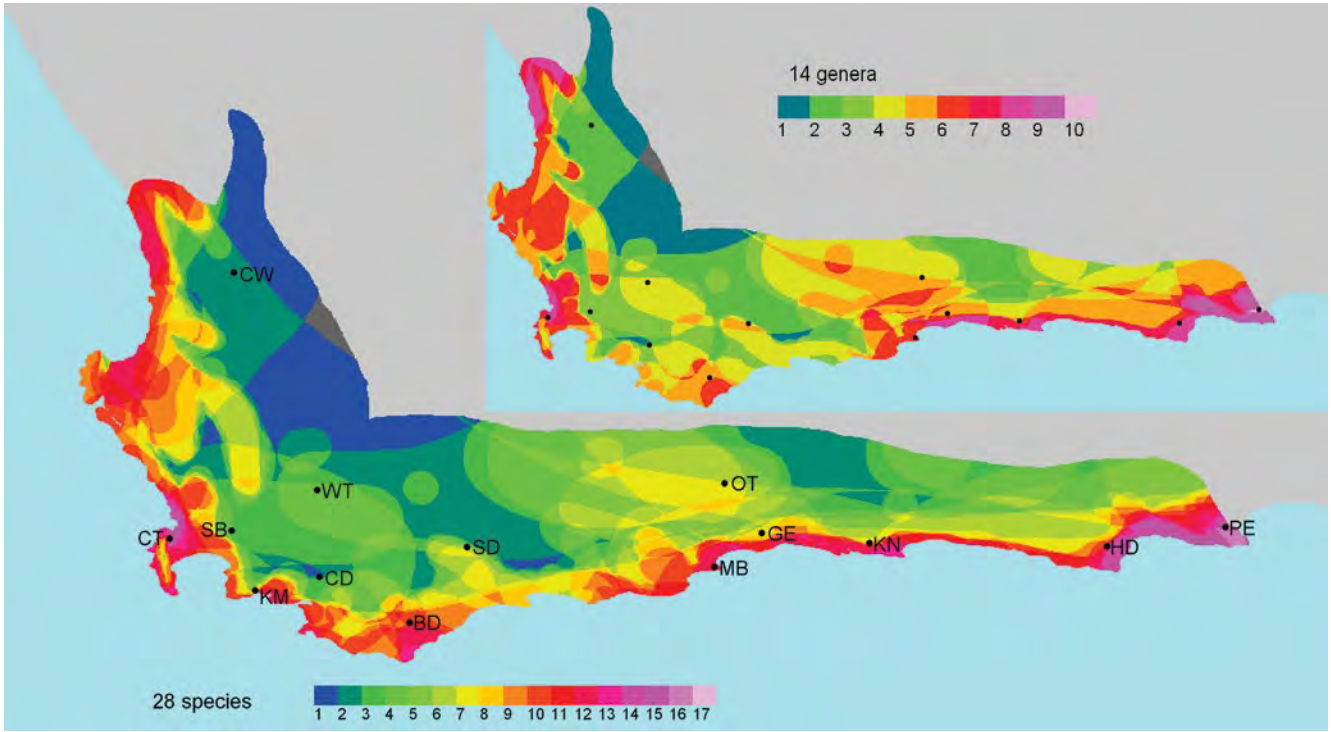
Aizoaceae

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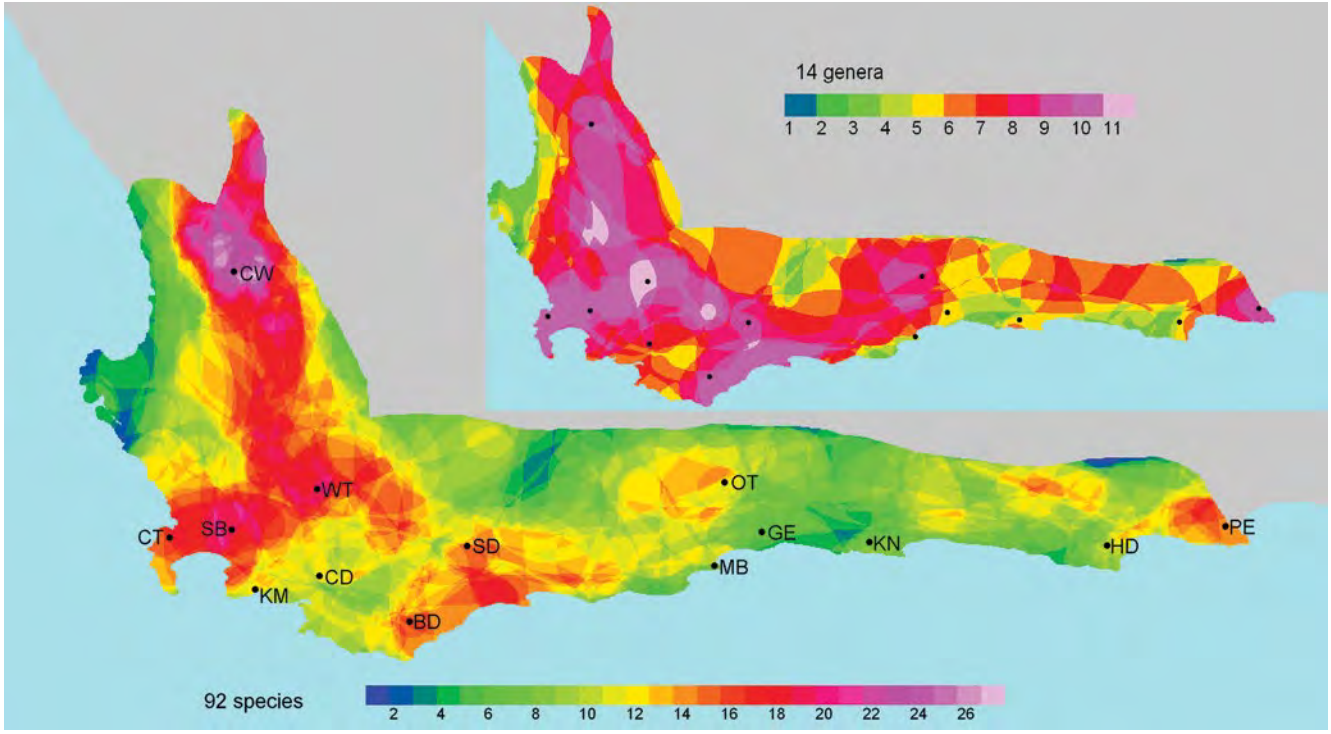
Alliaceae

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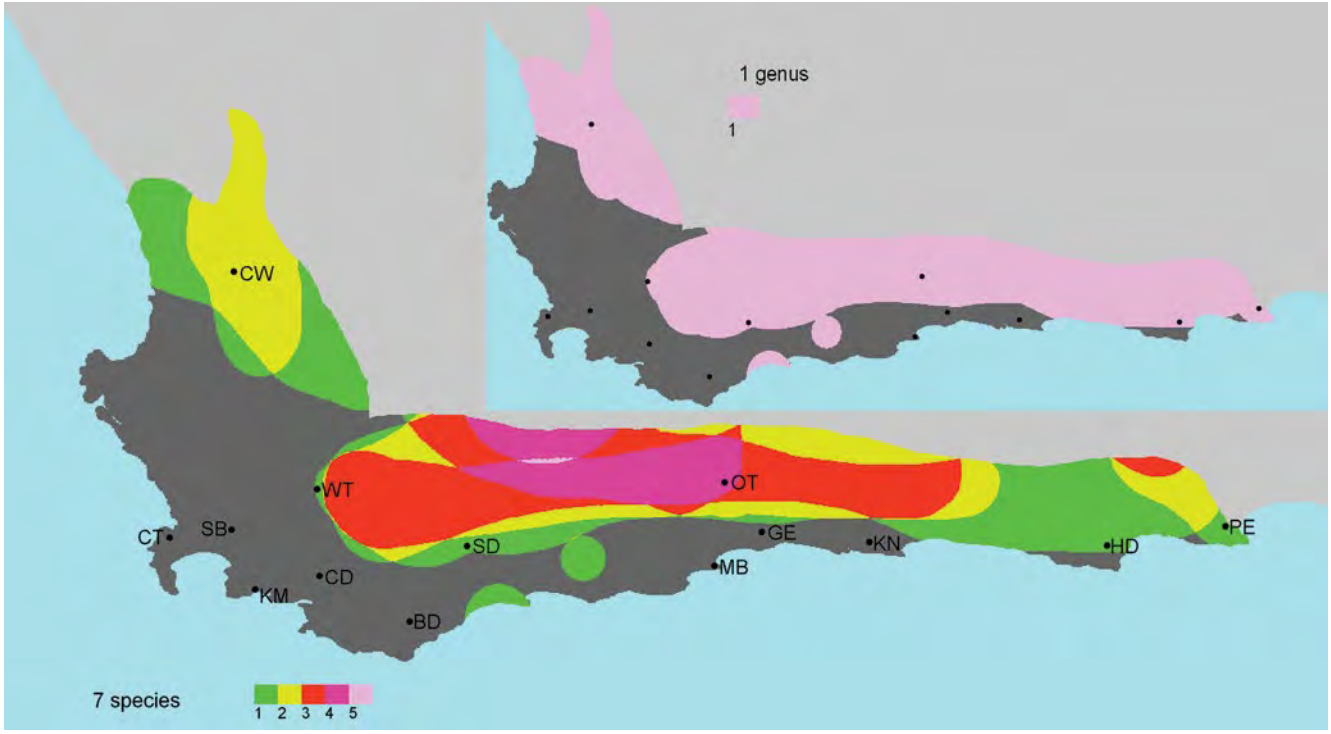
Amaranthaceae

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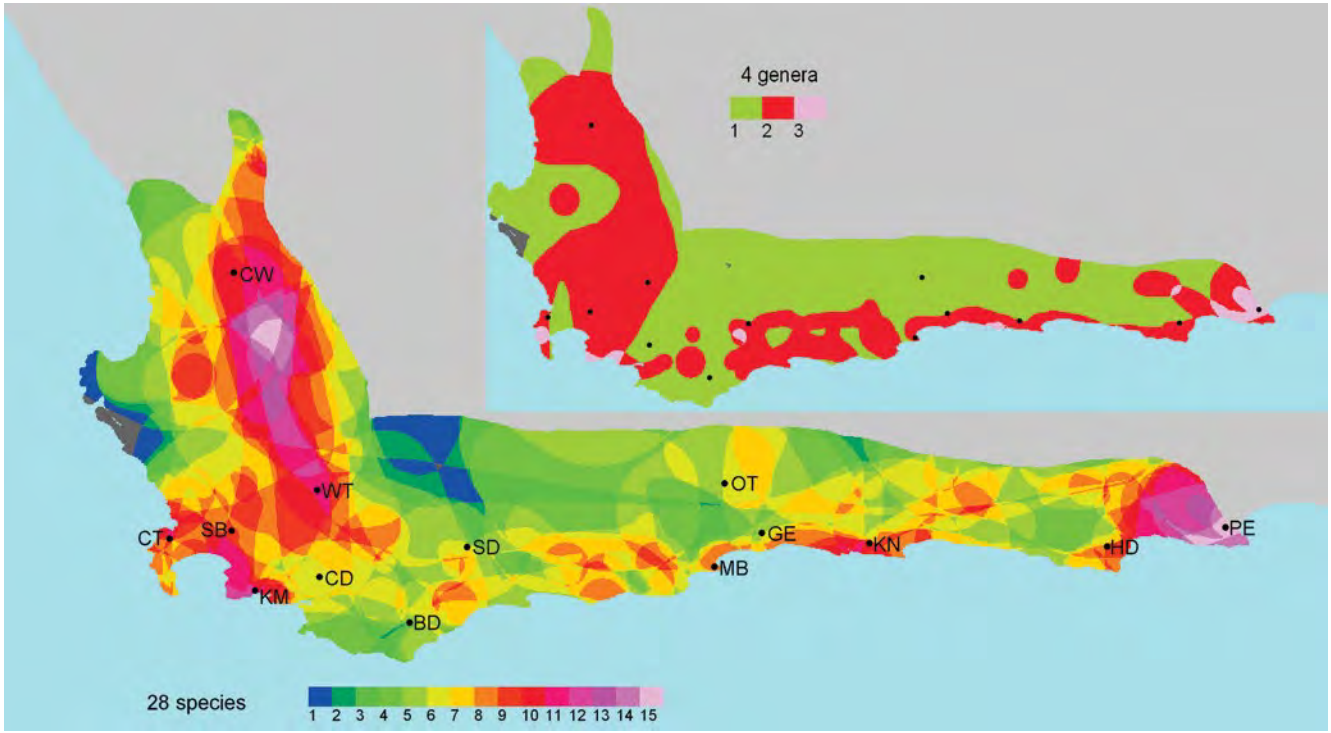
Amaryllidaceae

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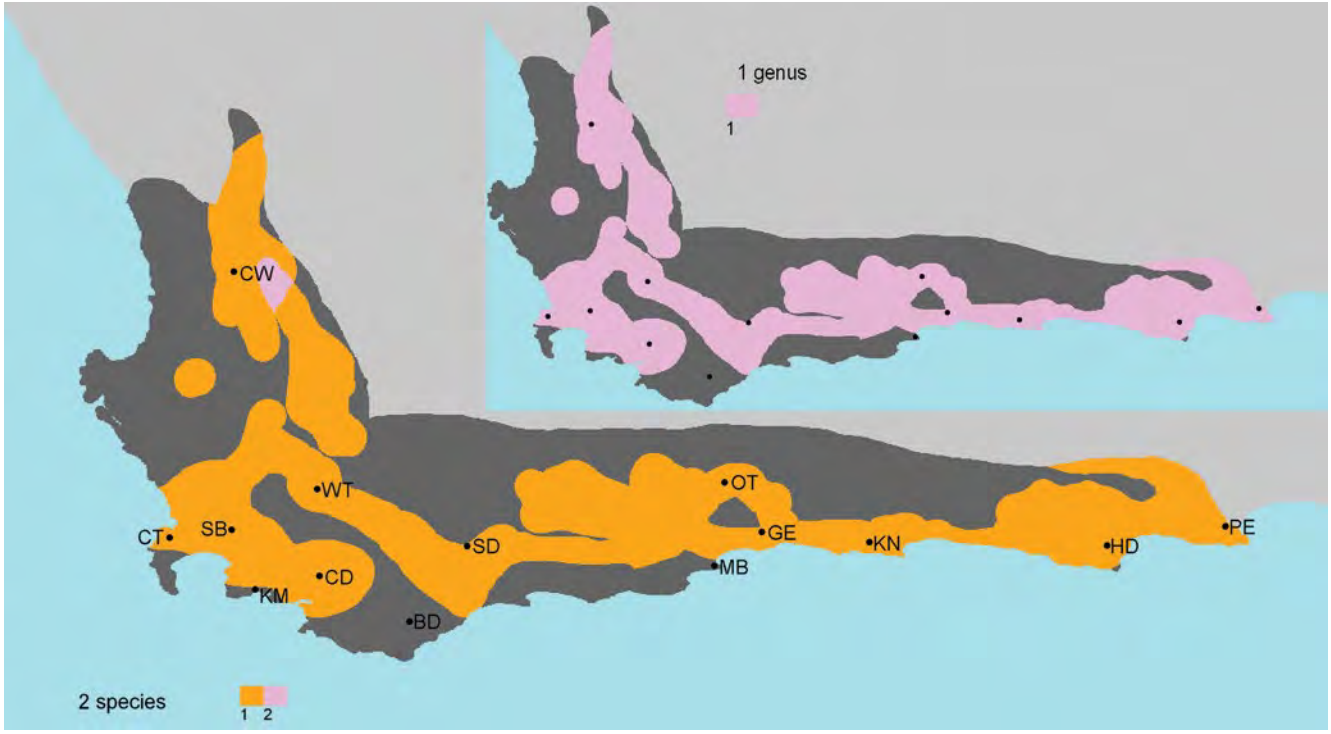
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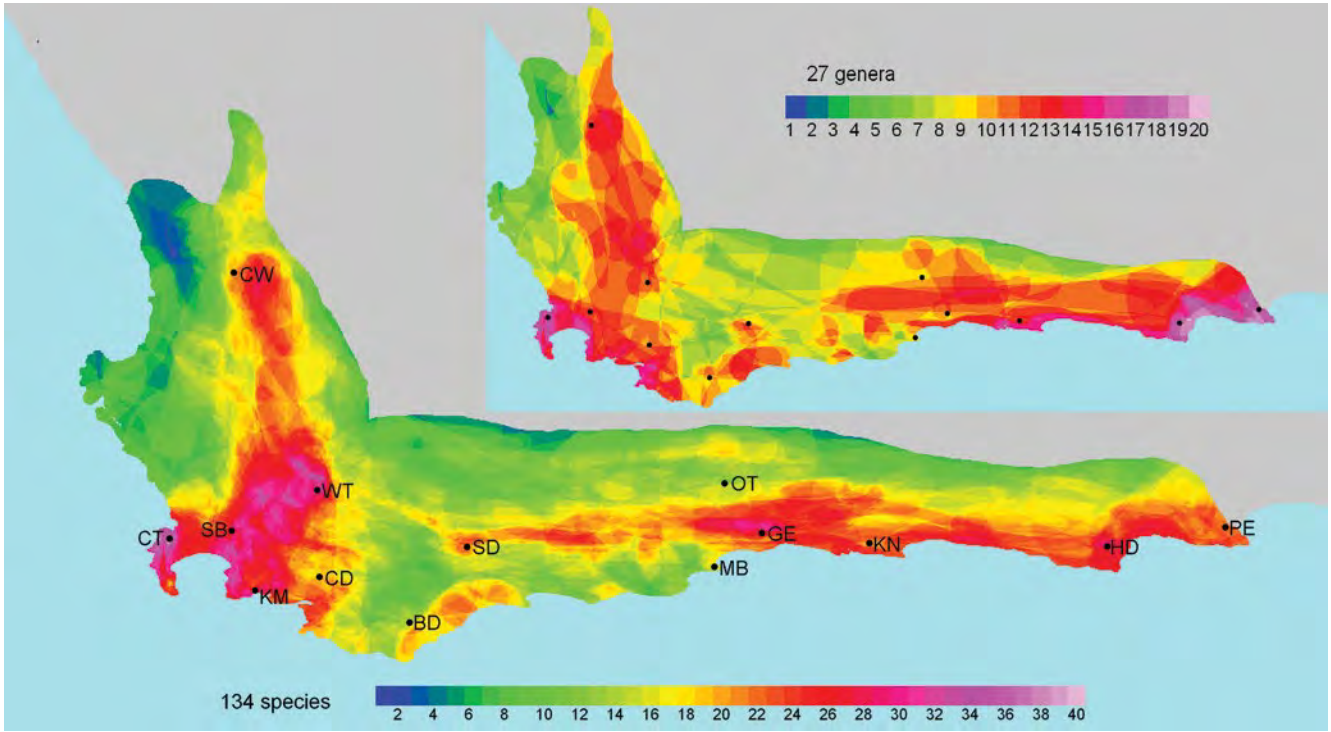
Anacardiaceae

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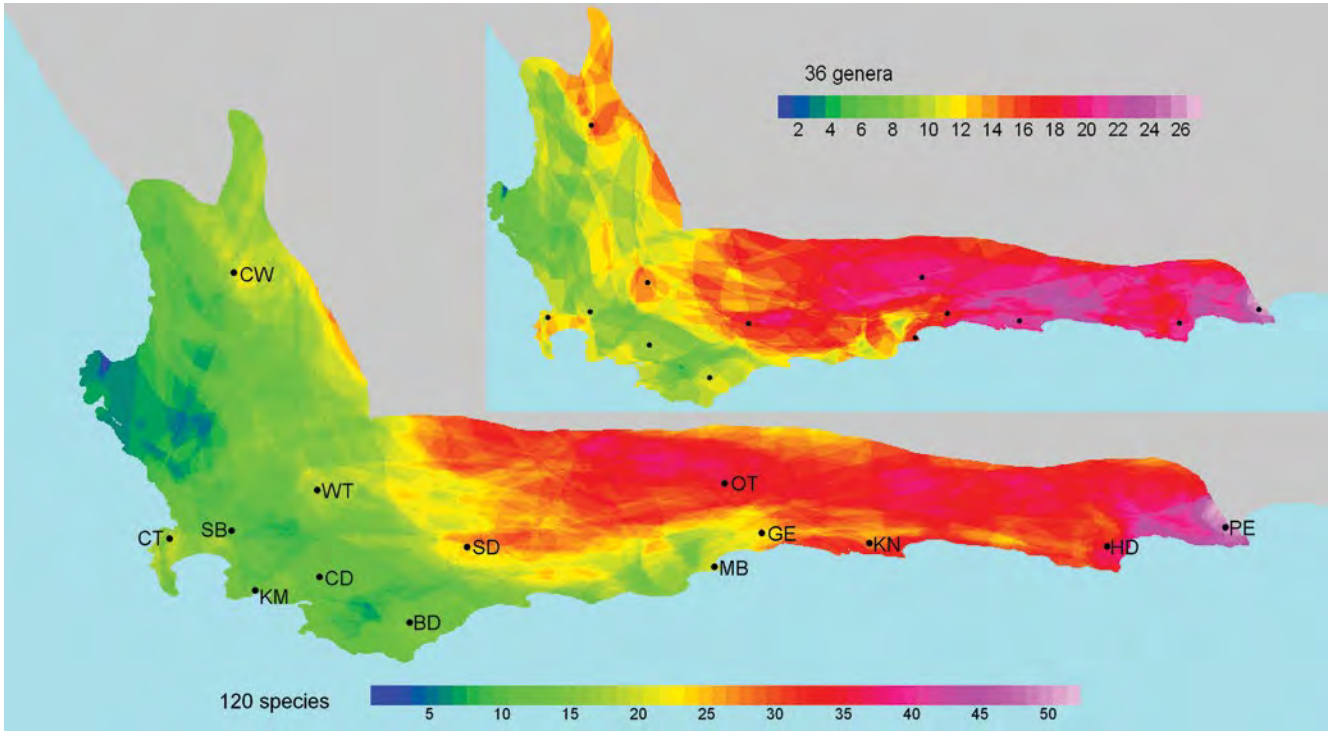
Anemiaceae

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27 genera
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
CW
WT
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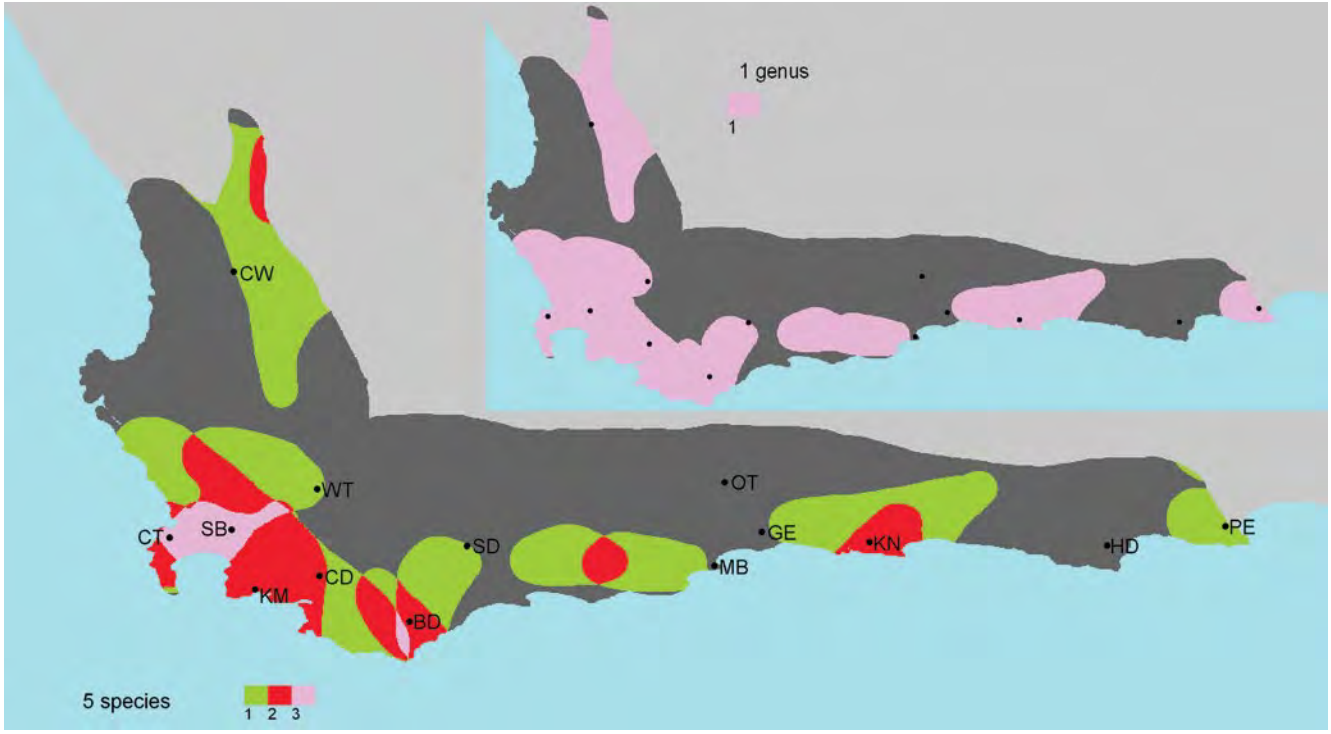
Apiaceae

A



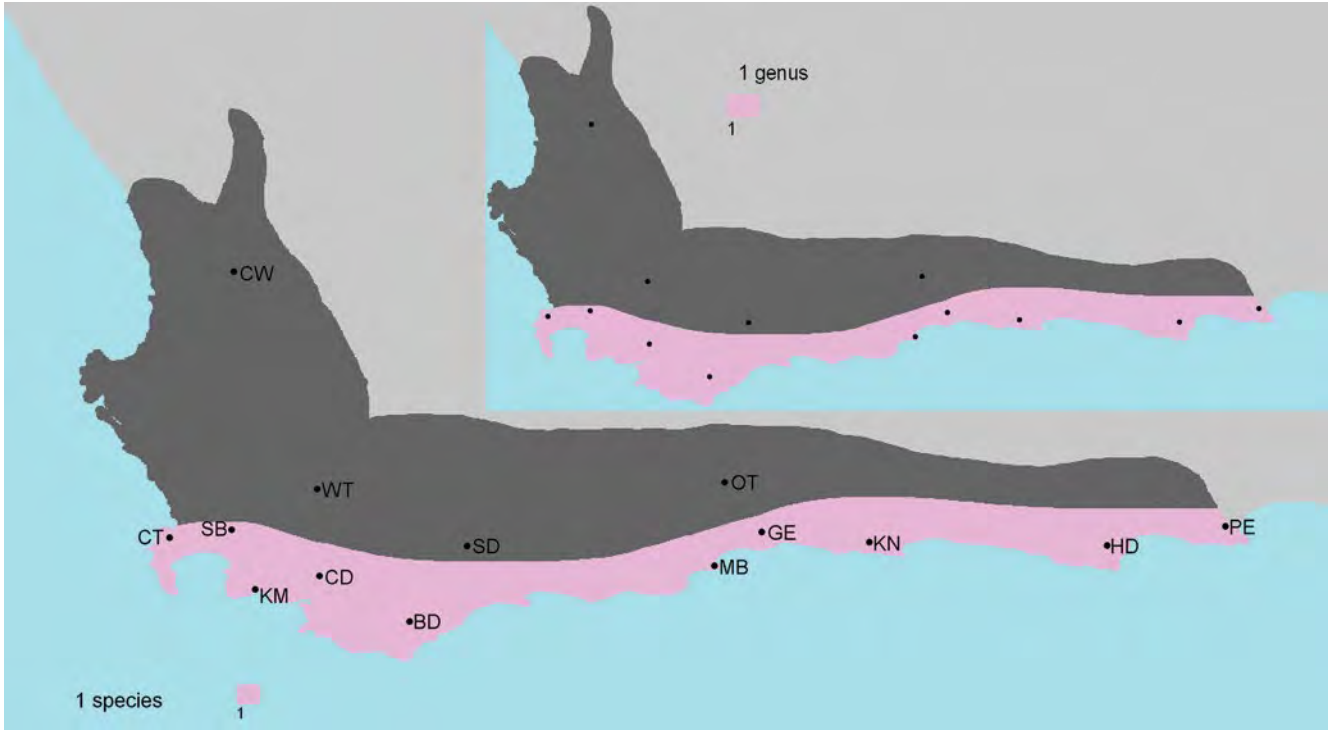
Apocynaceae

A



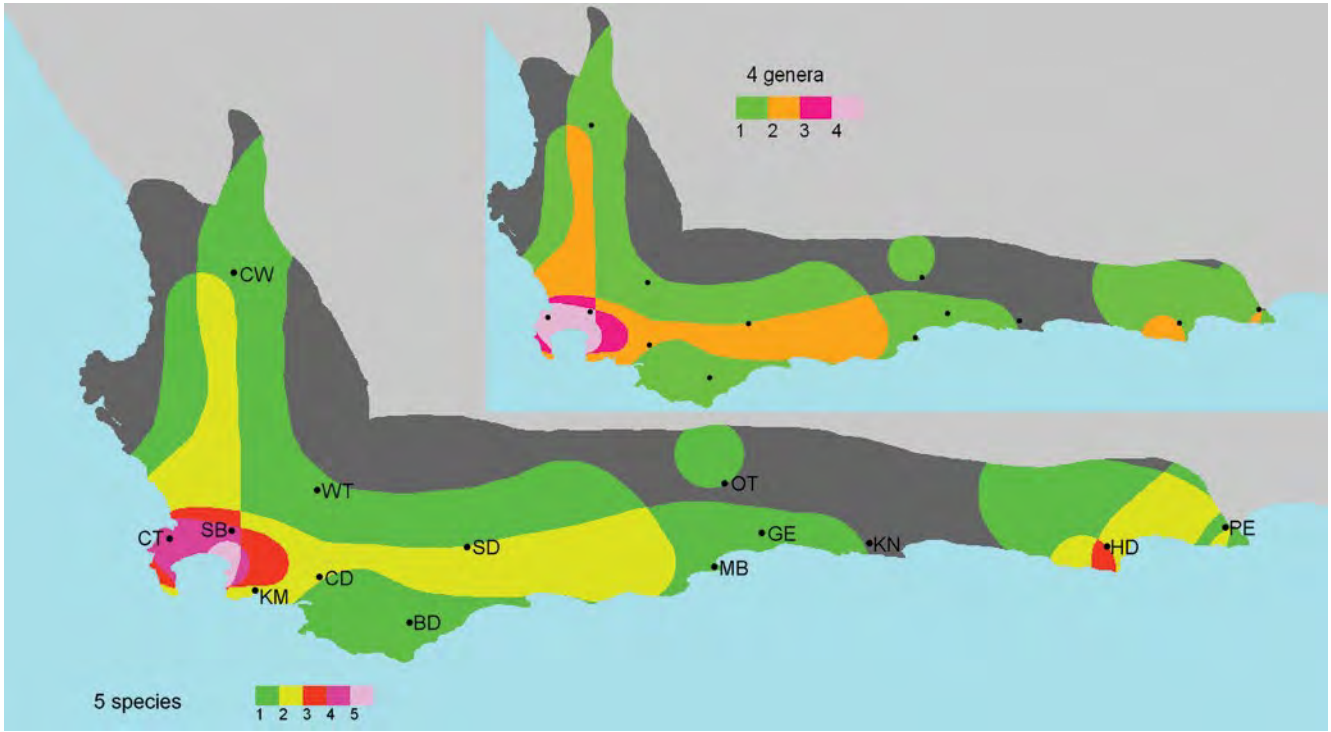
Aponogetonaceae

A



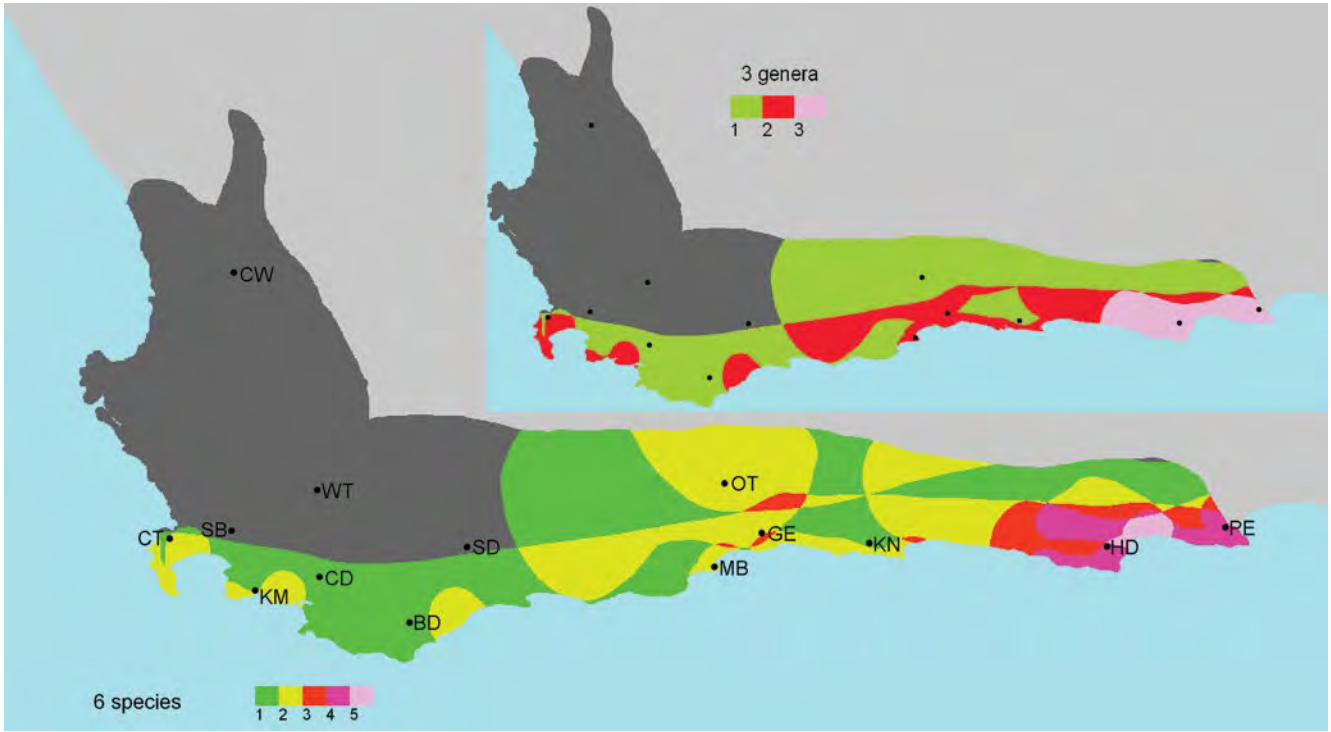
Aquifoliaceae

A


4 genera
1 2 3 4
CW
WT
CT
SB
SD
CD
KM
BD
OT
GE
KN
MB
HD
PE
5 species
1 2 3 4 5

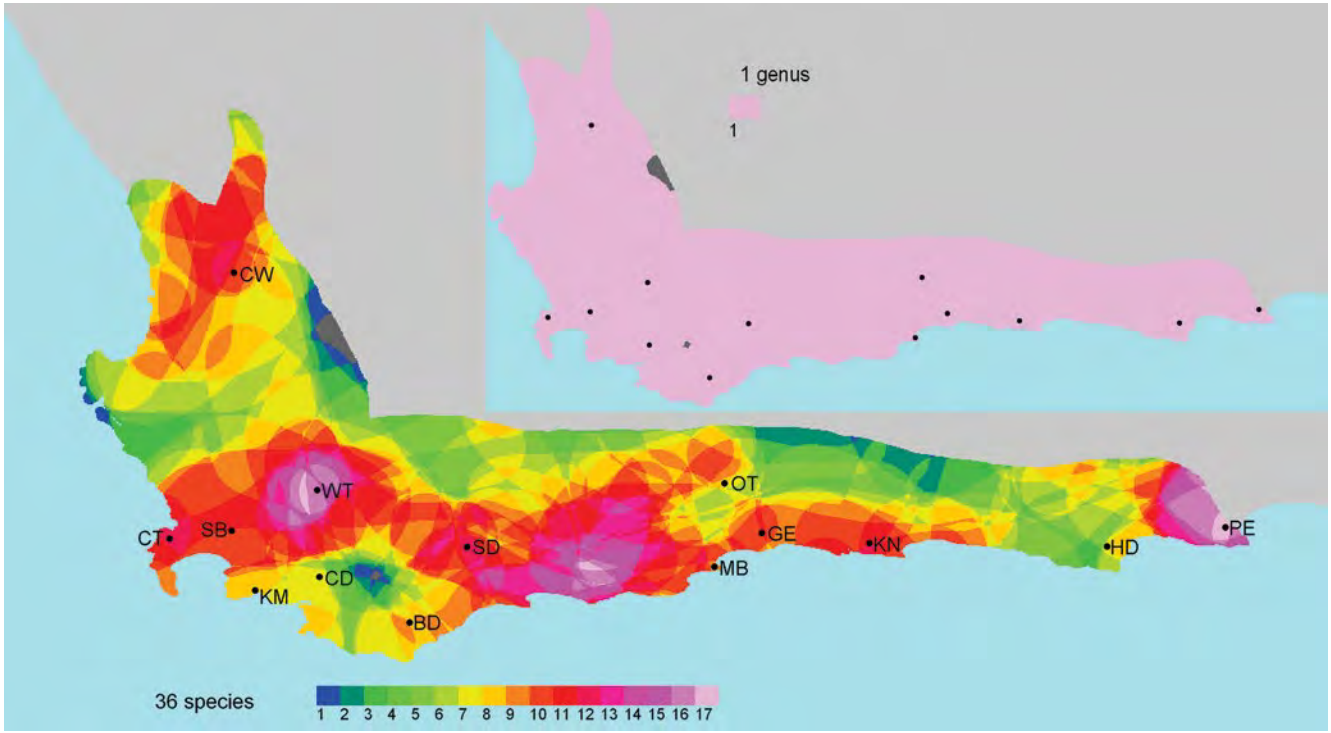
Araceae

A



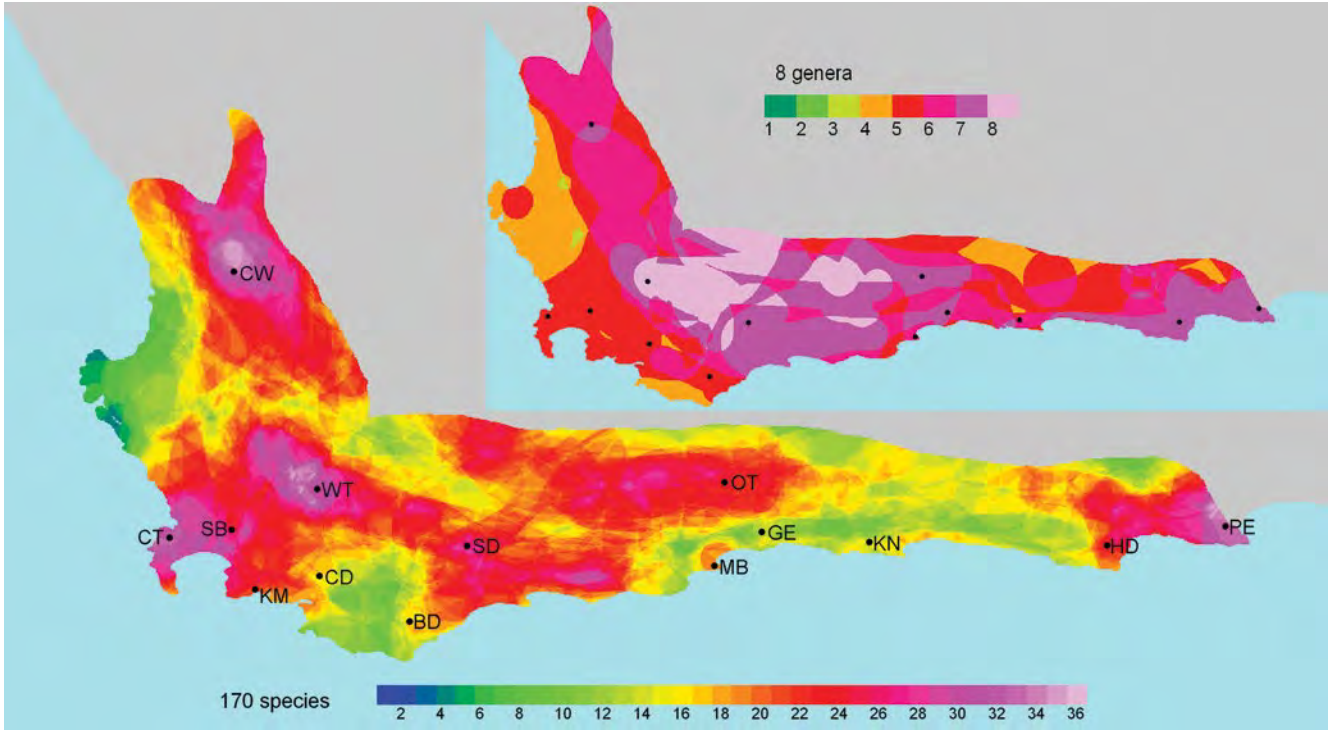
Araliaceae

A



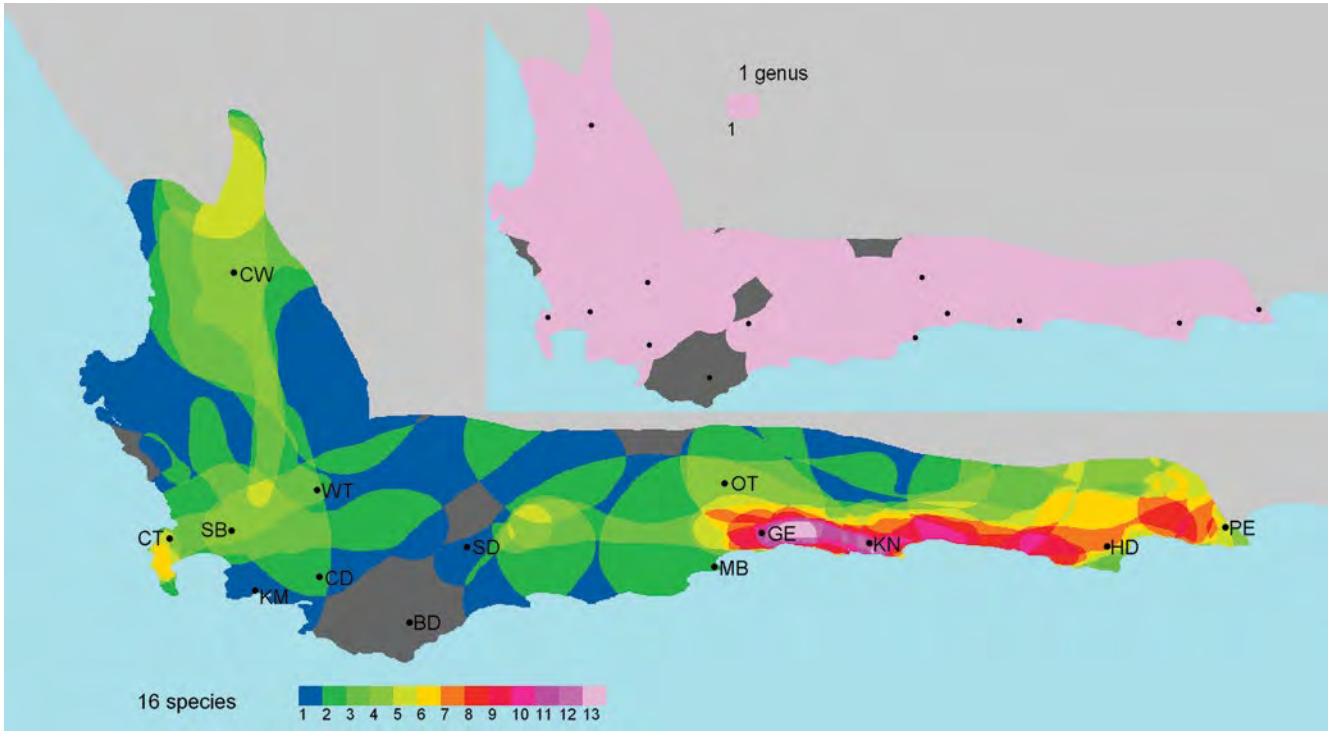
Asparagaceae

A



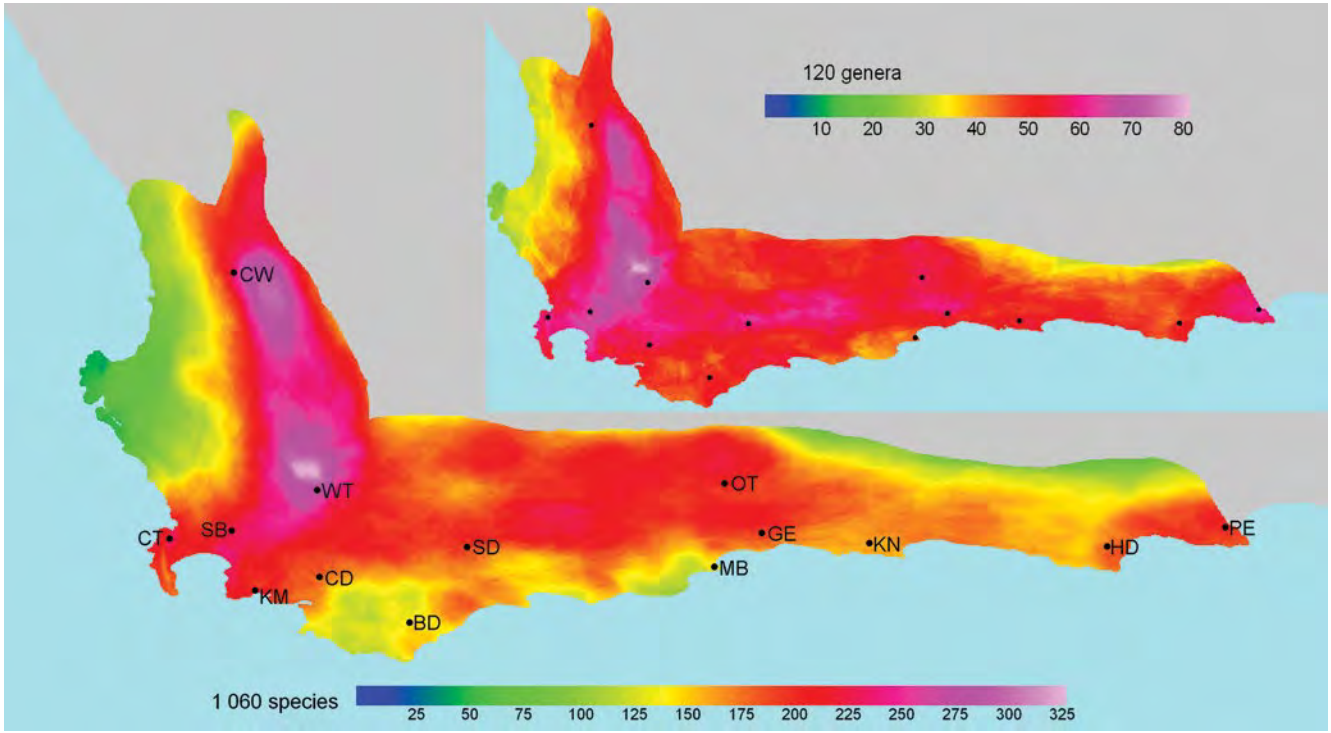
Asphodelaceae

A



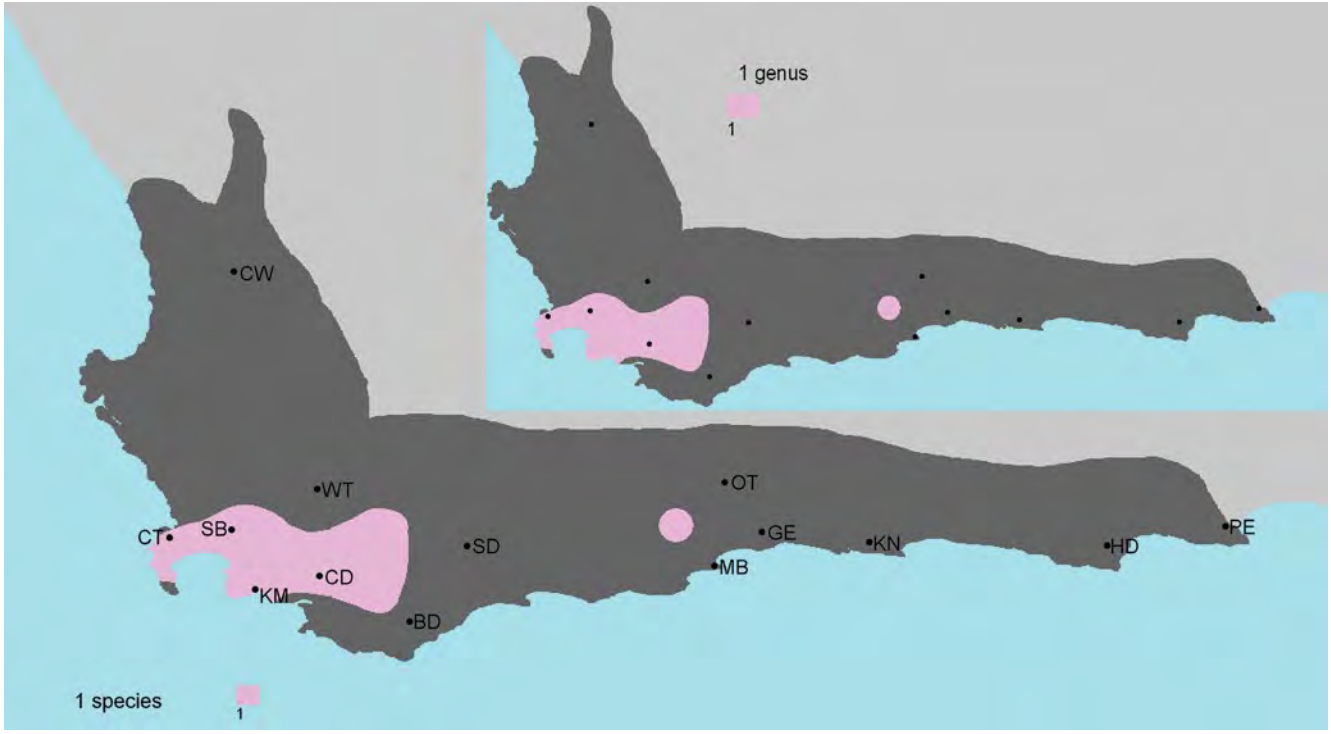
Aspleniaceae

A



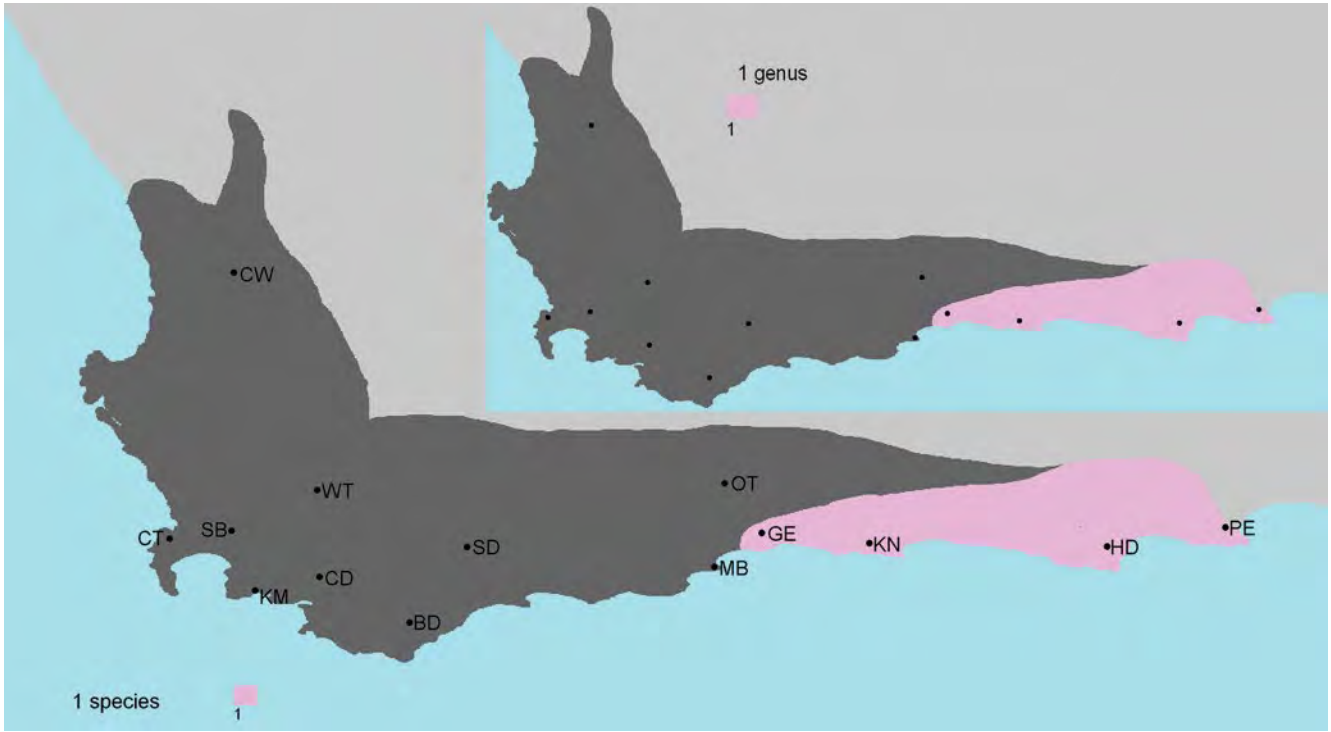
Asteraceae

B



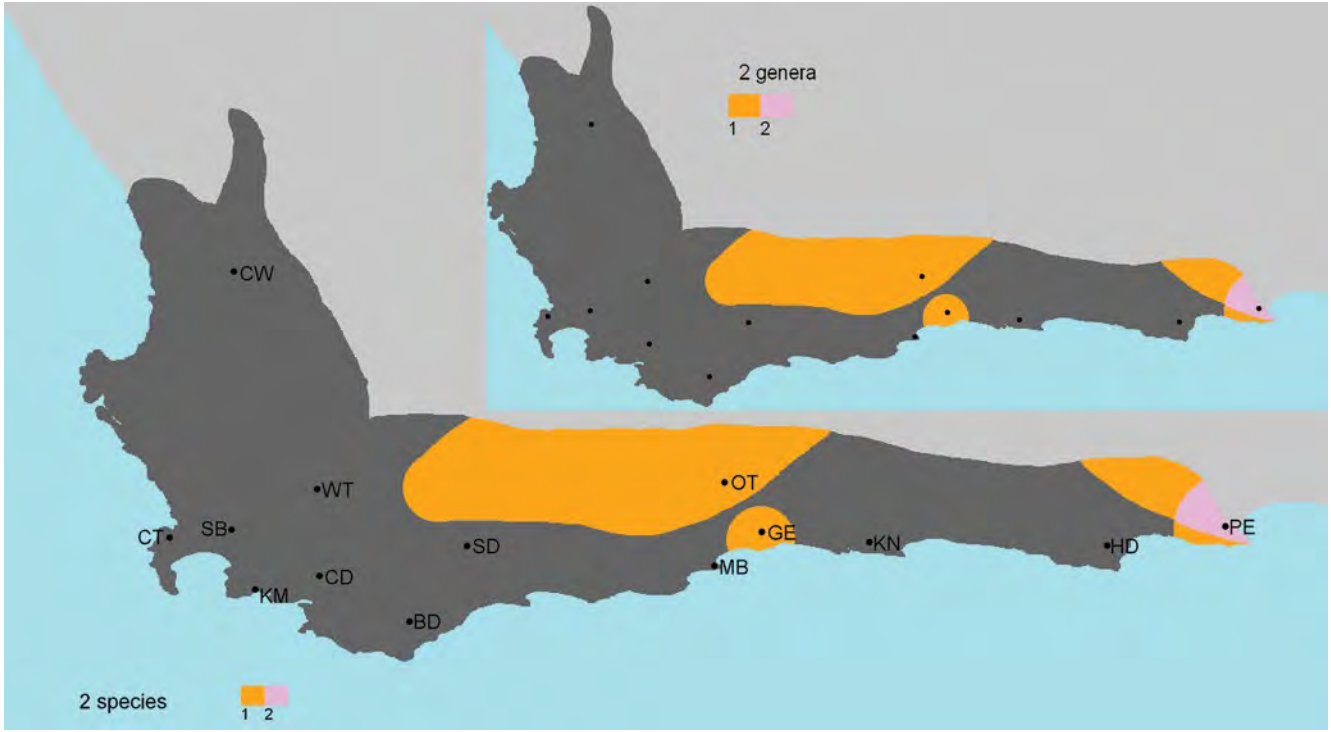
Balanophoraceae

B



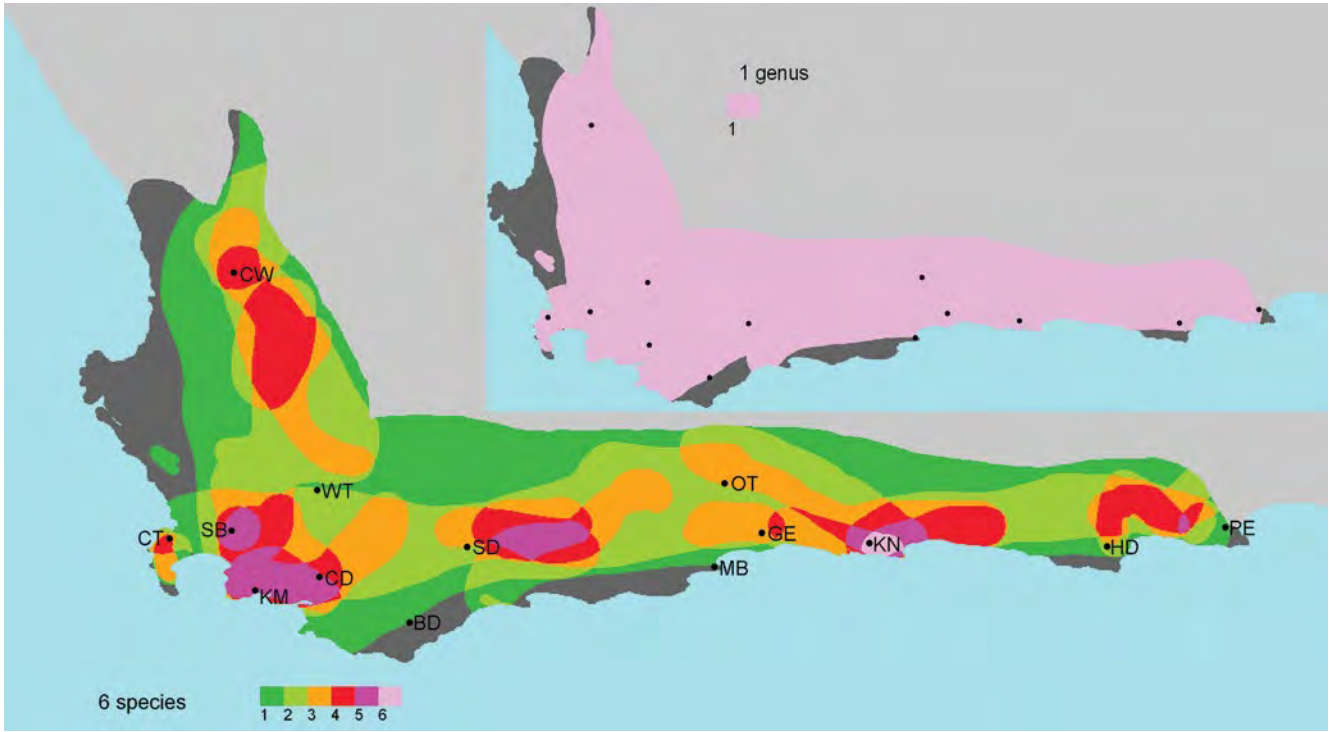
Balsaminaceae

B



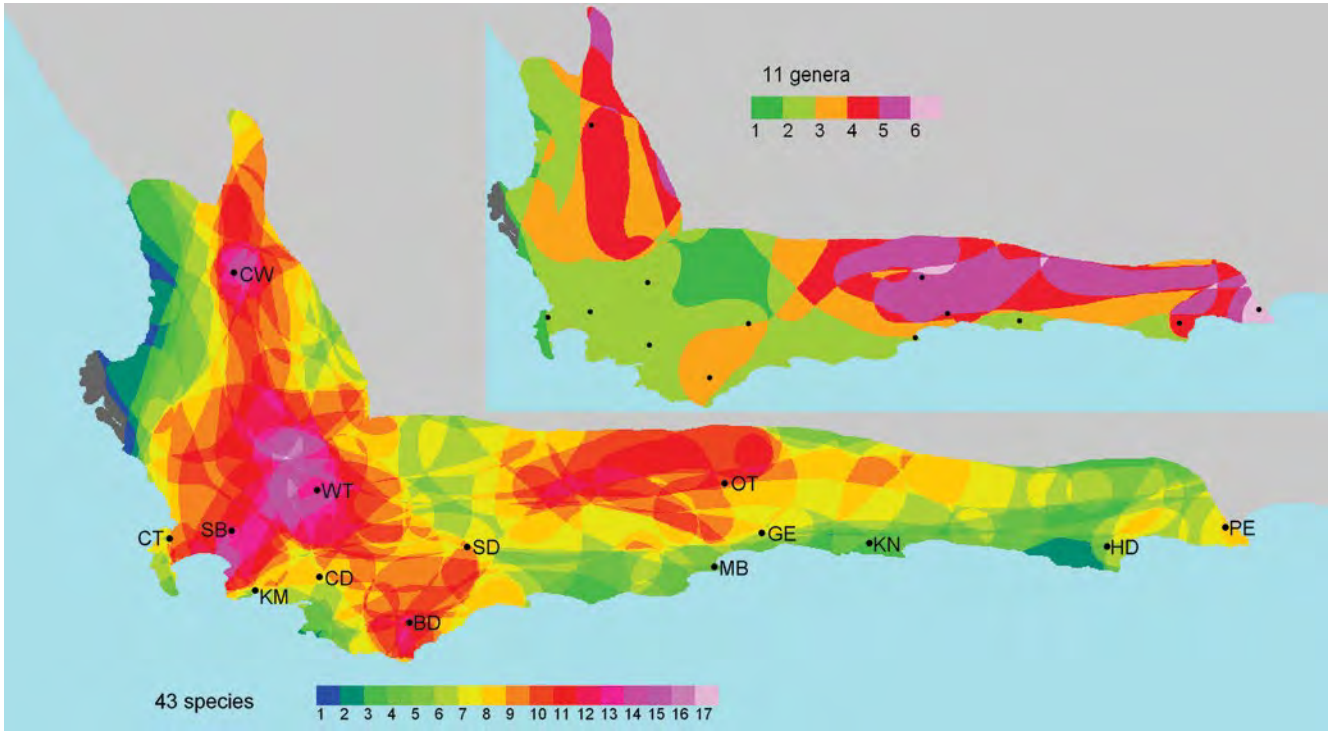
Bignoniaceae

B



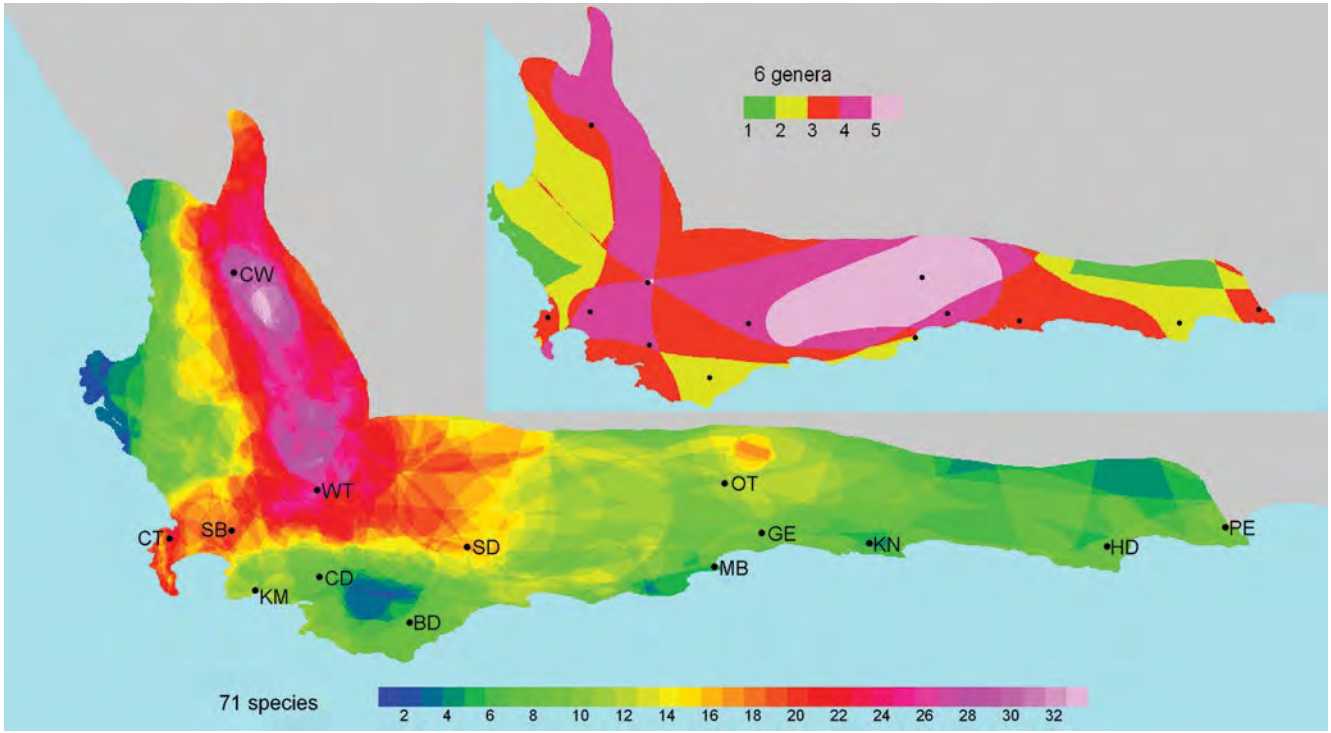
Blechnaceae

B



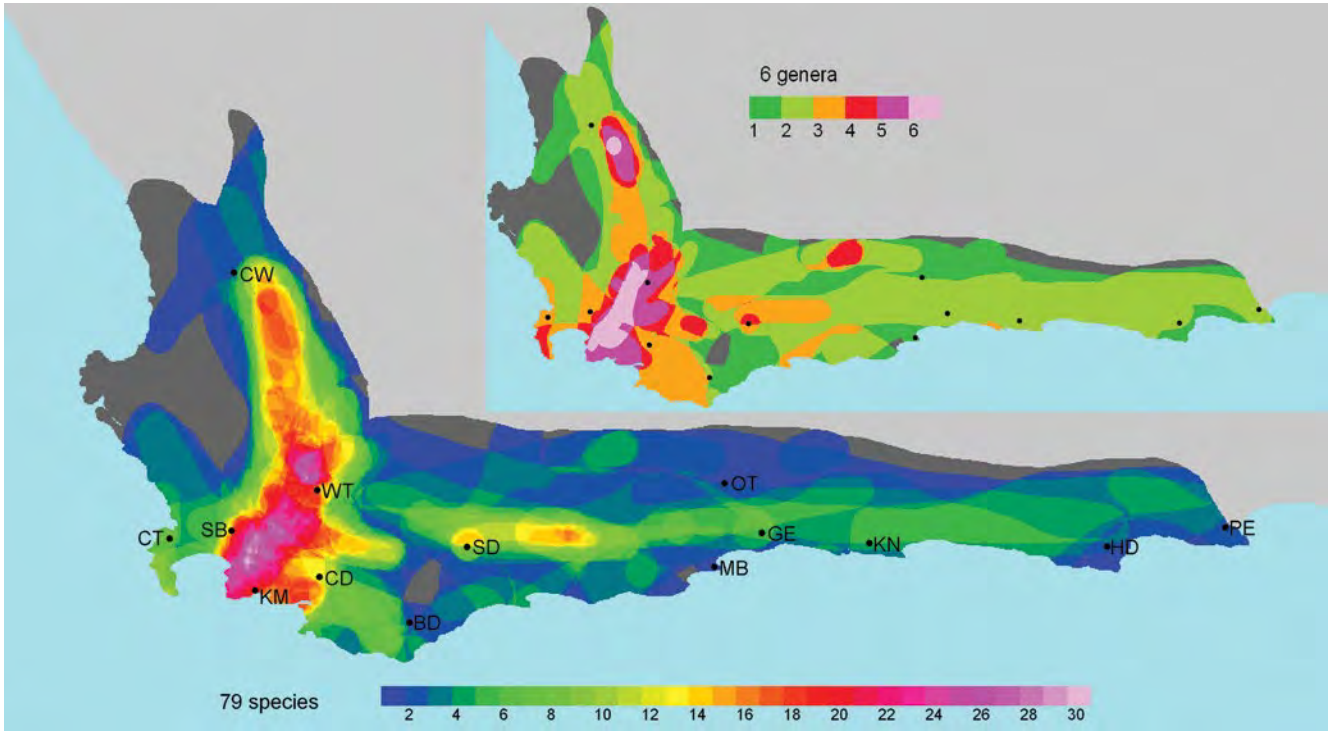
Boraginaceae

B



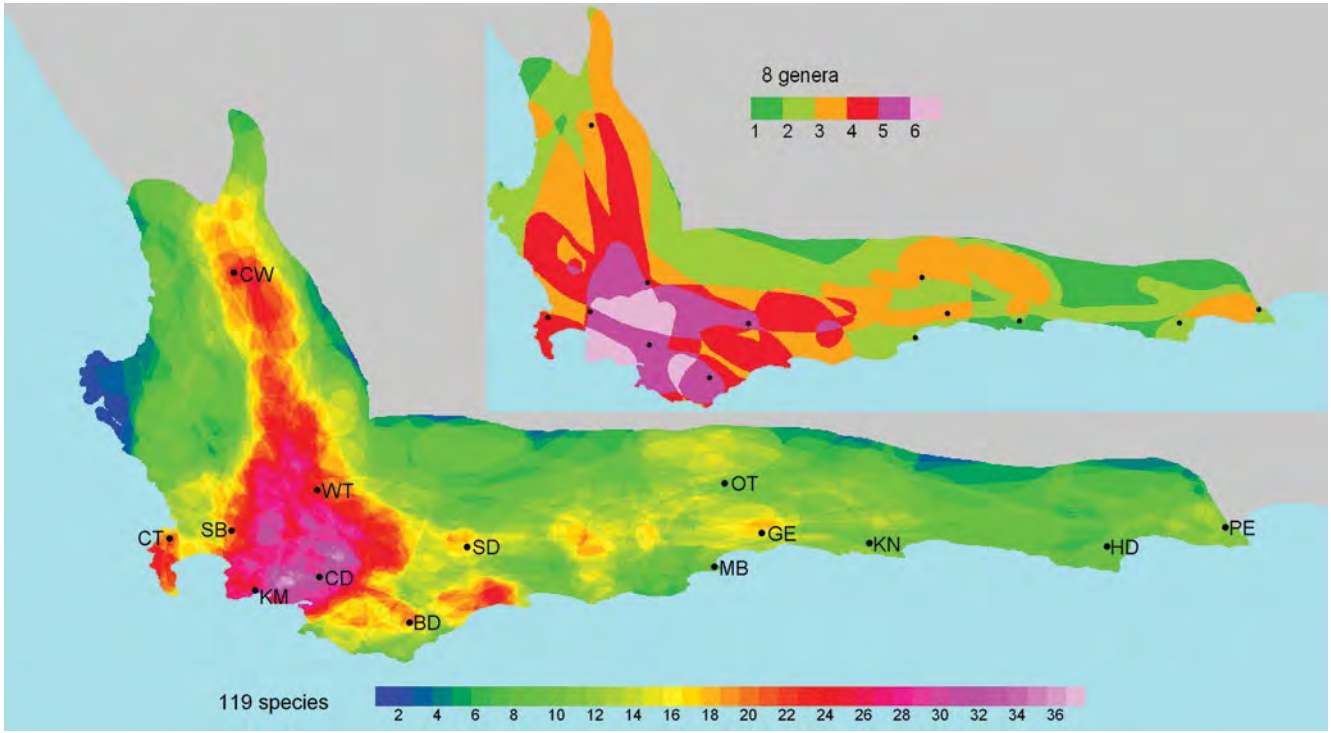
Brassicaceae

B

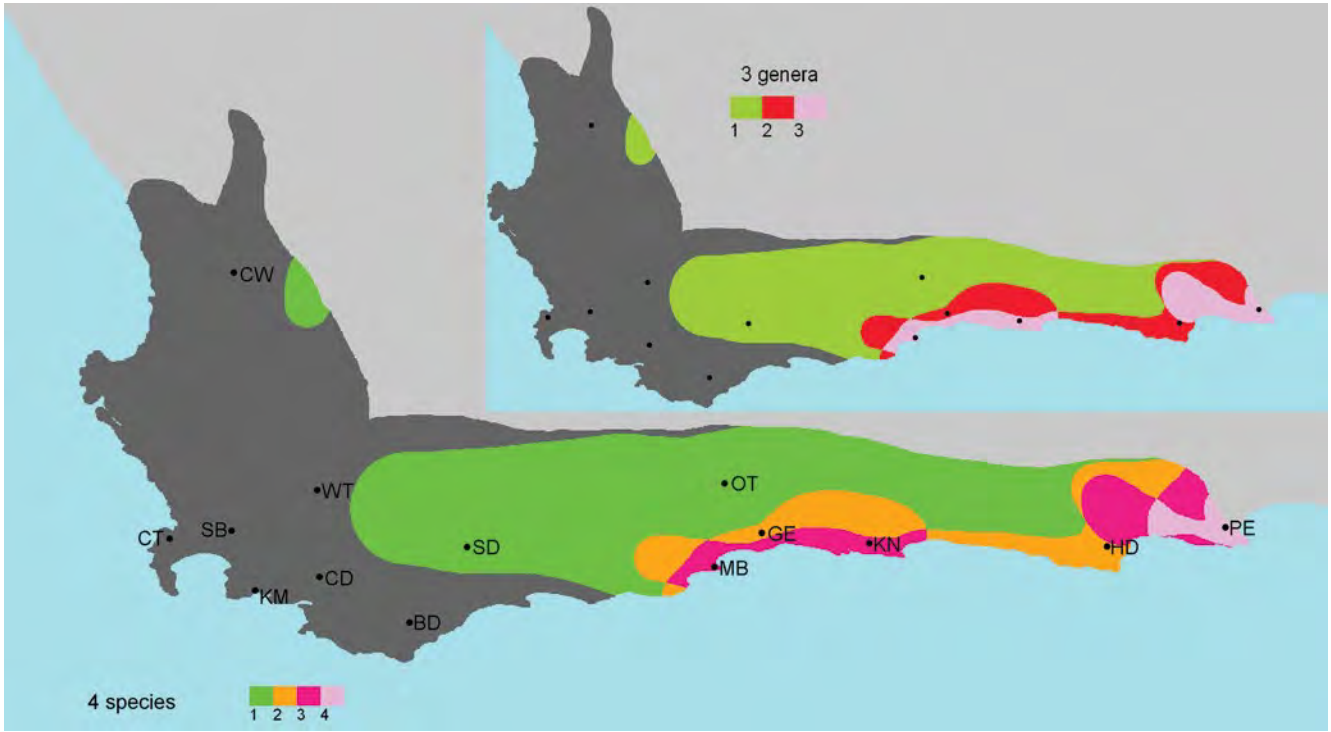


Bruniaceae

C

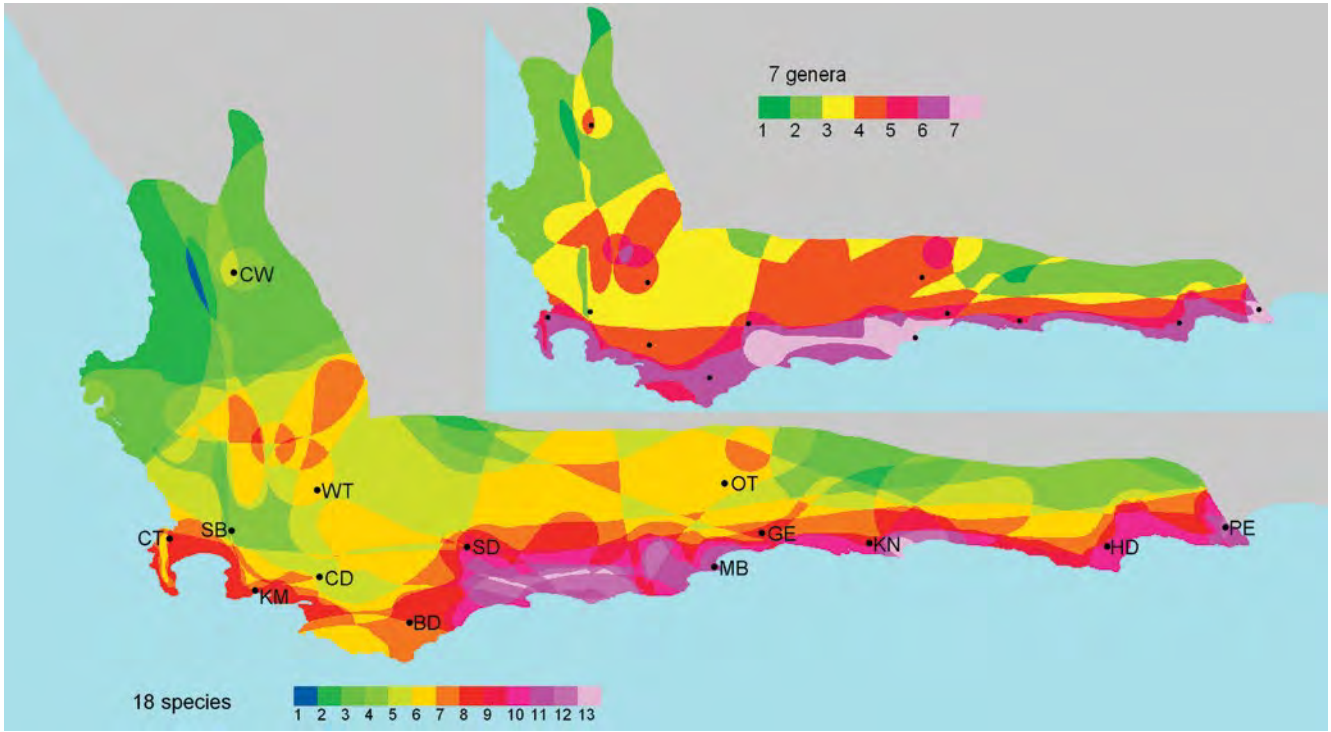


Campanulaceae

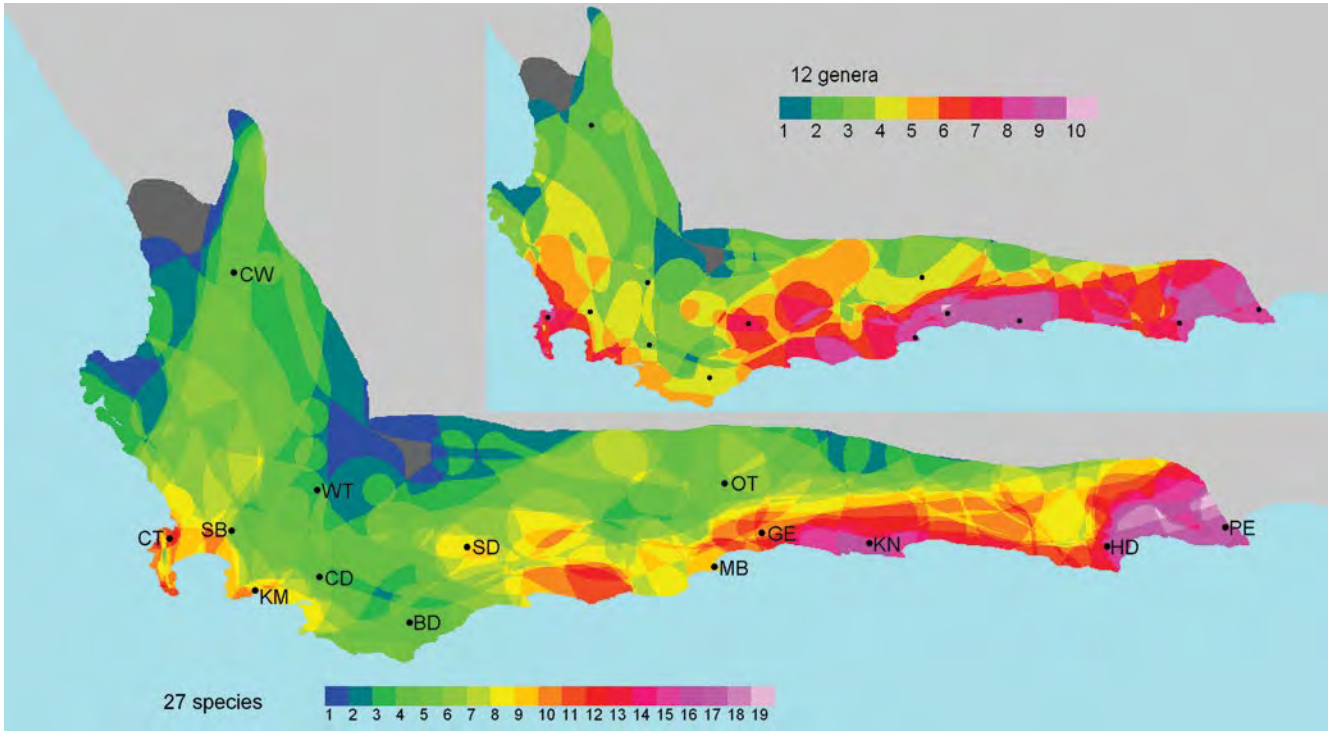


Capparaceae

C



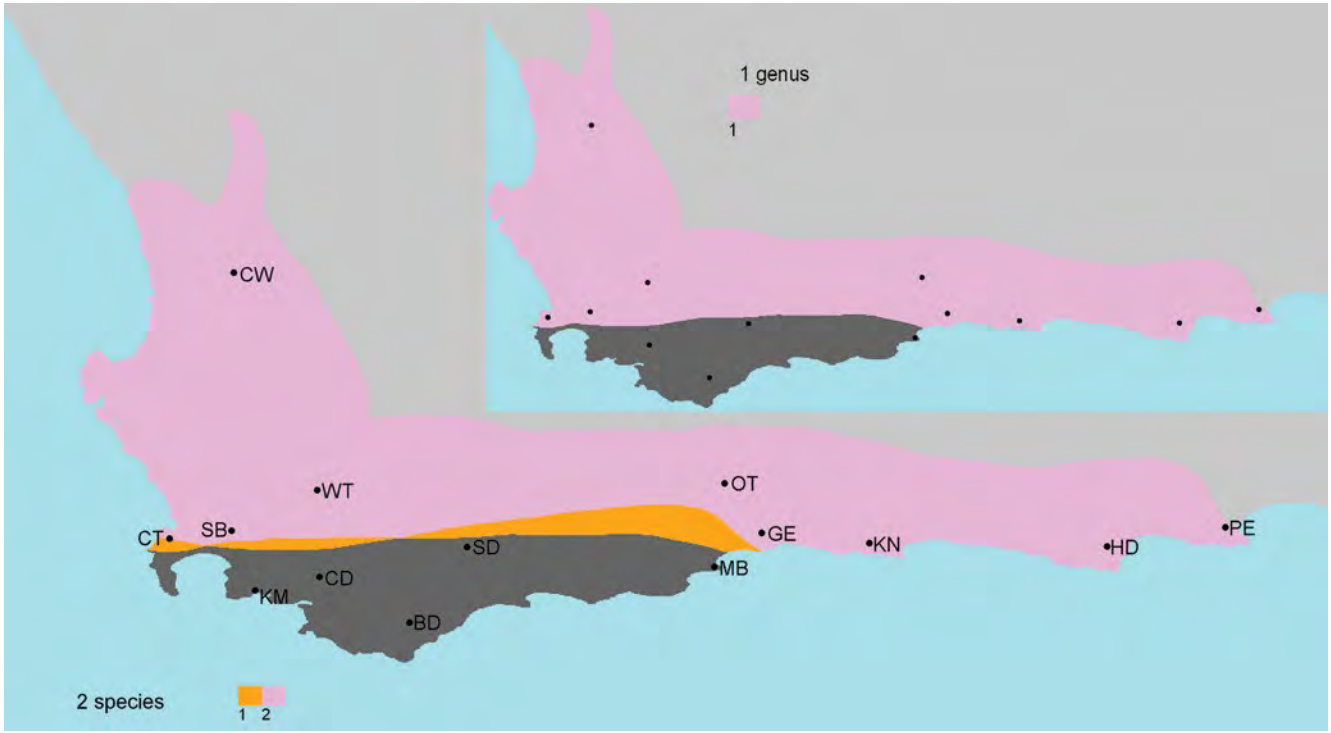
Caryophyllaceae



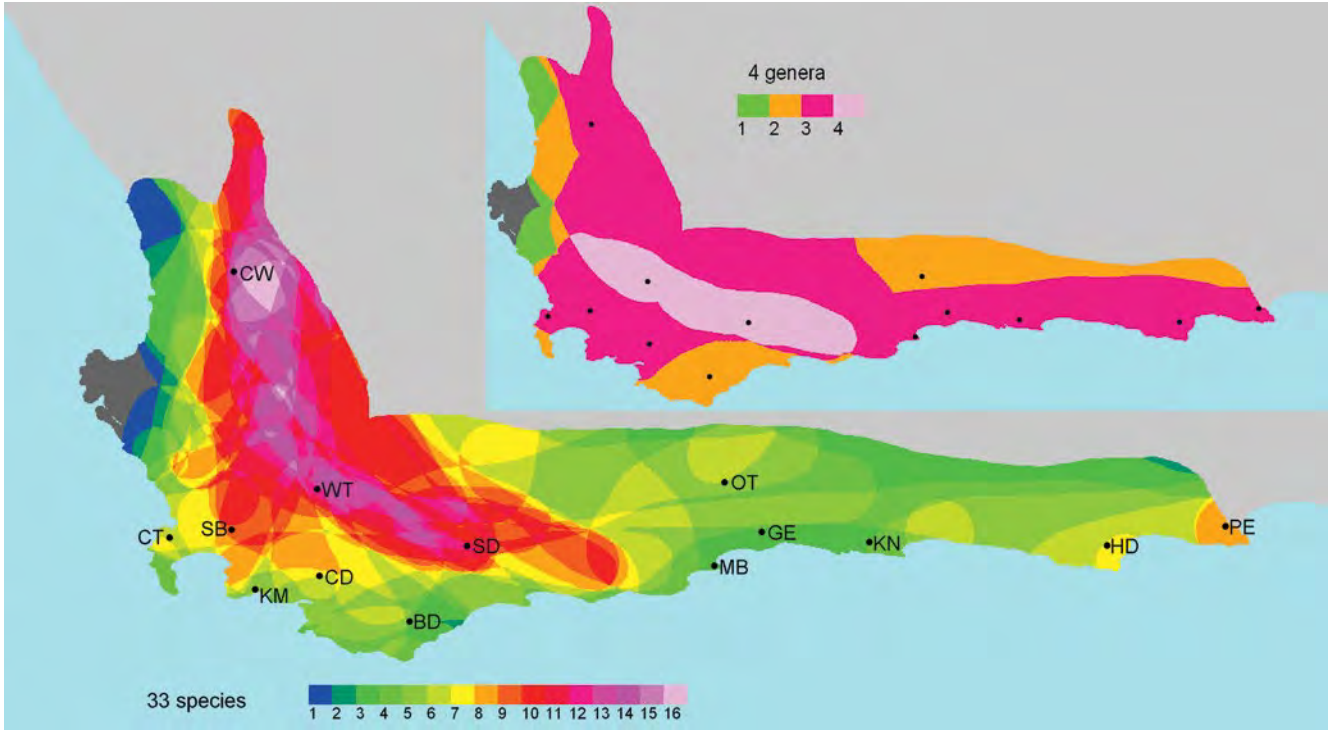
C

Celastraceae

C

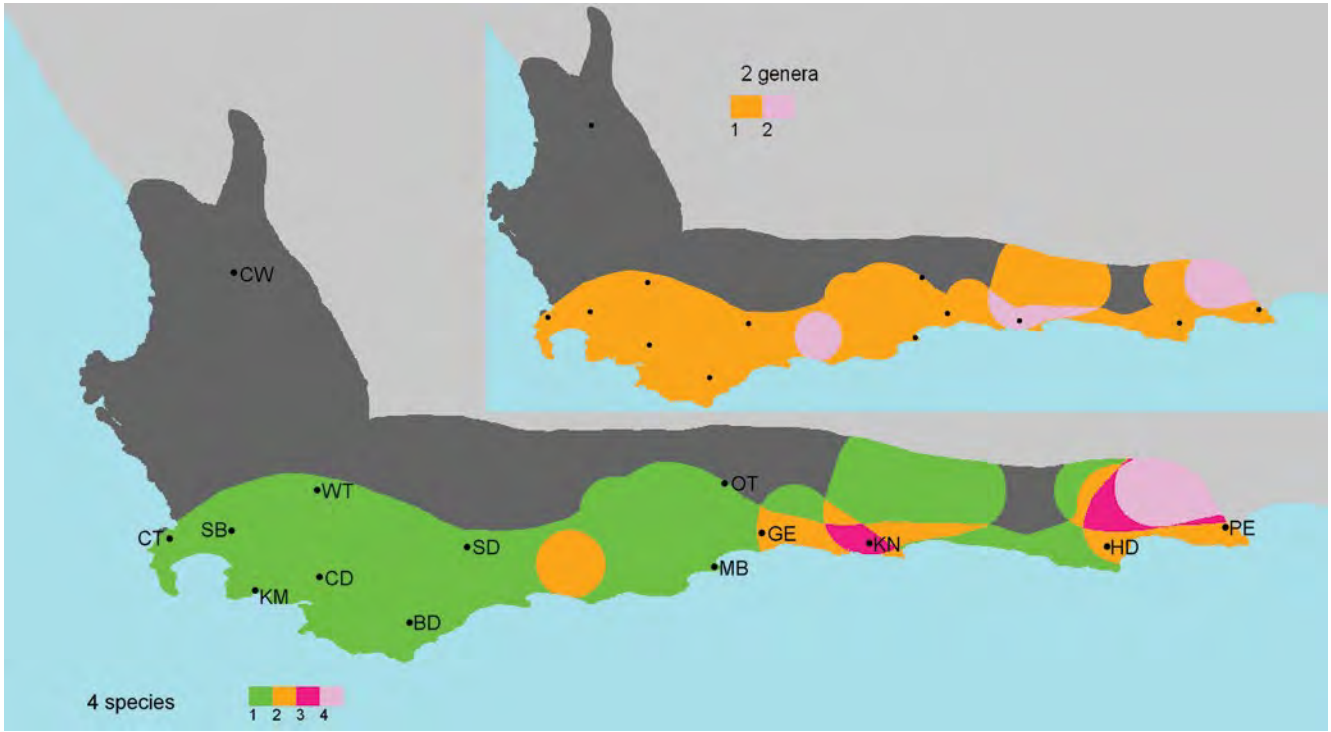


Ceratophyllaceae

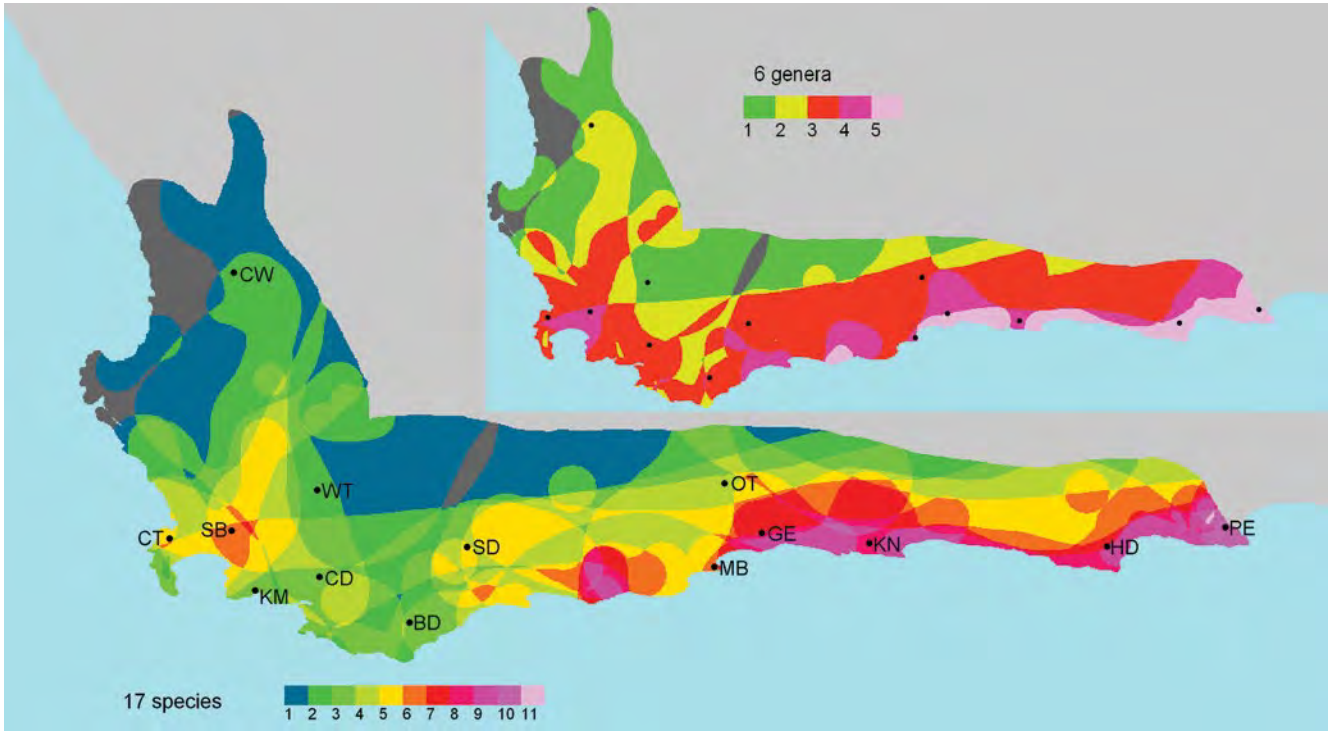


Colchicaceae

C

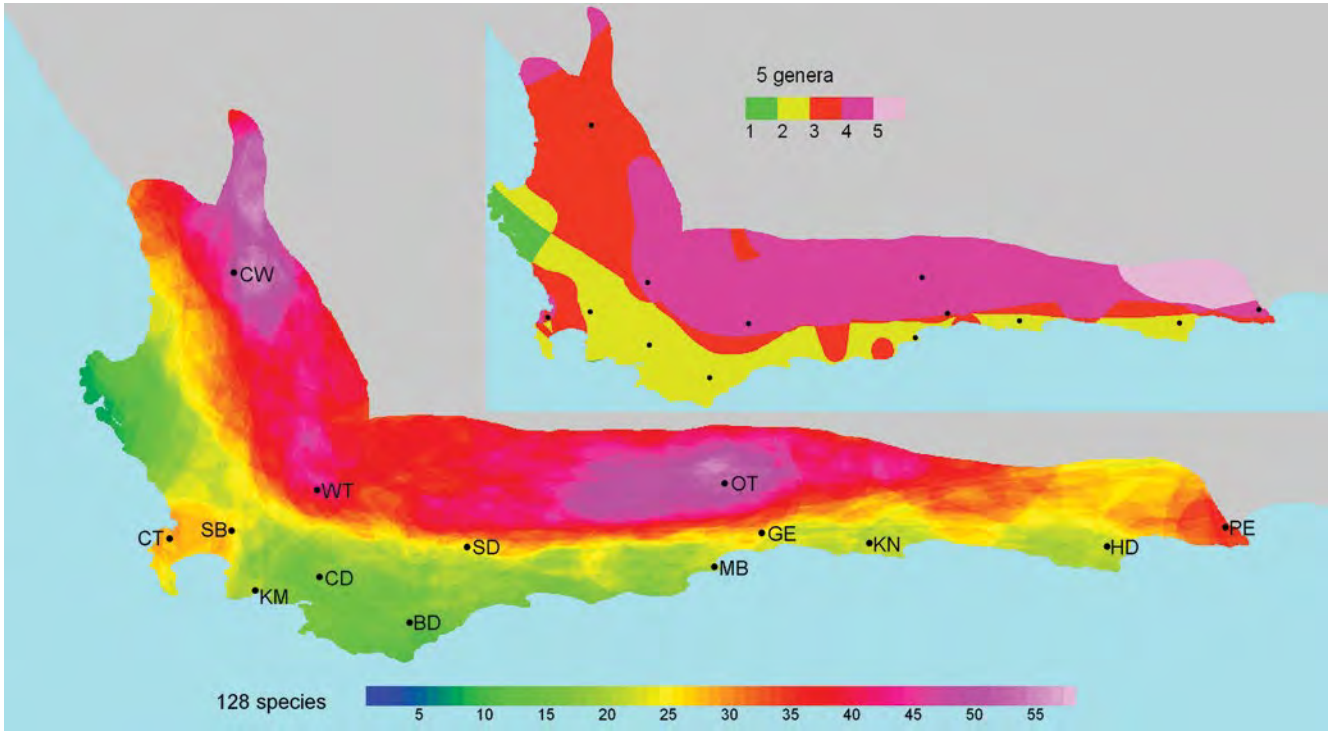


Commelinaceae

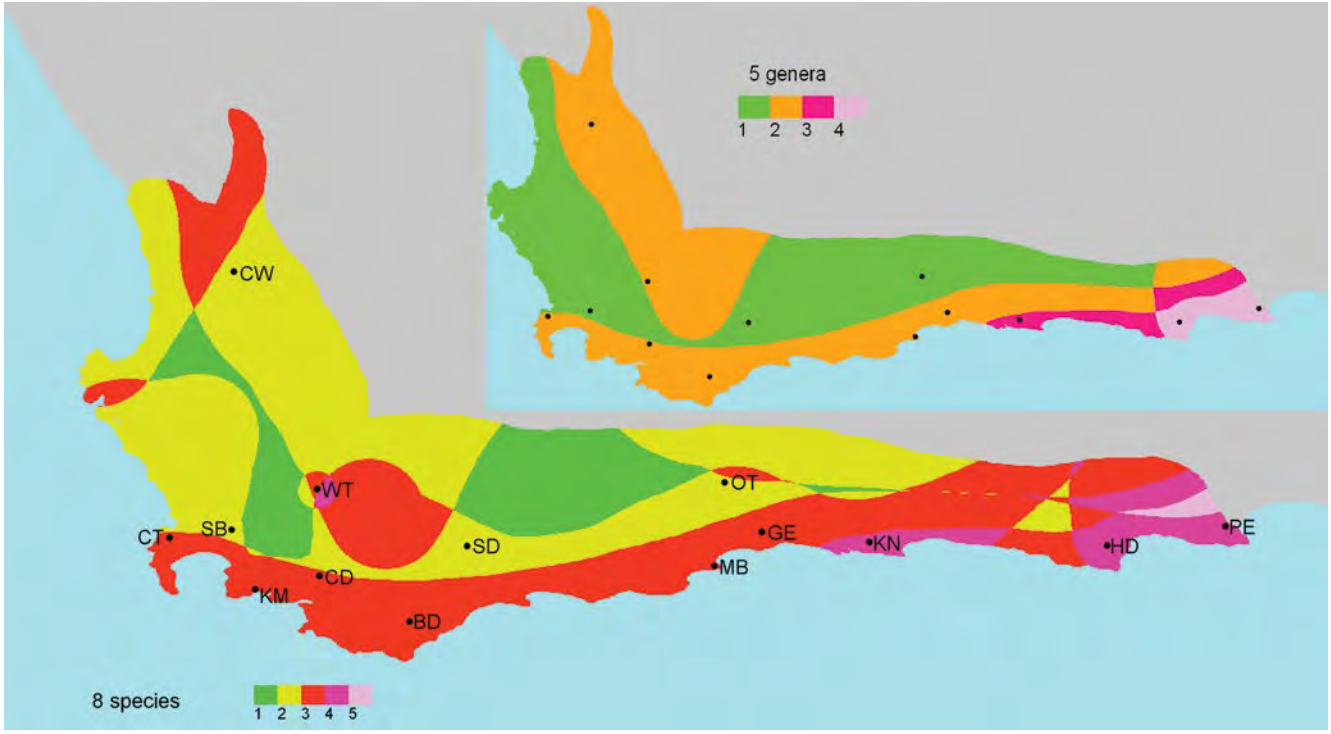


Convolvulaceae

C

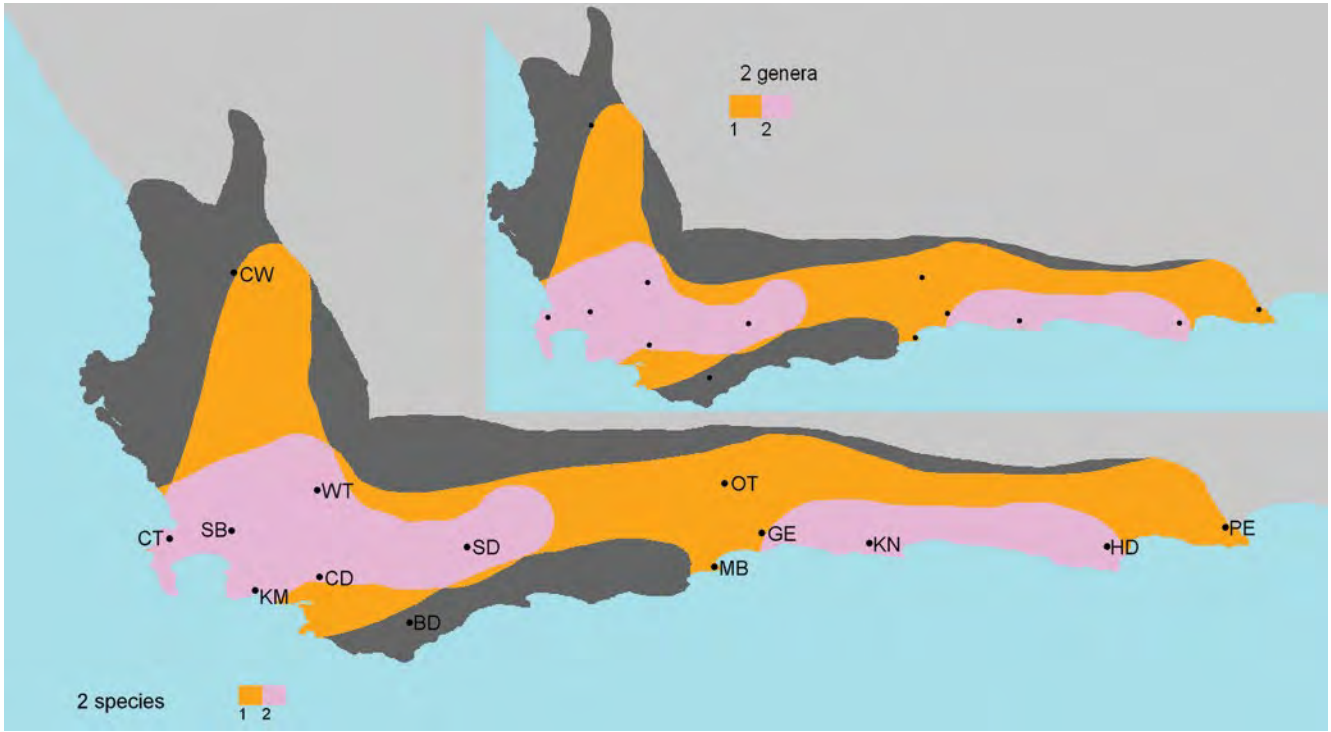


Crassulaceae

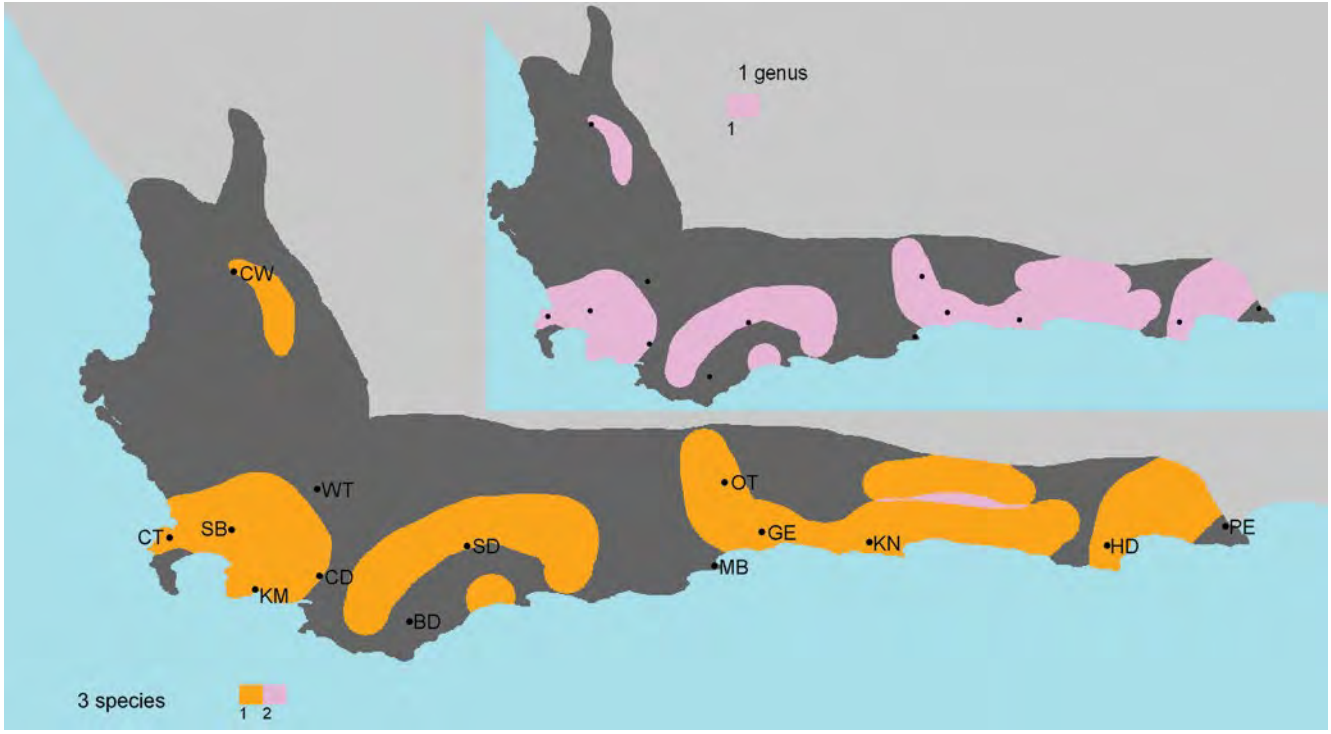


Cucurbitaceae

C

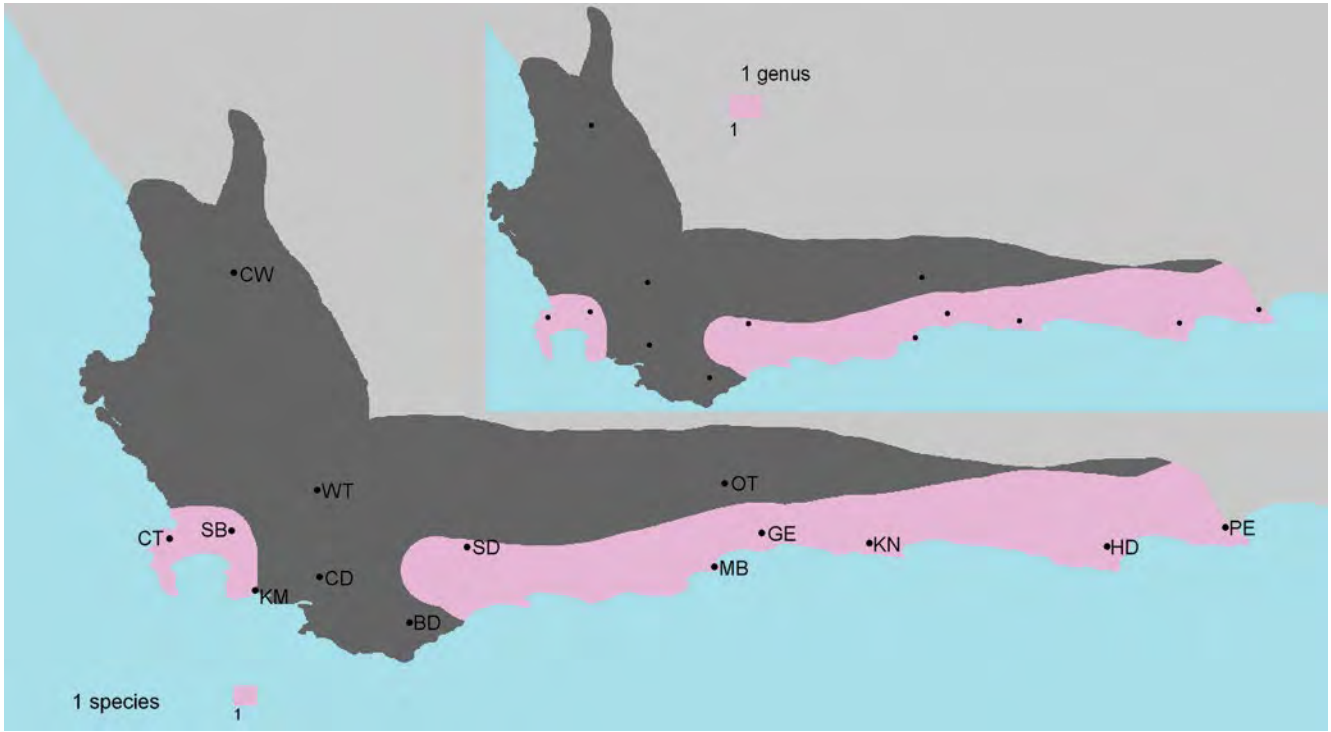


Cunoniaceae

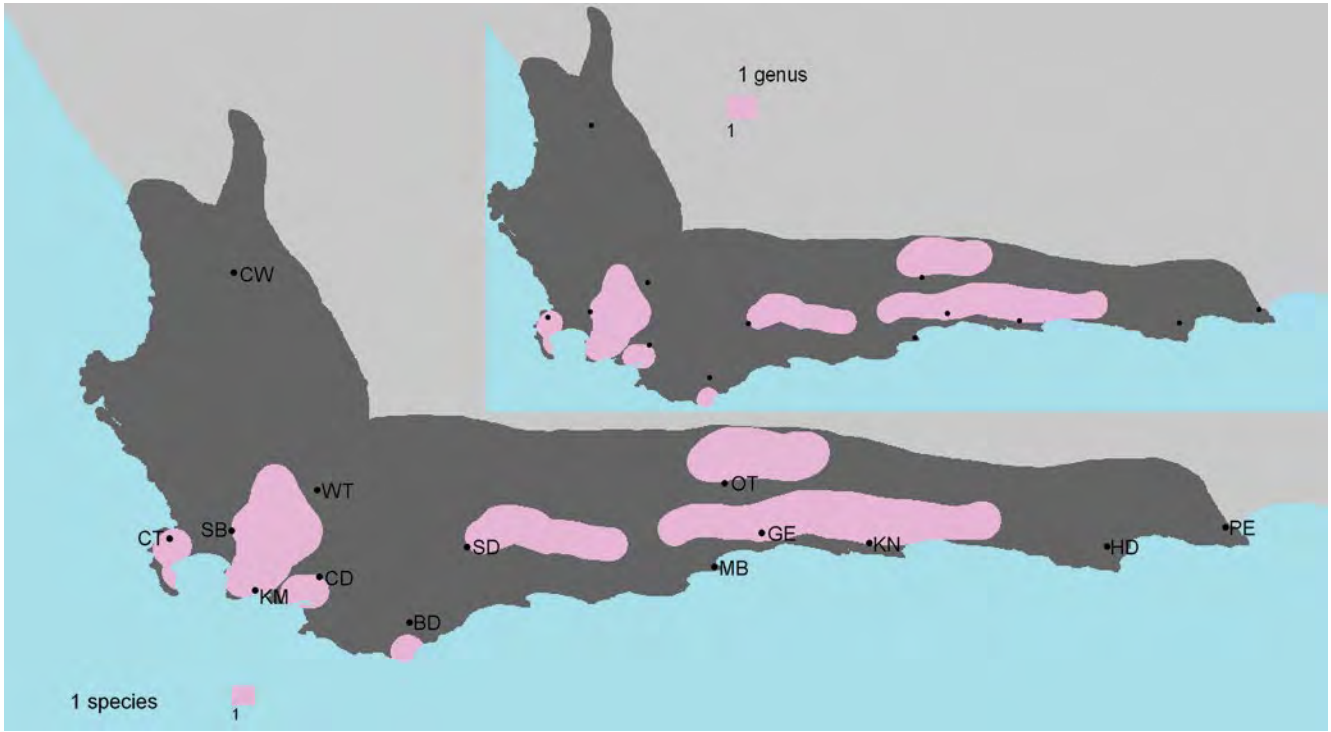


Cupressaceae

C

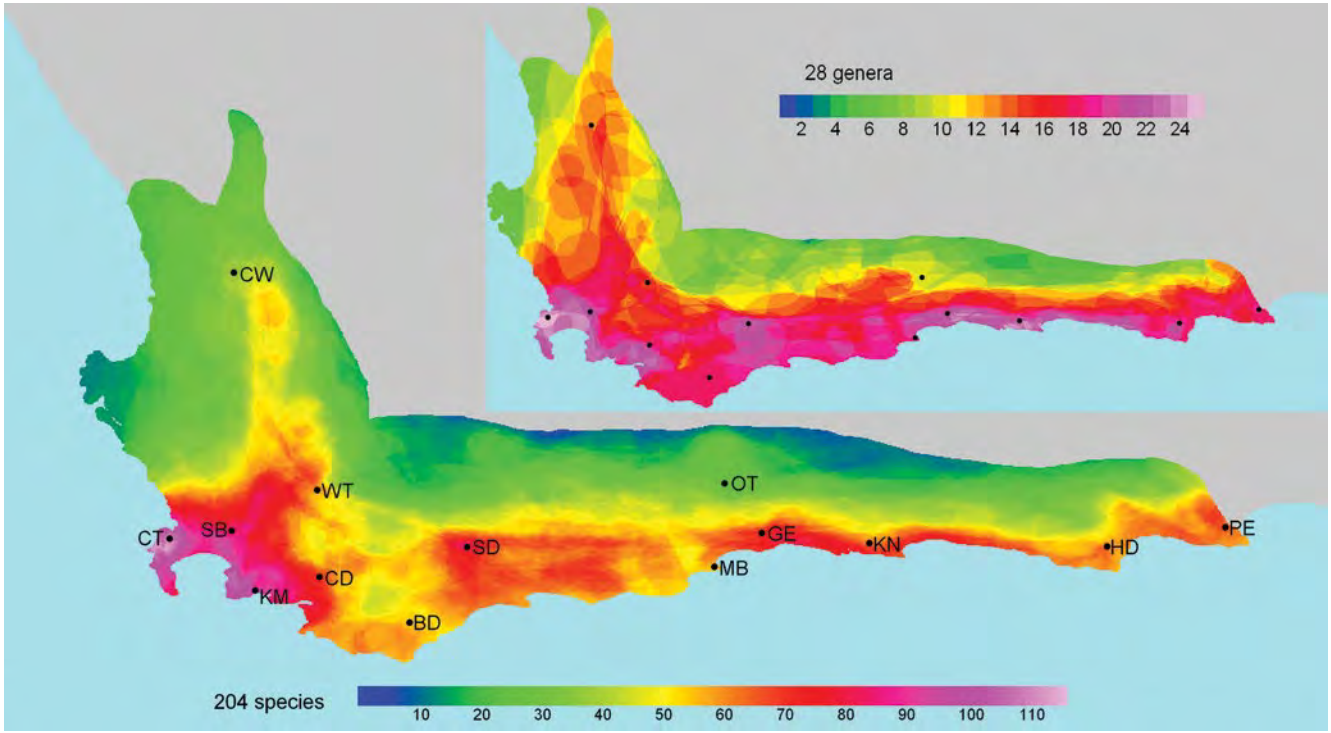


Curtisiaceae

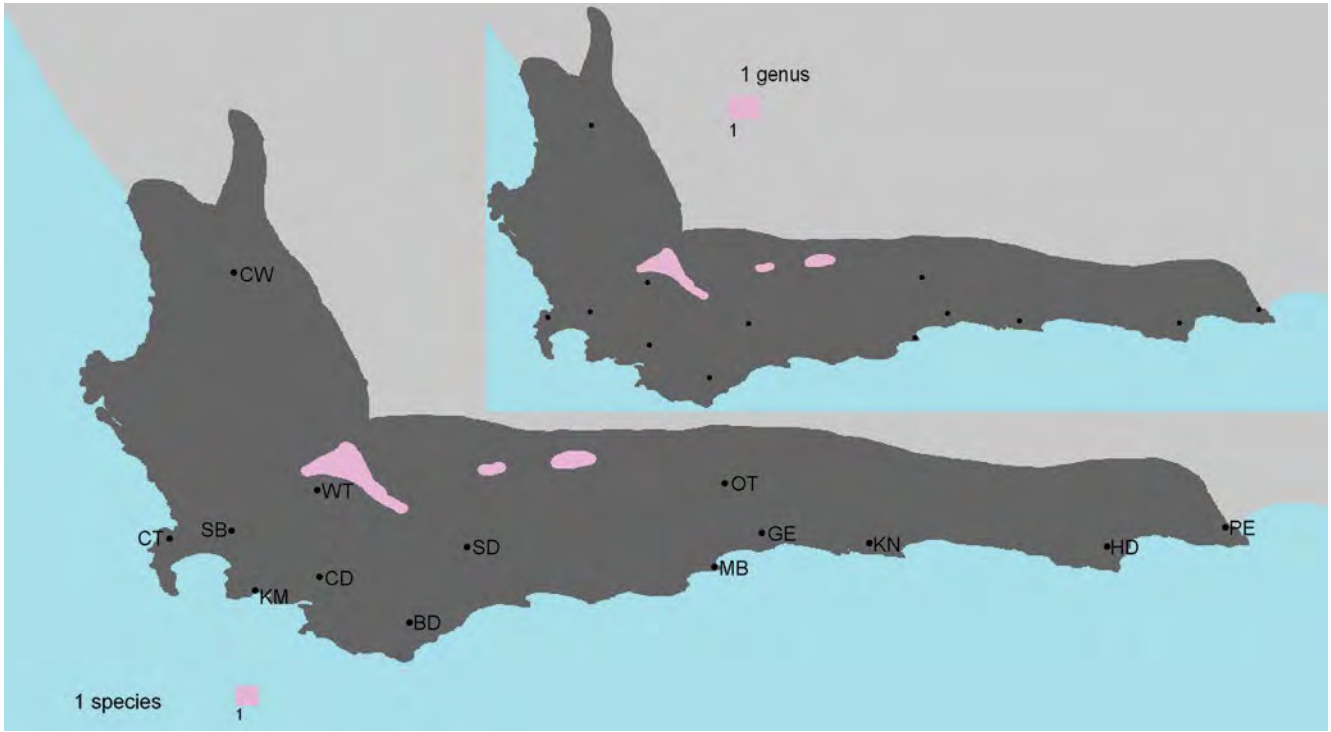


Cyatheaceae

C

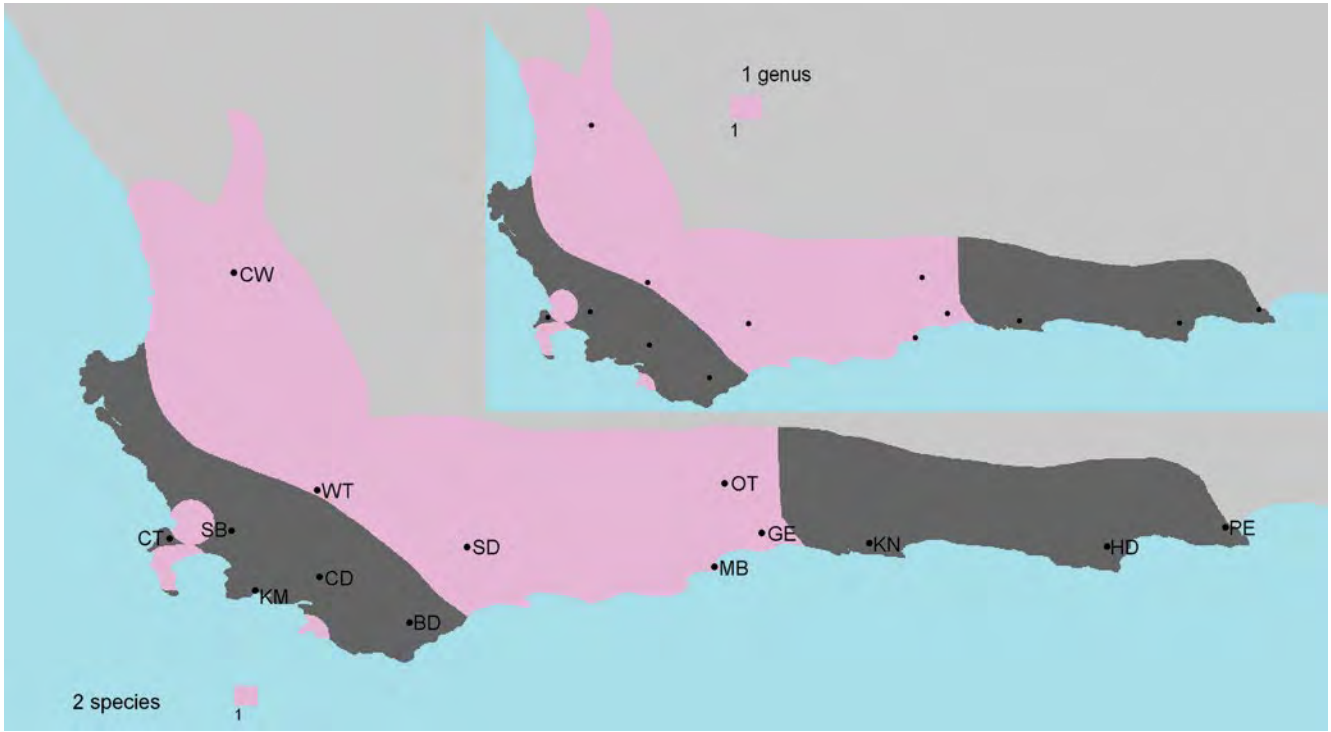


Cyperaceae

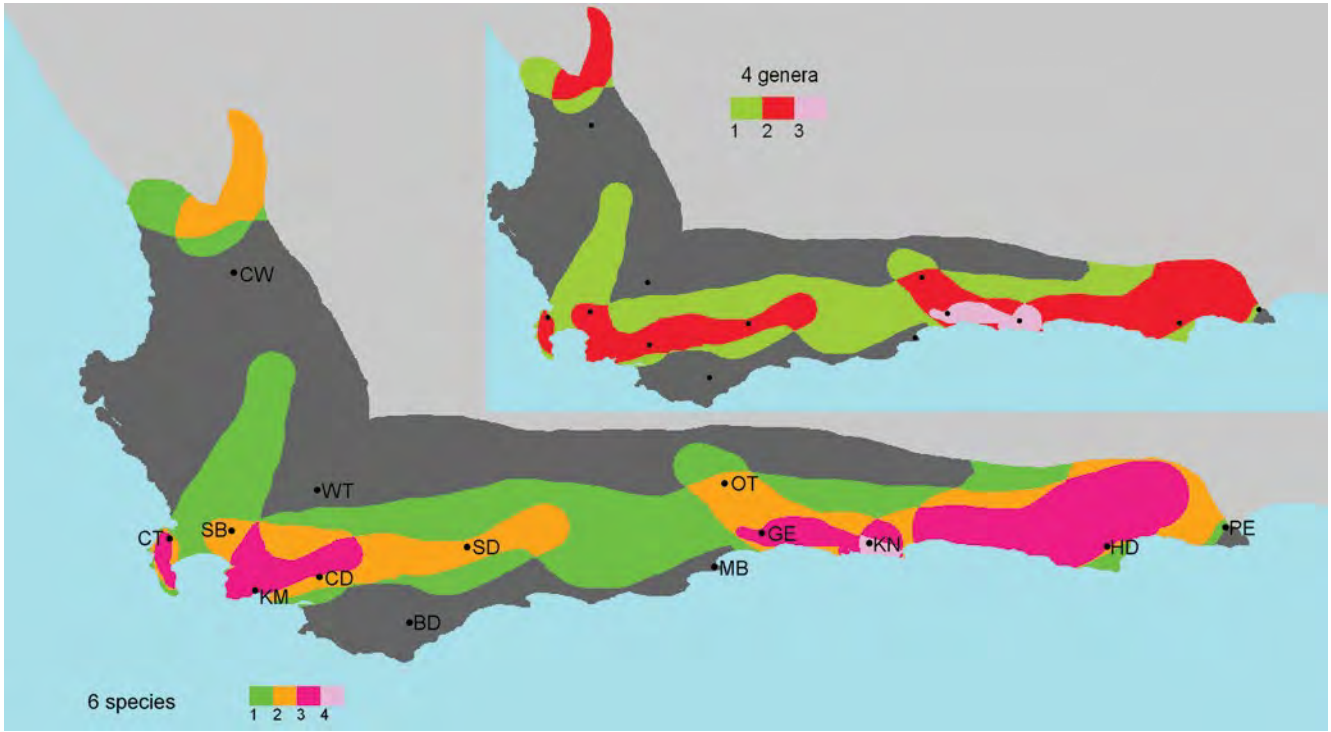


Cystopteridaceae

C

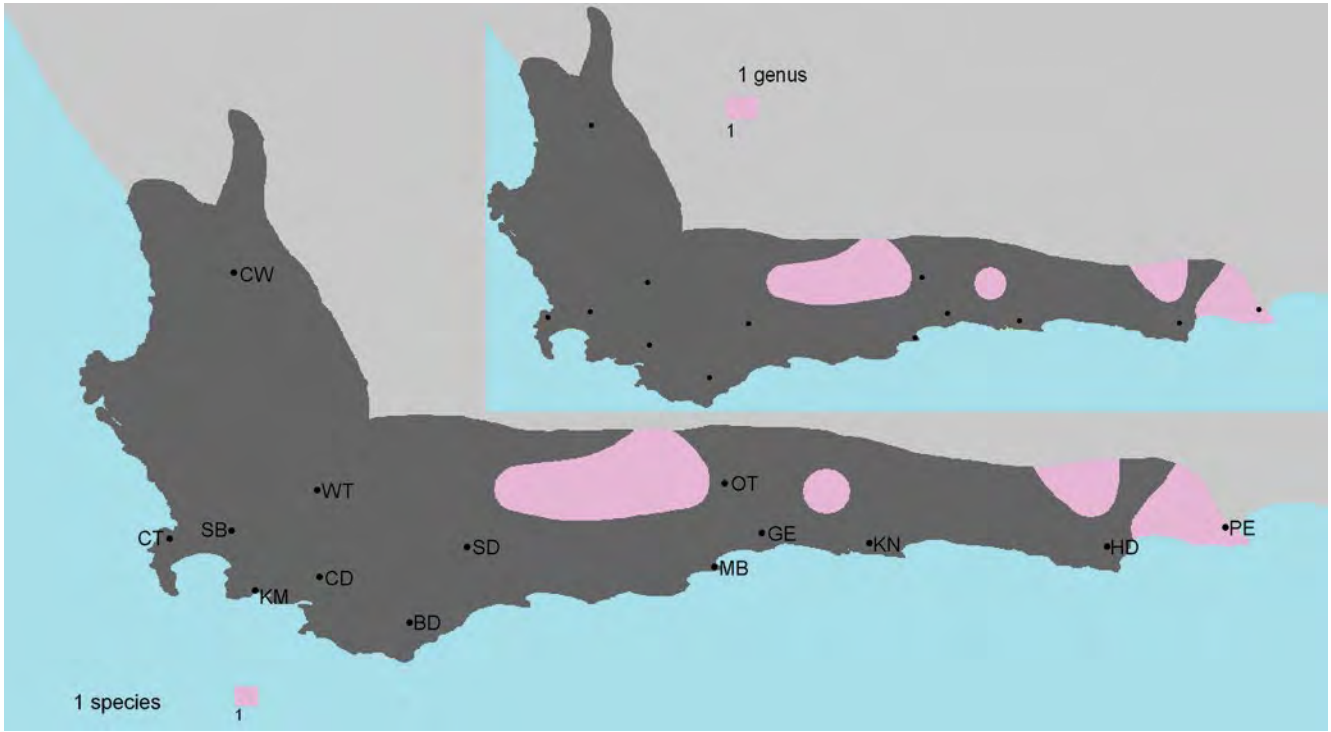


Cytinaceae

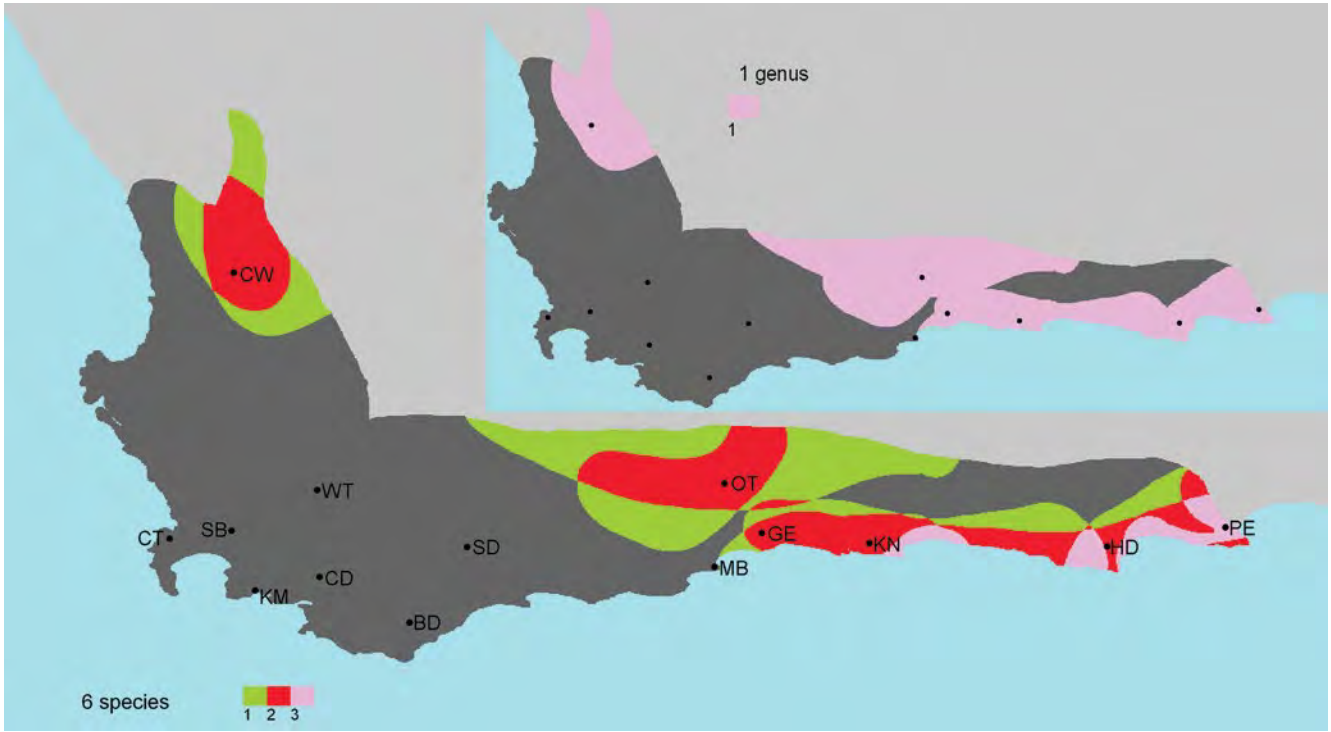


Dennstaedtiaceae

D

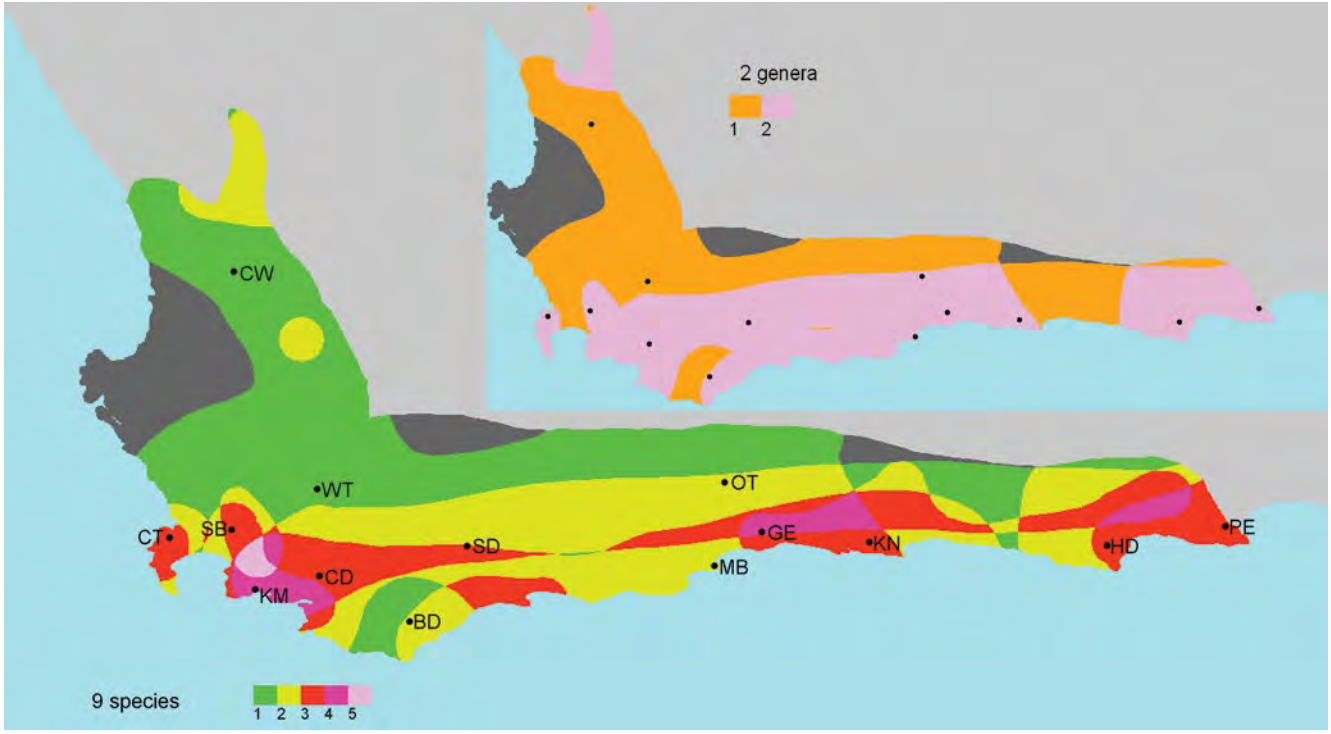


Didiereaceae

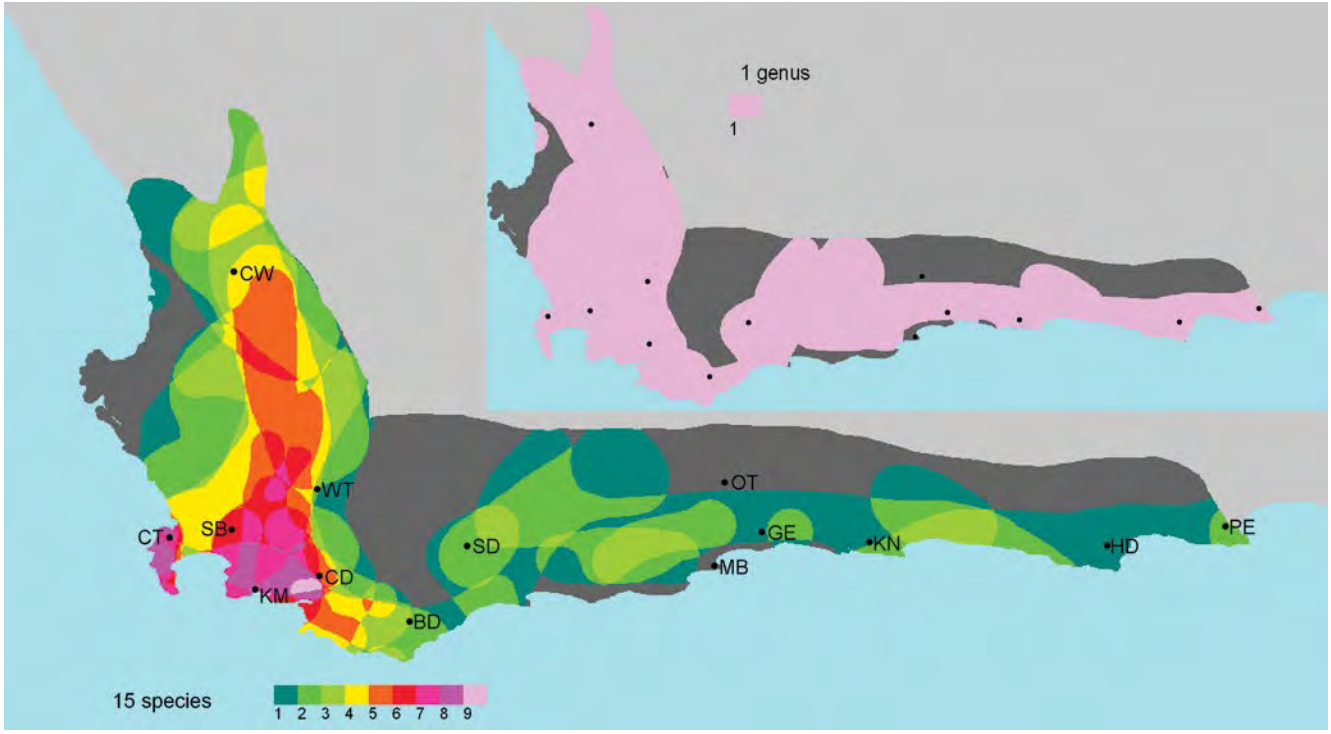


Dioscoreaceae

D

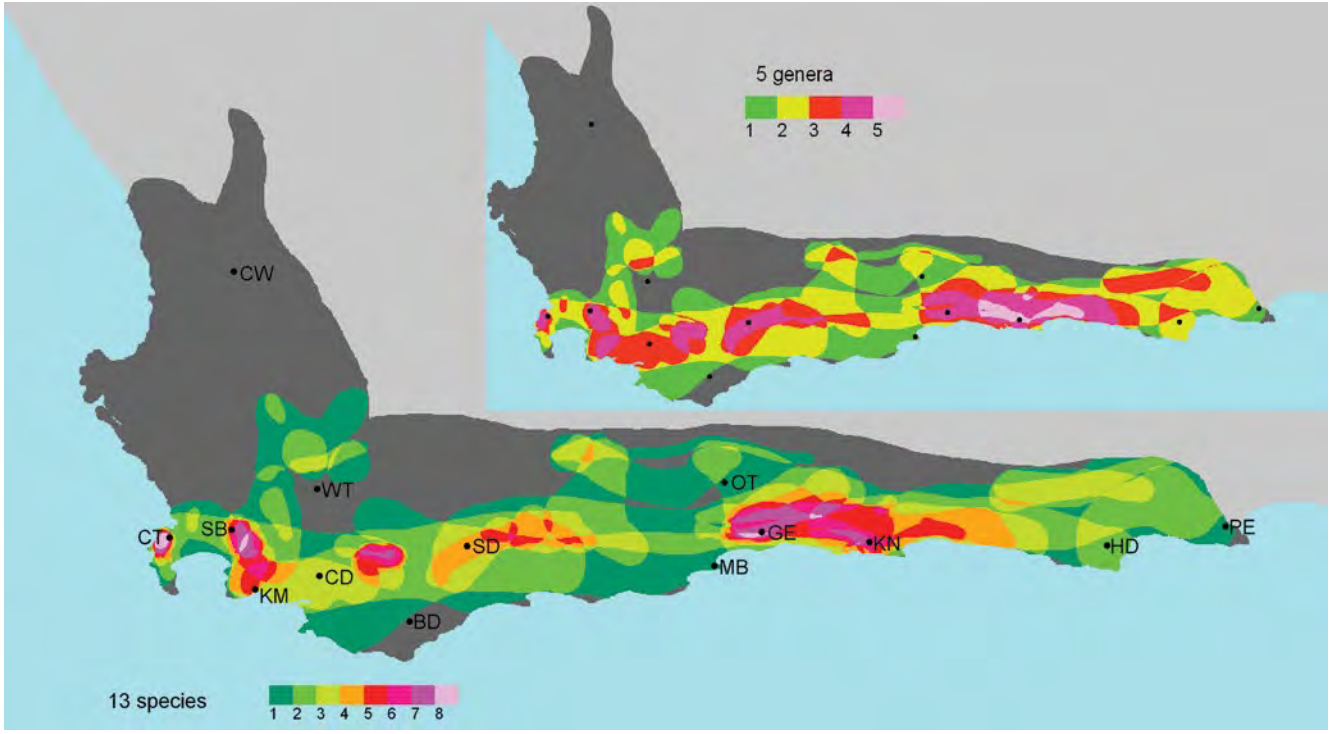


Dipsacaceae

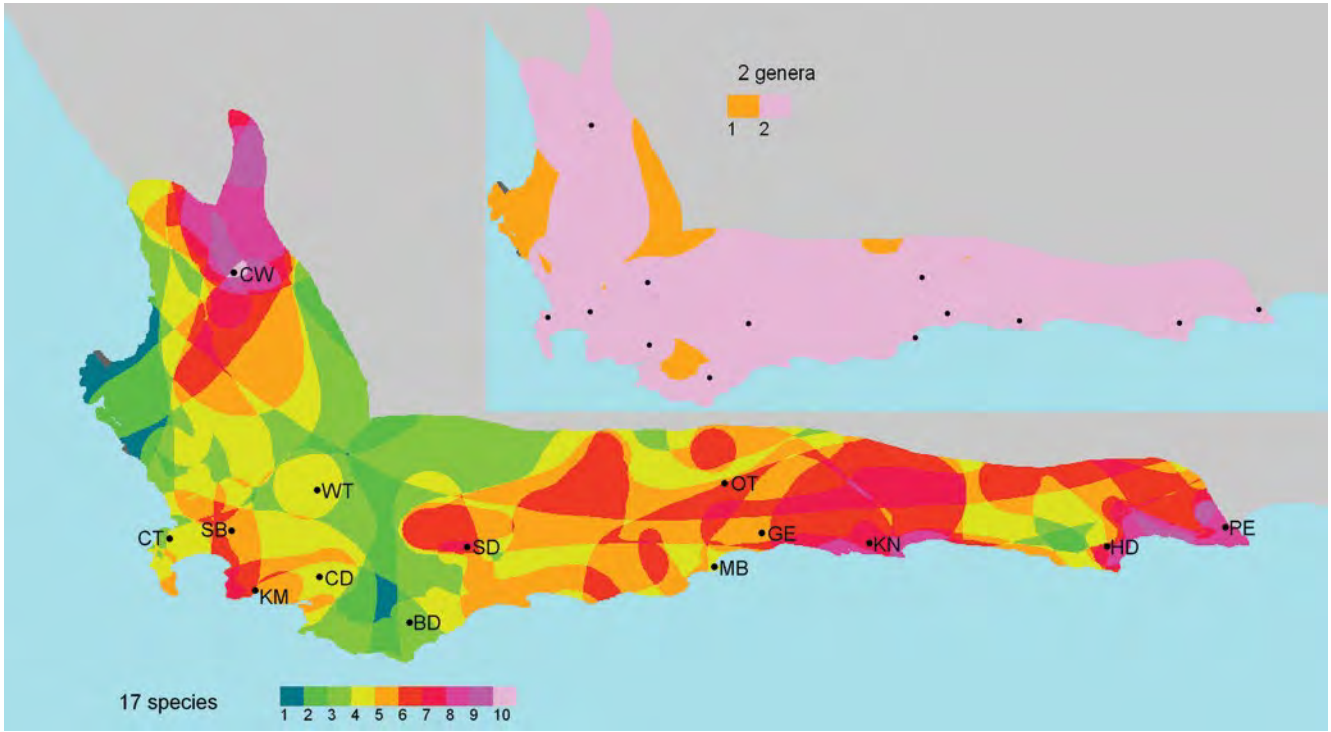


Droseraceae

D



Dryopteridaceae

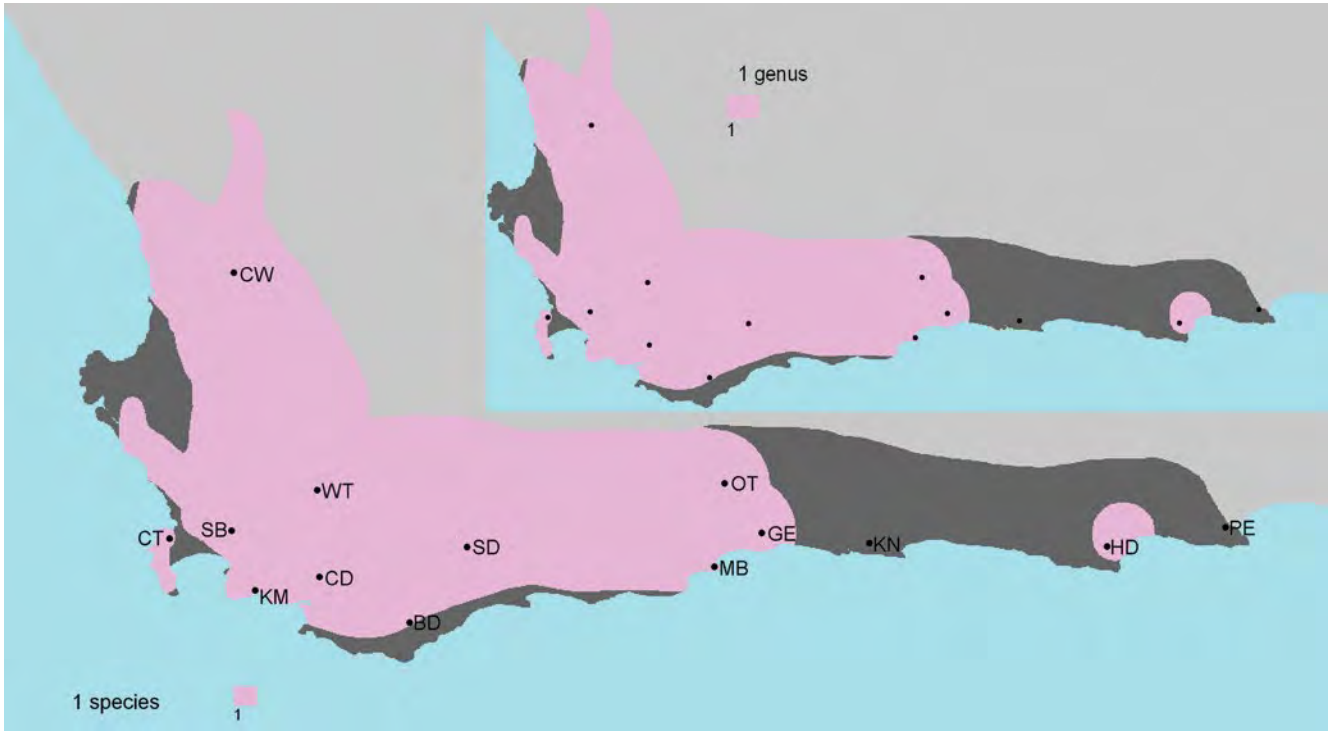

2 genera
1 2
CW
WT
CT
SB
CD
KM
BD
SD
OT
GE
MB
KN
HD
PE
17 species
1 2 3 4 5 6 7 8 9 10

Ebenaceae

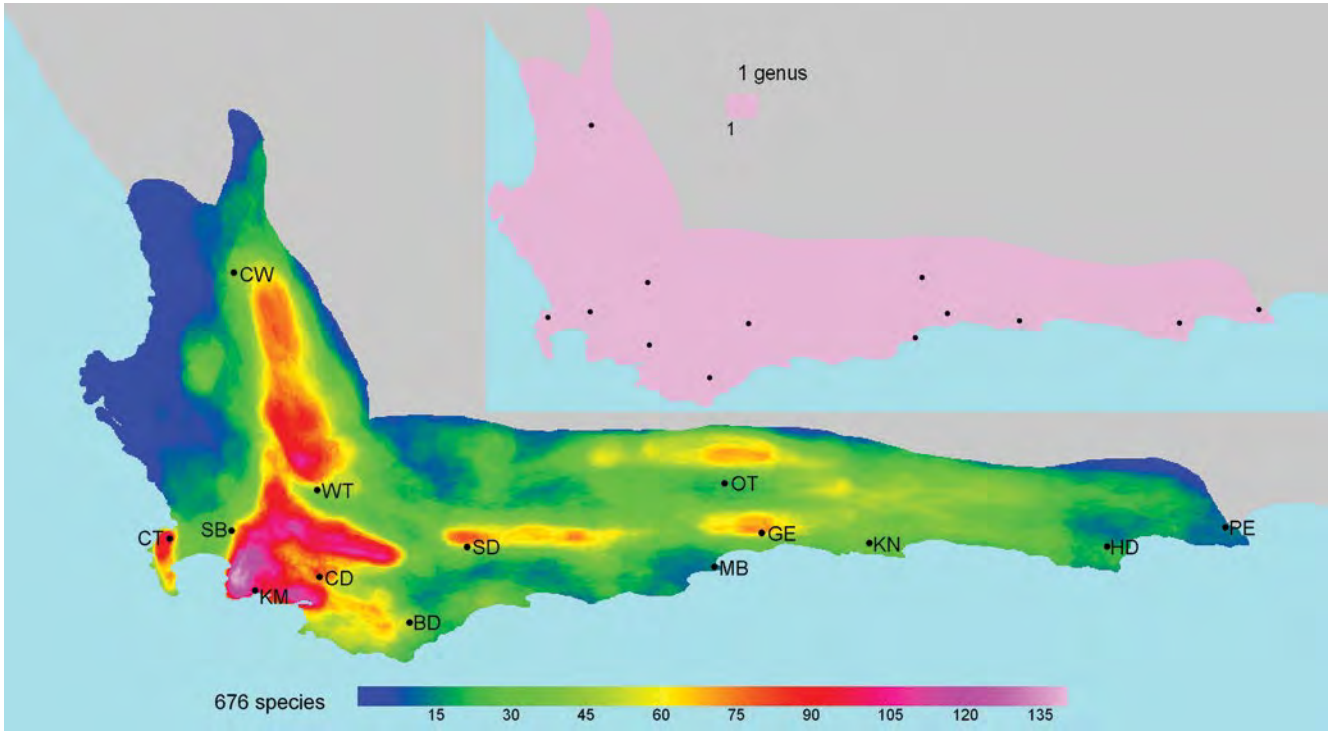
E



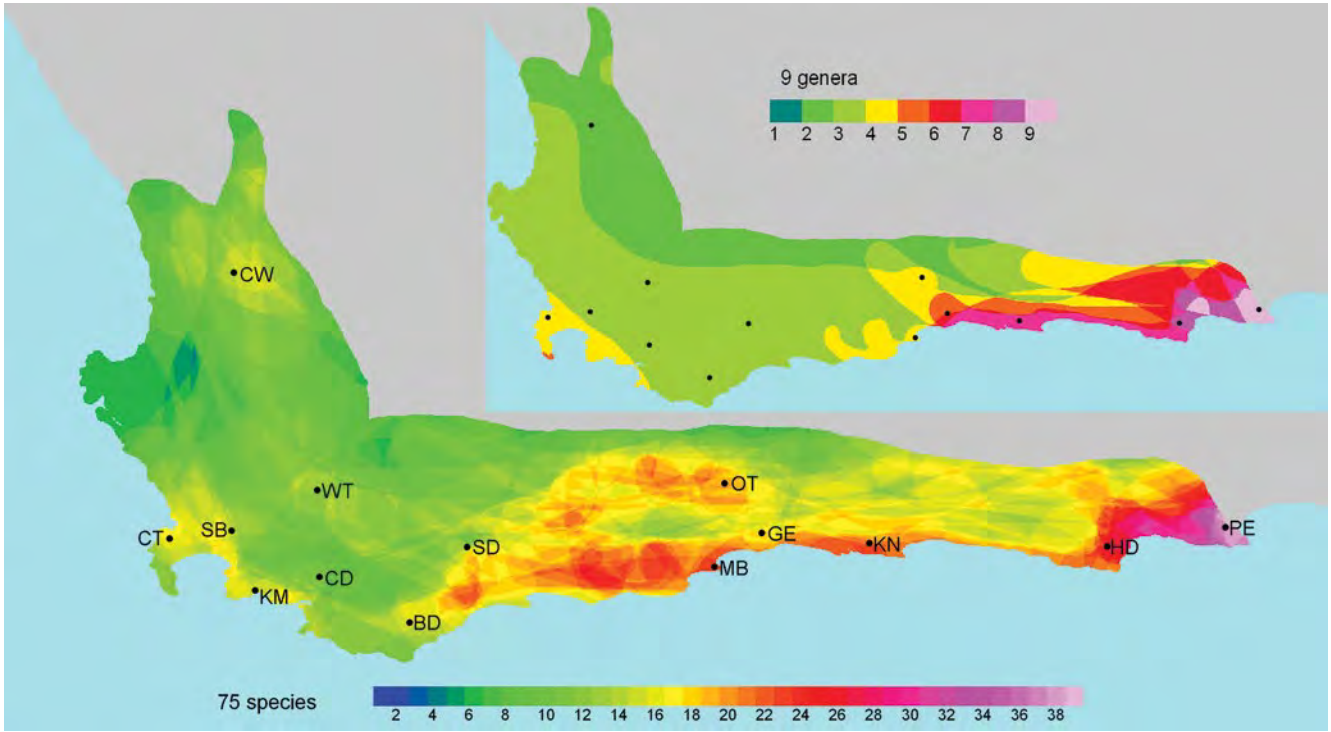
Elatinaceae



Equisetaceae

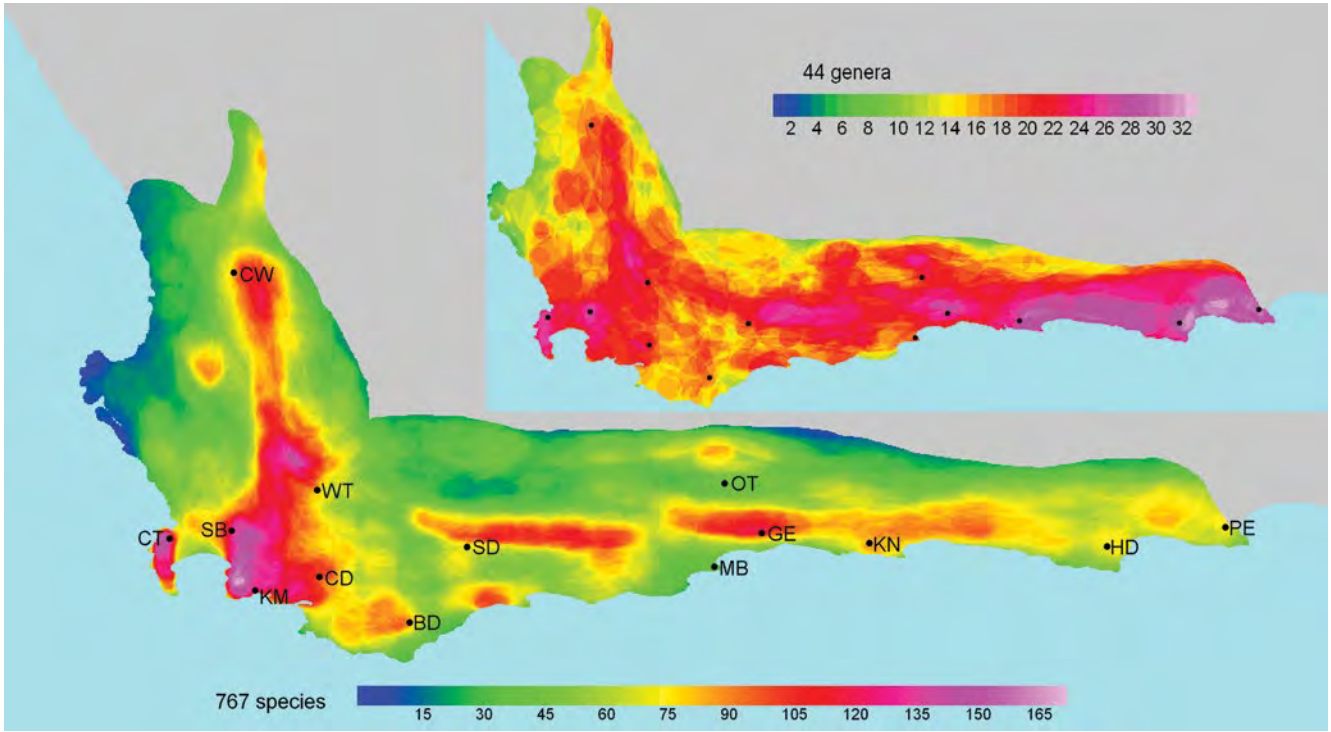

1 genus
1
CW
WT
OT
CT
SB
SD
GE
KN
HD
PE
CD
MB
KM
BD
676 species
15
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45
60
75
90
105
120
135

Ericaceae

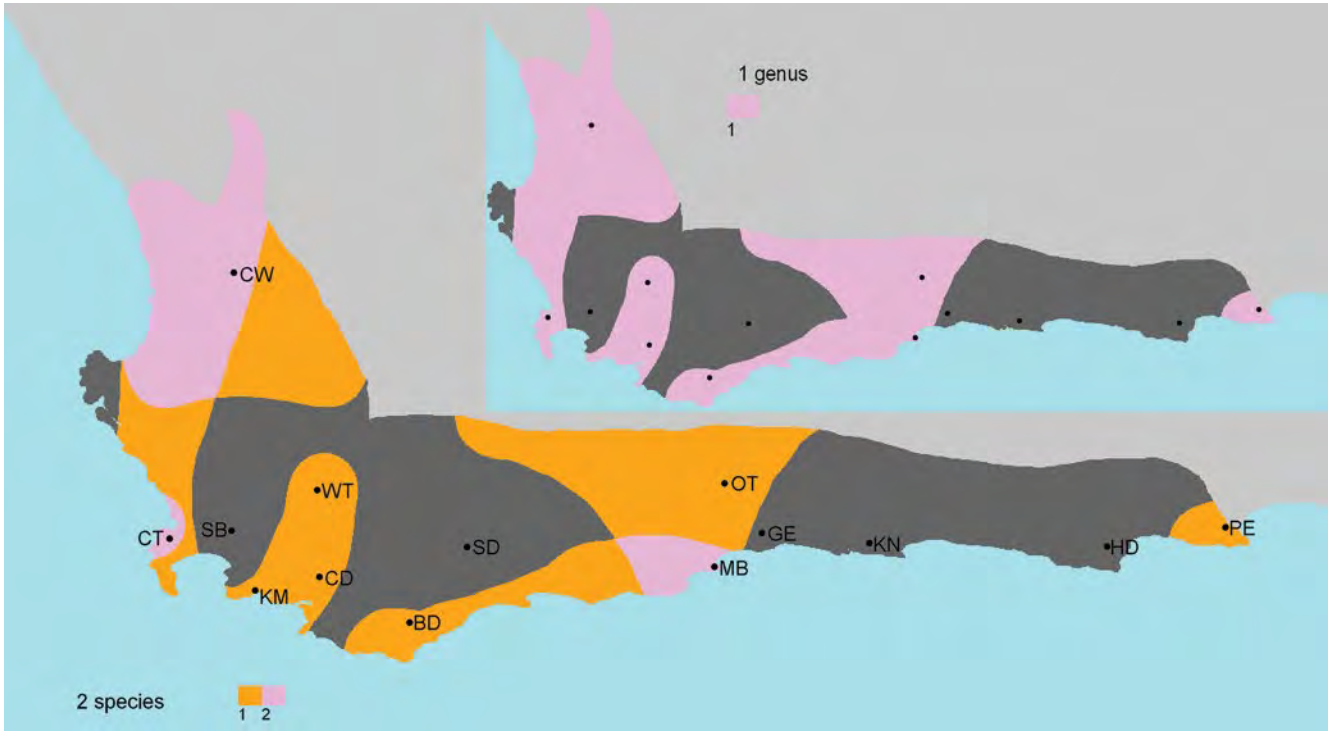


Euphorbiaceae

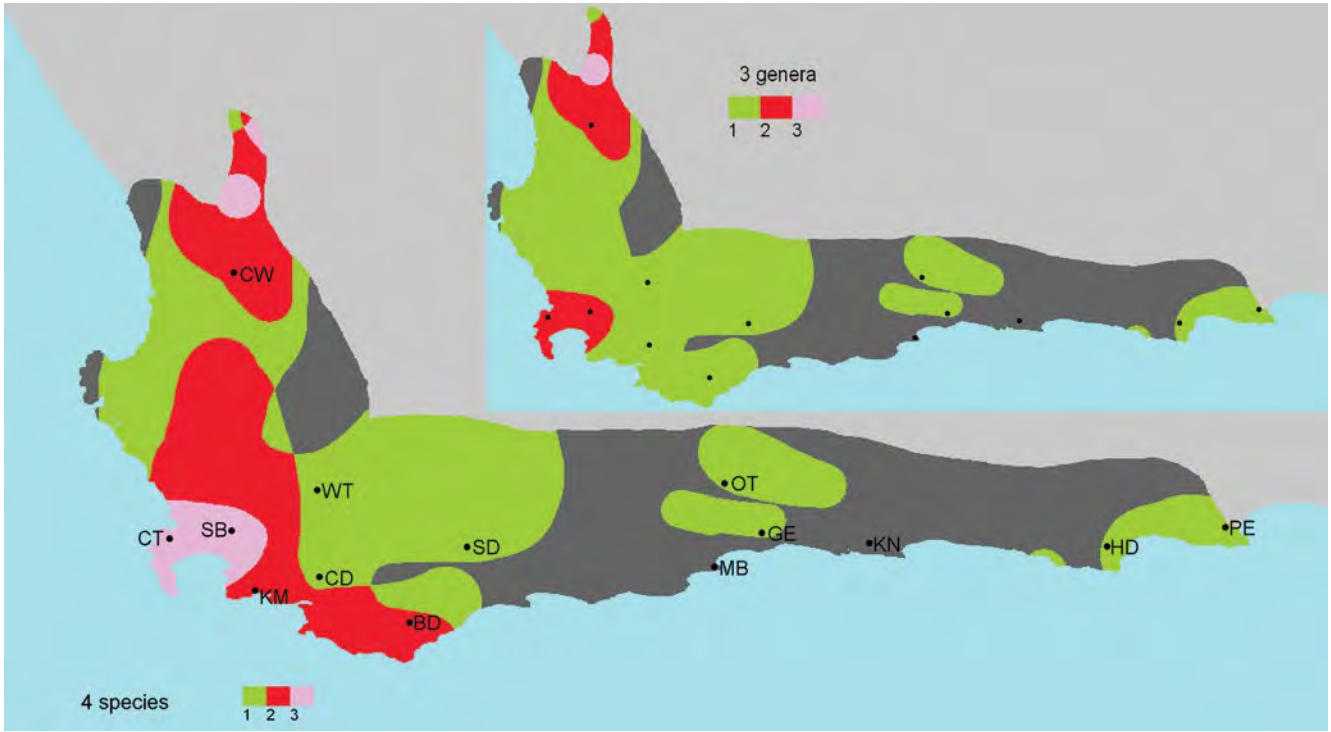
F


44 genera
2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32
CW
WT
SB
CT
CD
KM
BD
SD
OT
GE
KN
MB
HD
PE
767 species
15 30 45 60 75 90 105 120 135 150 165

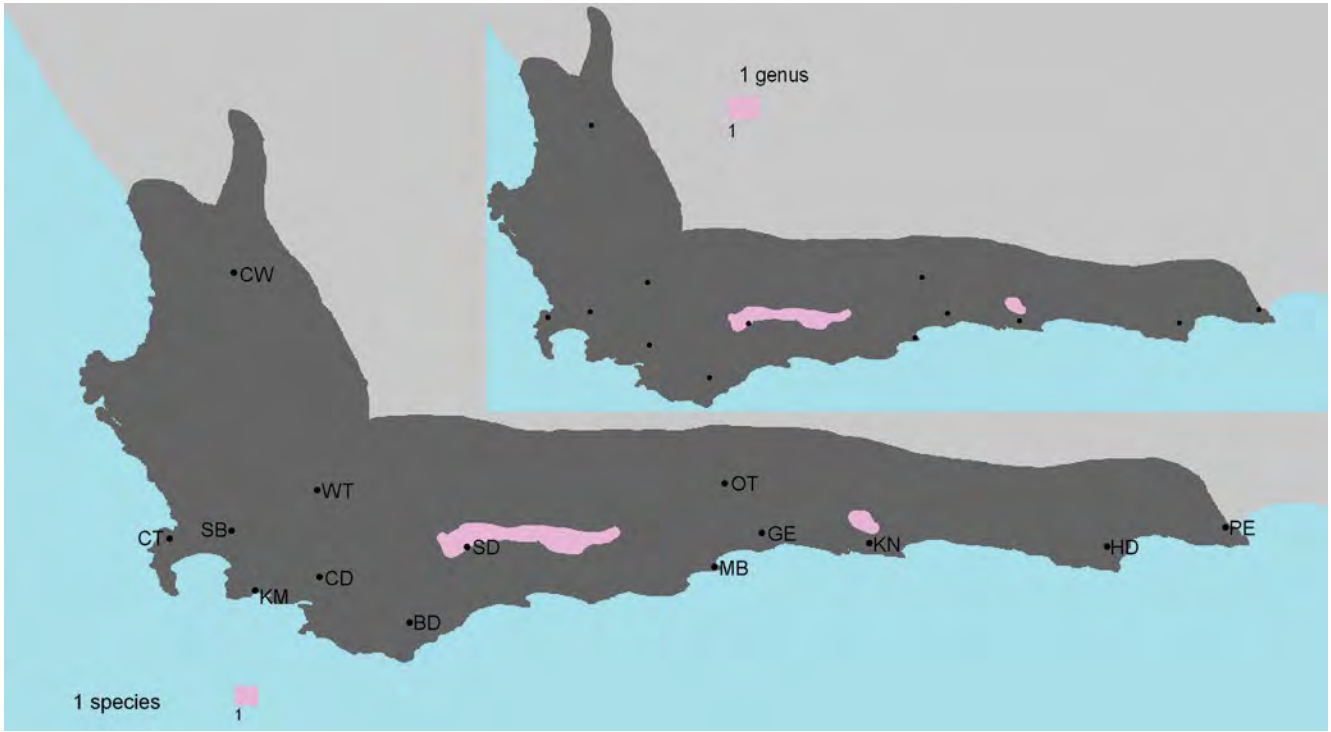
Fabaceae



Frankeniaceae



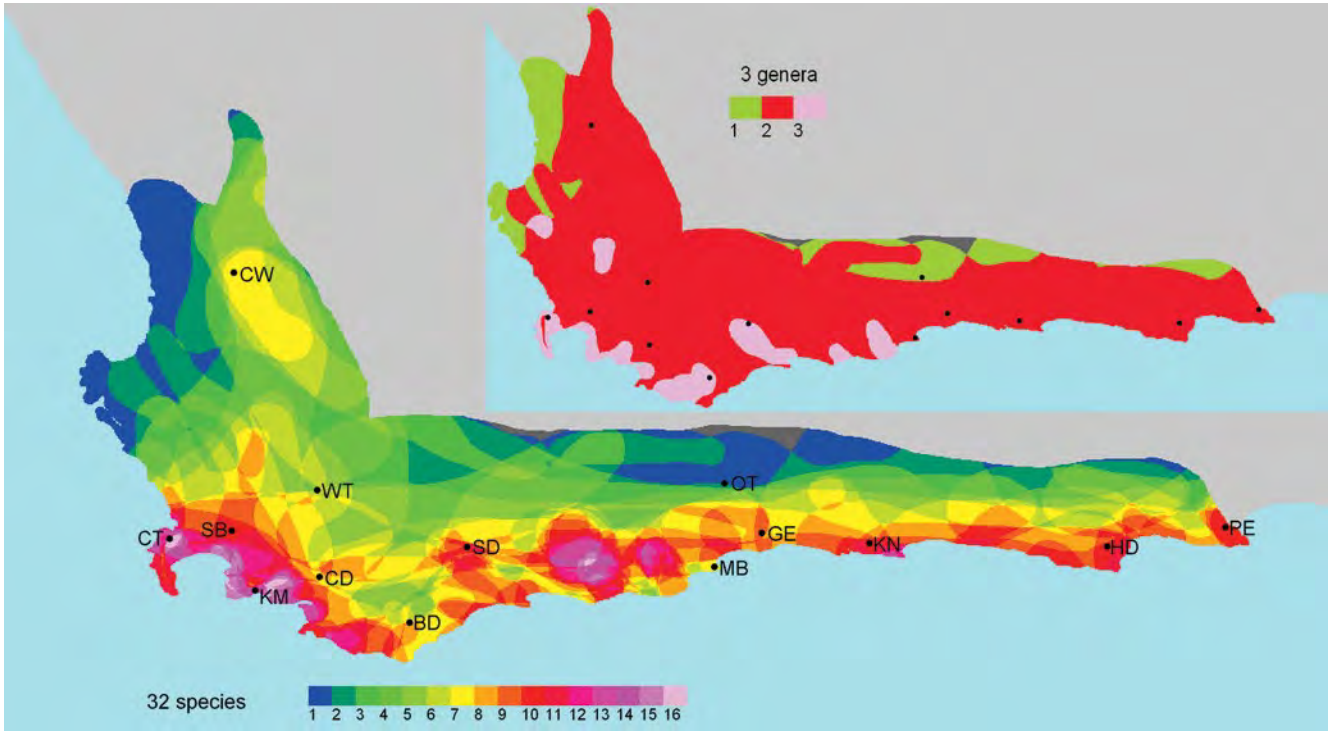
Fumariaceae



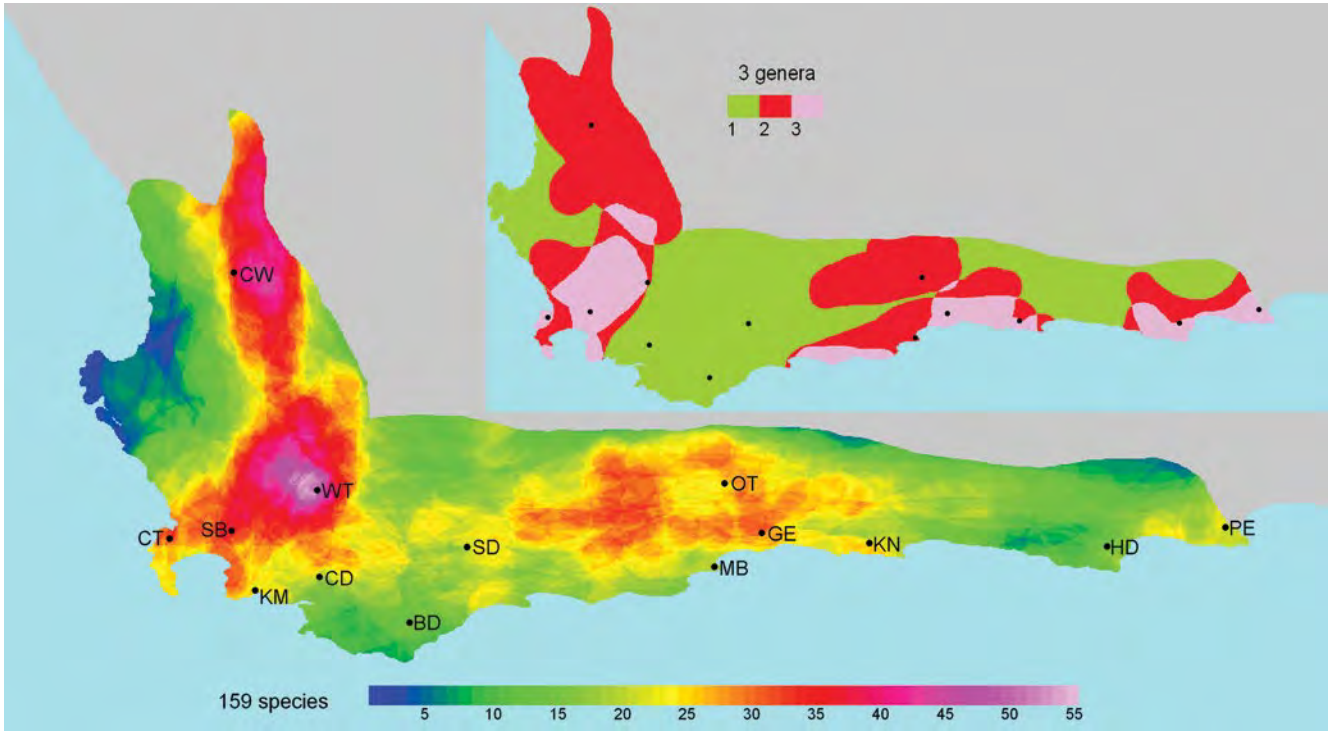
G

Geissolomataceae

G

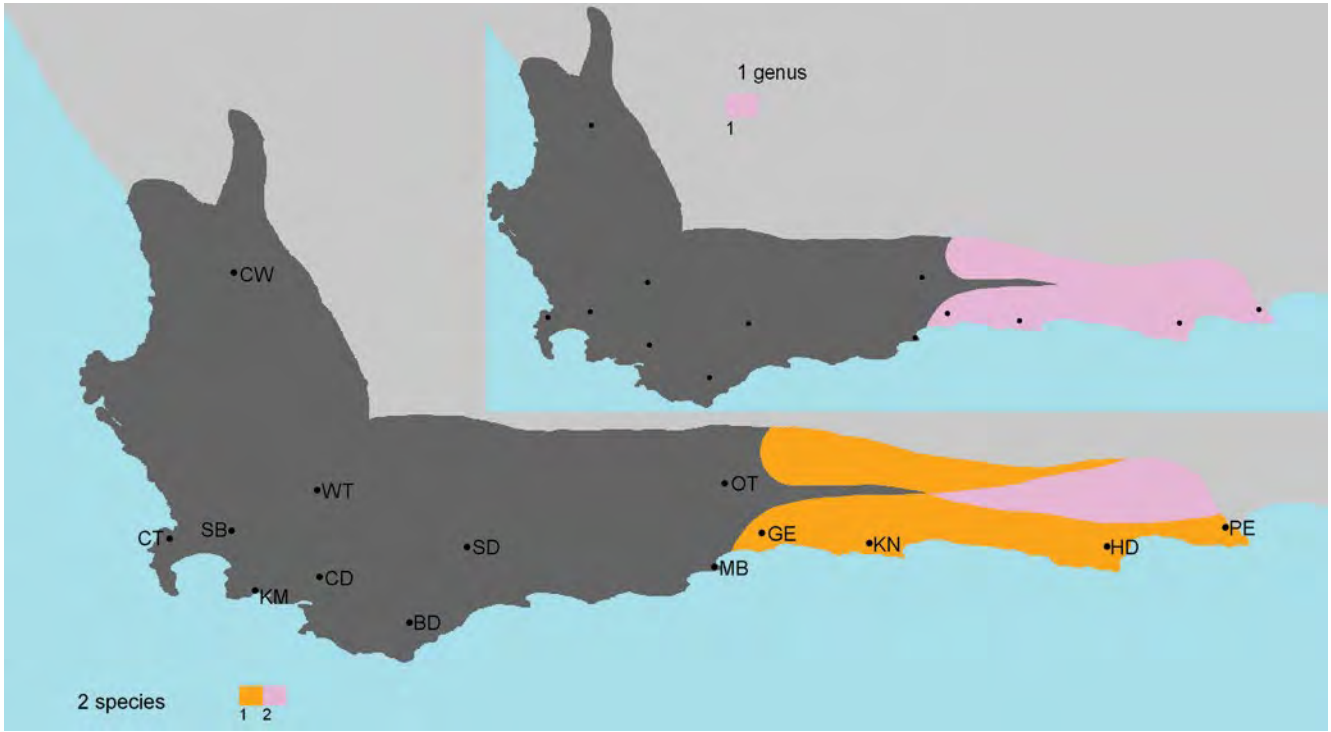


Gentianaceae

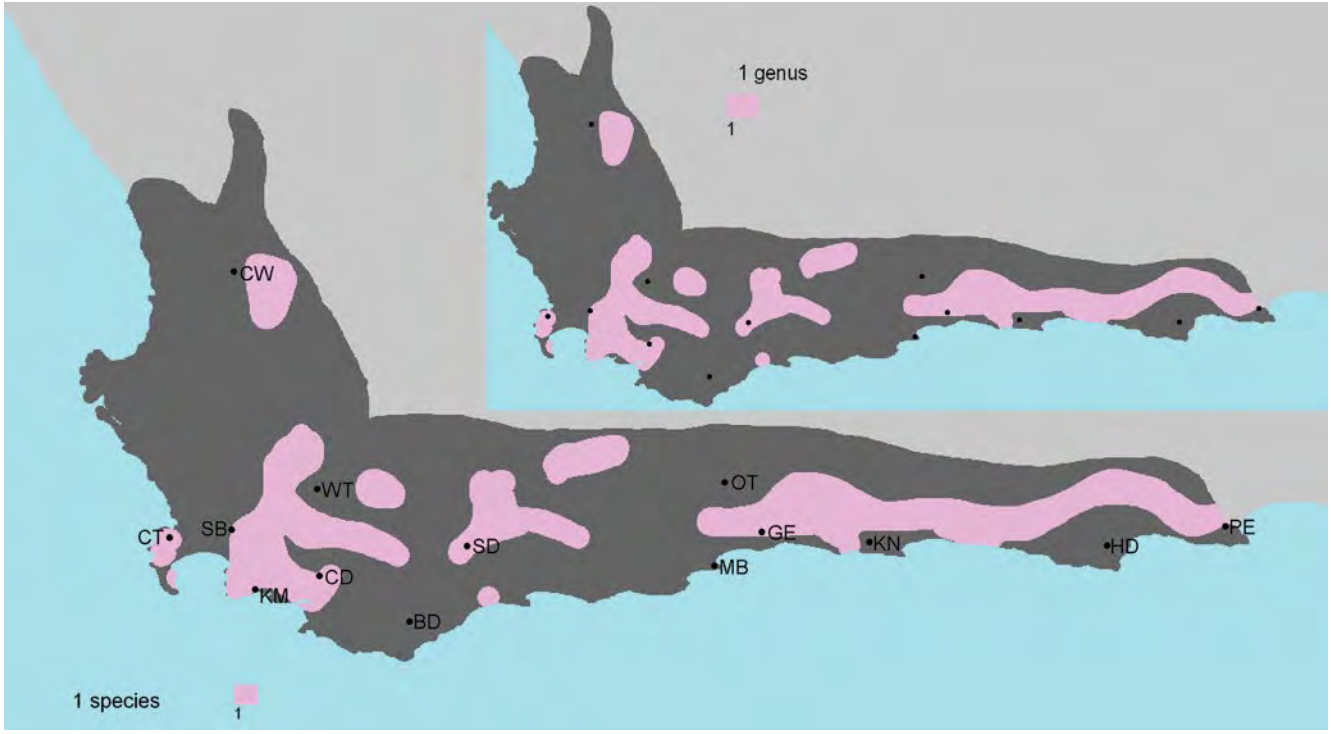


Geraniaceae

G



Gesneriaceae

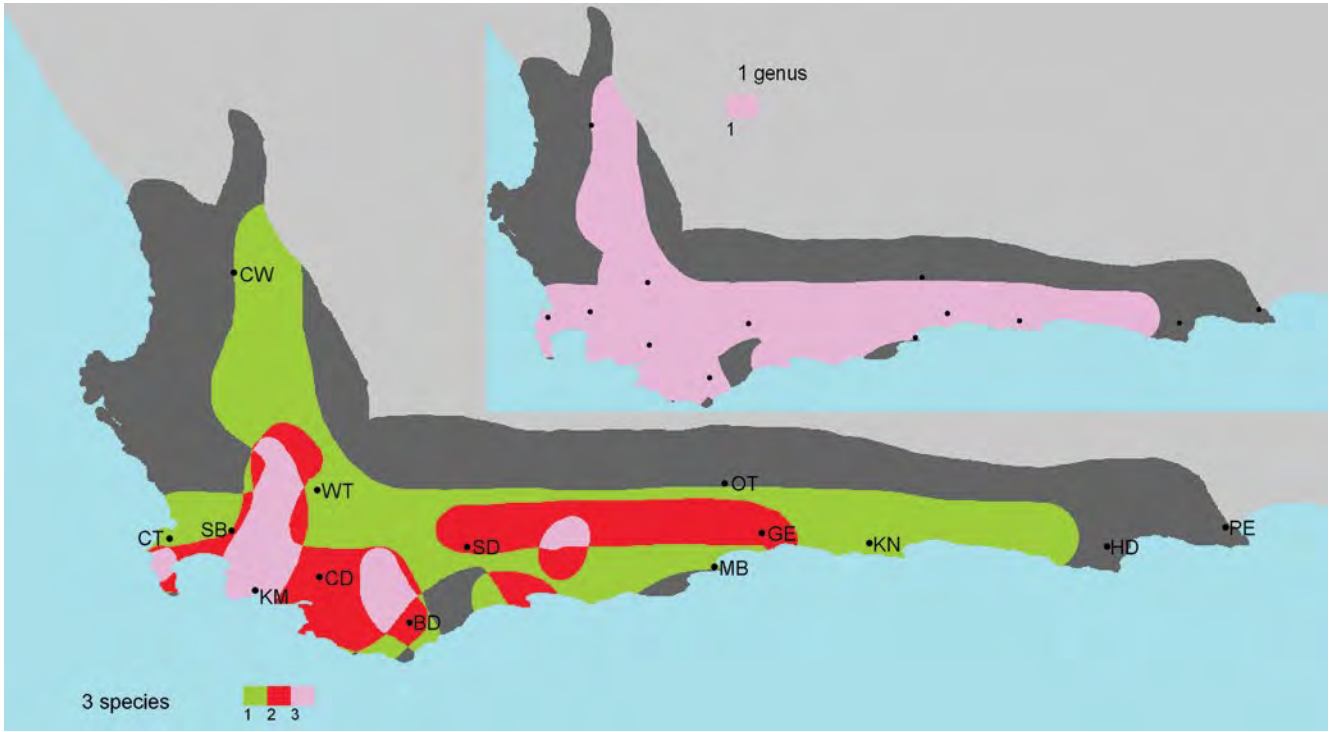


Gleicheniaceae

G



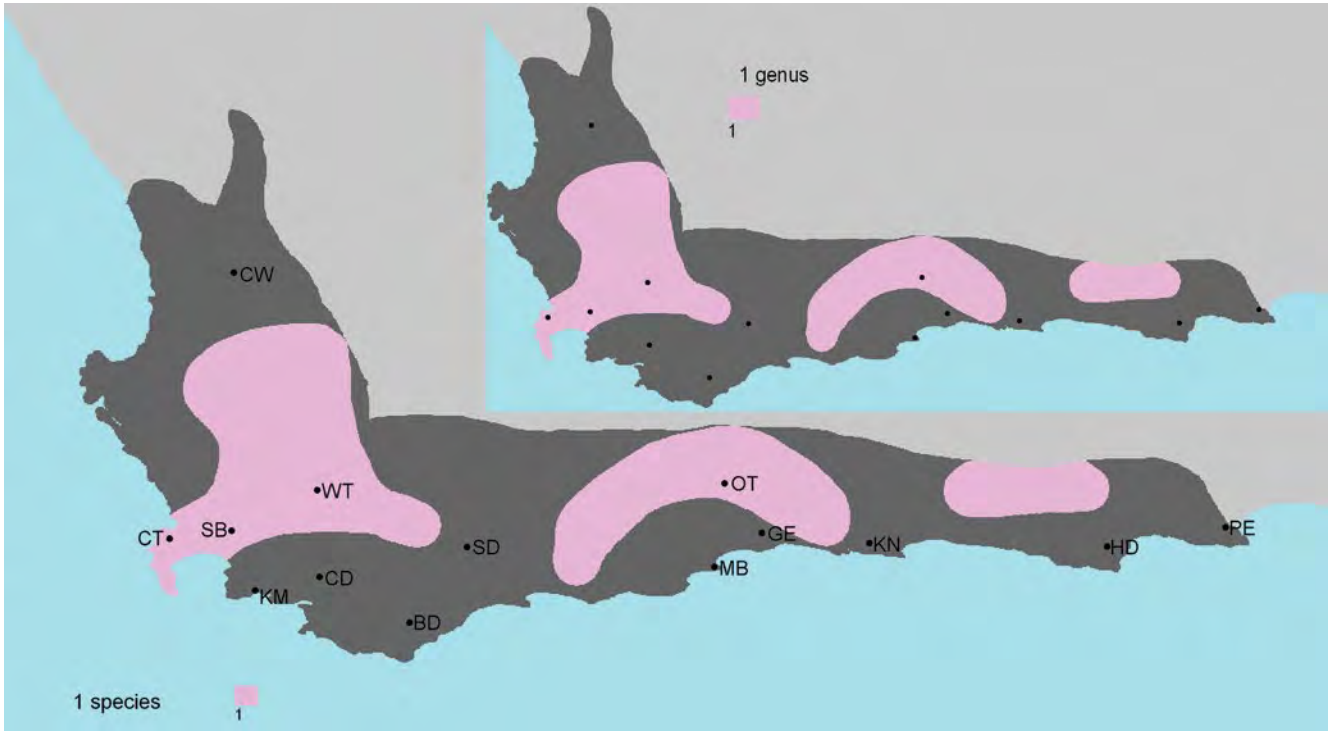
Goodeniaceae



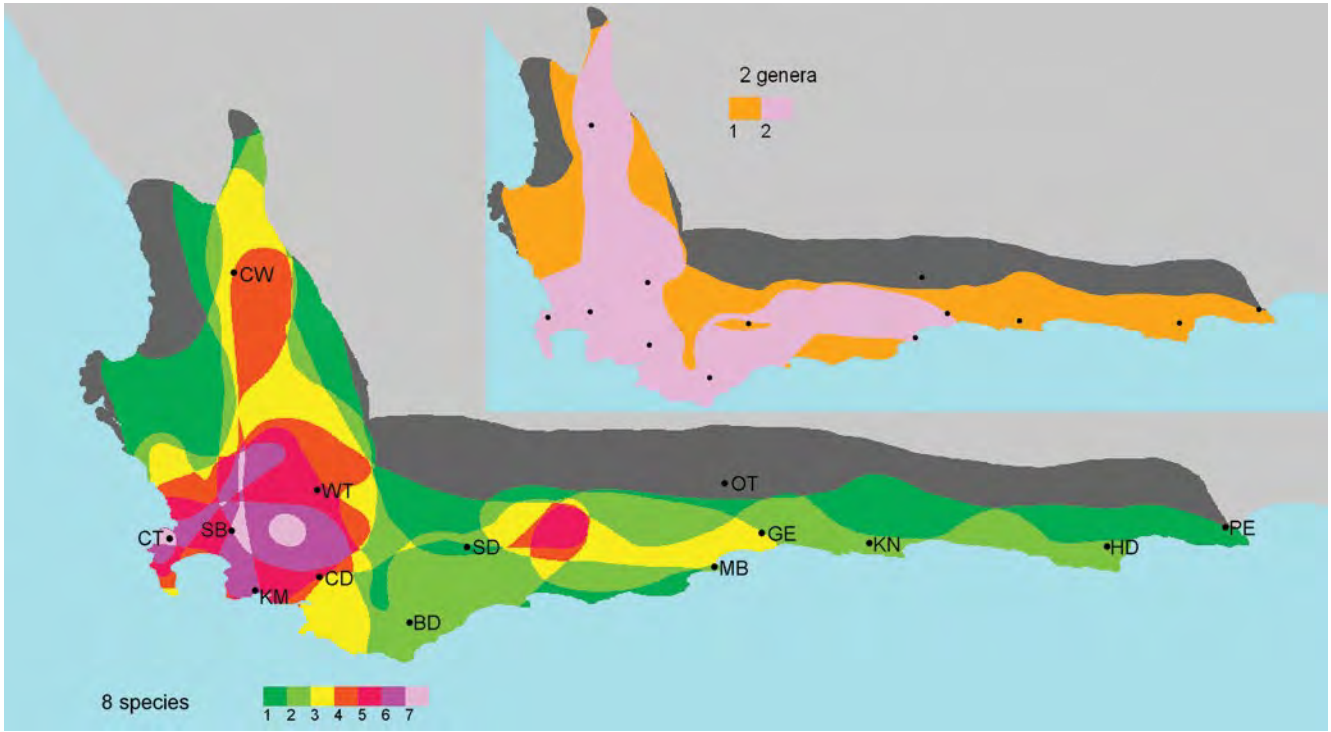
G

Grubbiaceae

G



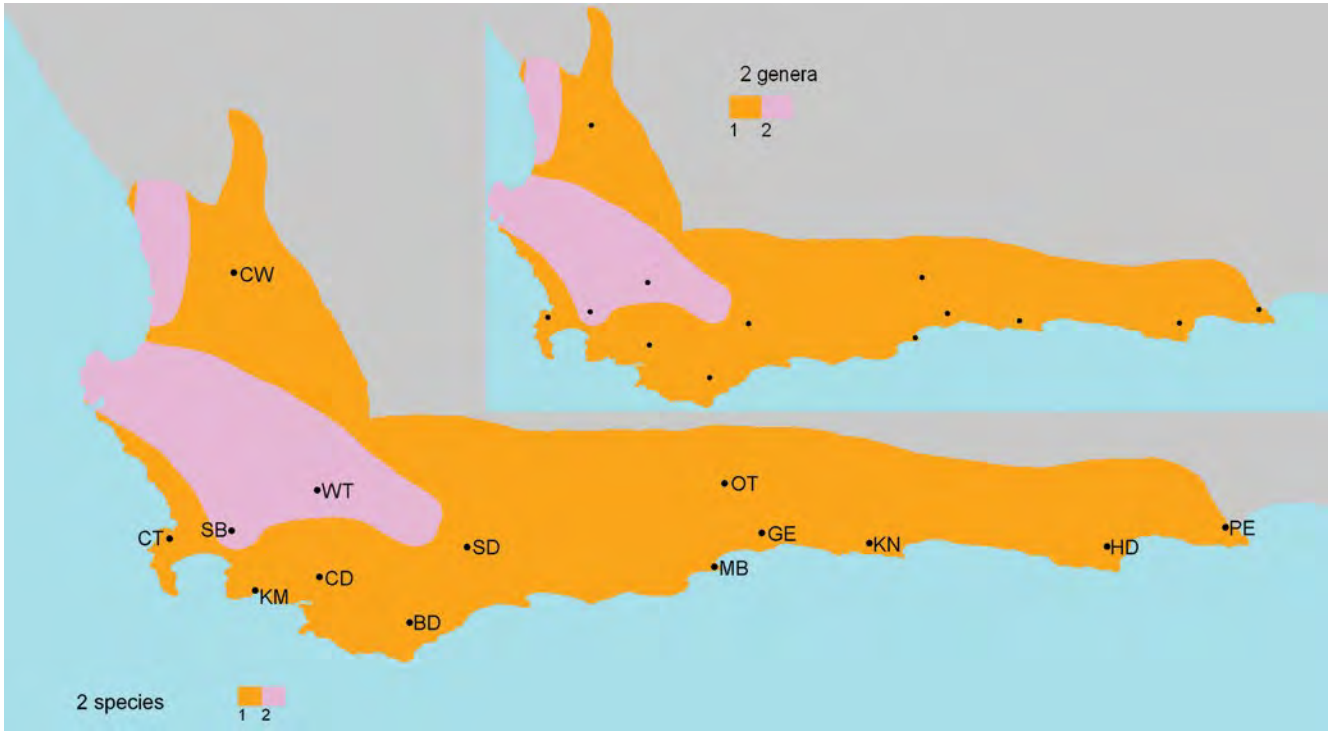
Gunneraceae



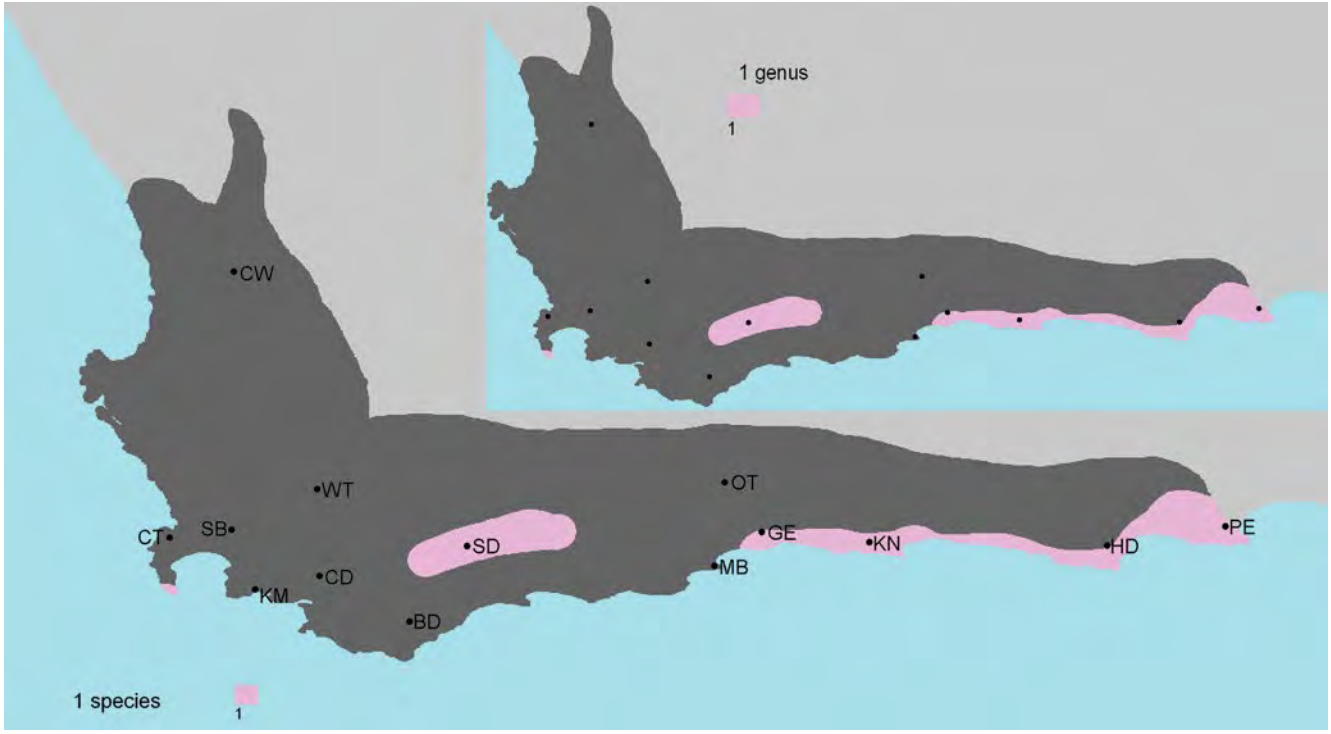
H

Haemodoraceae

H



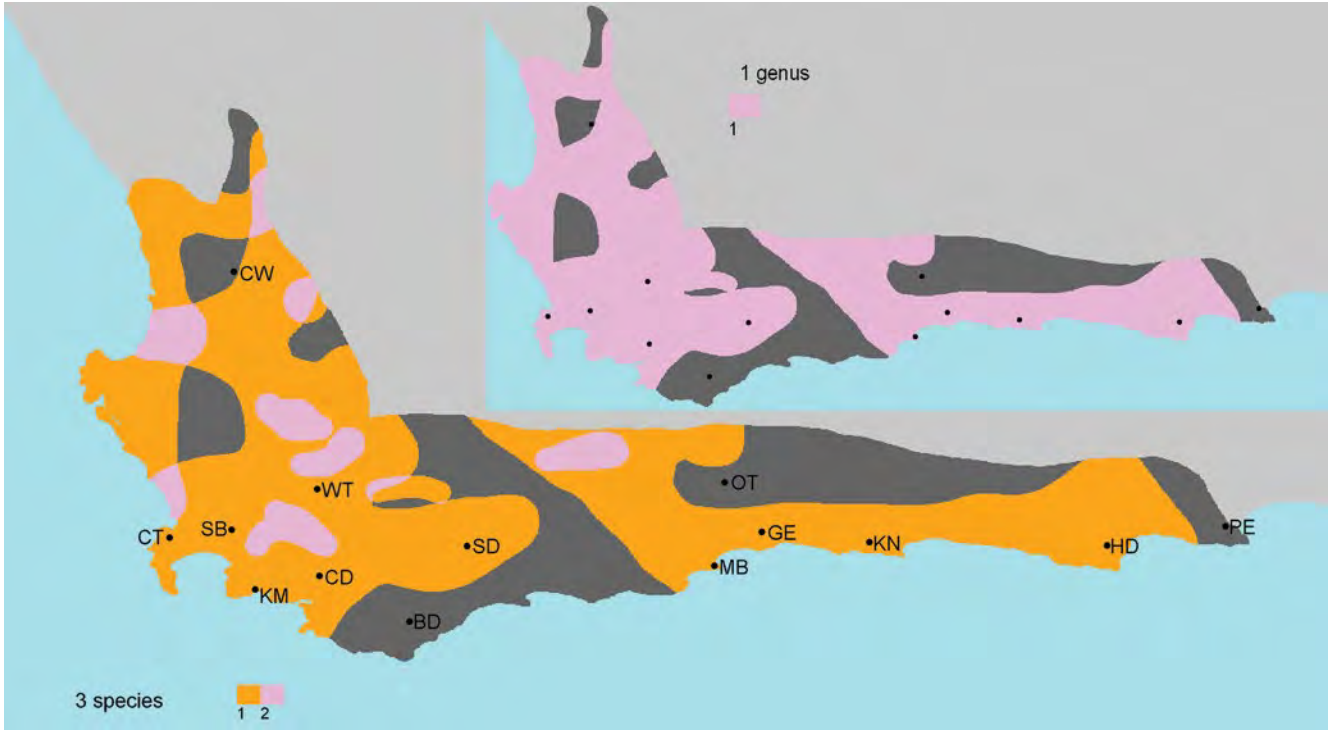
Haloragaceae



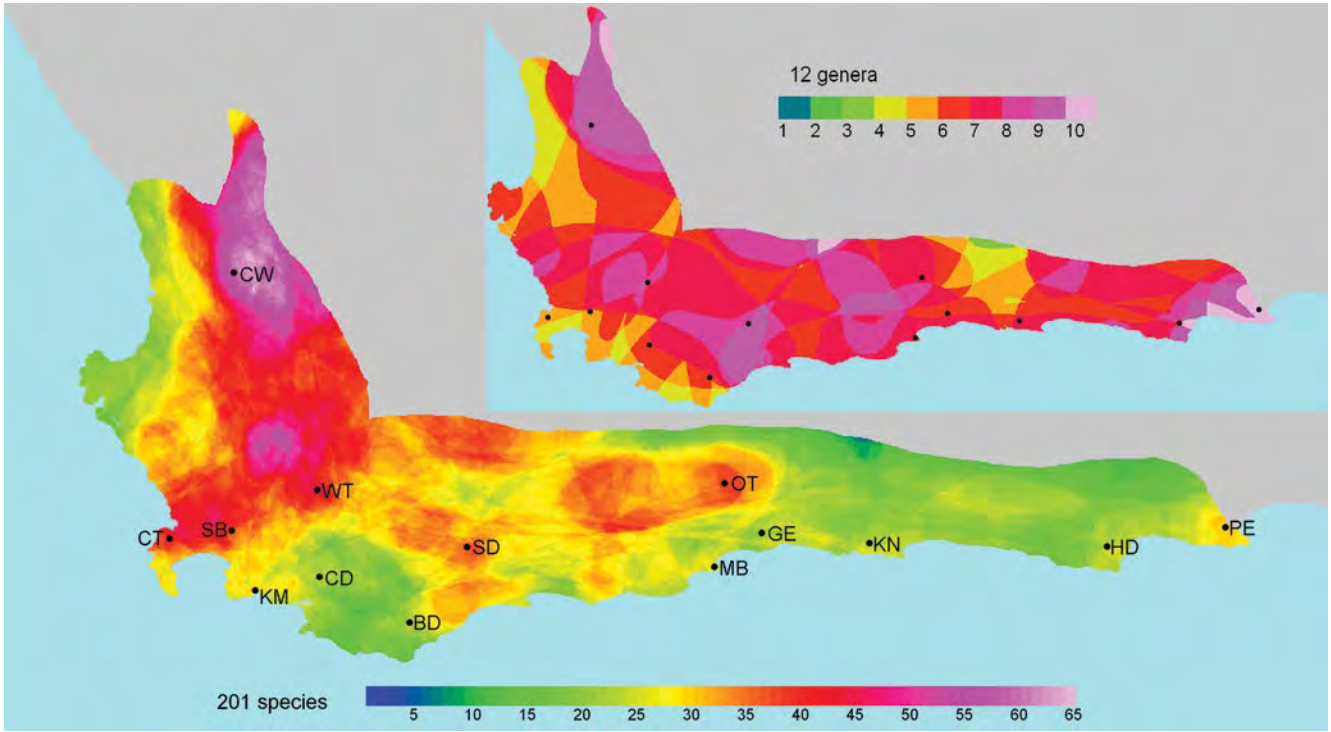
H

Hamamelidaceae

H

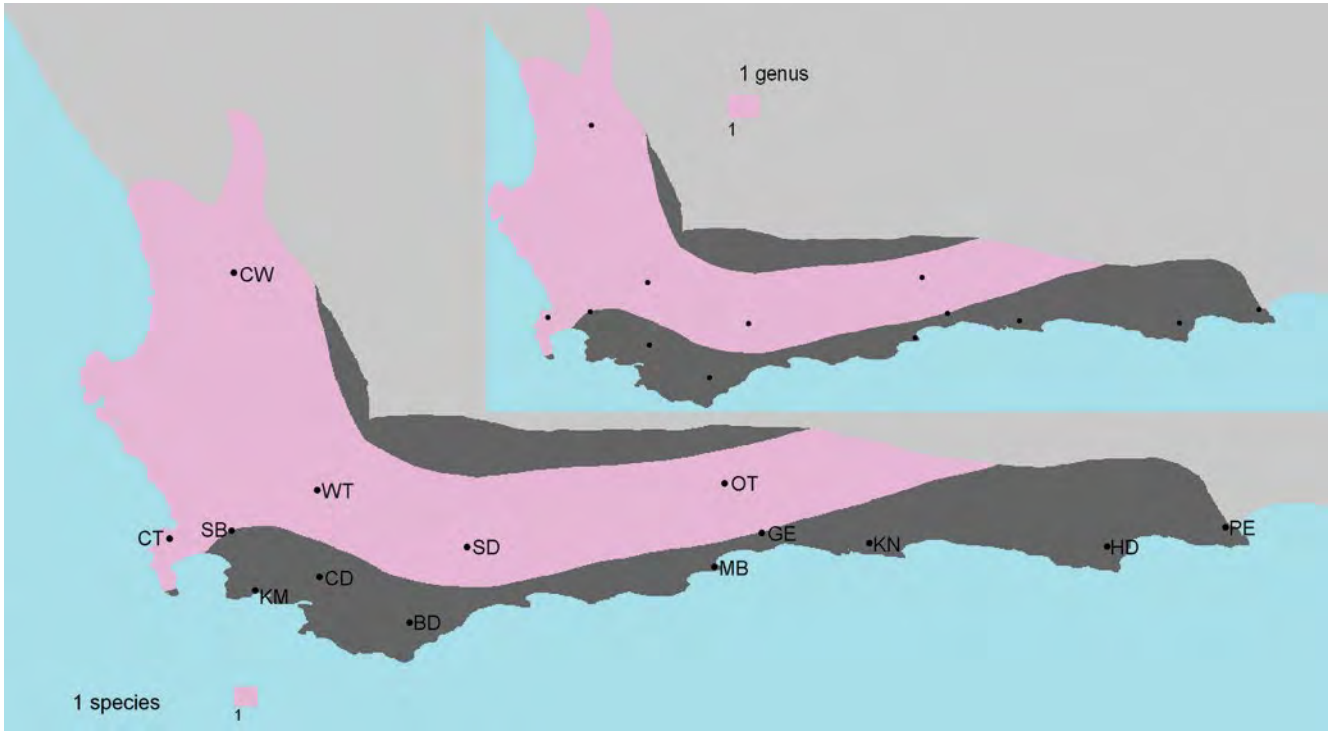


Hemerocallidaceae

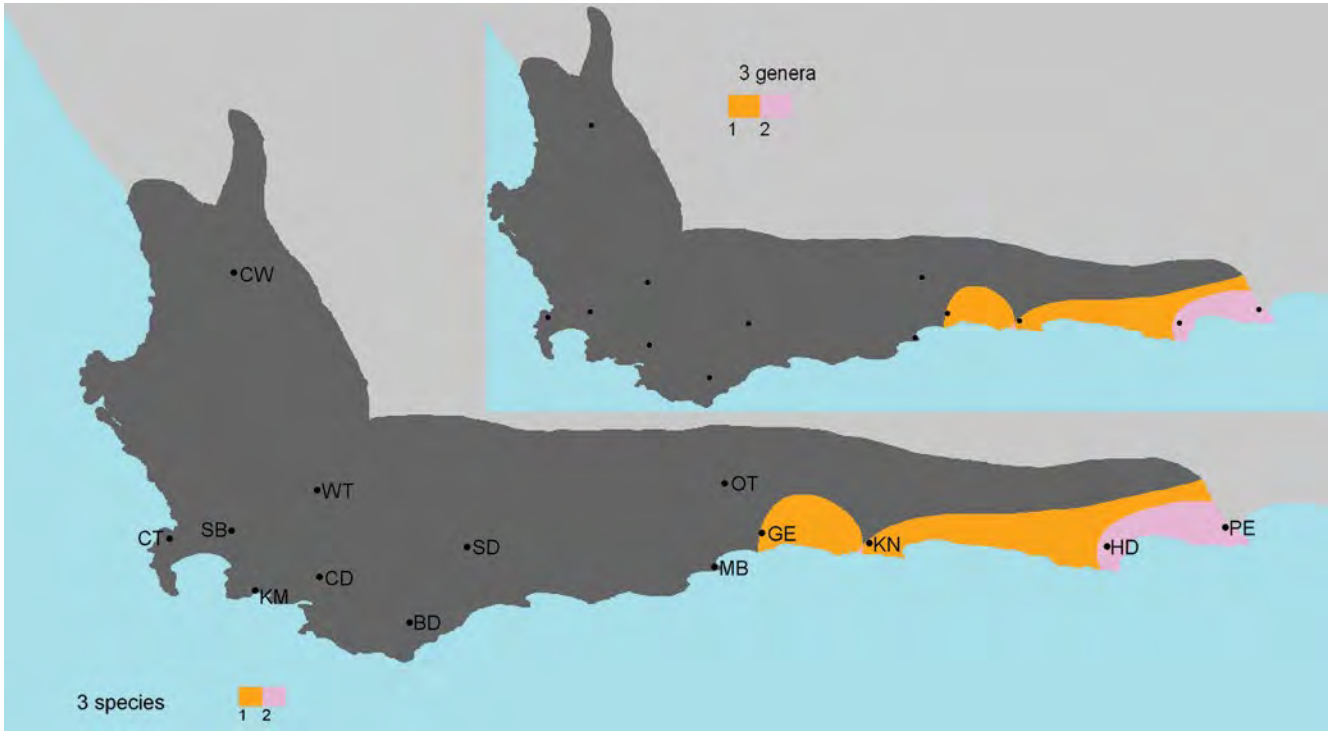


Hyacinthaceae

H



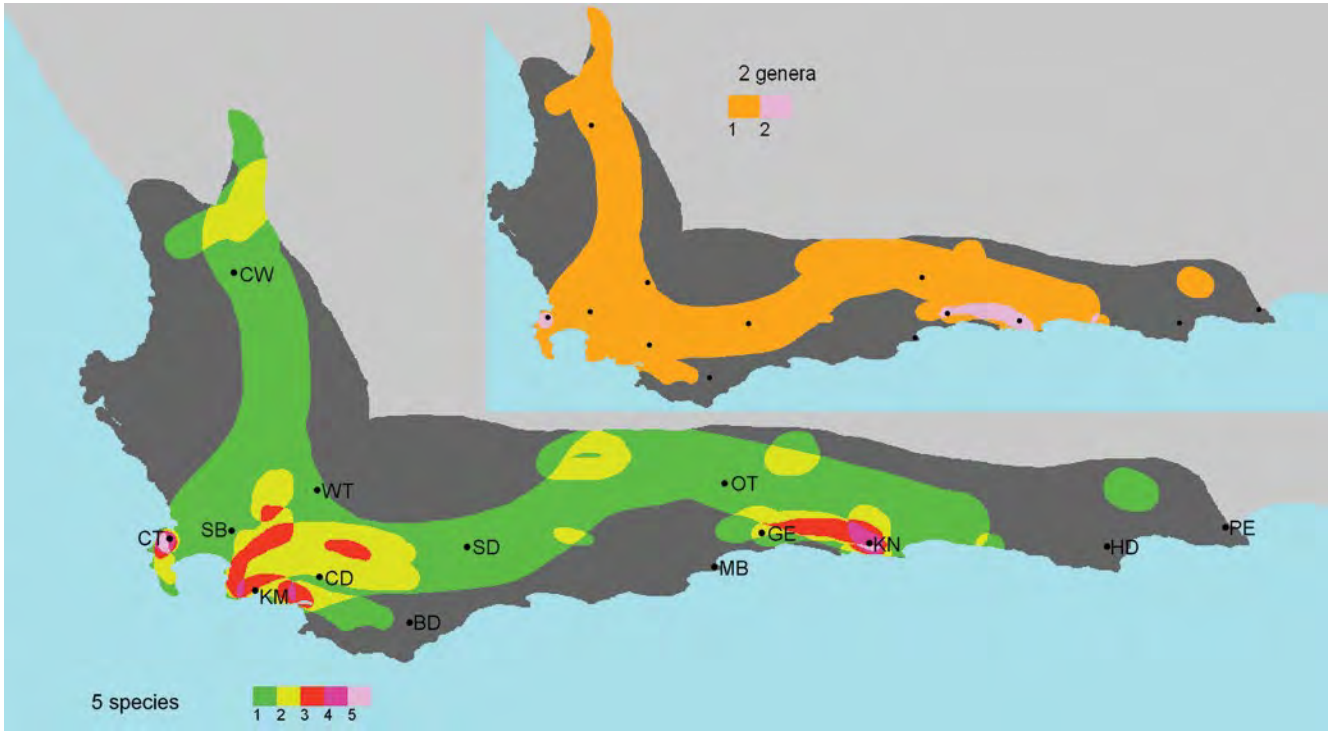
Hydnoraceae



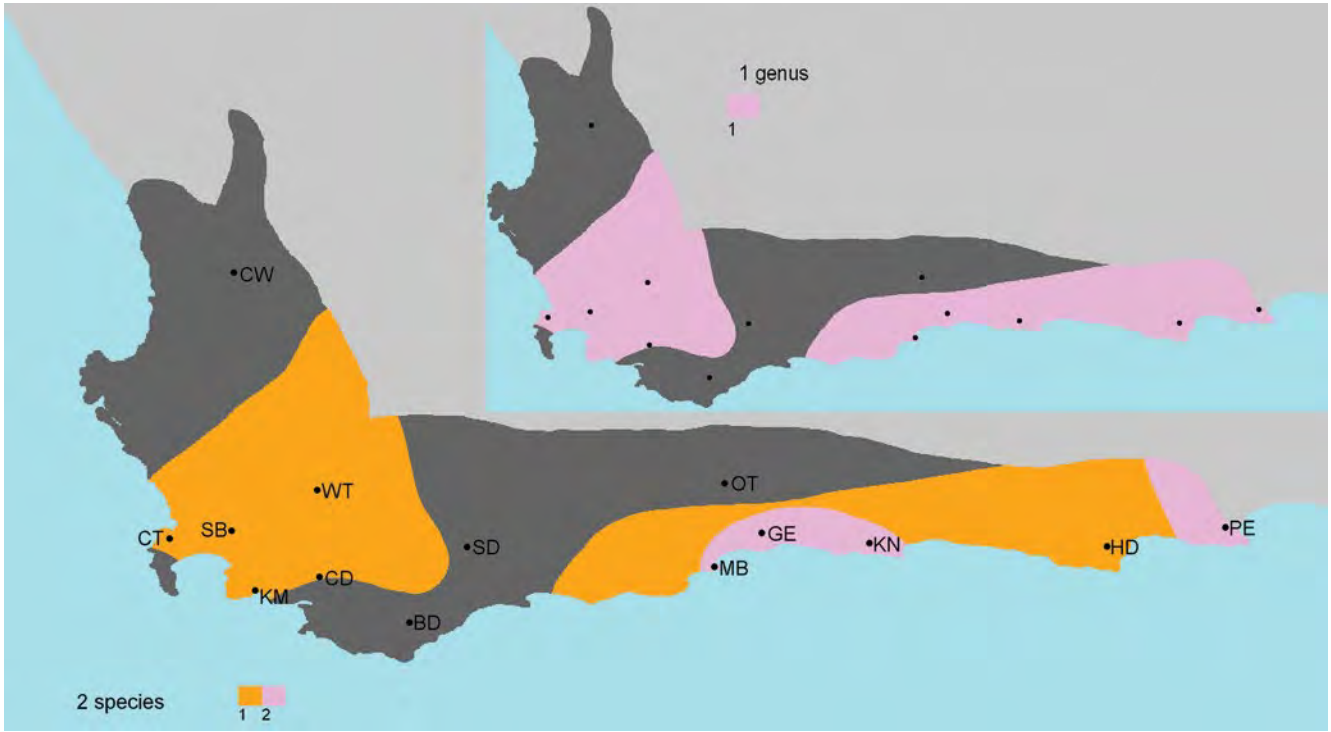
H

Hydrocharitaceae

H



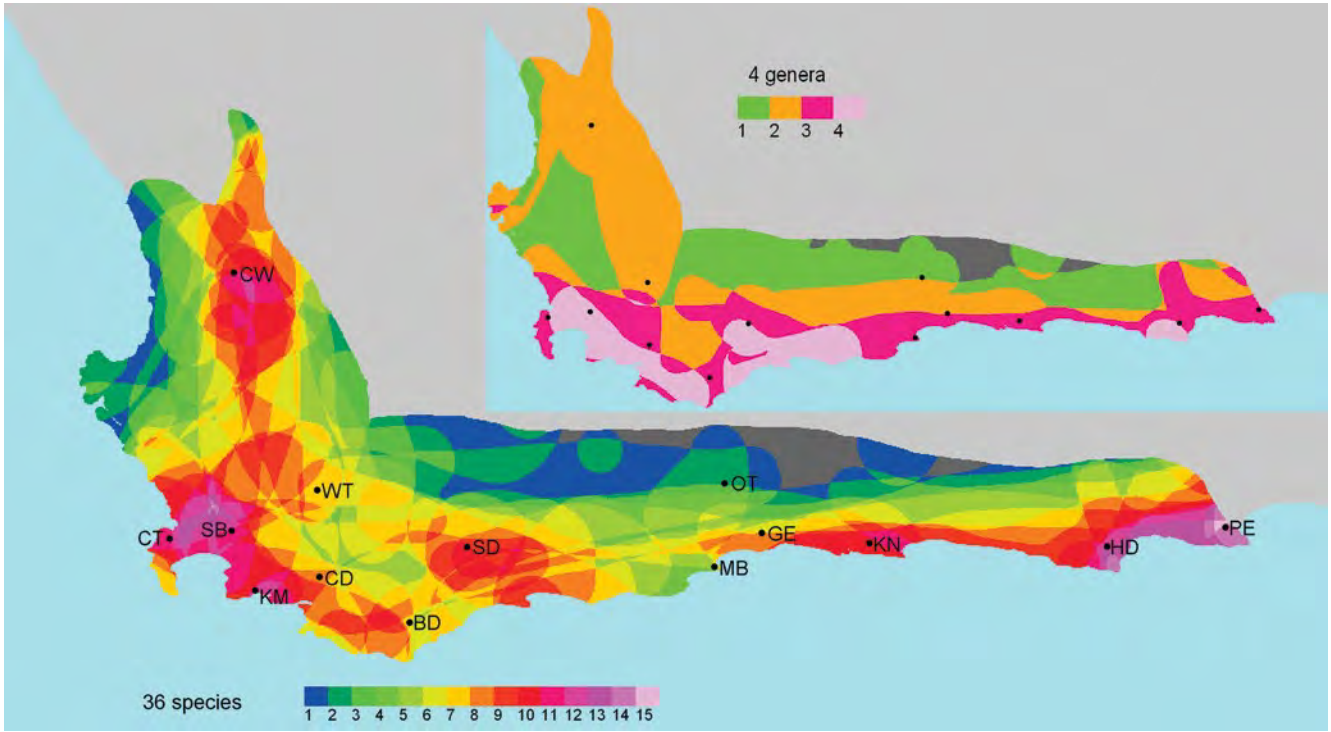
Hymenophyllaceae



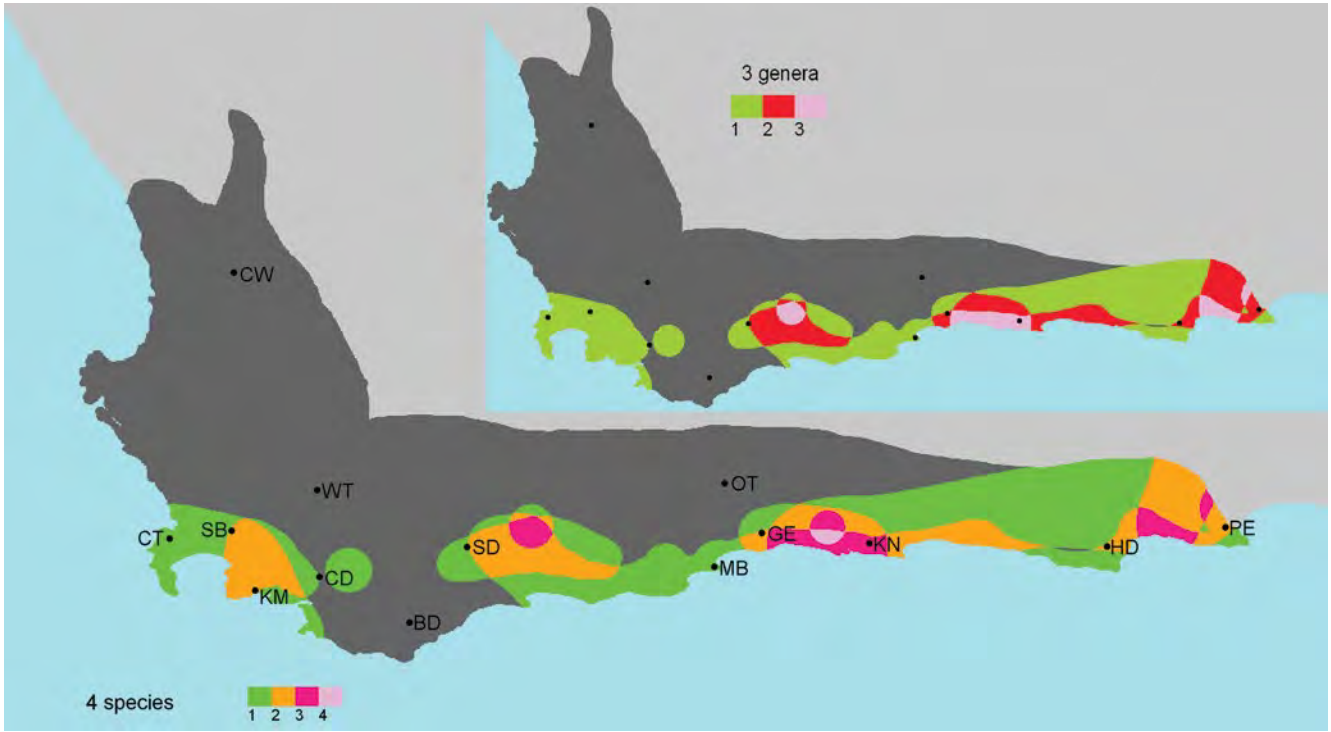
H

Hypericaceae

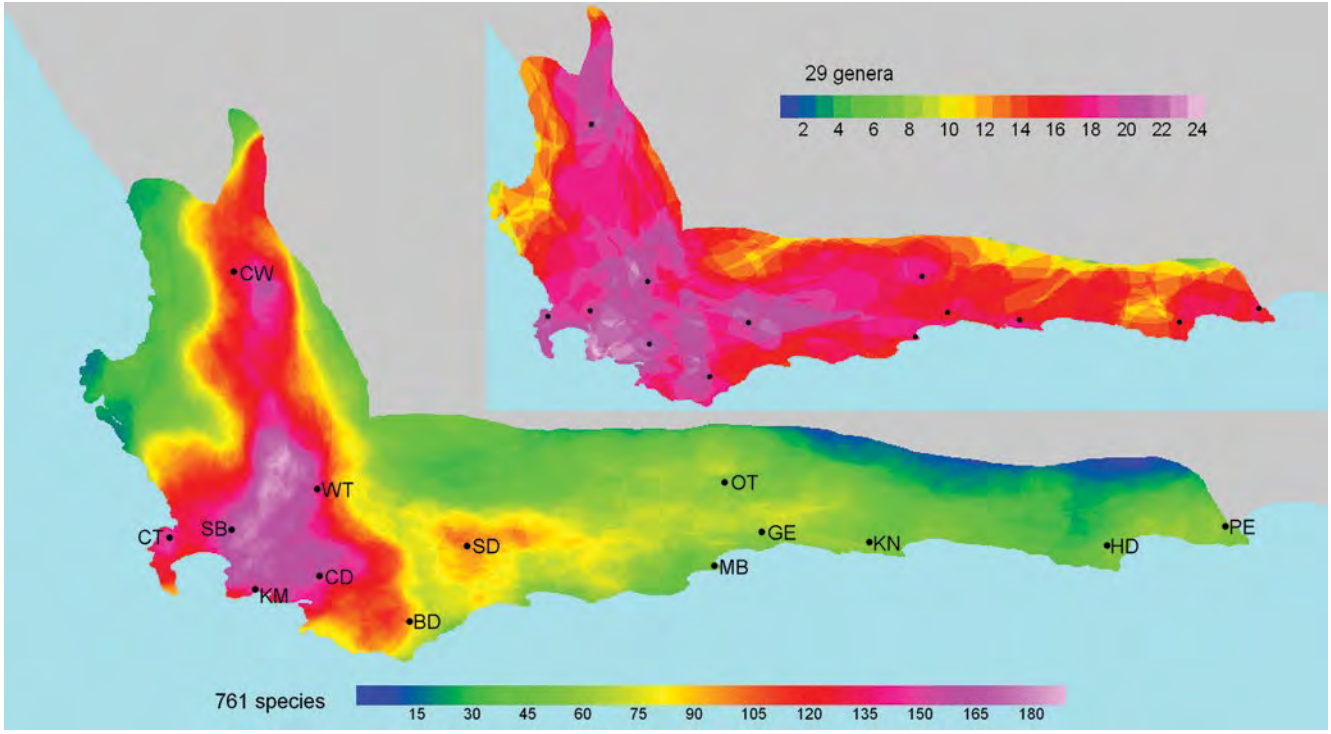
H



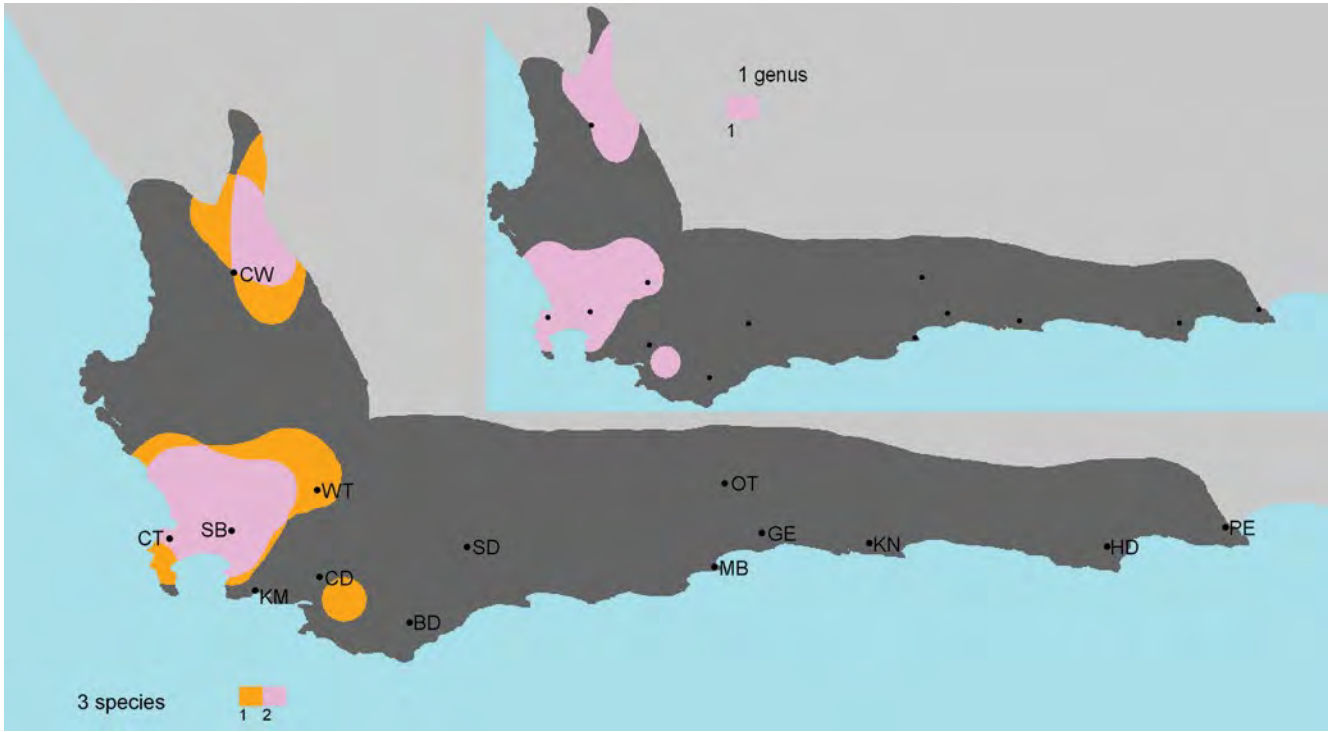
Hypoxidaceae



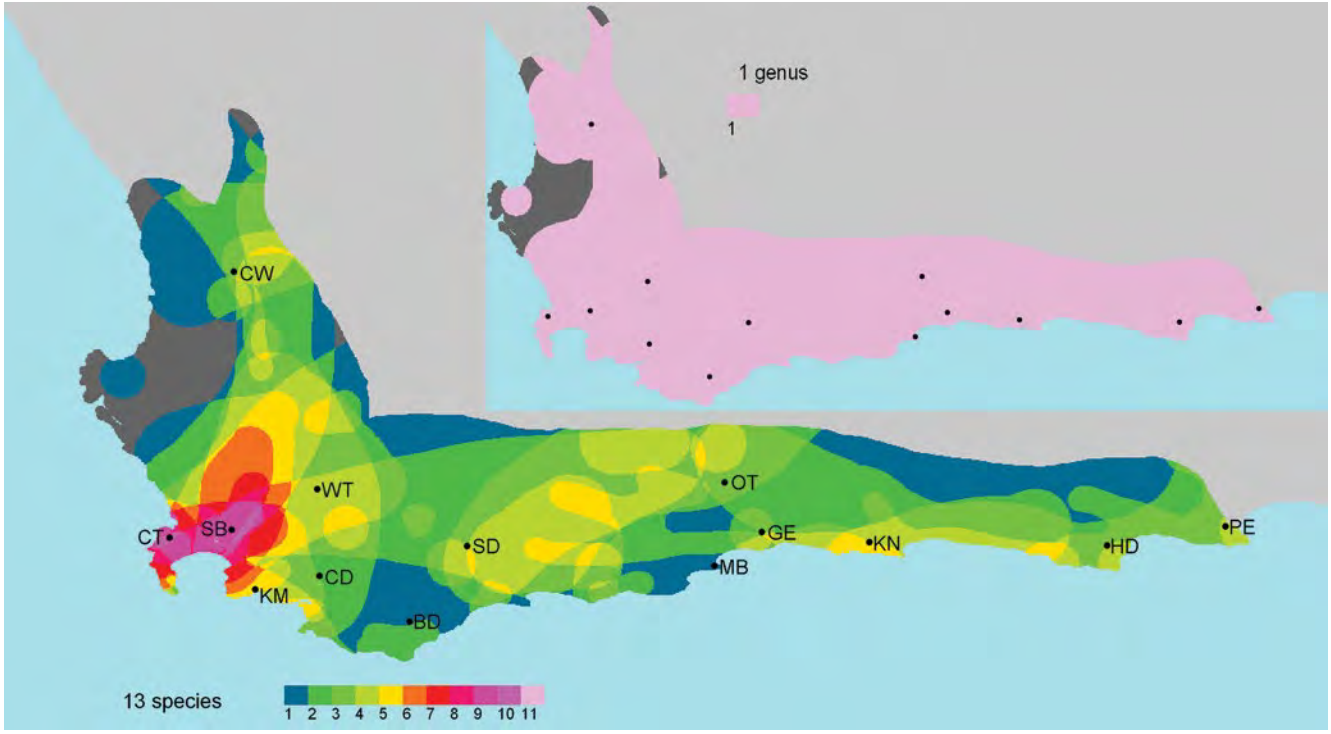
Icacinaceae


29 genera
2 4 6 8 10 12 14 16 18 20 22 24
CW
WT
CT
SB
CD
KM
BD
SD
OT
GE
KN
MB
HD
PE
761 species
15 30 45 60 75 90 105 120 135 150 165 180

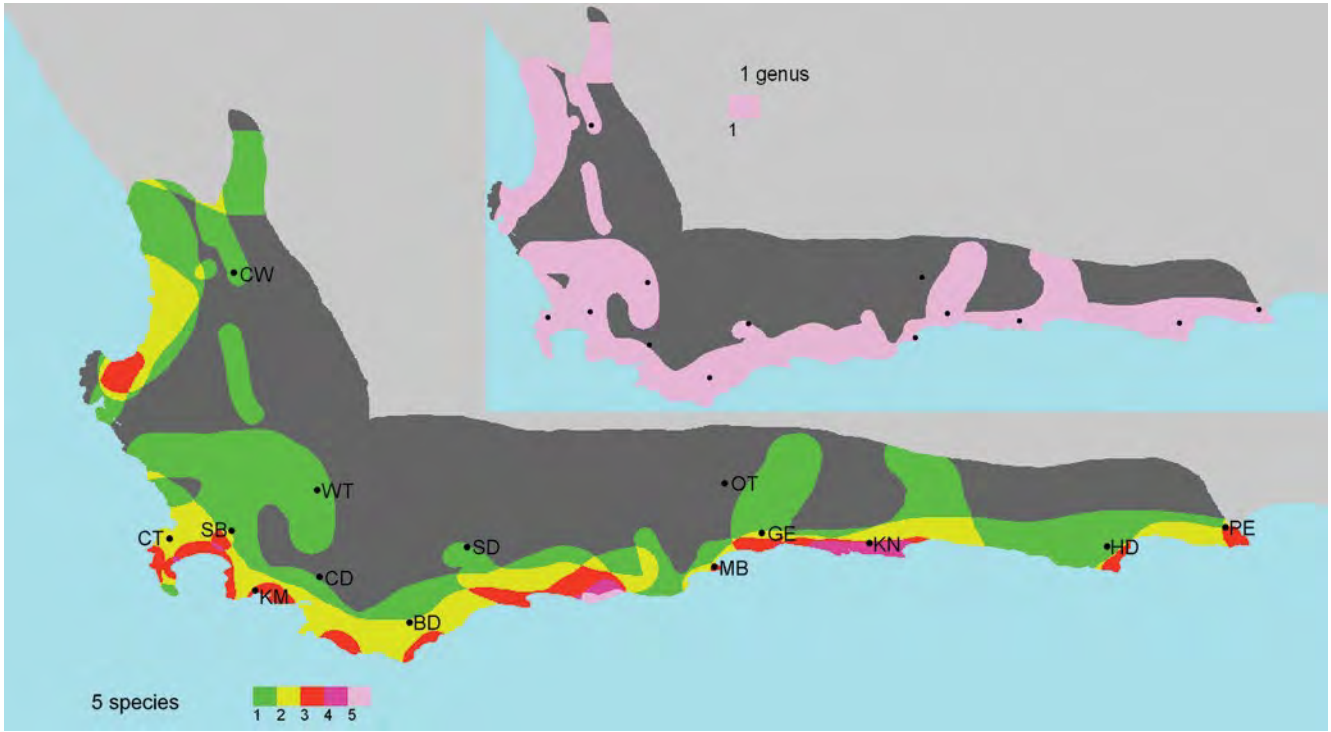
Iridaceae



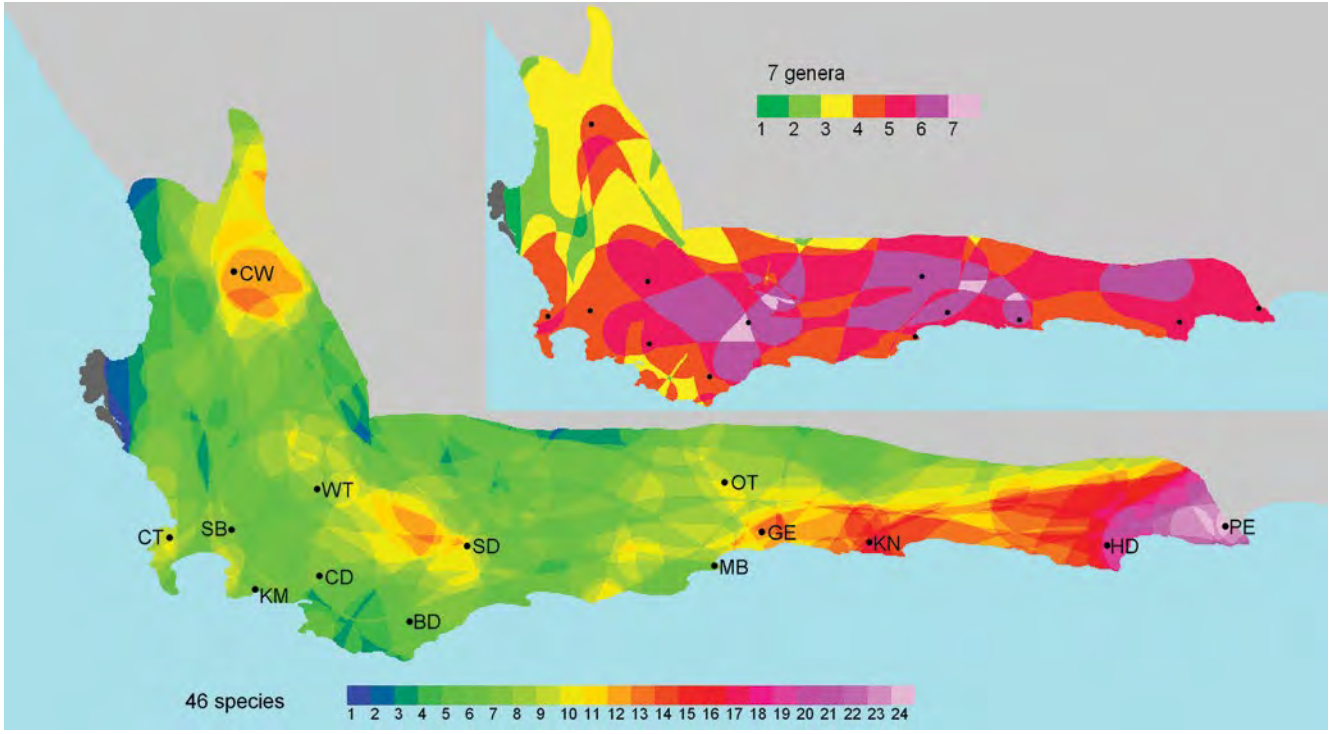
Isoetaceae


1 genus
1
CW
WT
CT
SB
CD
KM
SD
BD
OT
GE
KN
MB
HD
PE
13 species
1 2 3 4 5 6 7 8 9 10 11

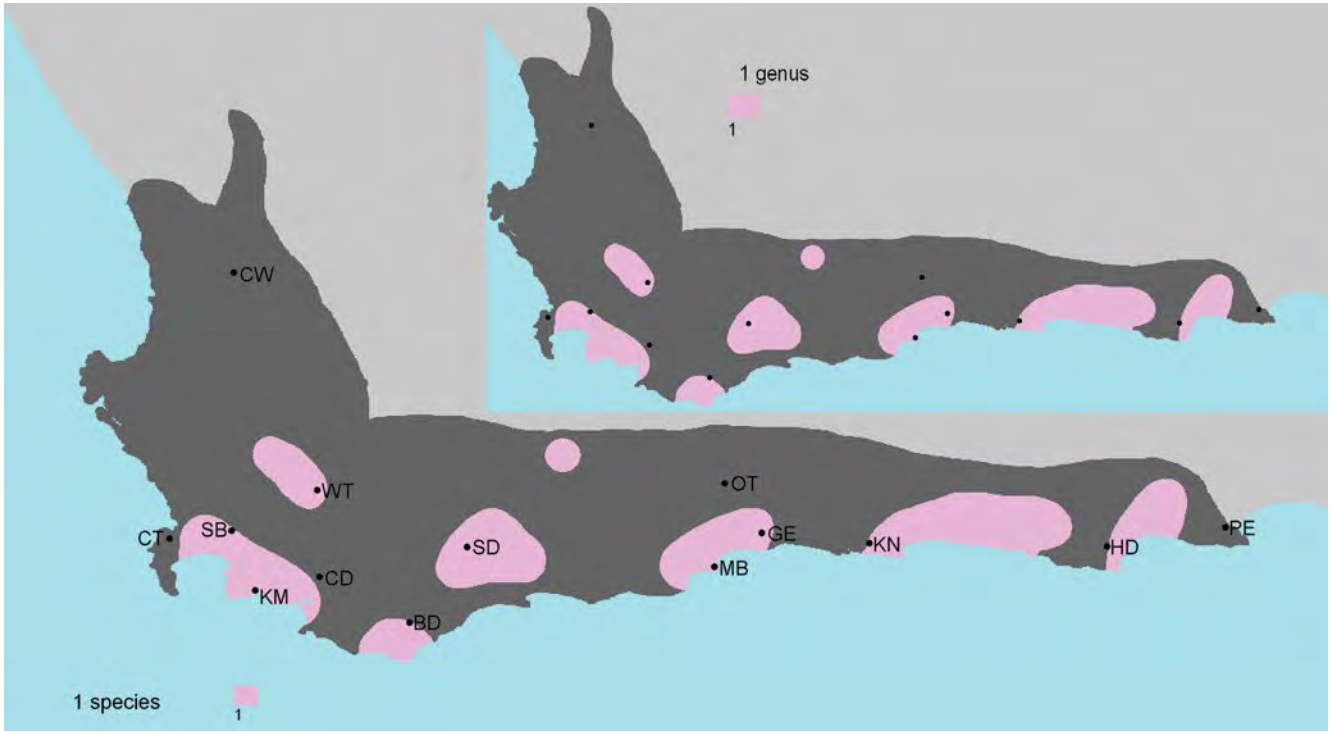
Juncaceae



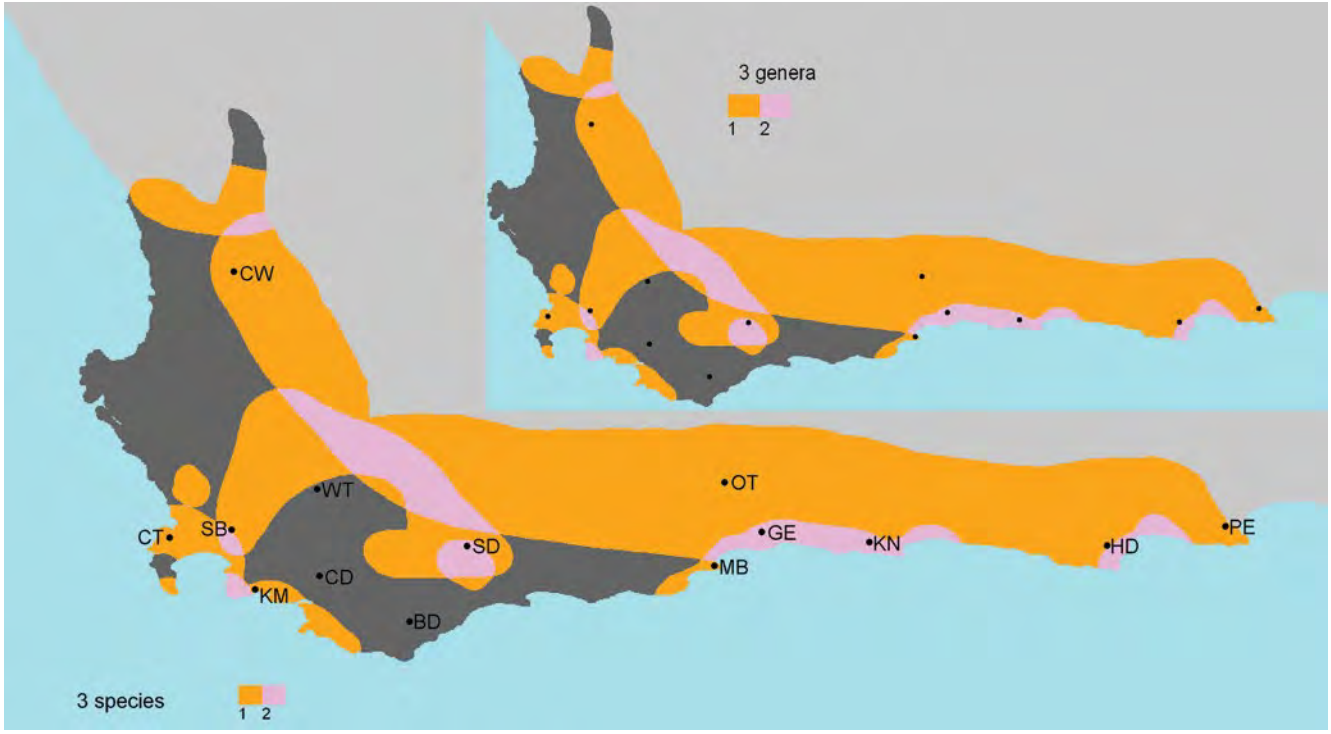
Juncaginaceae


7 genera
1 2 3 4 5 6 7
CW
WT
OT
CT
SB
SD
GE
KN
HD
PE
CD
MB
KM
BD
46 species
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

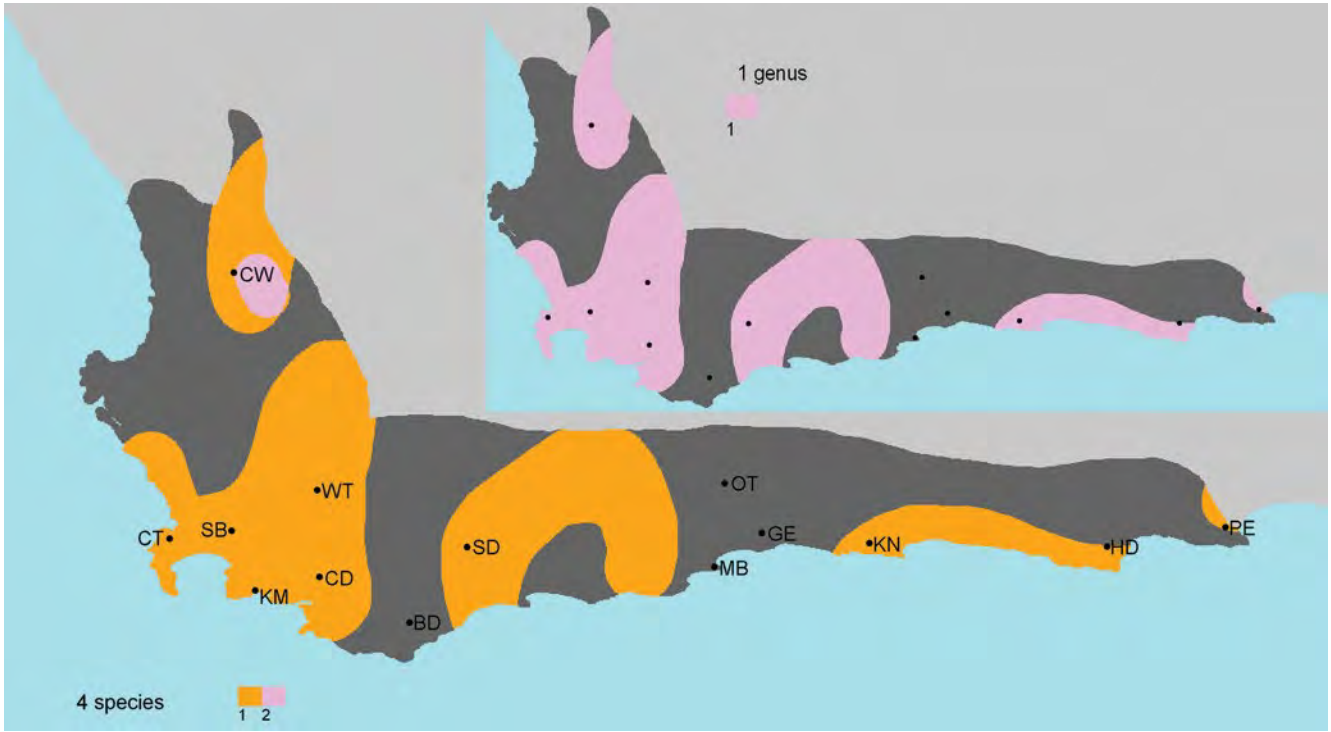
Lamiaceae



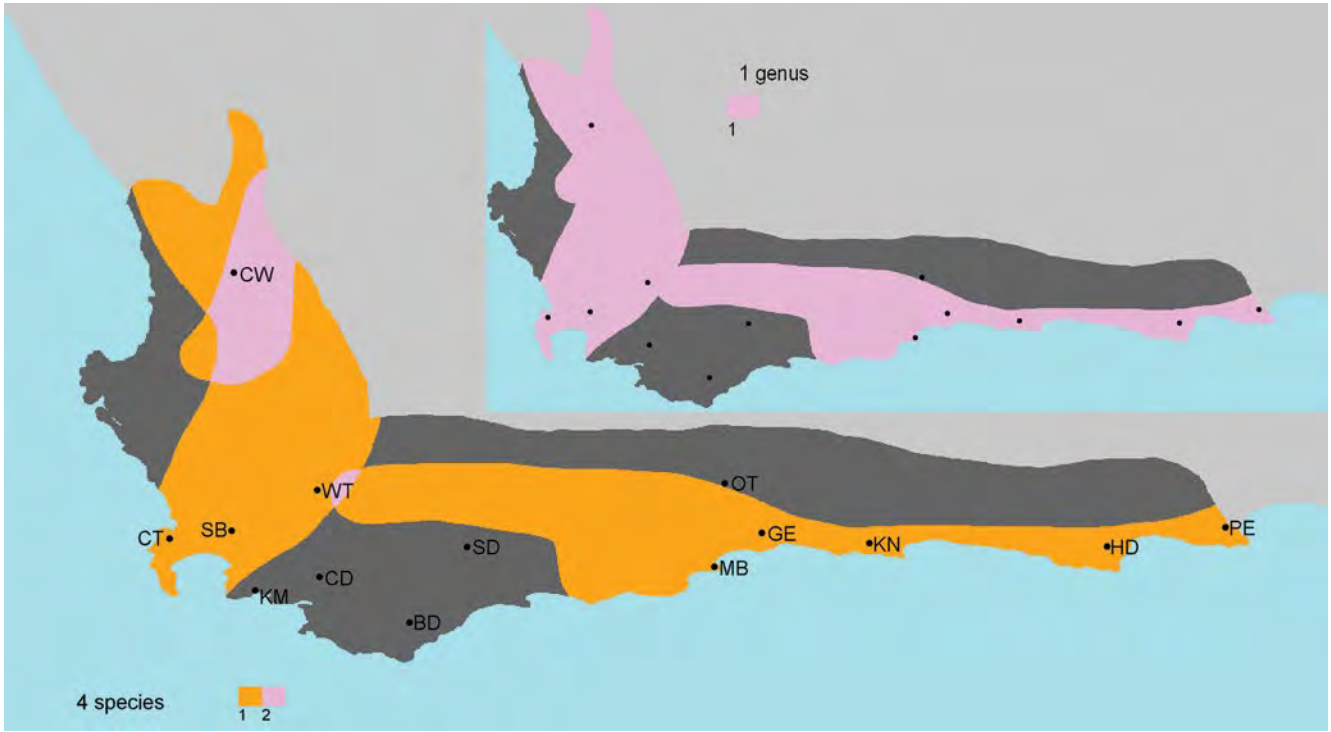
Lanariaceae



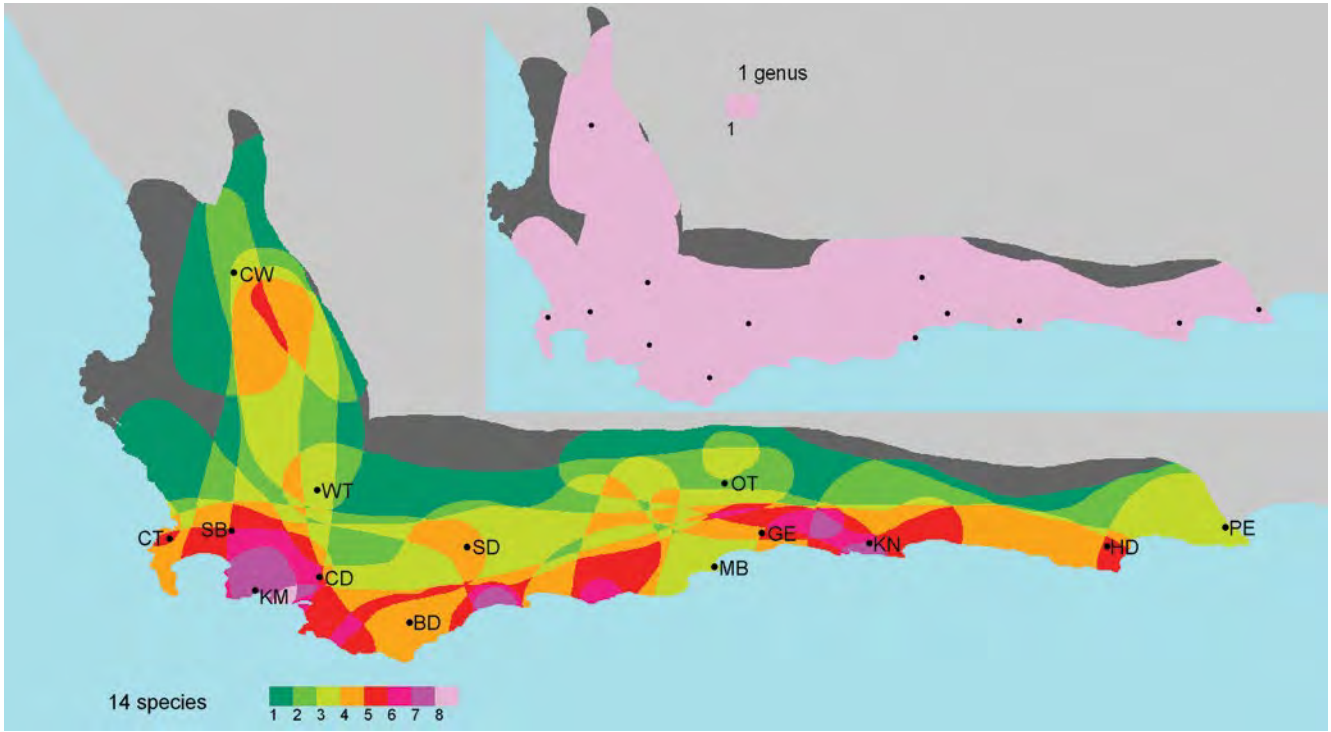
Lauraceae



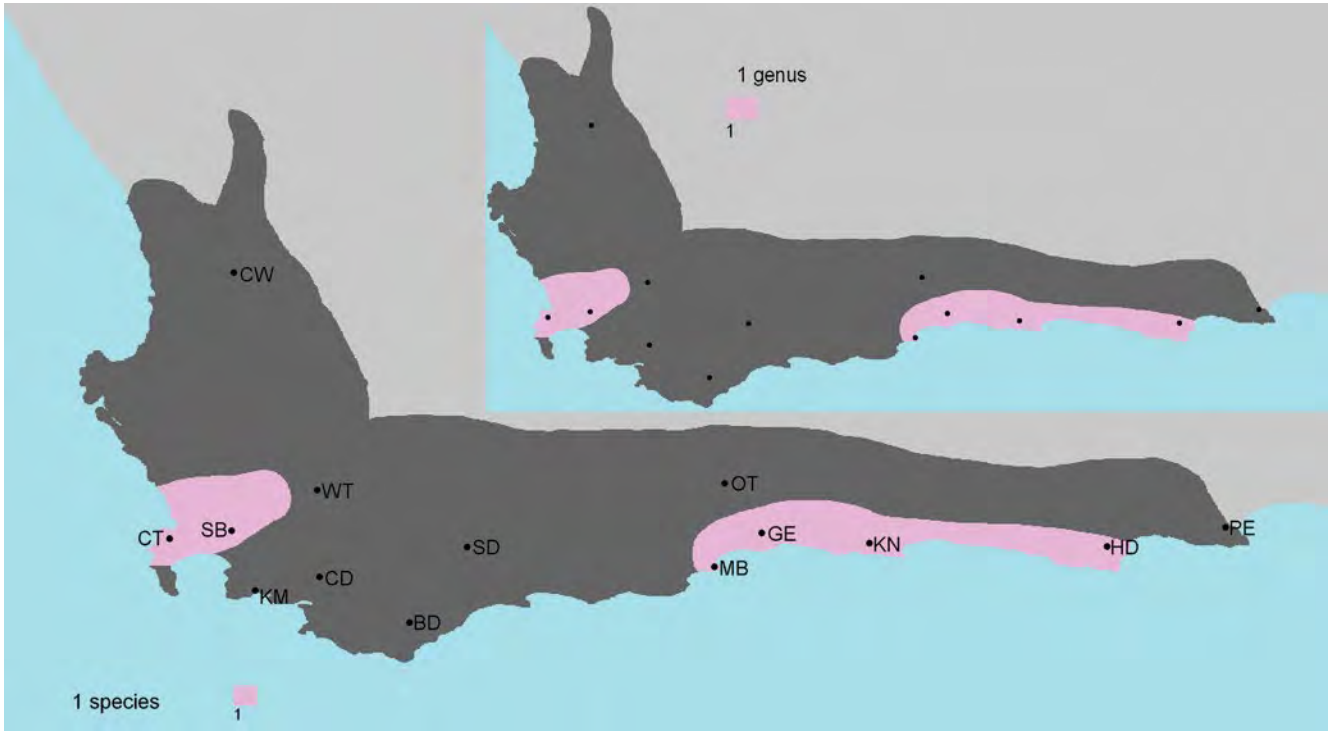
Lentibulariaceae



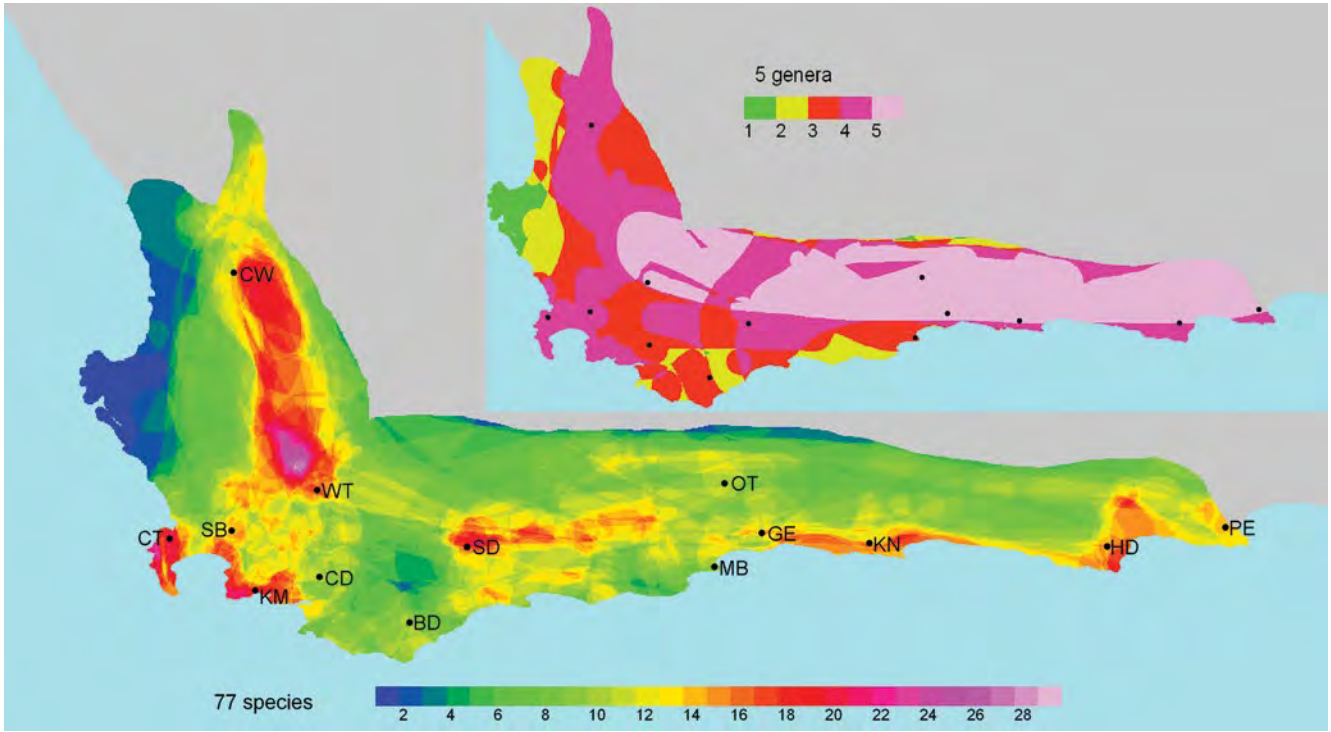
Limeaceae


1 genus
1
CW
WT
OT
CT
SB
SD
GE
KN
HD
PE
CD
MB
KM
BD
14 species
1 2 3 4 5 6 7 8

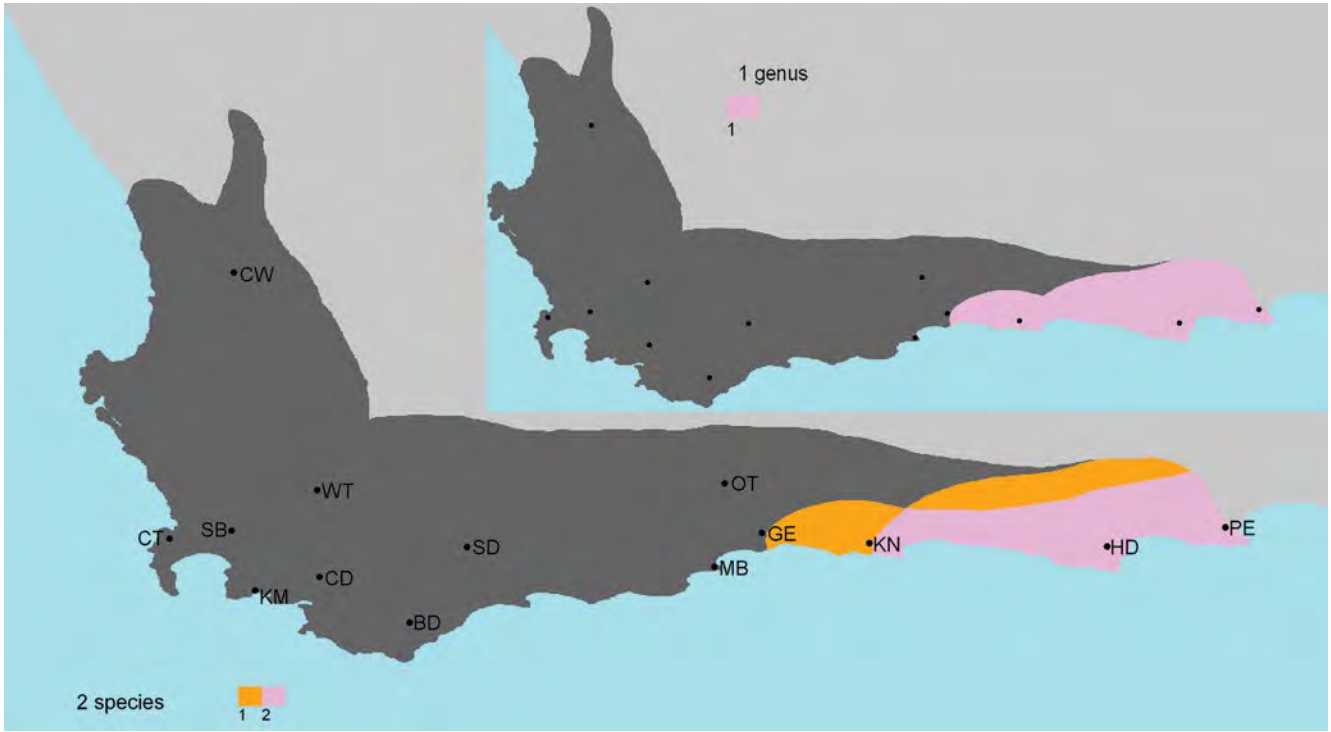
Linaceae



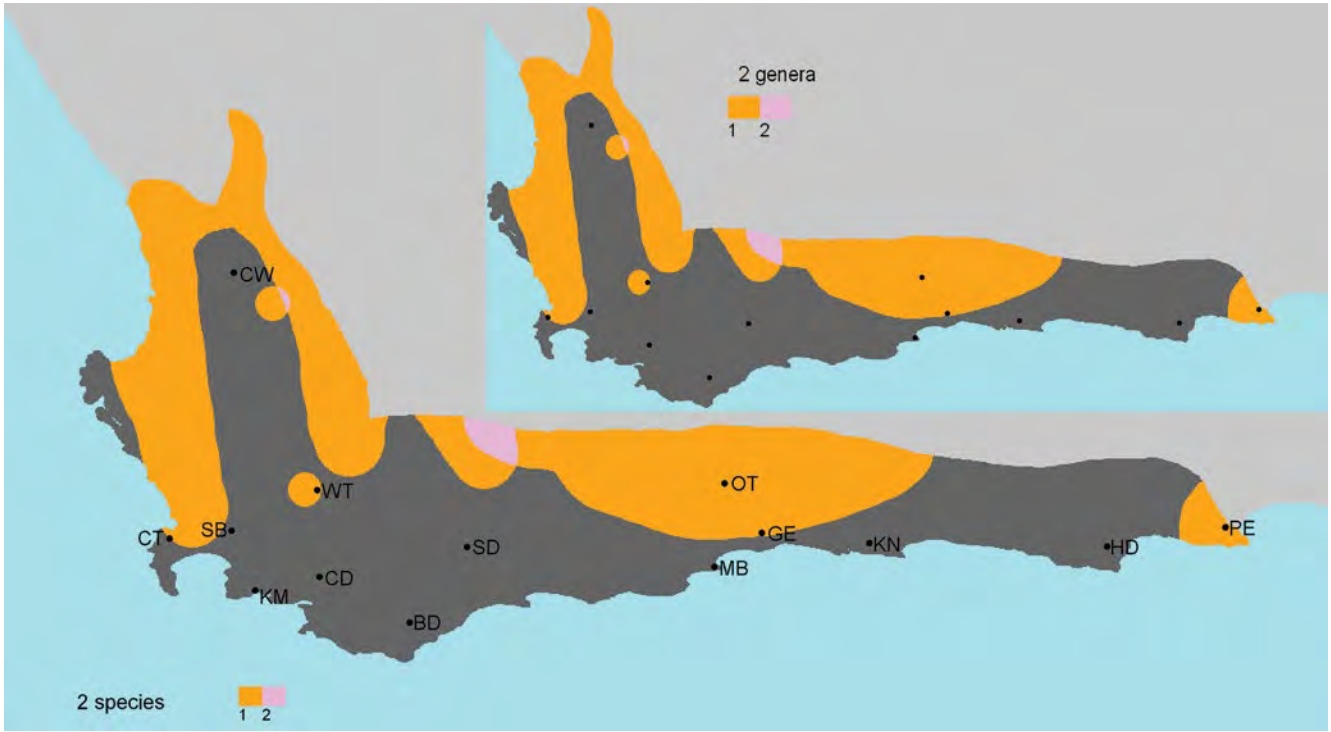
Linderniaceae



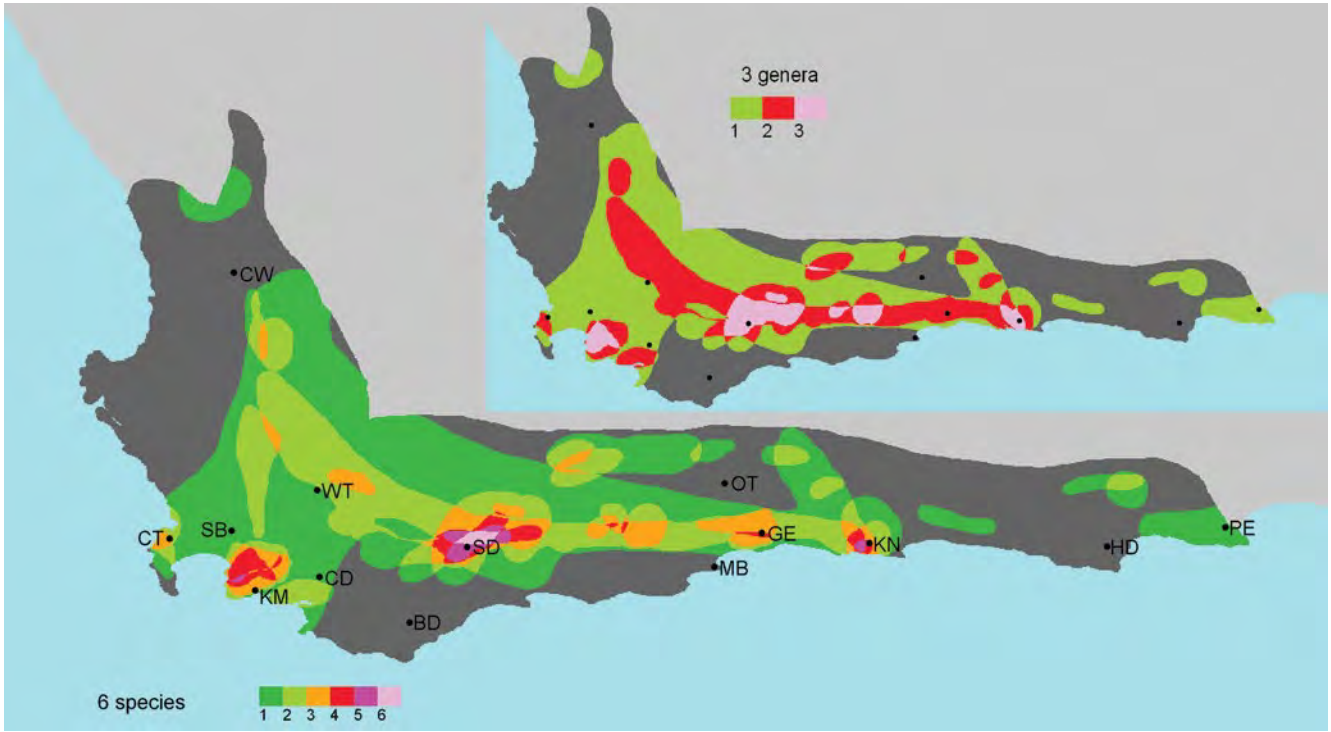
Lobeliaceae



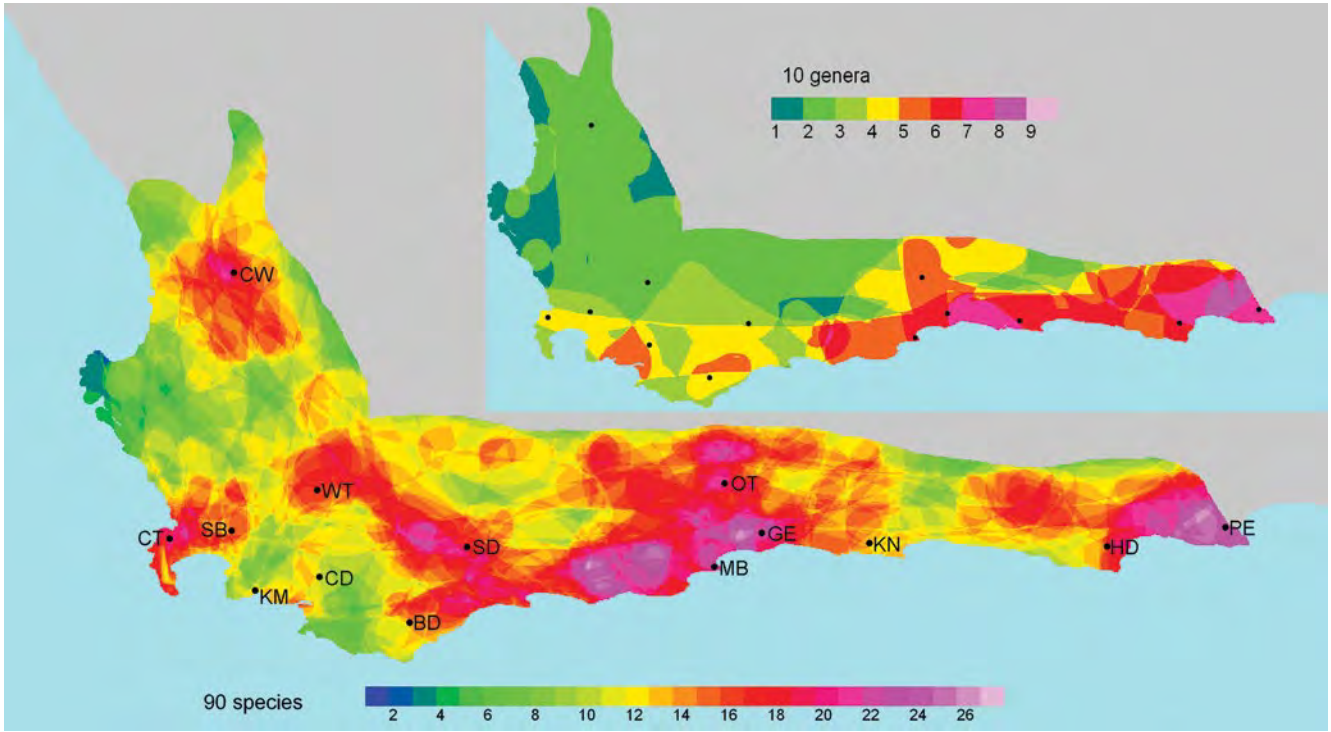
Loganiaceae



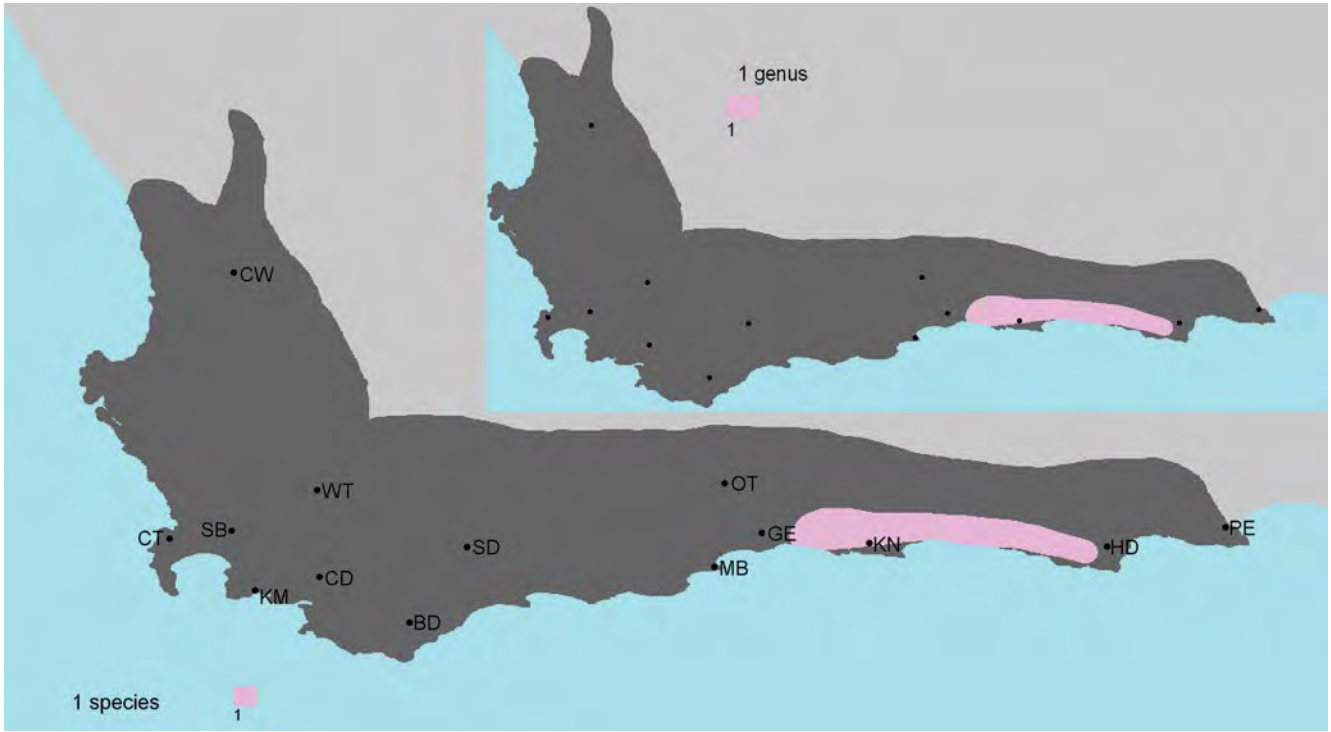
Loranthaceae



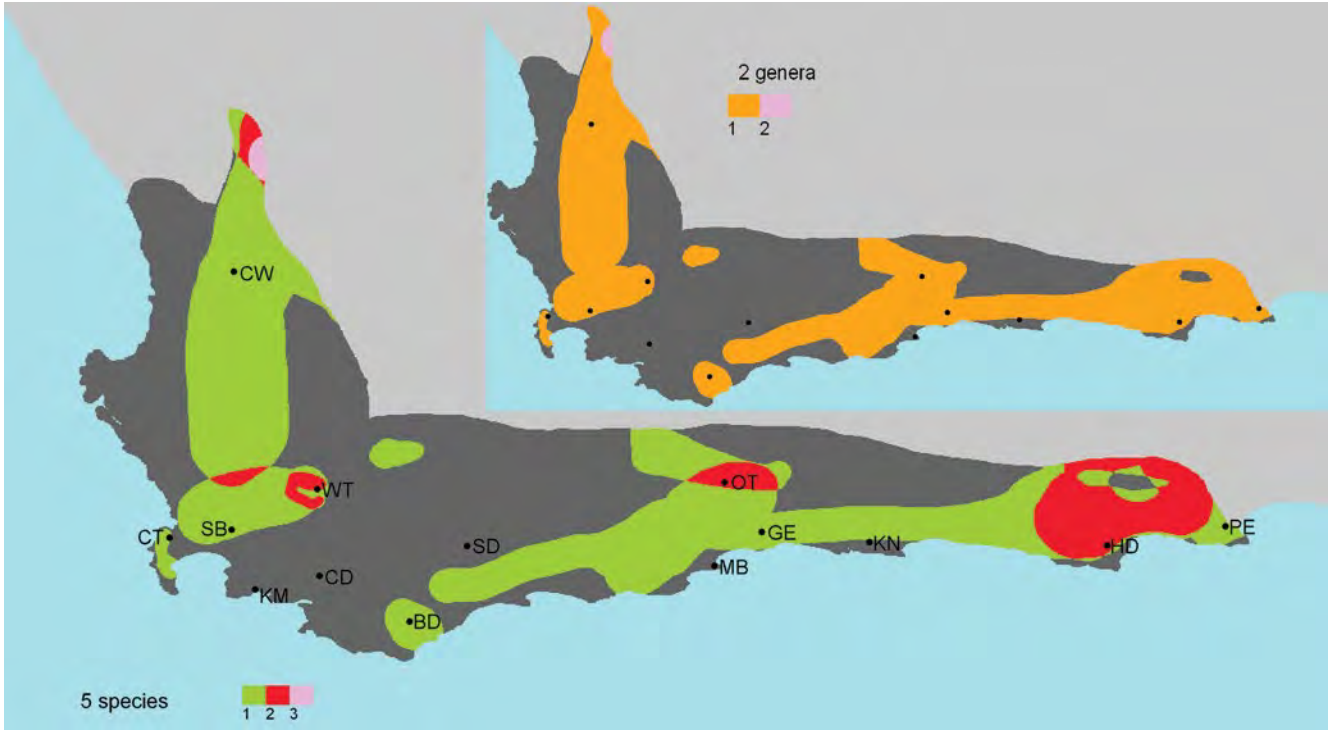
Lycopodiaceae


10 genera
1 2 3 4 5 6 7 8 9
CW
WT
OT
CT
SB
SD
GE
KN
HD
PE
MB
CD
KM
BD
90 species
2 4 6 8 10 12 14 16 18 20 22 24 26

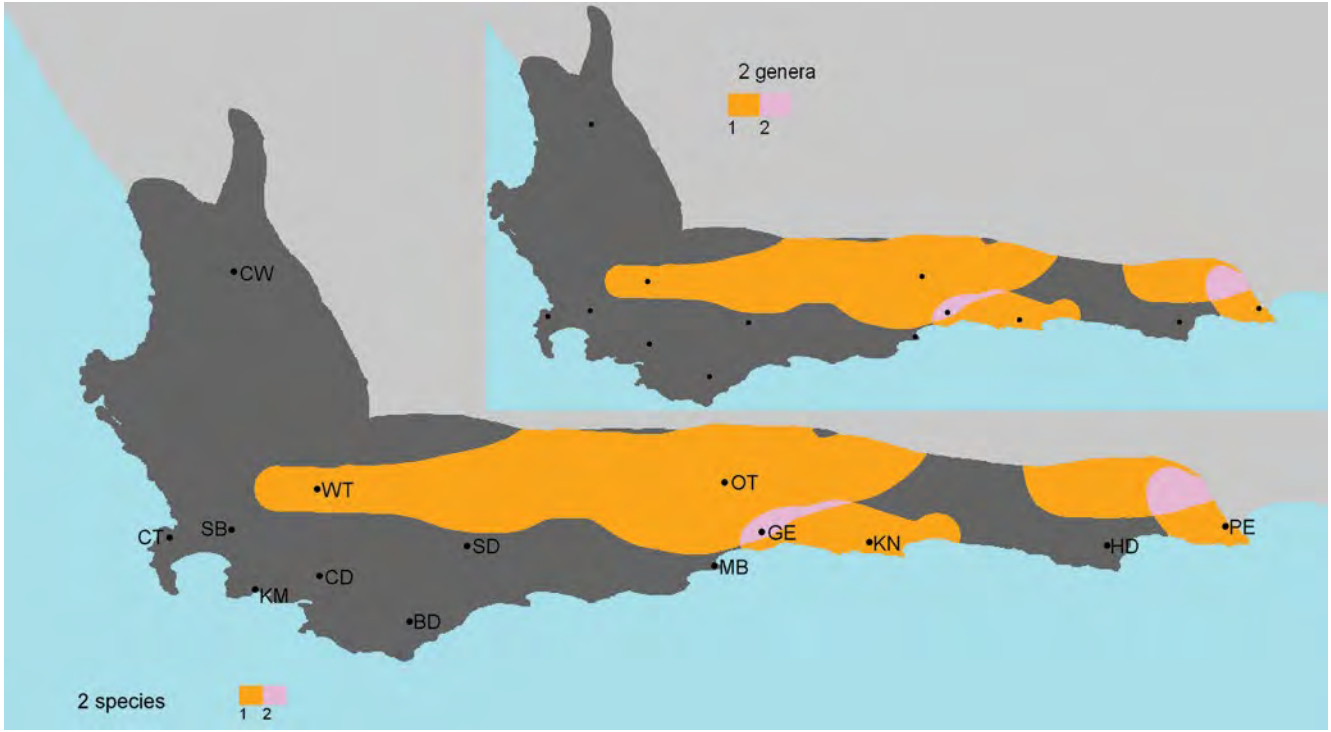
Malvaceae



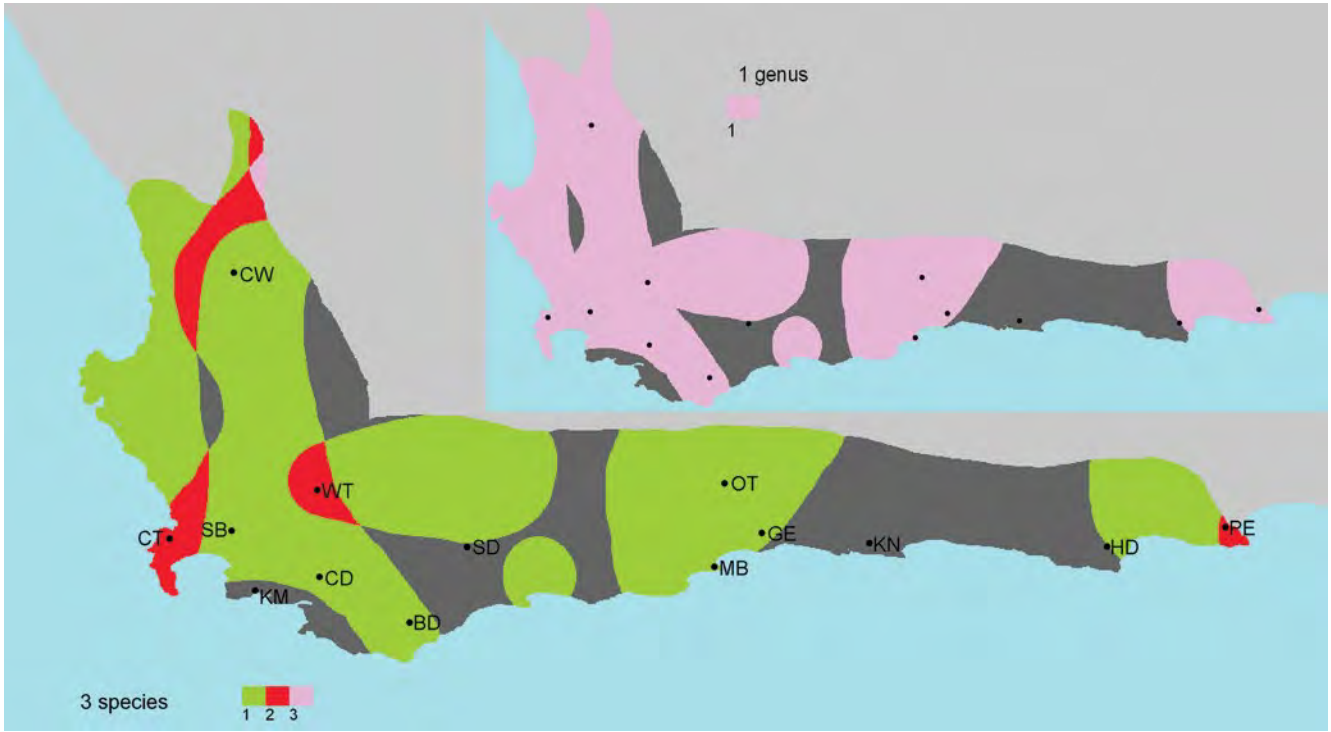
Marattiaceae



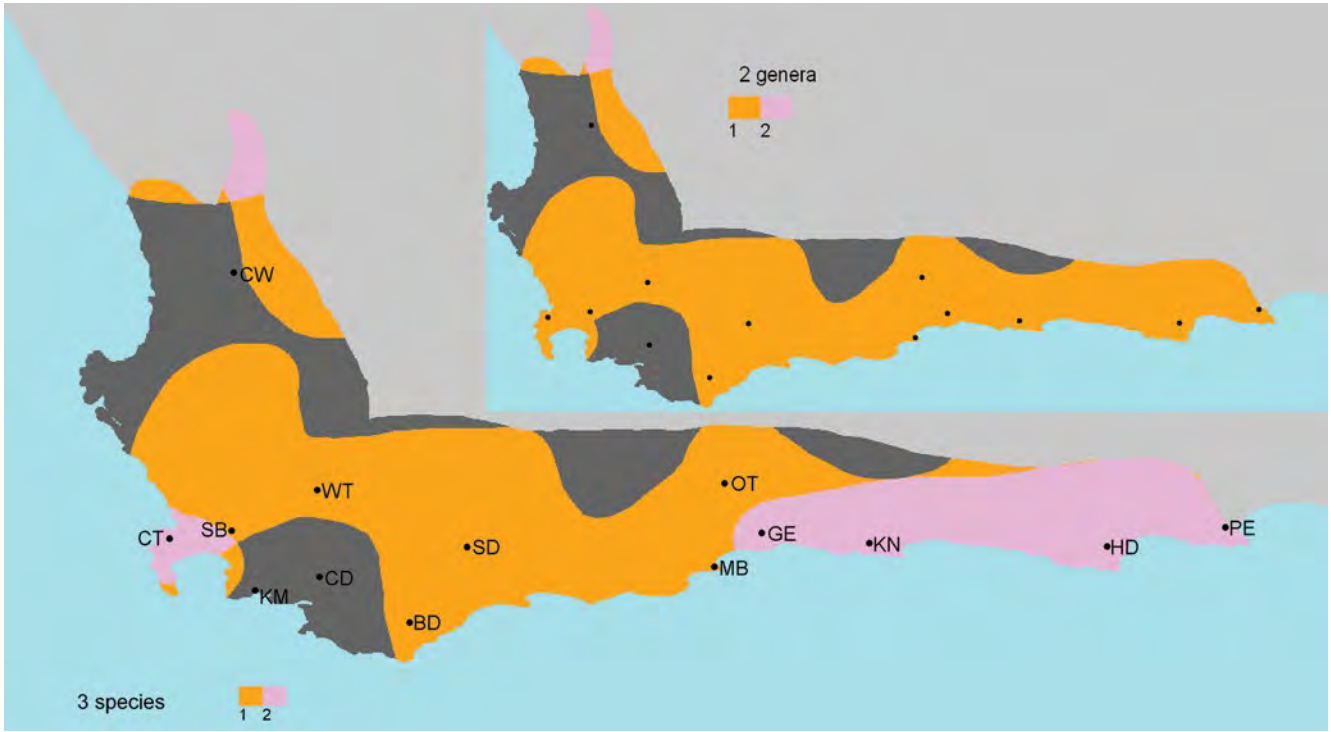
Marsileaceae



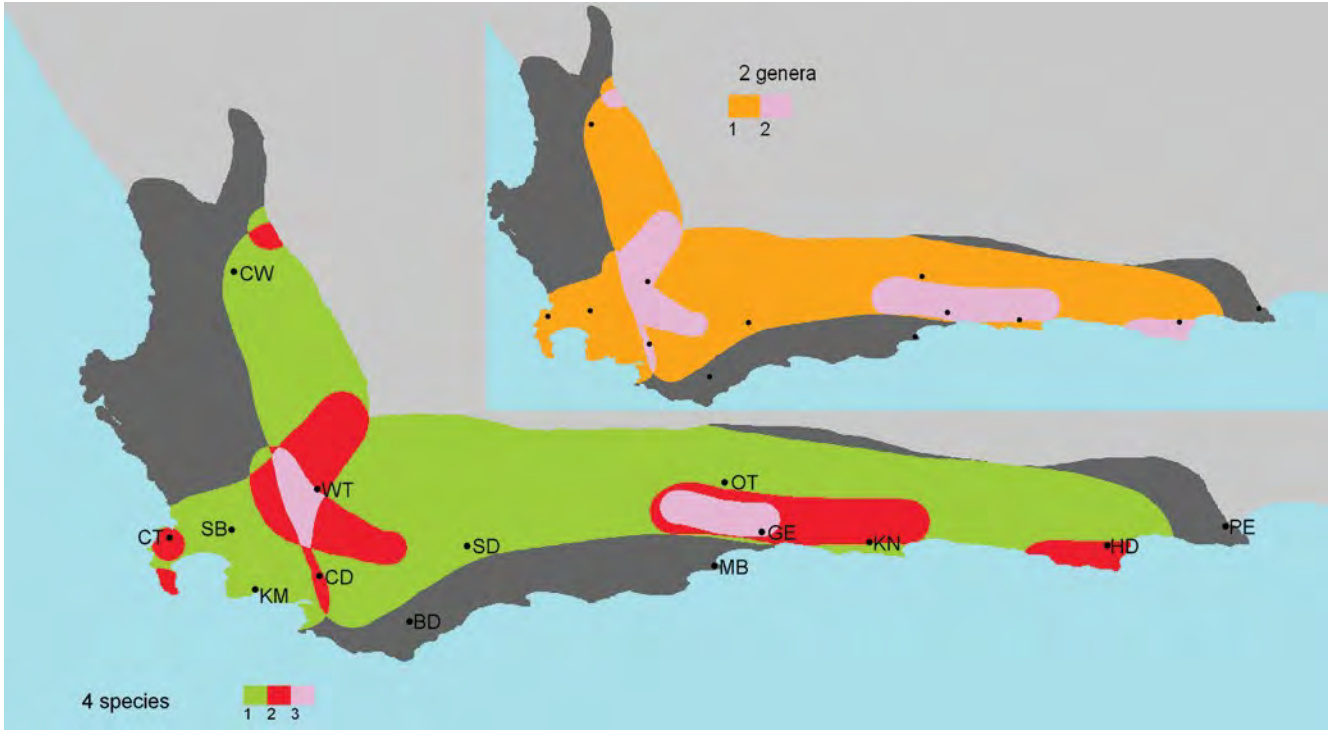
Meliaceae



Melianthaceae

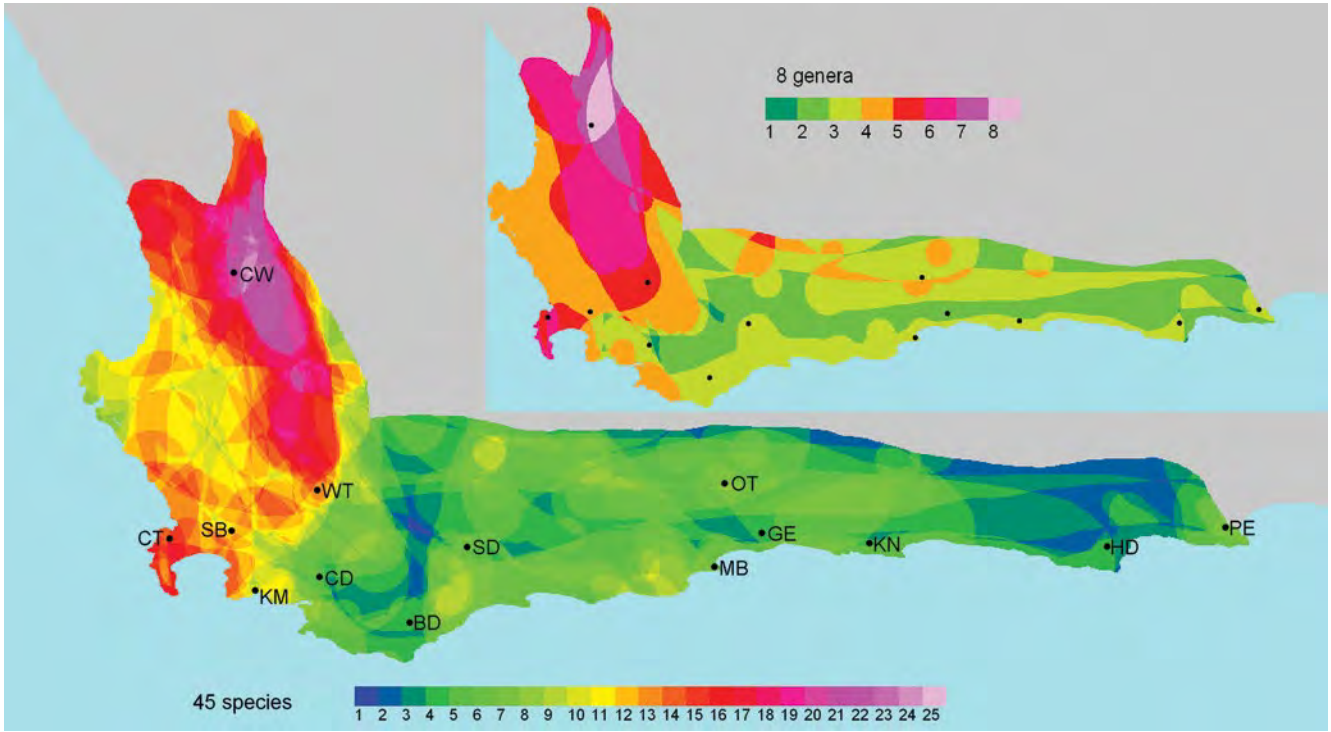


Menispermaceae

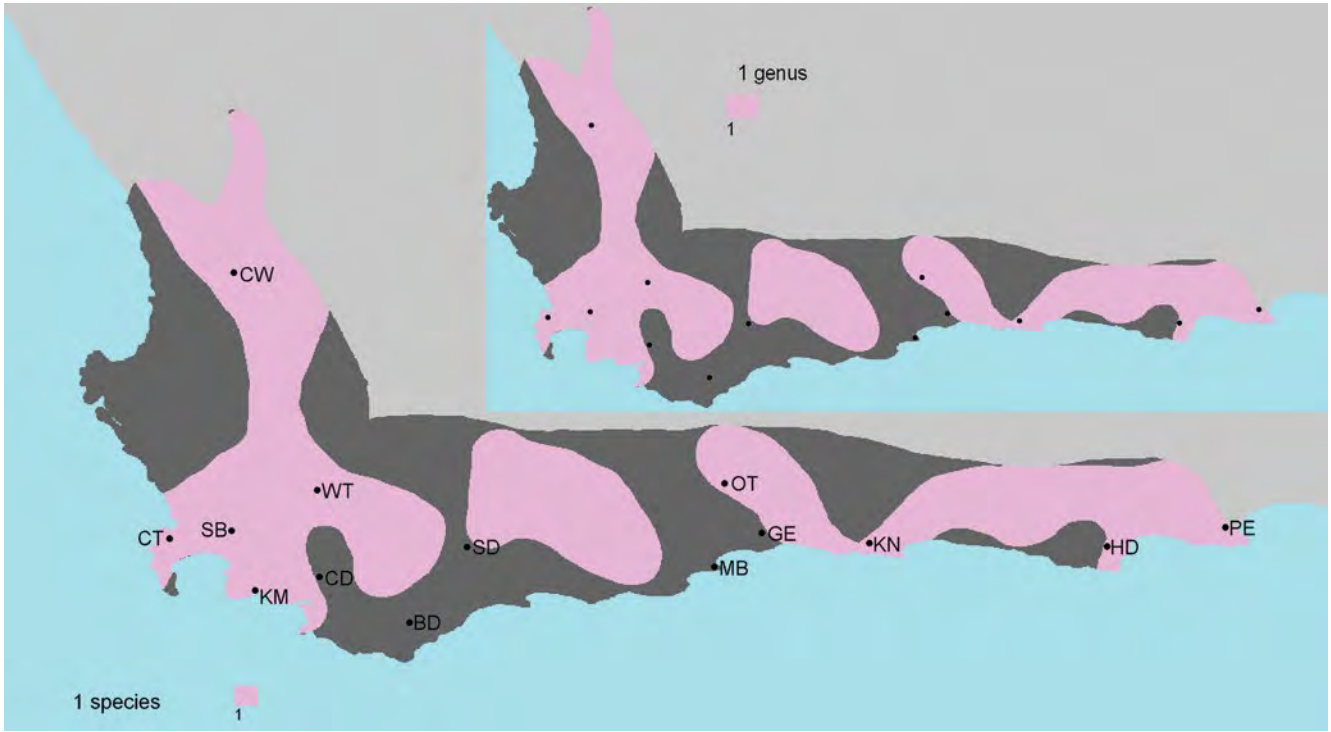


M

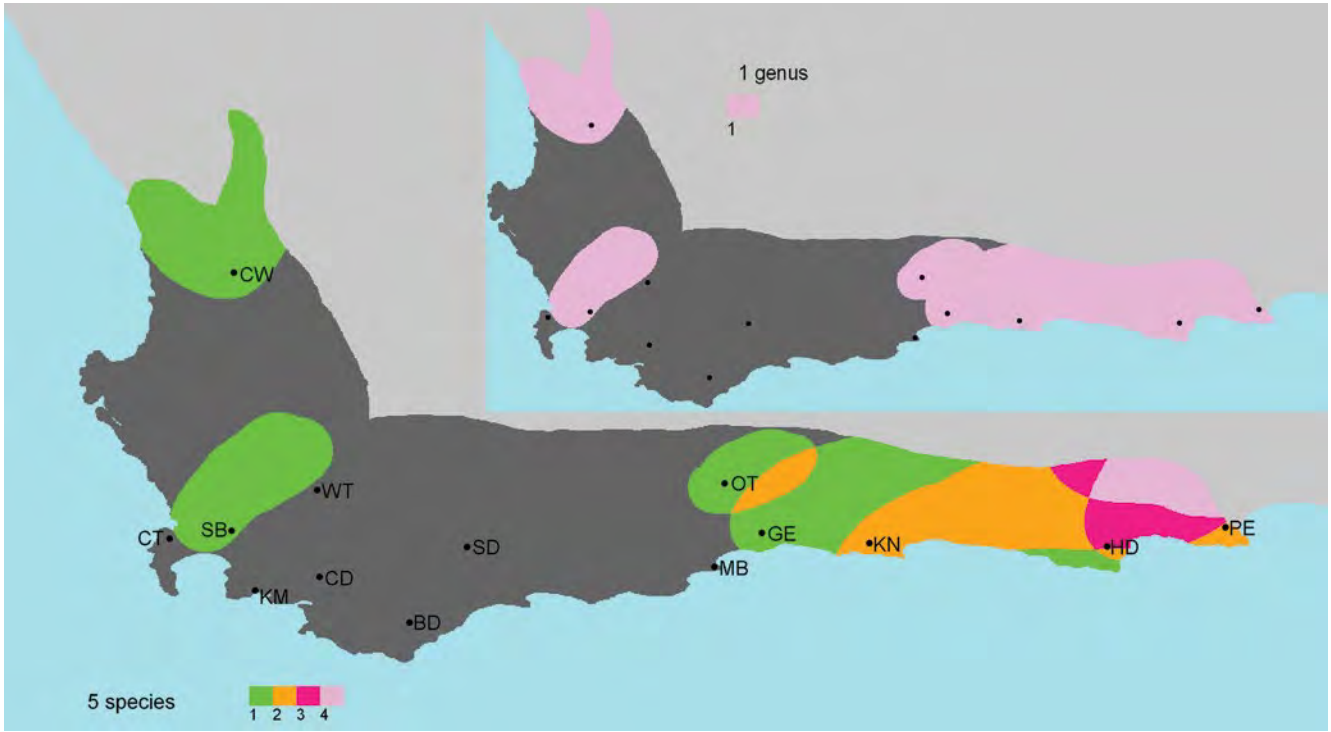
Menyanthaceae



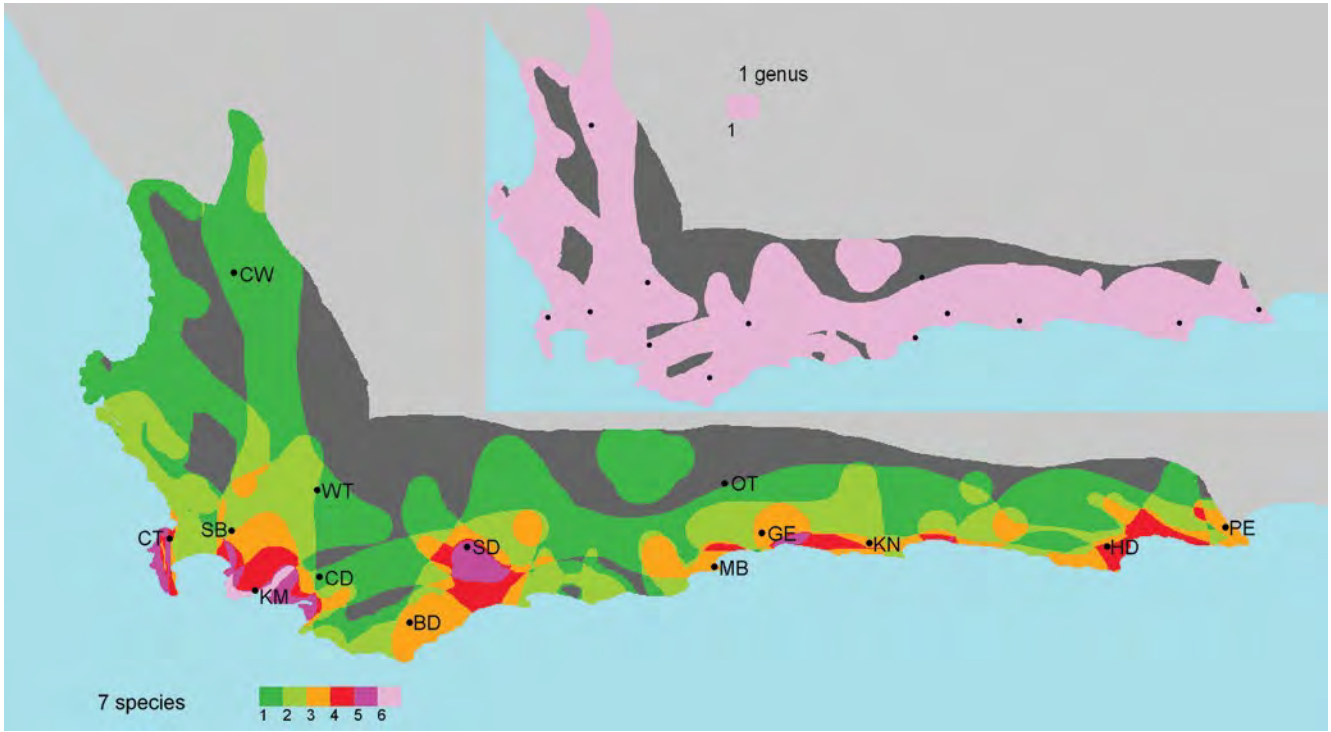
Molluginaceae



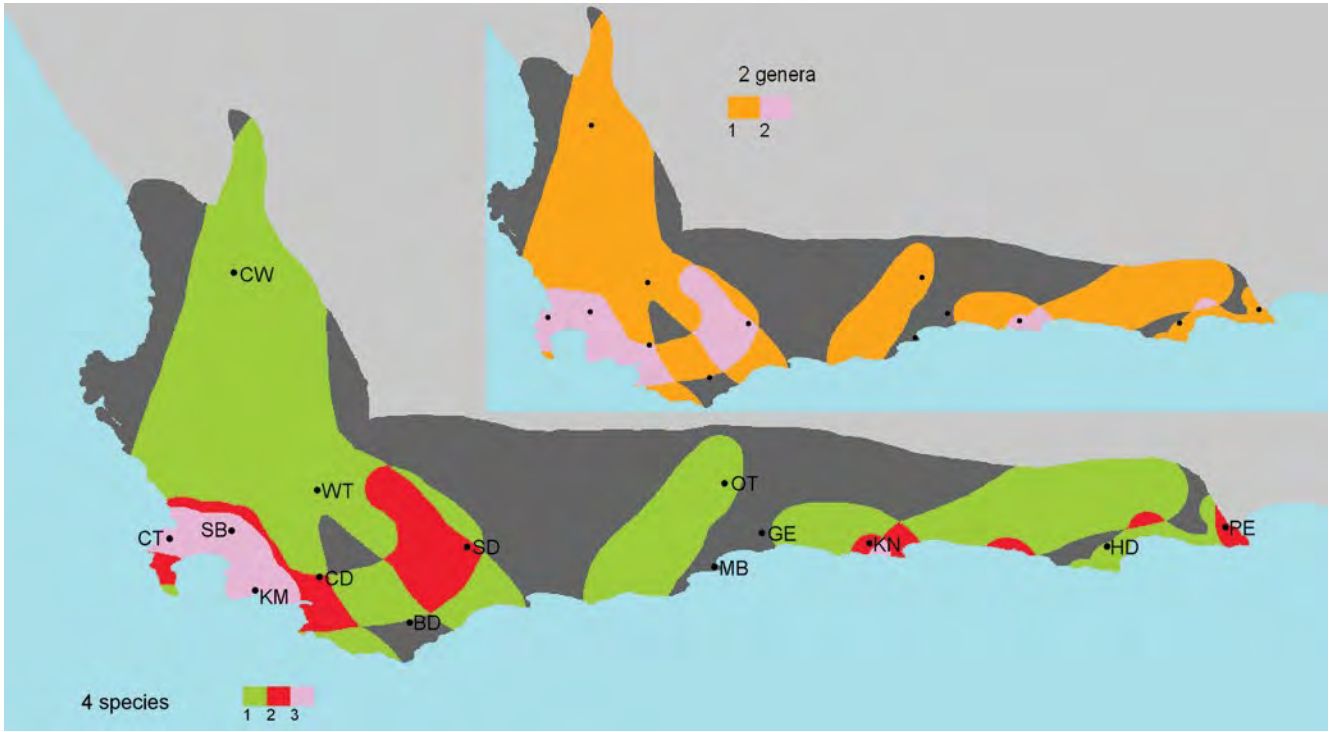
Montiniaceae



Moraceae



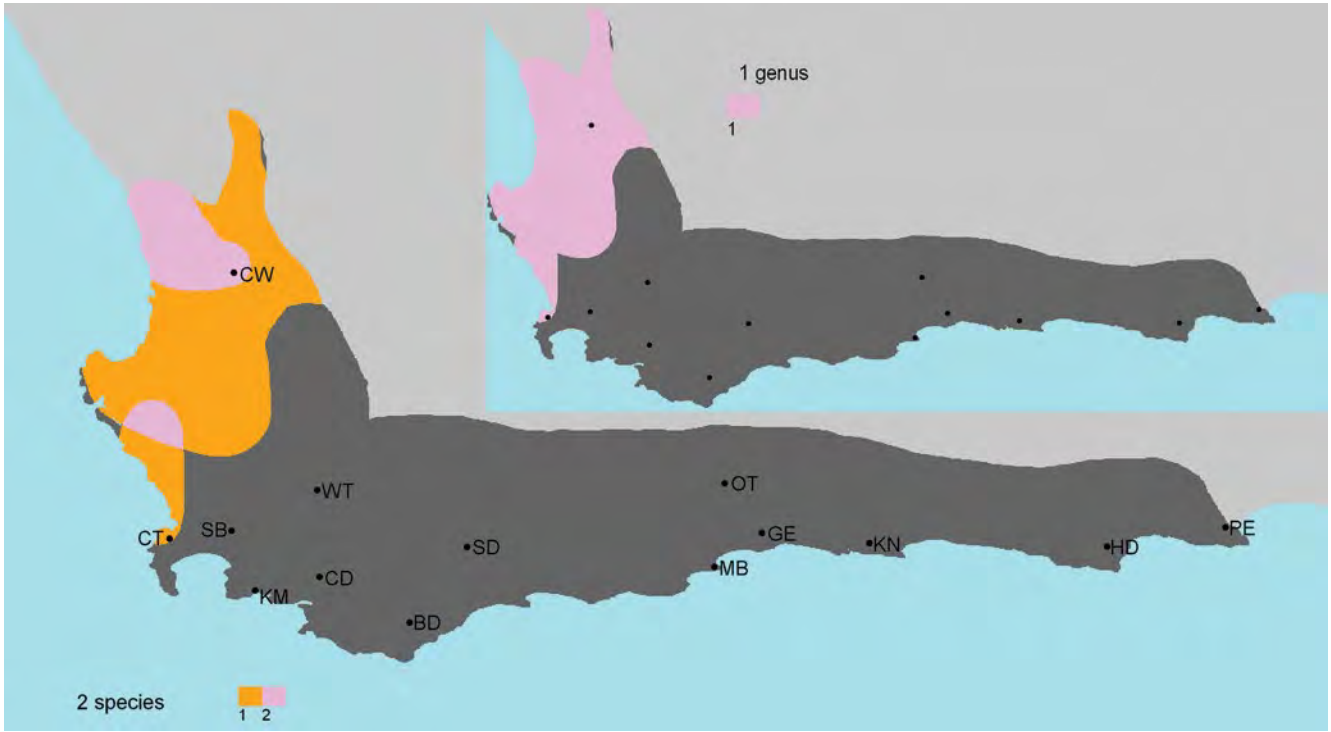
Myricaceae



Myrsinaceae



Myrtaceae

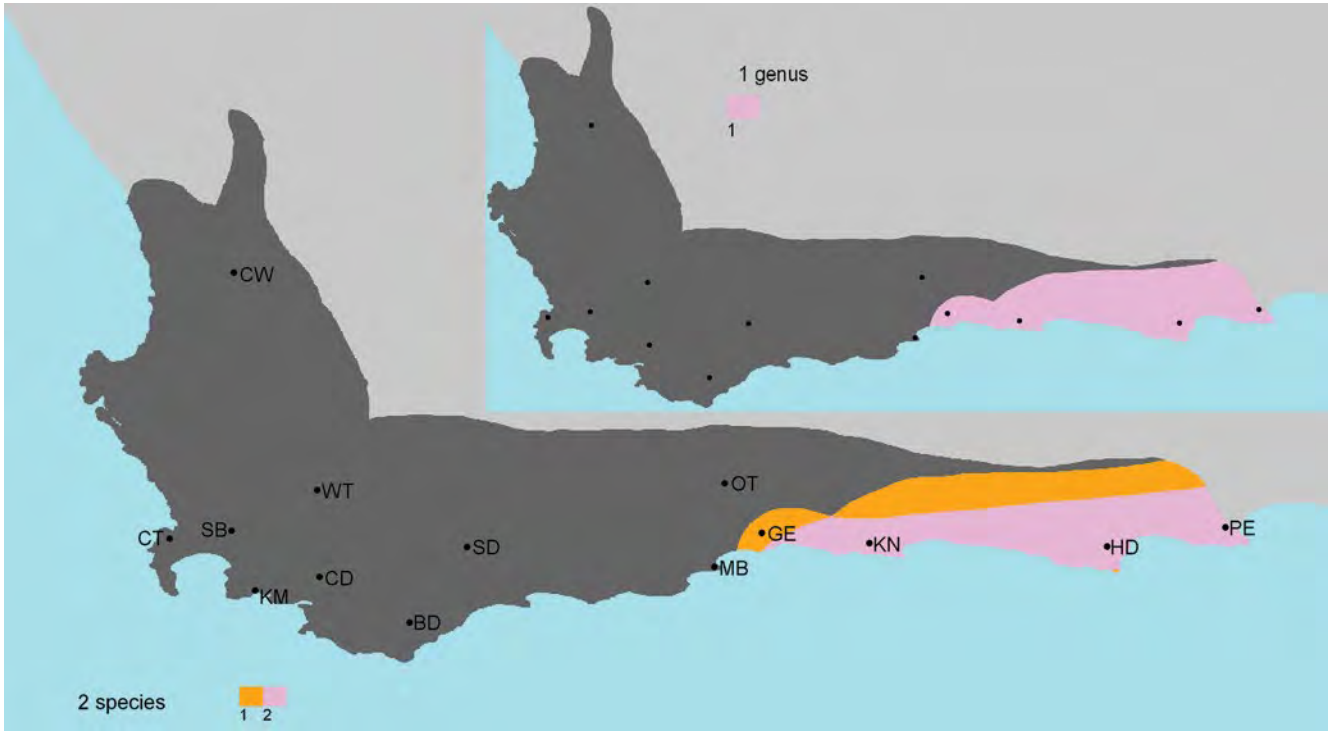


N

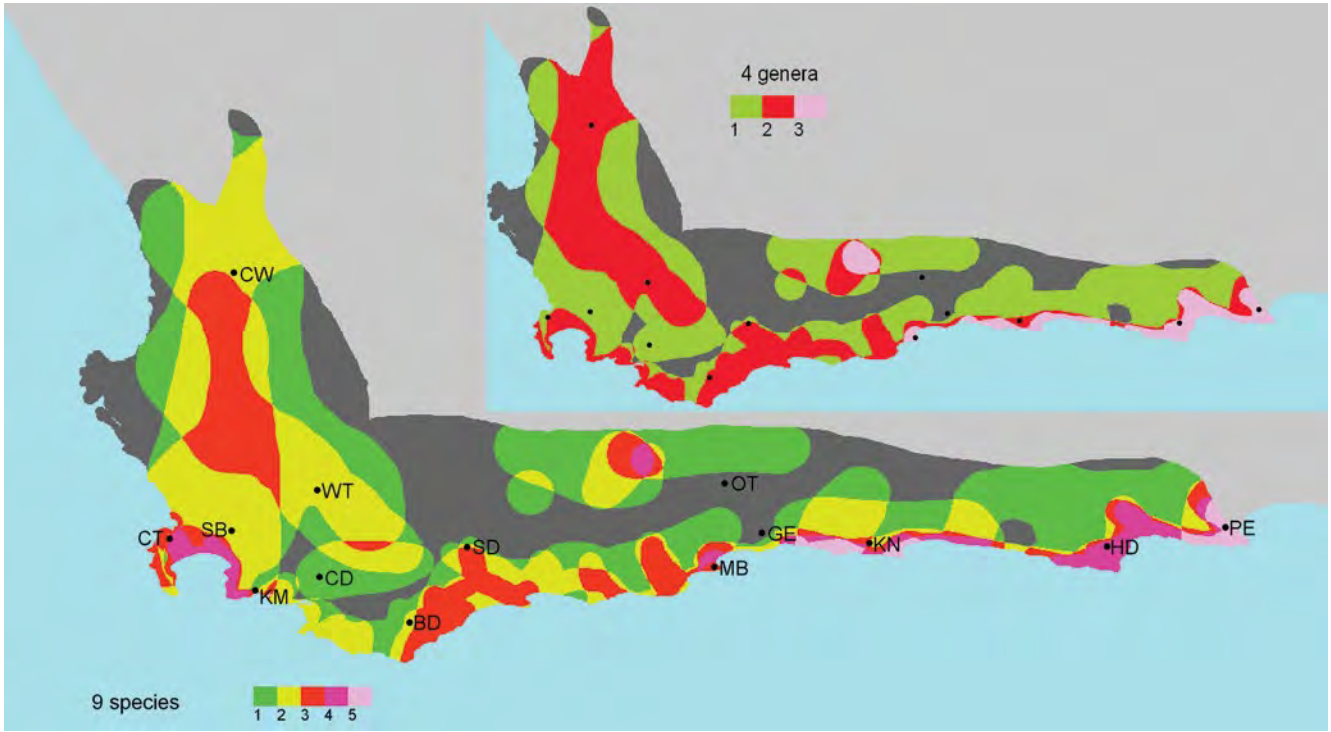
Neuradaceae



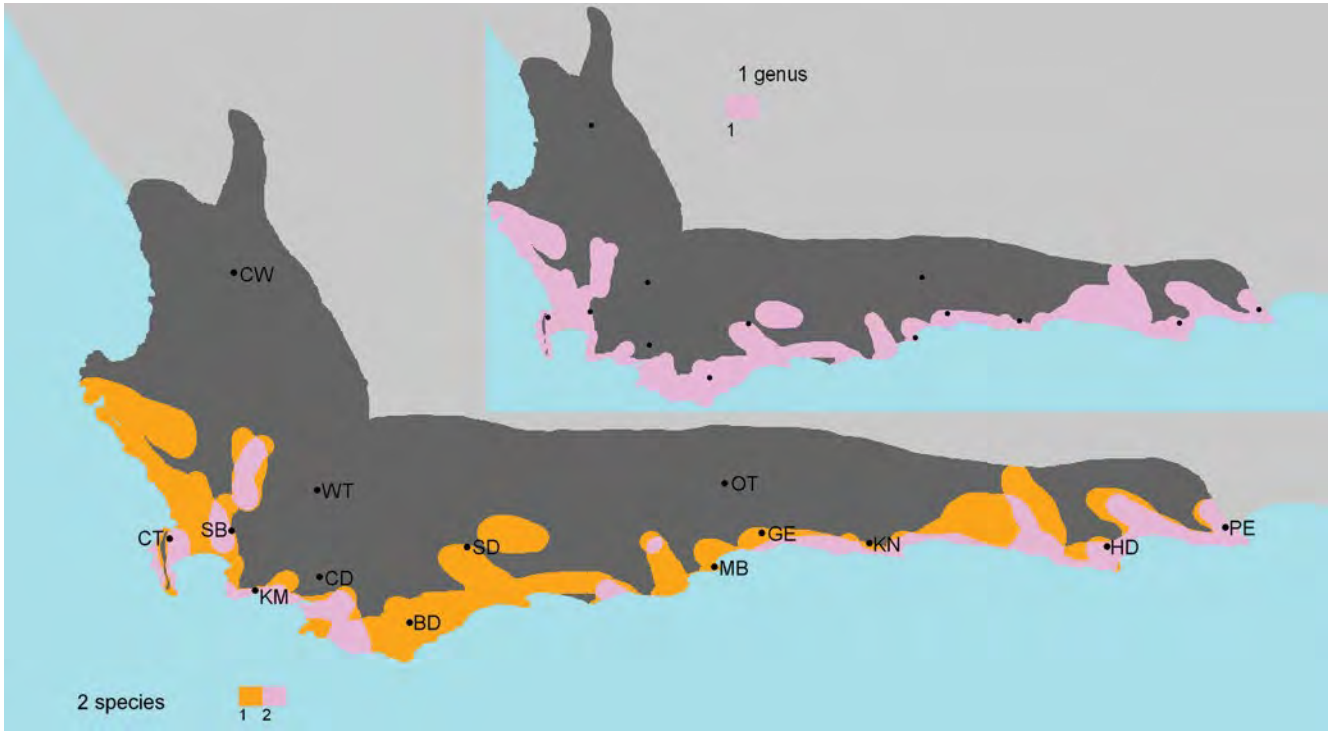
Nymphaeaceae



Ochnaceae

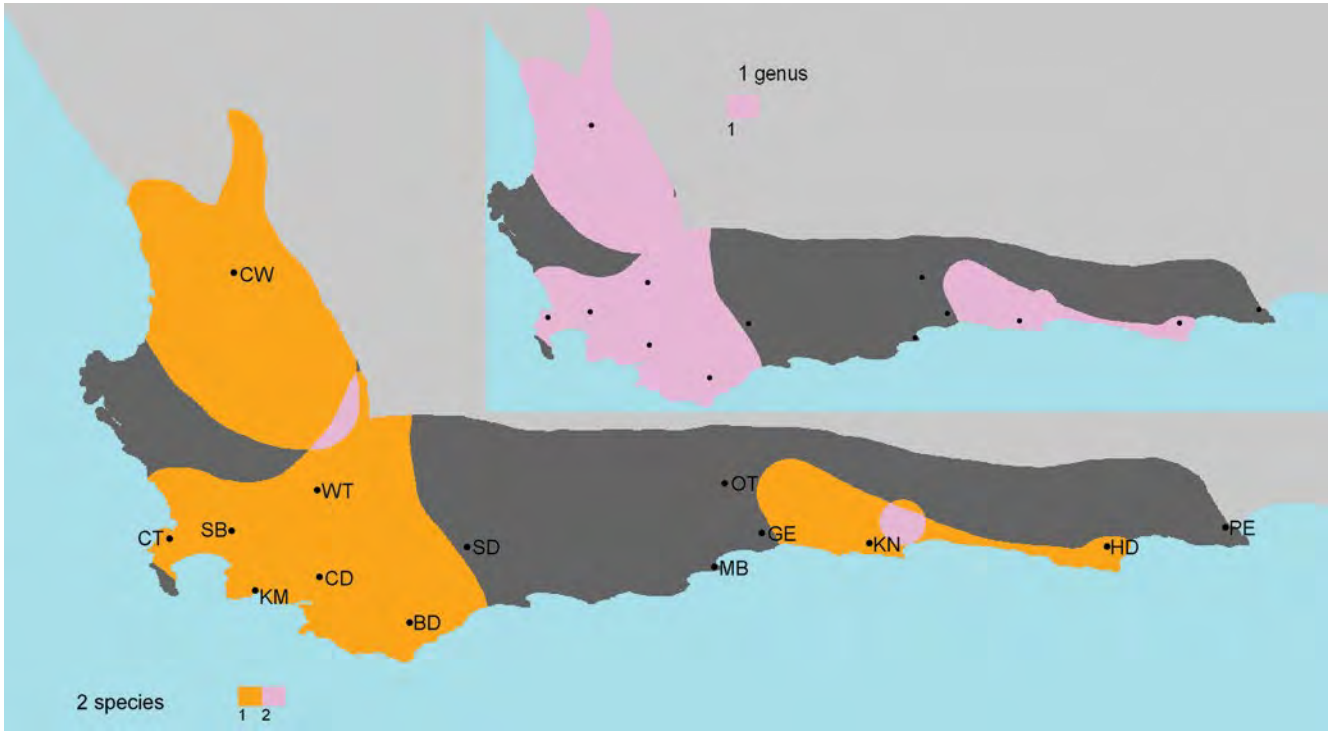

4 genera
1 2 3
CW
WT
OT
CT
SB
SD
GE
KN
HD
PE
CD
MB
KM
BD
9 species
1 2 3 4 5

Oleaceae



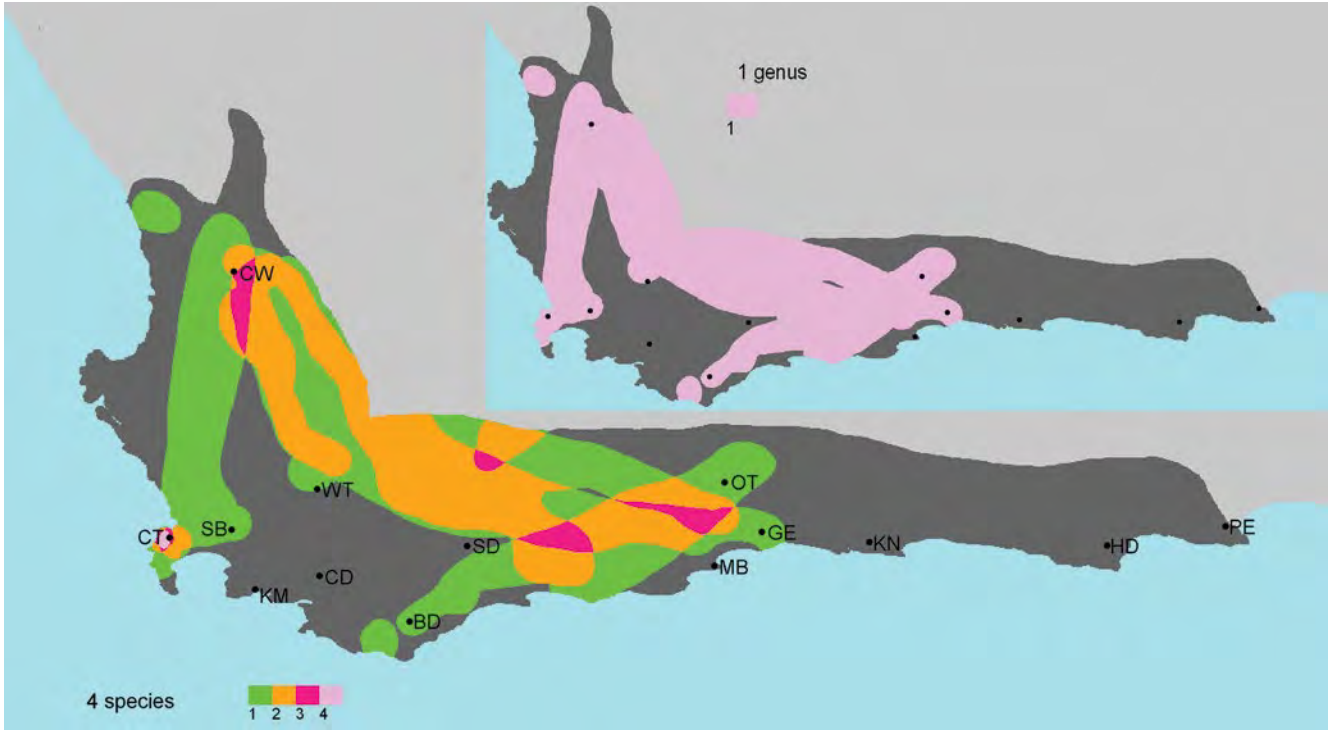
O

Oliniaceae

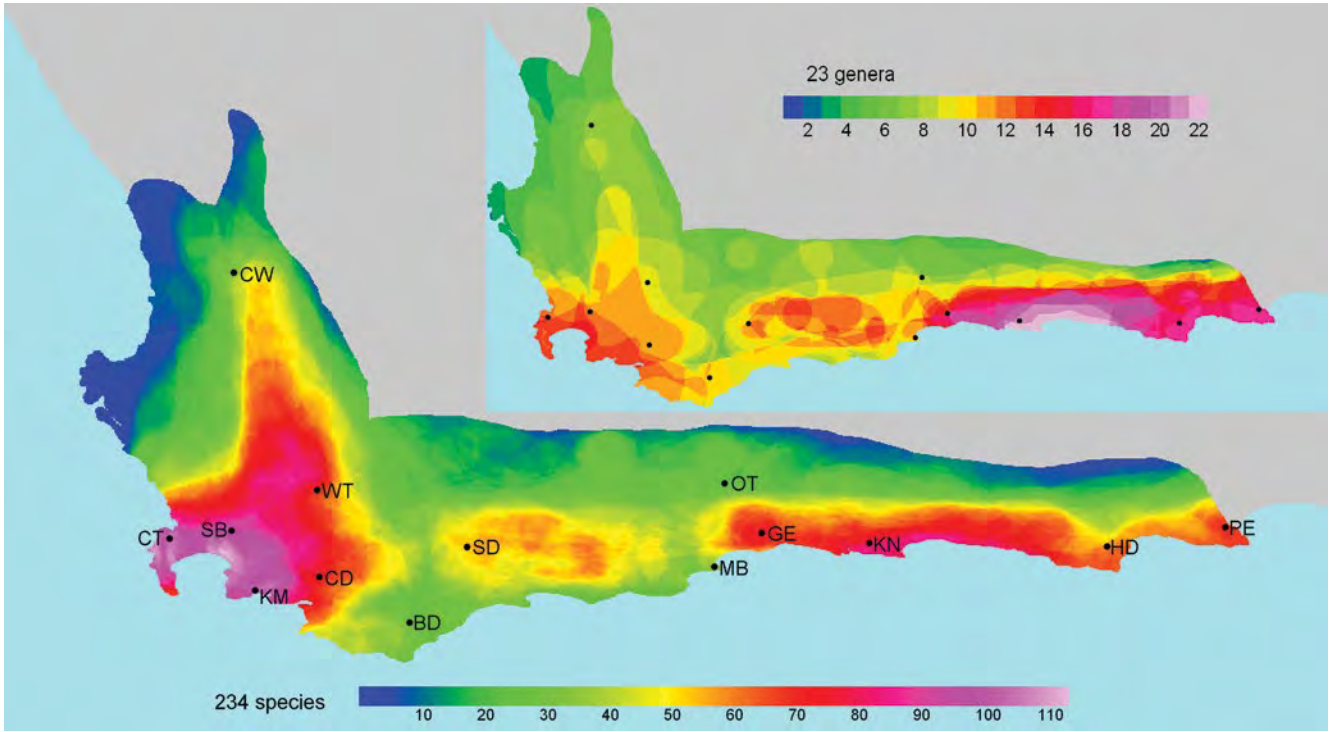


O

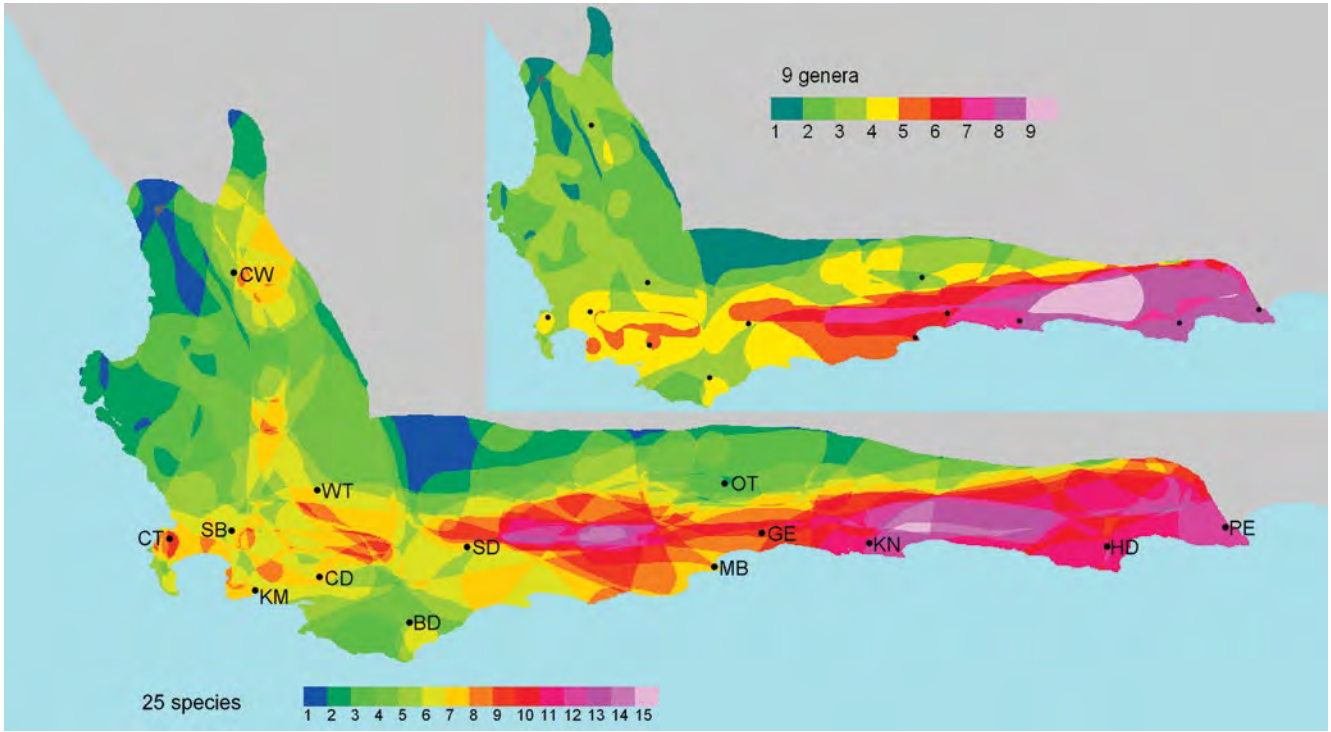
Onagraceae



Ophioglossaceae

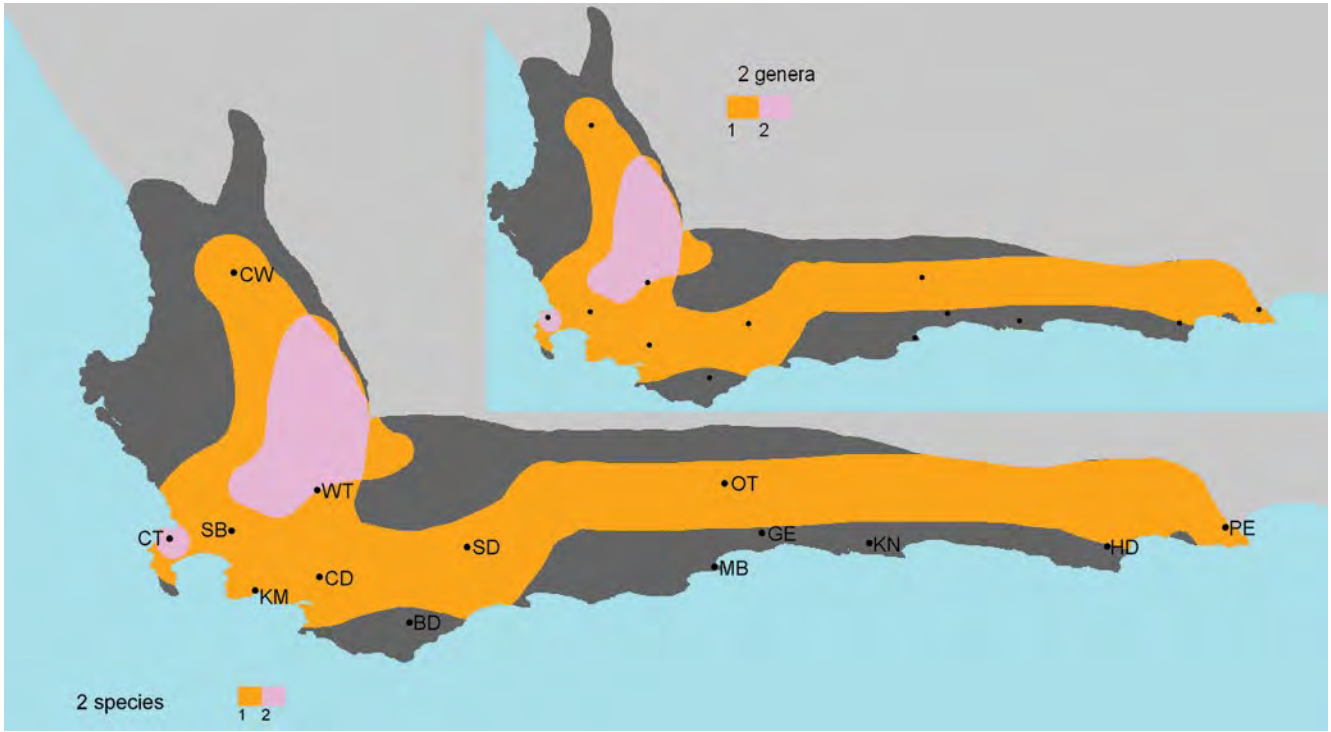


Orchidaceae

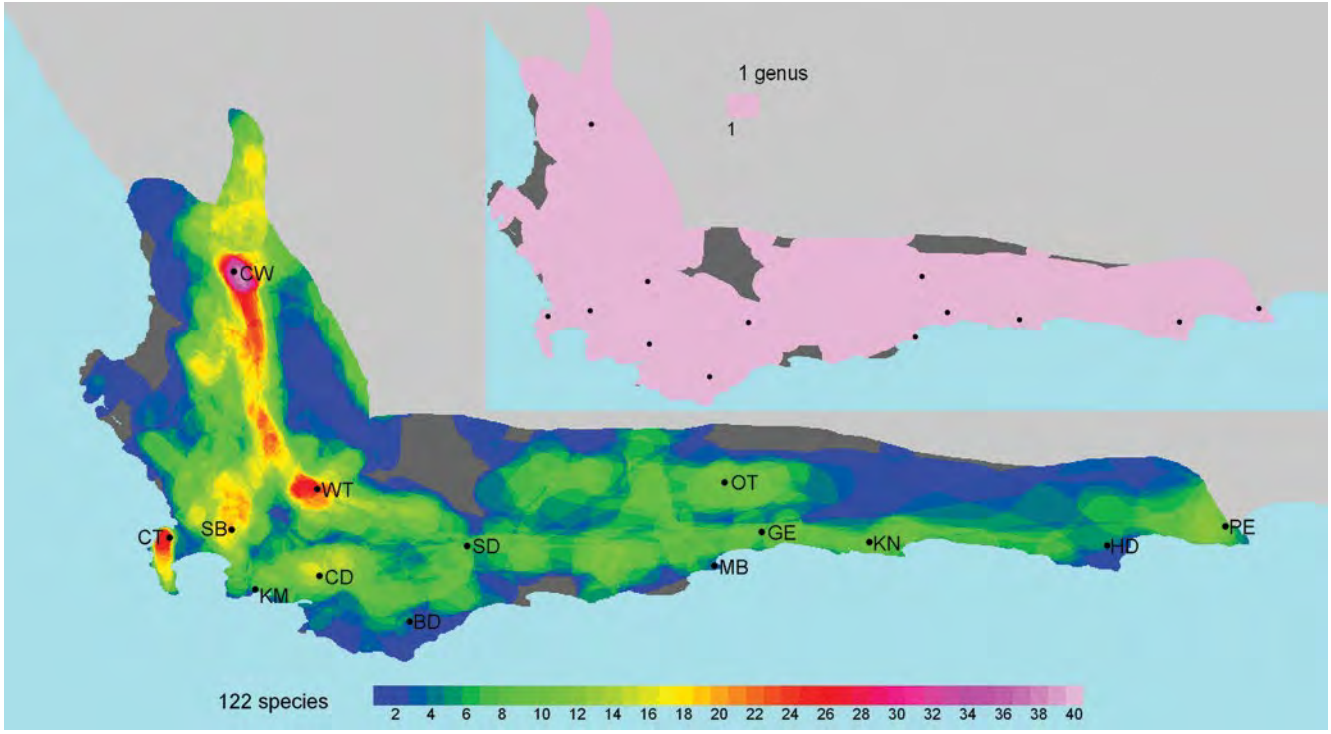


O

Orobanchaceae



Osmundaceae



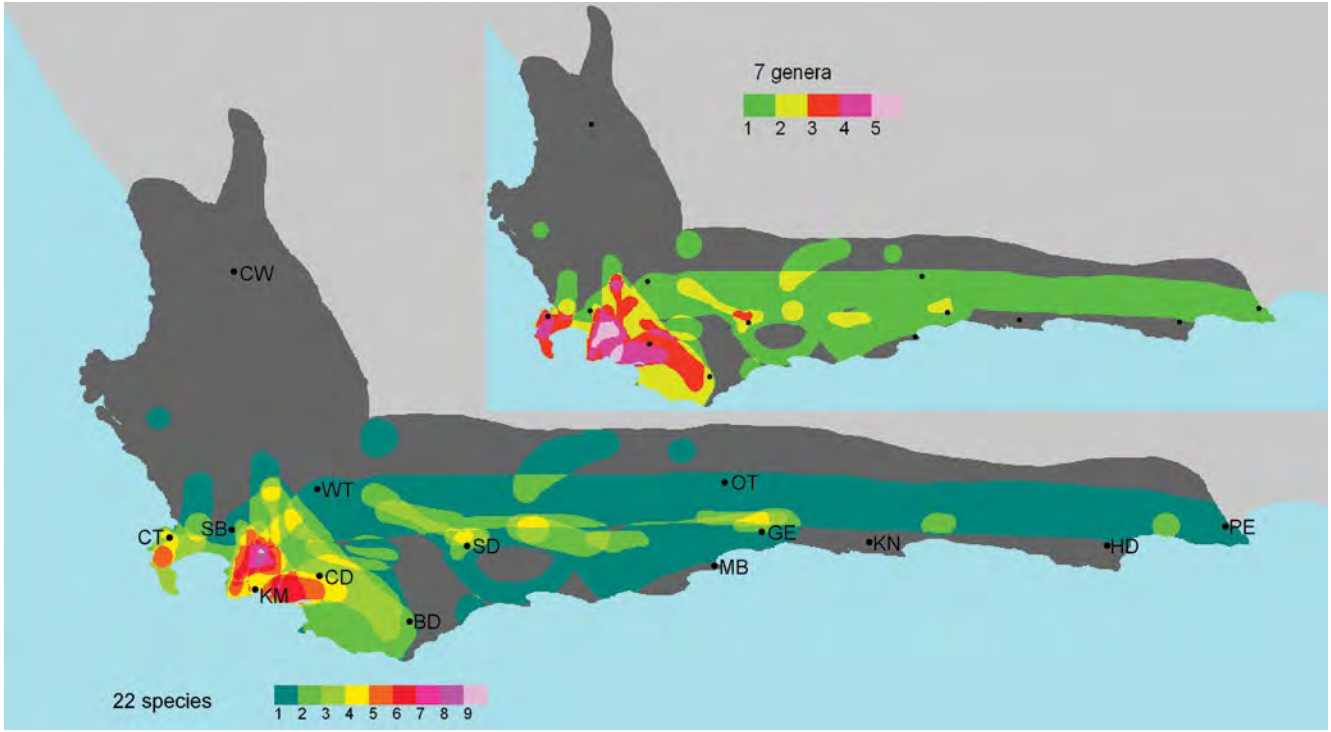
Oxalidaceae



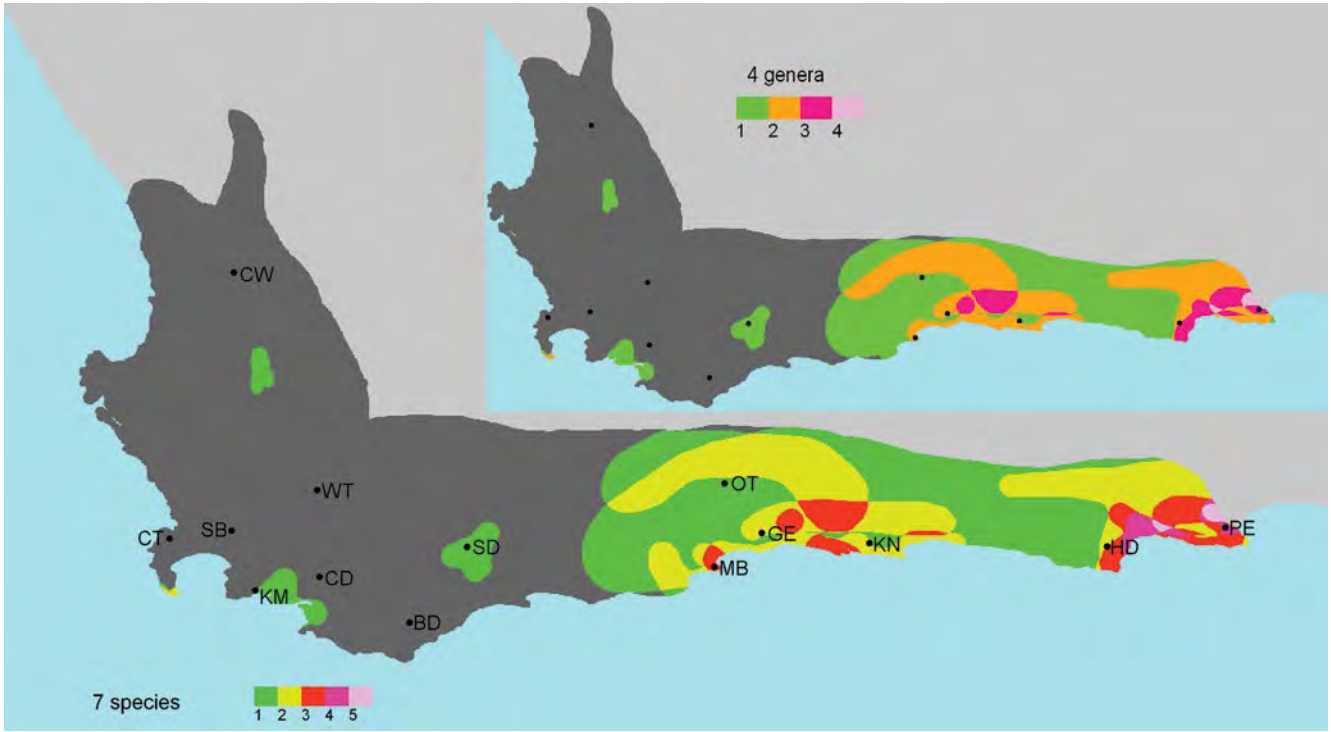
Papaveraceae



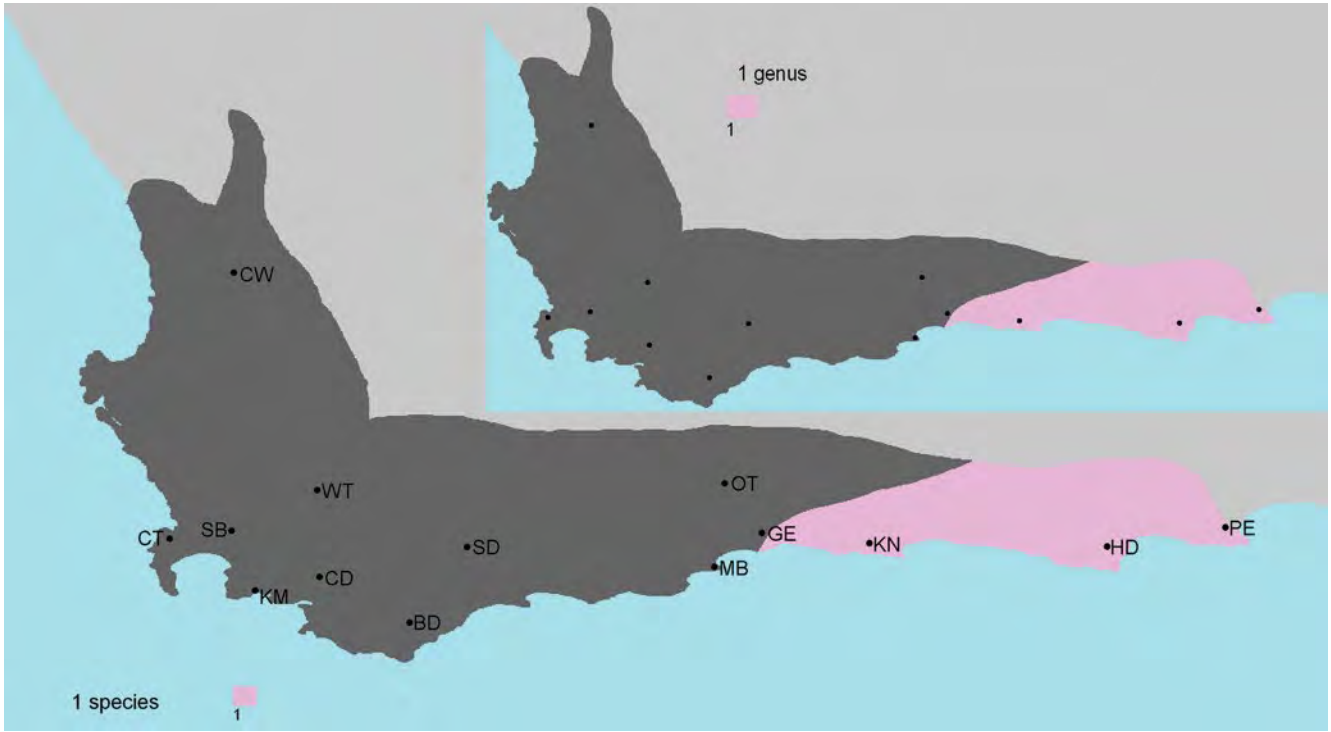
Pedaliaceae


7 genera
1 2 3 4 5
CW
WT
OT
CT
SB
SD
GE
KN
HD
PE
CD
KM
MB
BD
22 species
1 2 3 4 5 6 7 8 9

Penaeaceae



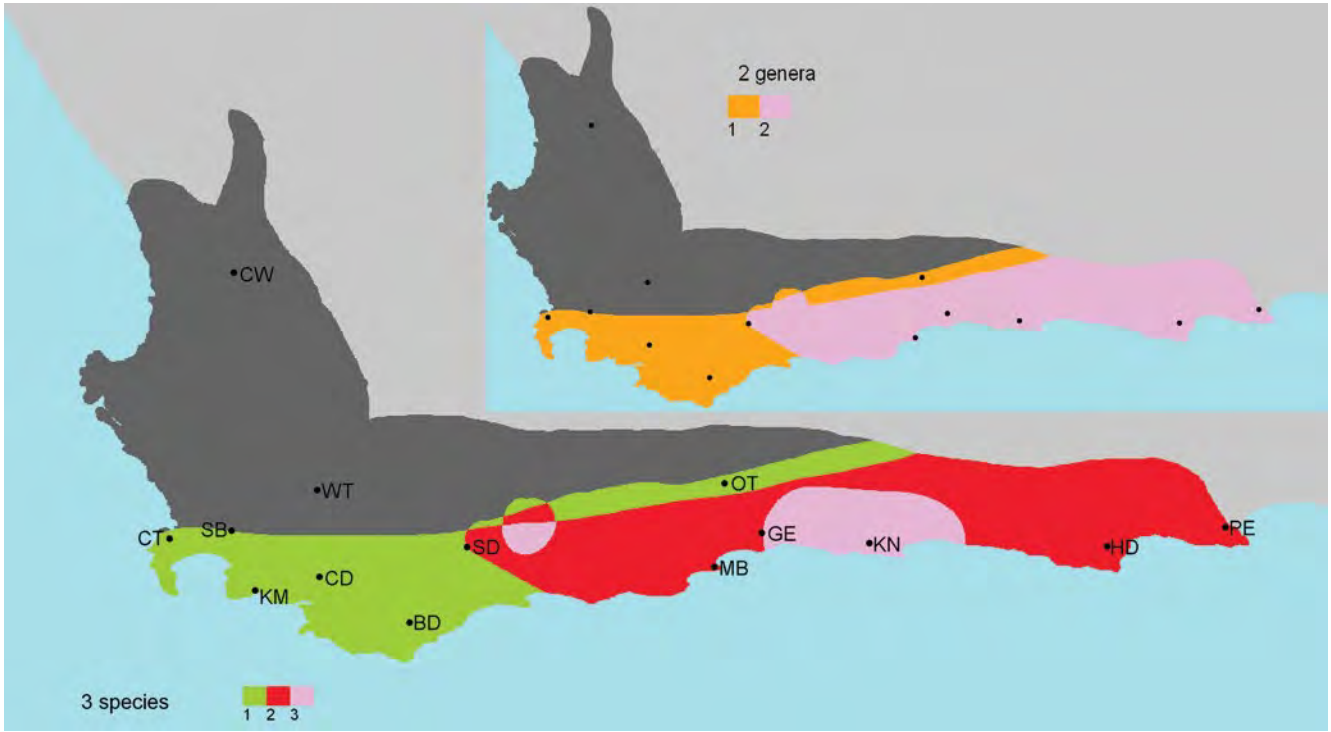
Phyllanthaceae



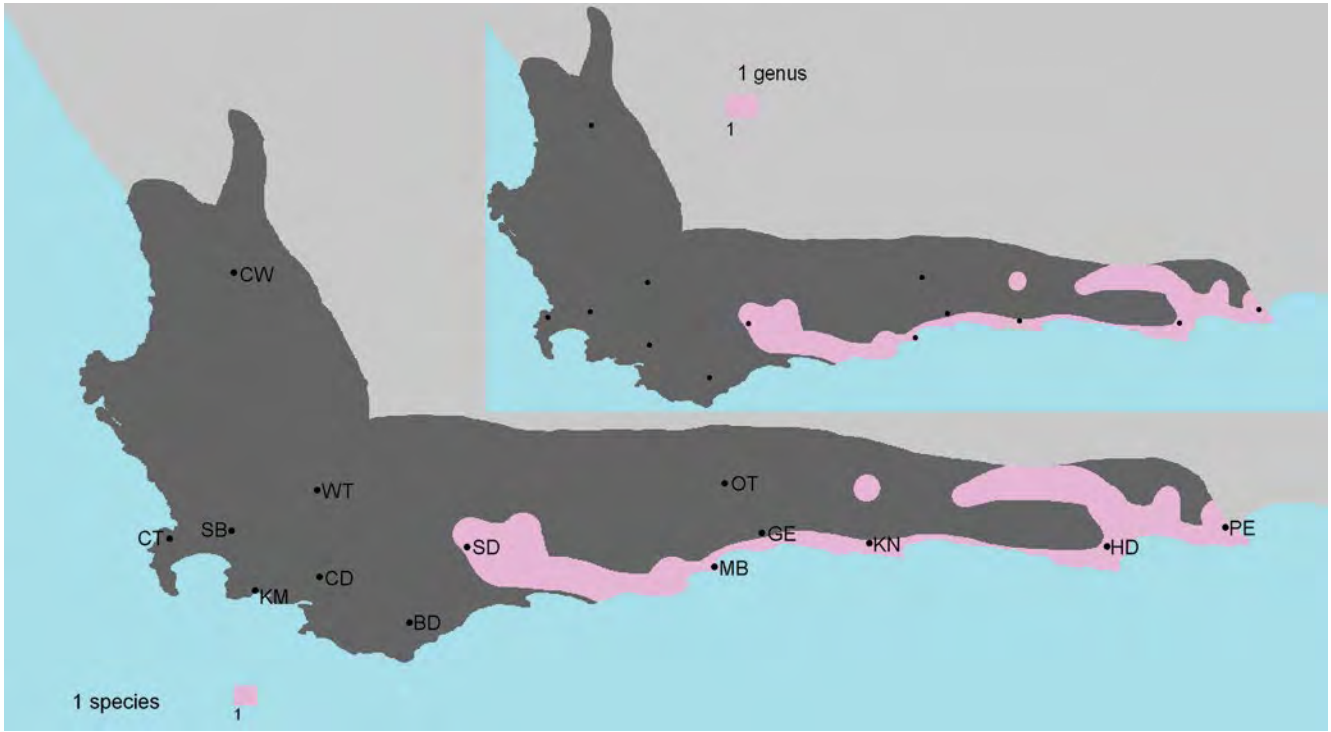
Phytolaccaceae



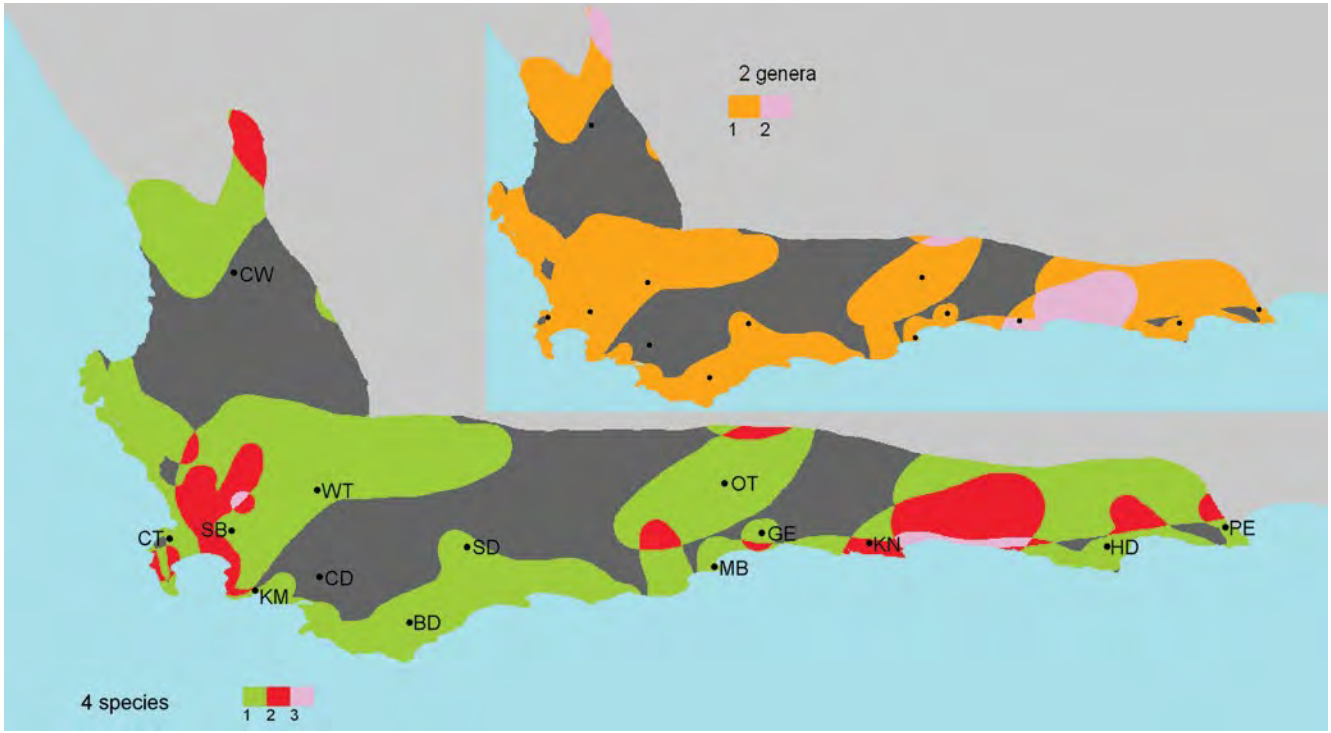
Picrodendraceae



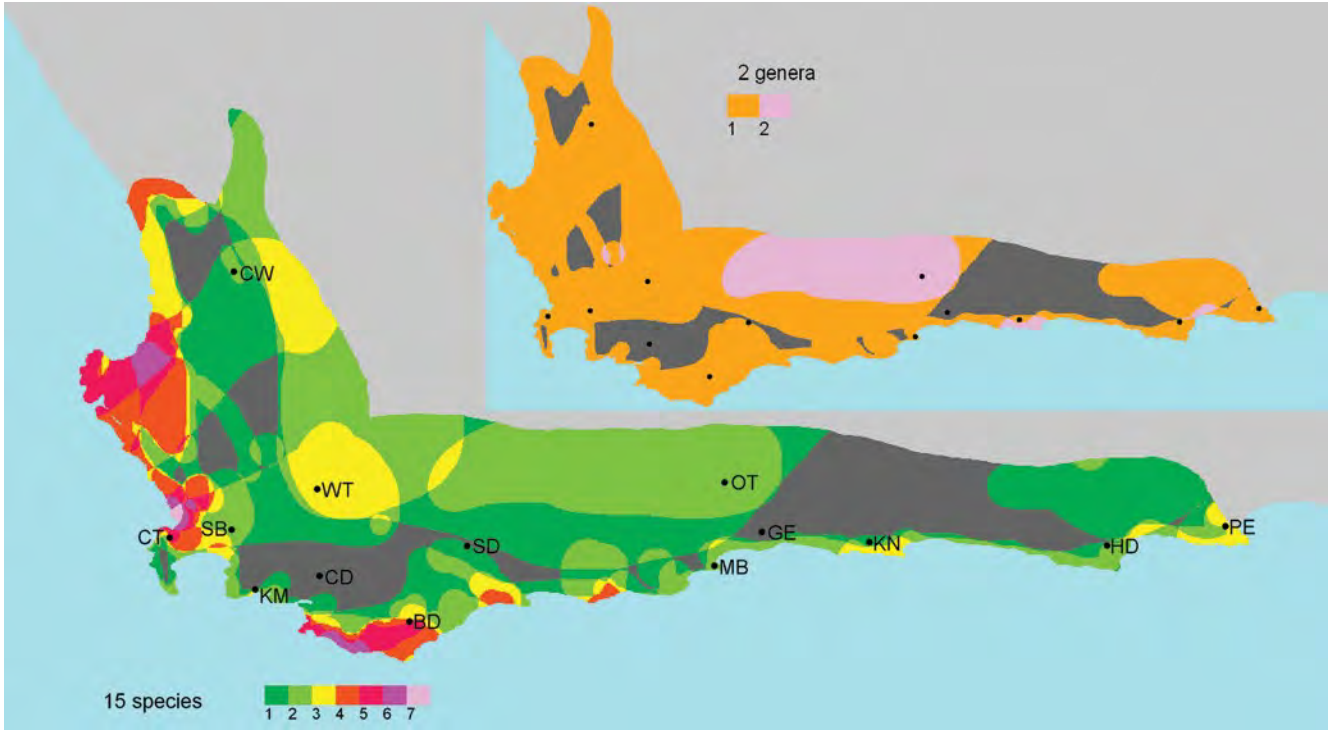
Piperaceae



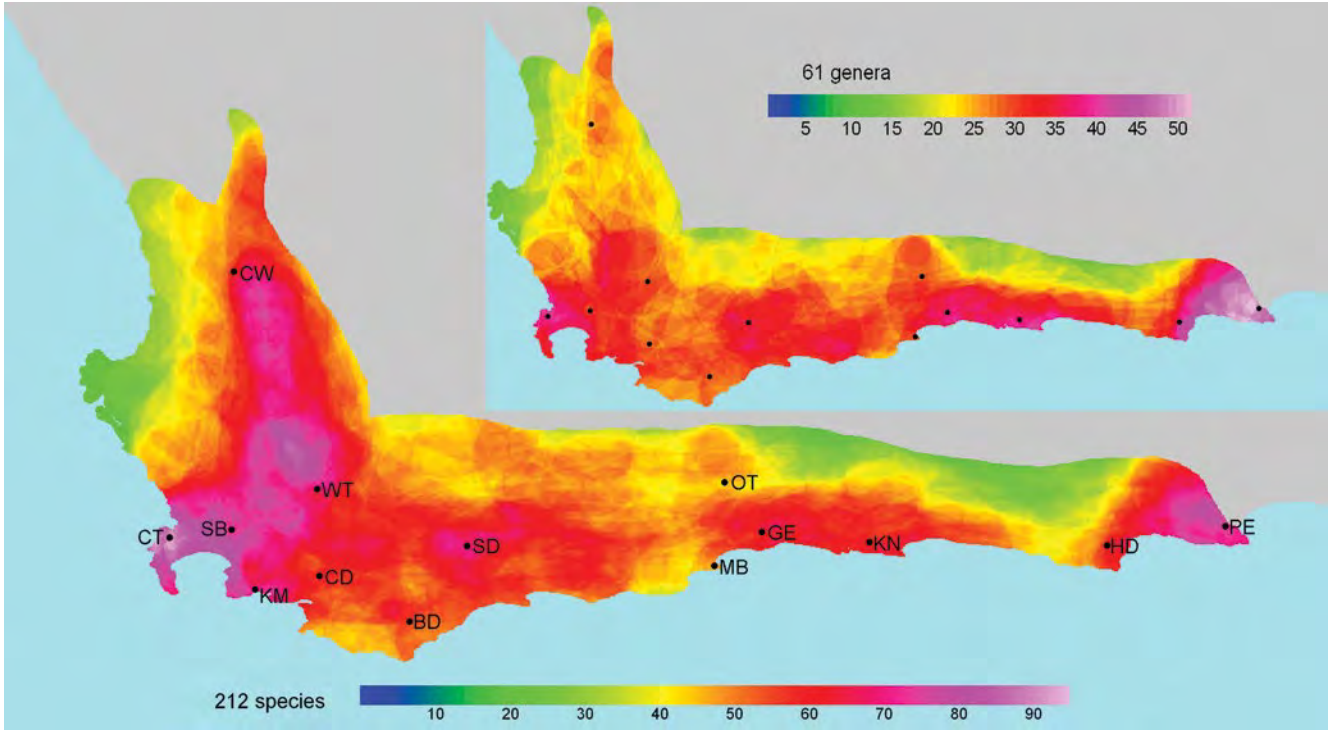
Pittosporaceae



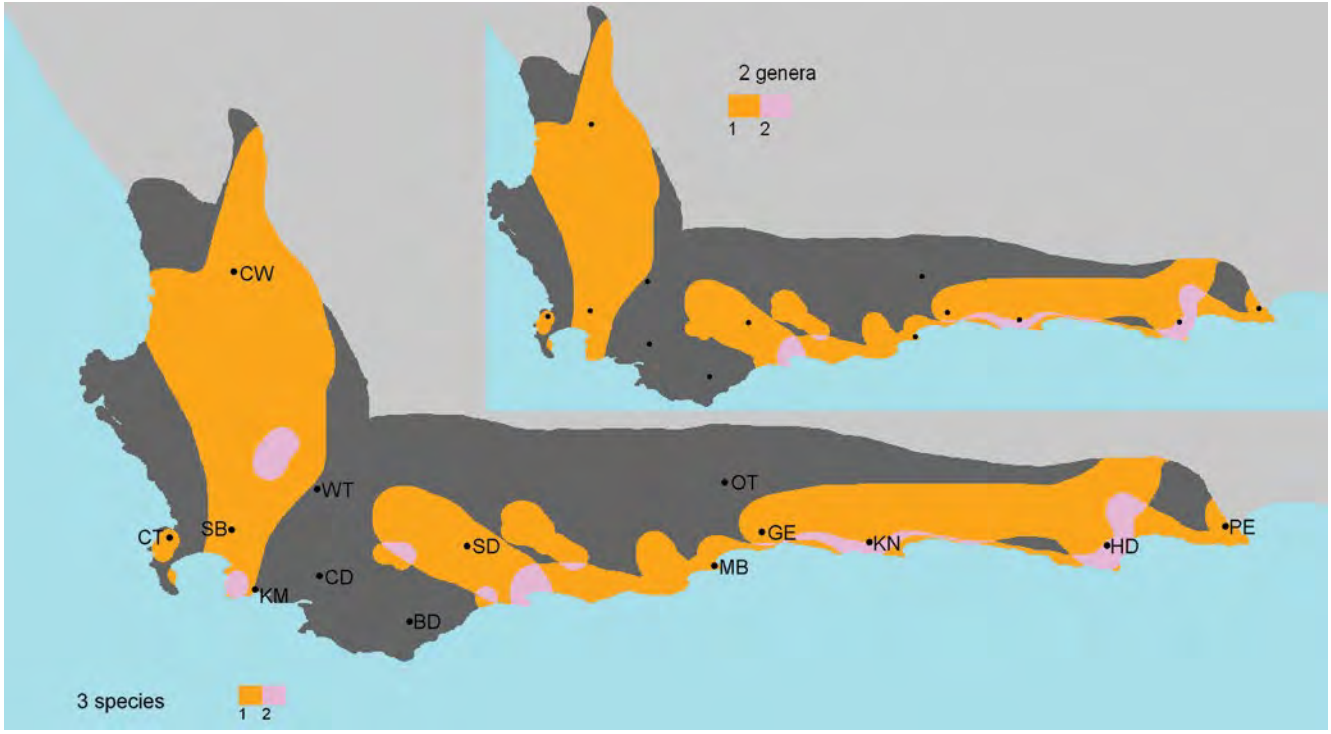
Plantaginaceae



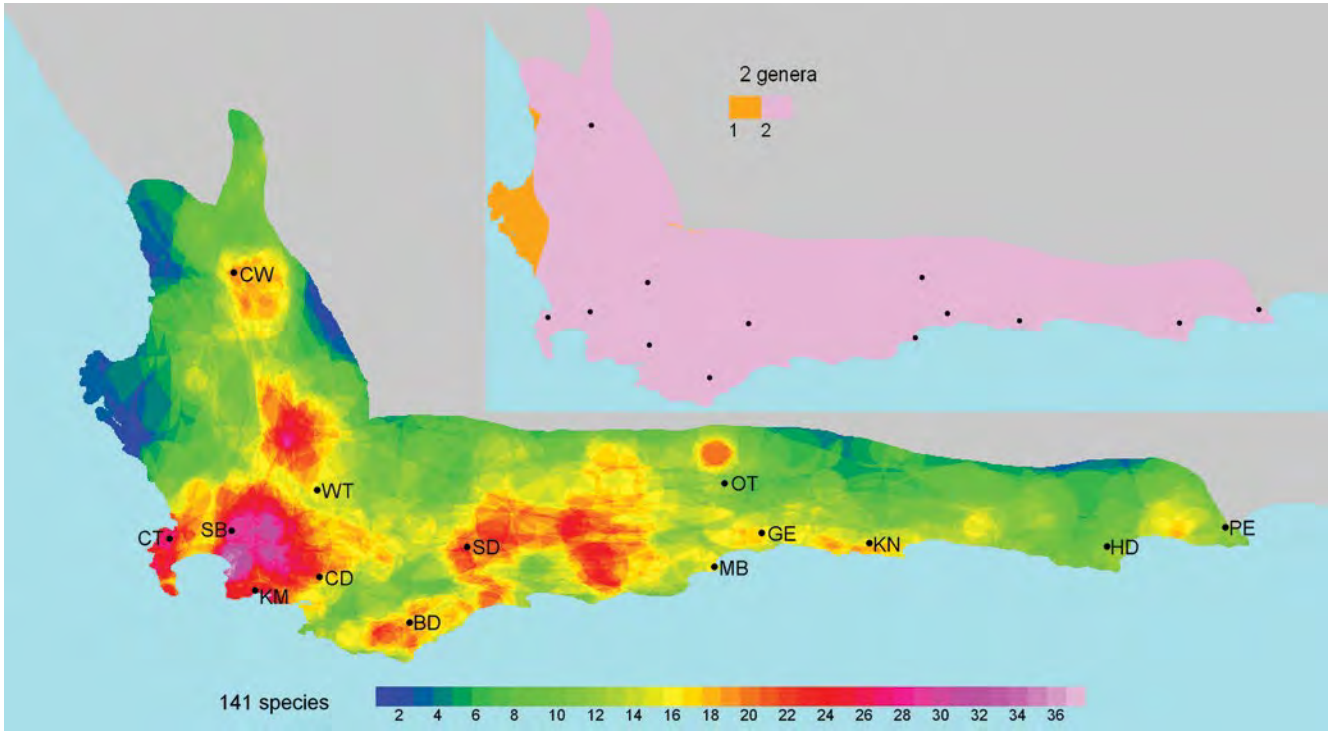
Plumbaginaceae


61 genera
5 10 15 20 25 30 35 40 45 50
CW
WT
OT
CT
SB
SD
GE
KN
HD
PE
CD
MB
KM
BD
212 species
10 20 30 40 50 60 70 80 90

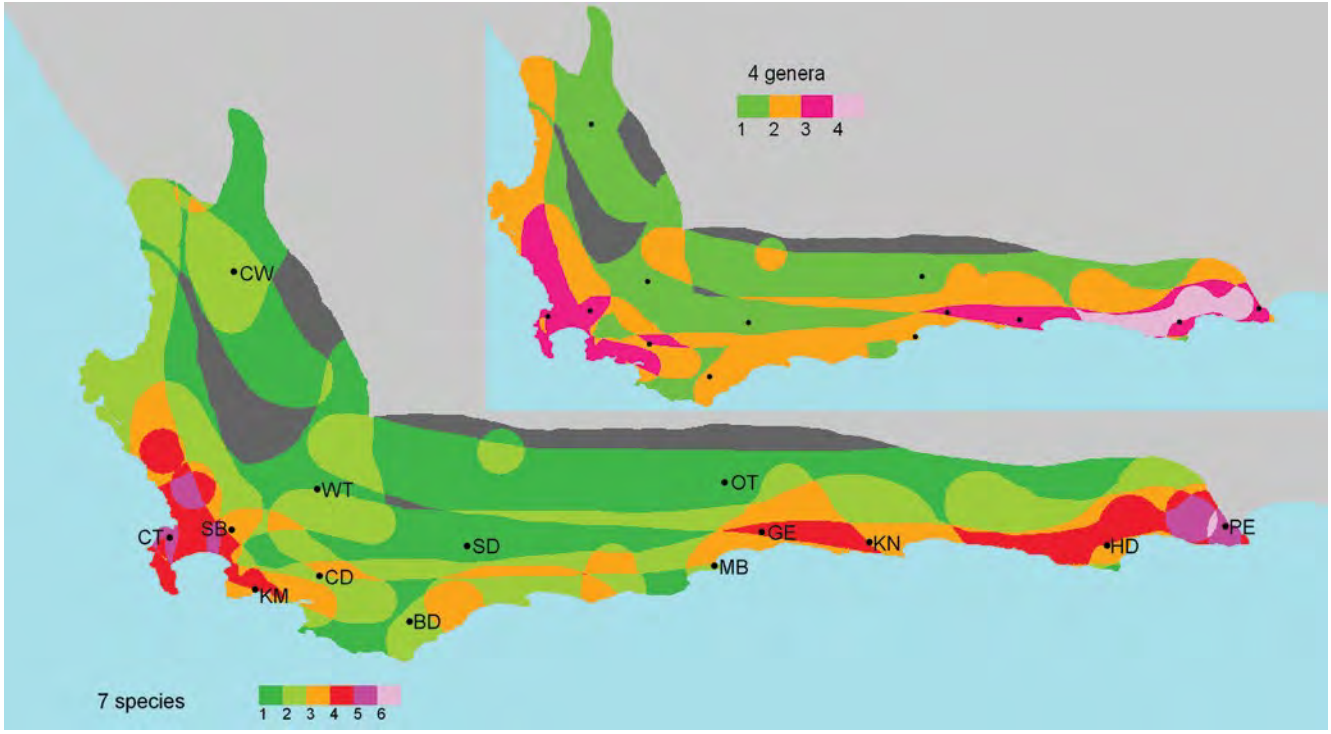
Poaceae



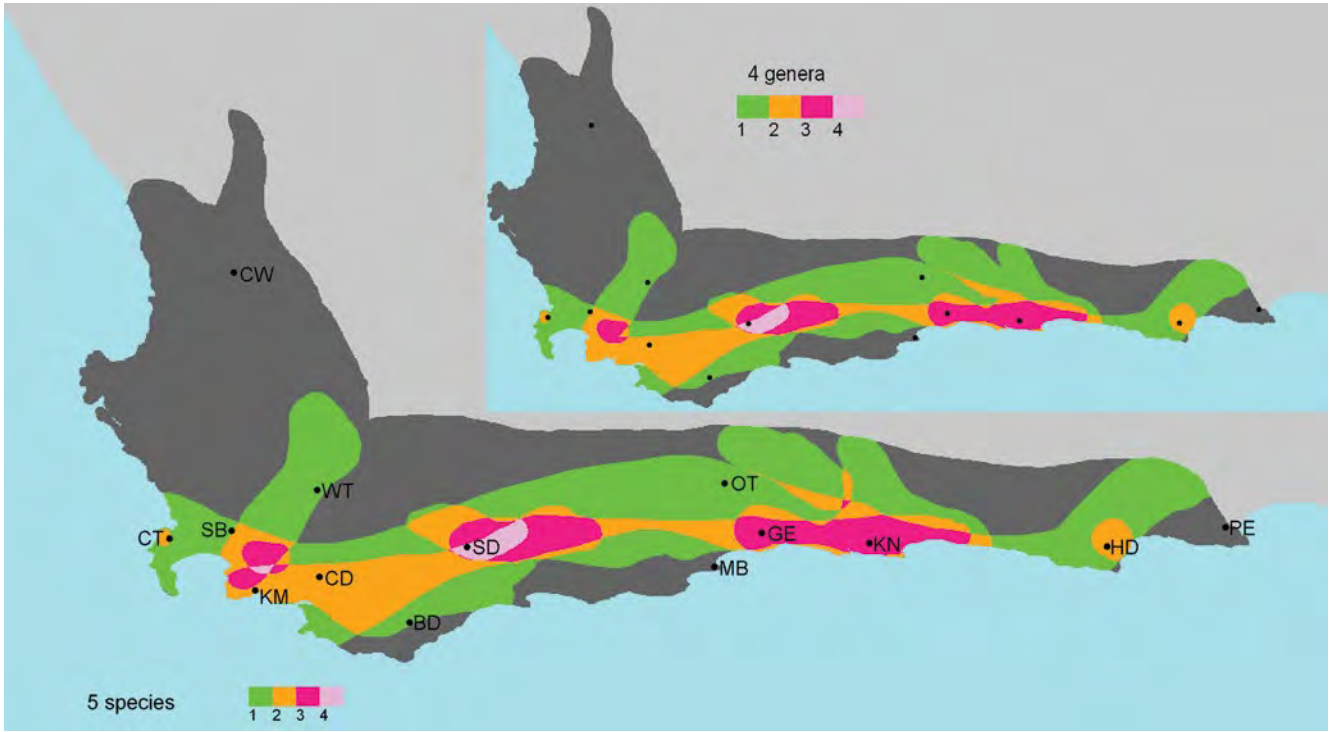
Podocarpaceae



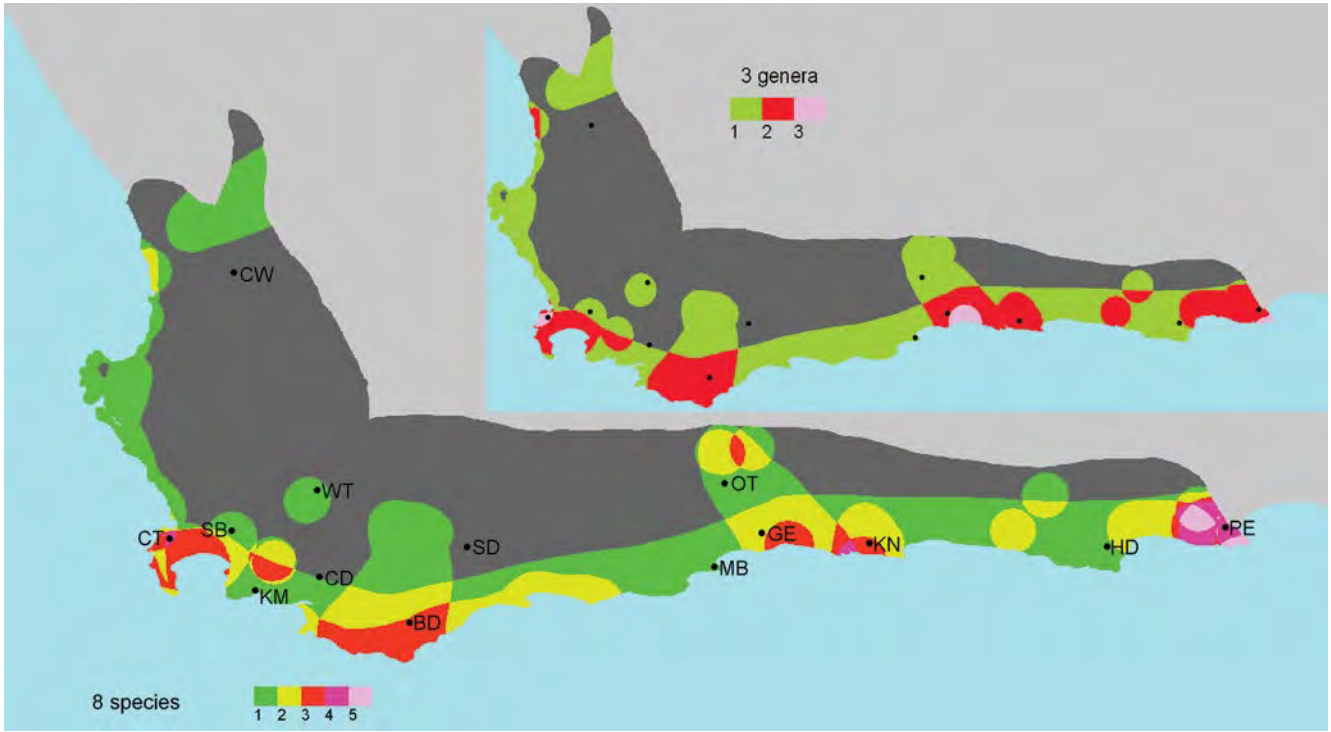
Polygalaceae



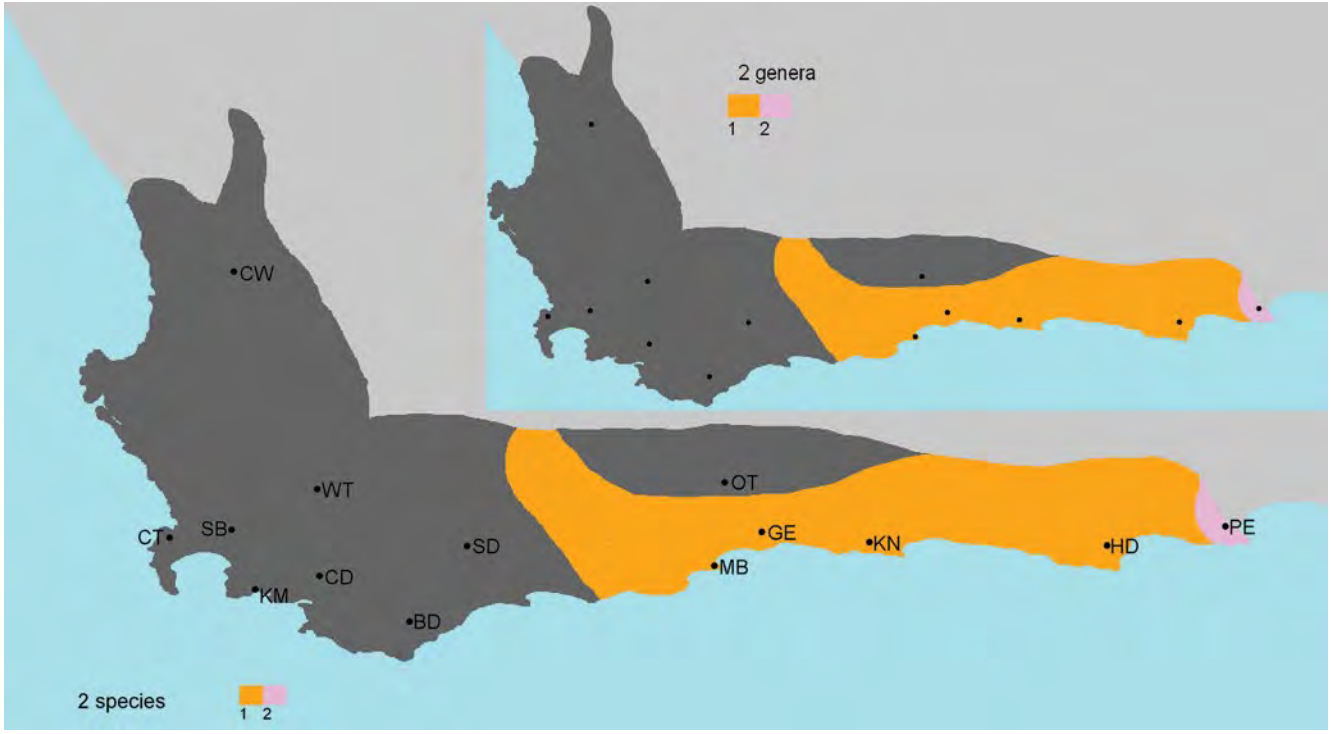
Polygonaceae



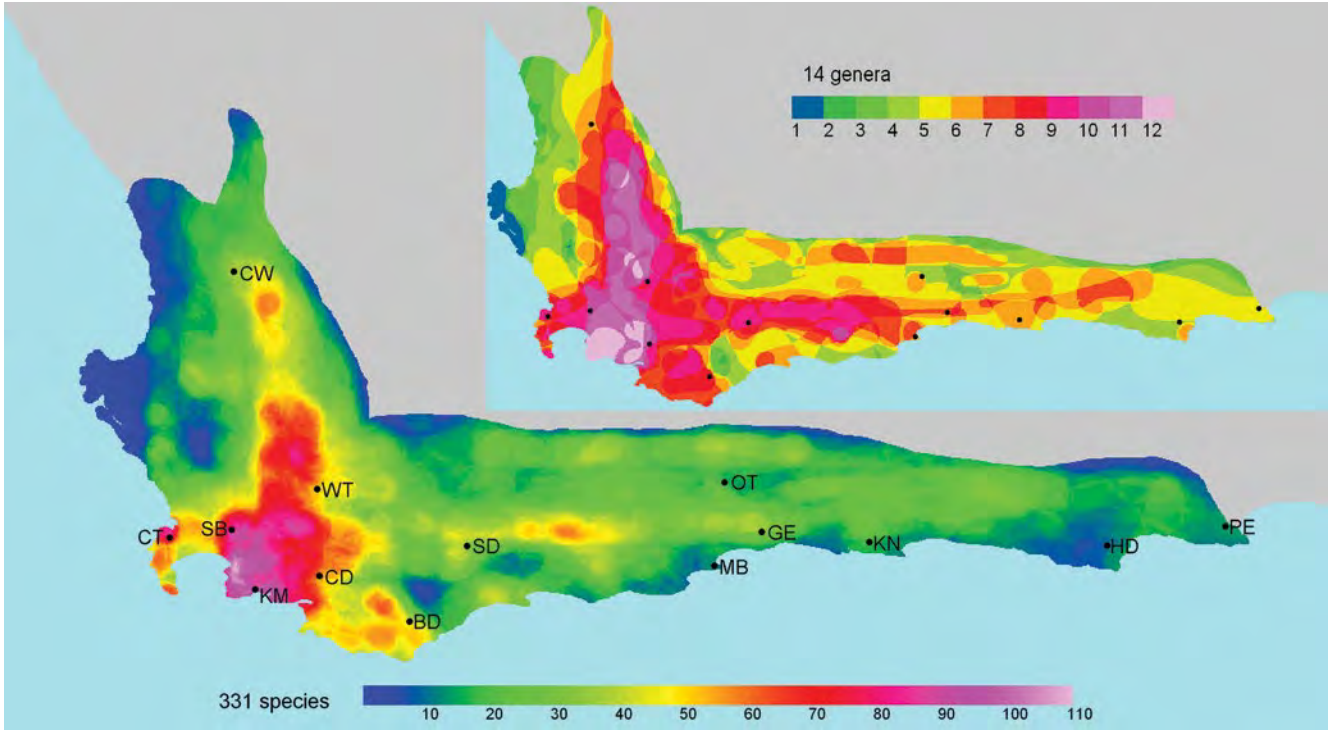
Polypodiaceae



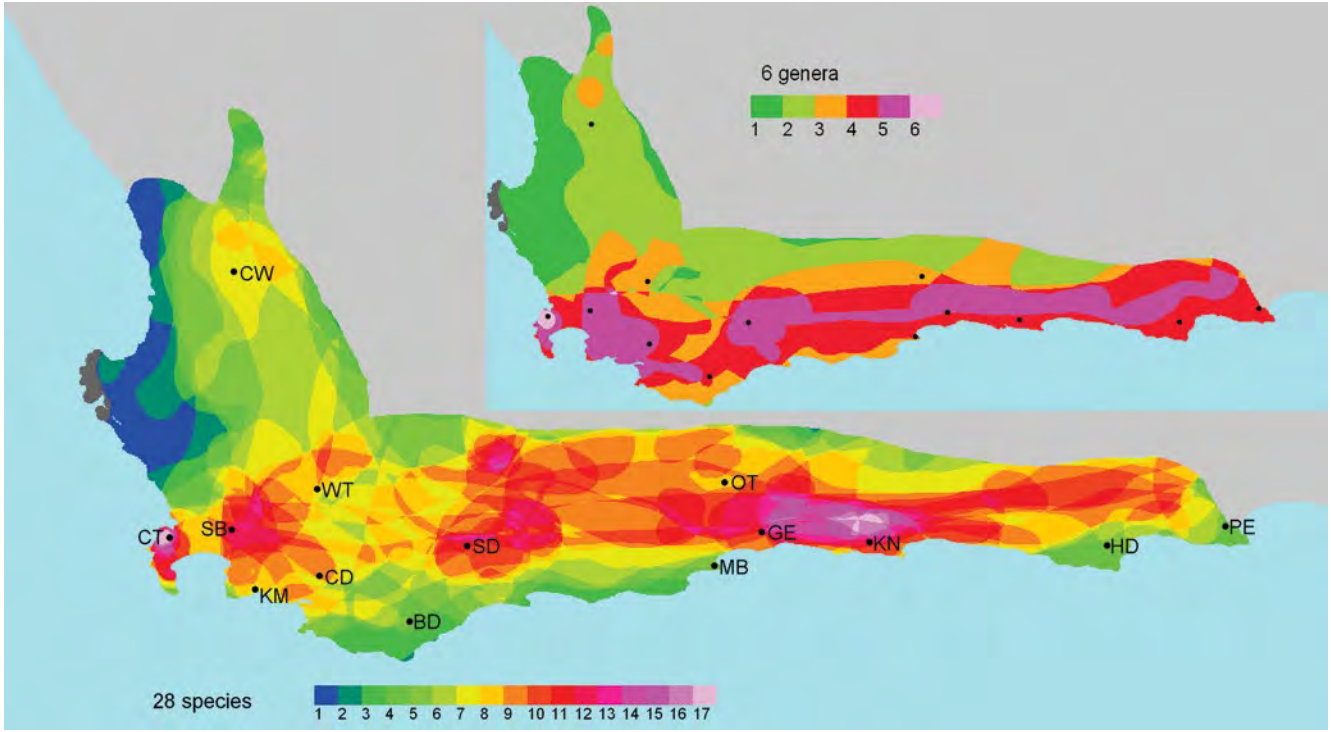
Potamogetonaceae



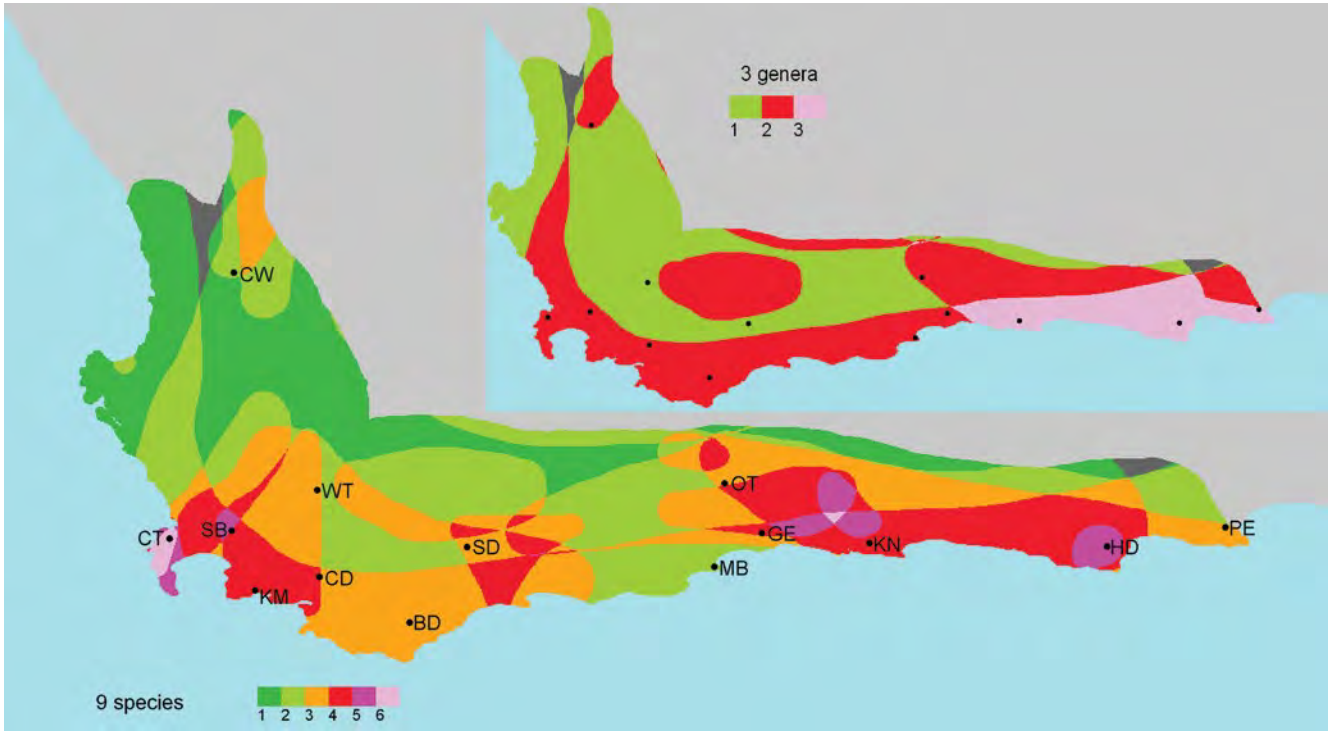
Primulaceae


14 genera
1 2 3 4 5 6 7 8 9 10 11 12
CW
WT
CT
SB
CD
KM
BD
SD
OT
GE
KN
MB
HD
PE
331 species
10 20 30 40 50 60 70 80 90 100 110

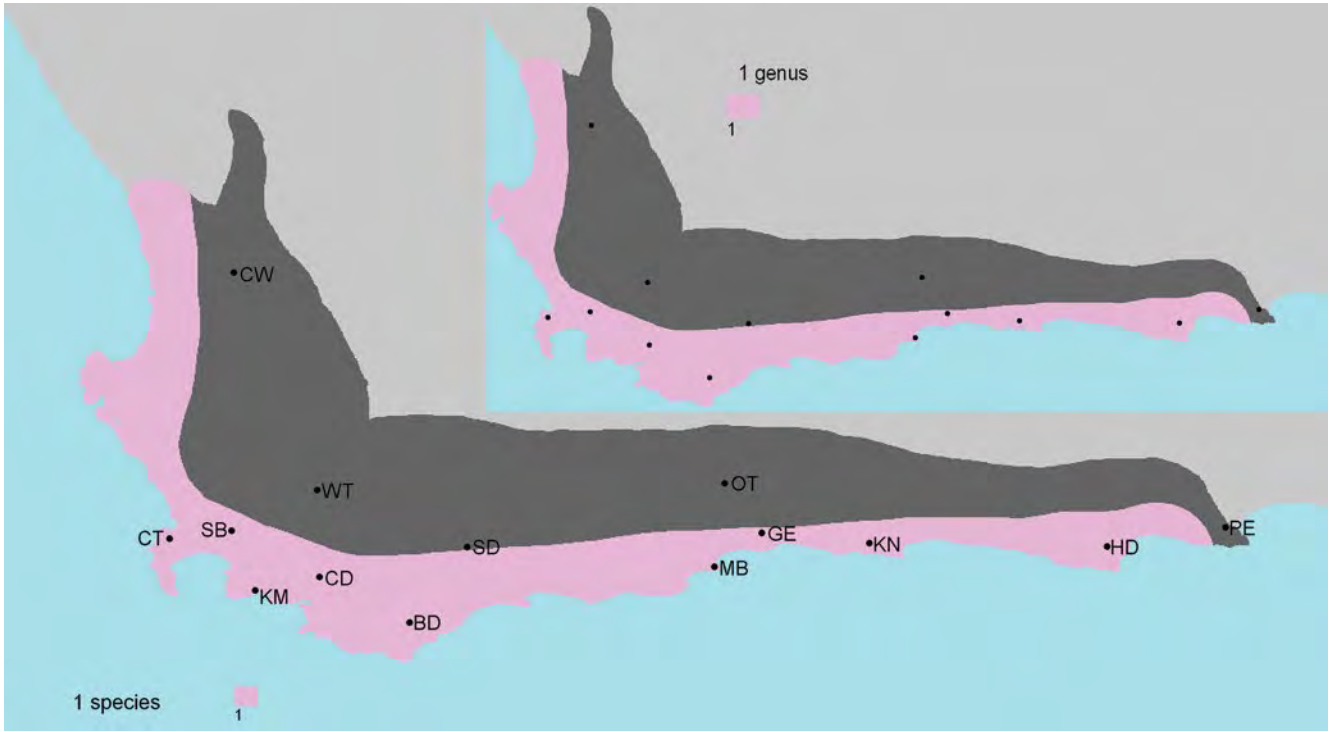
Proteaceae



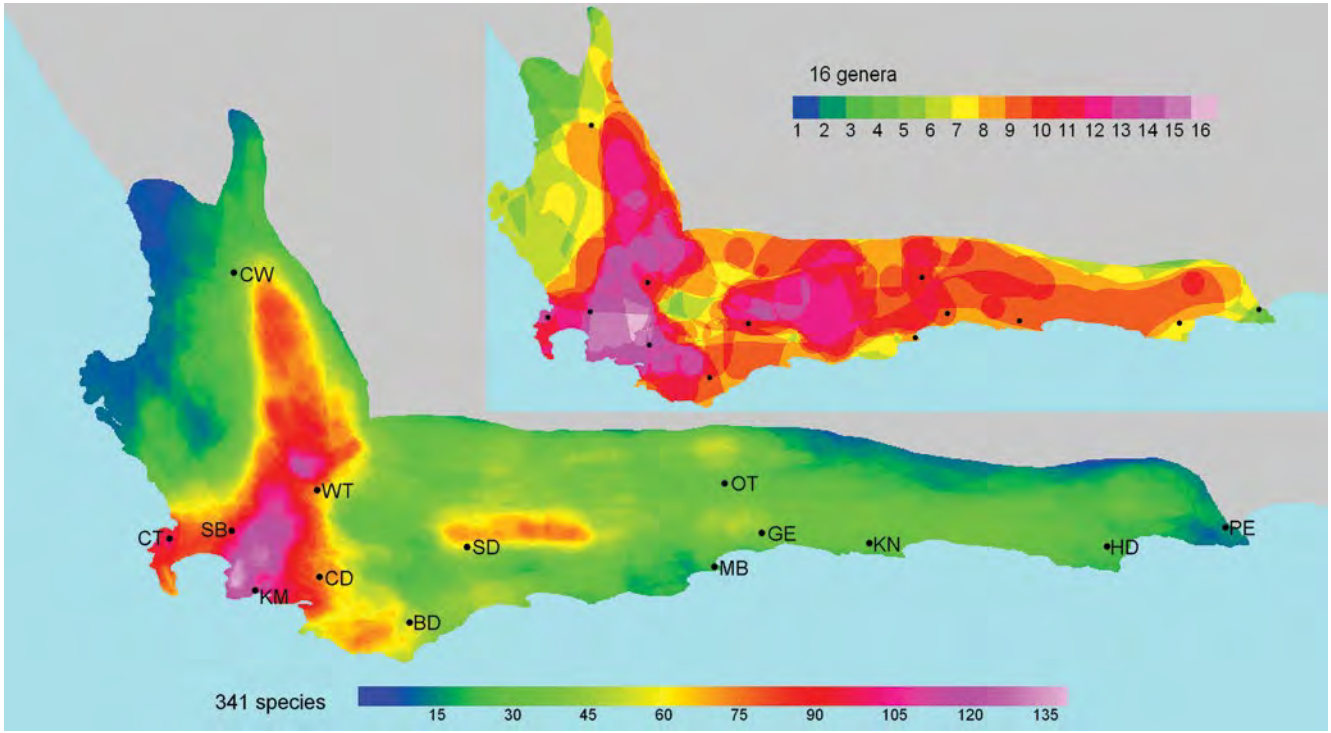
Pteridaceae



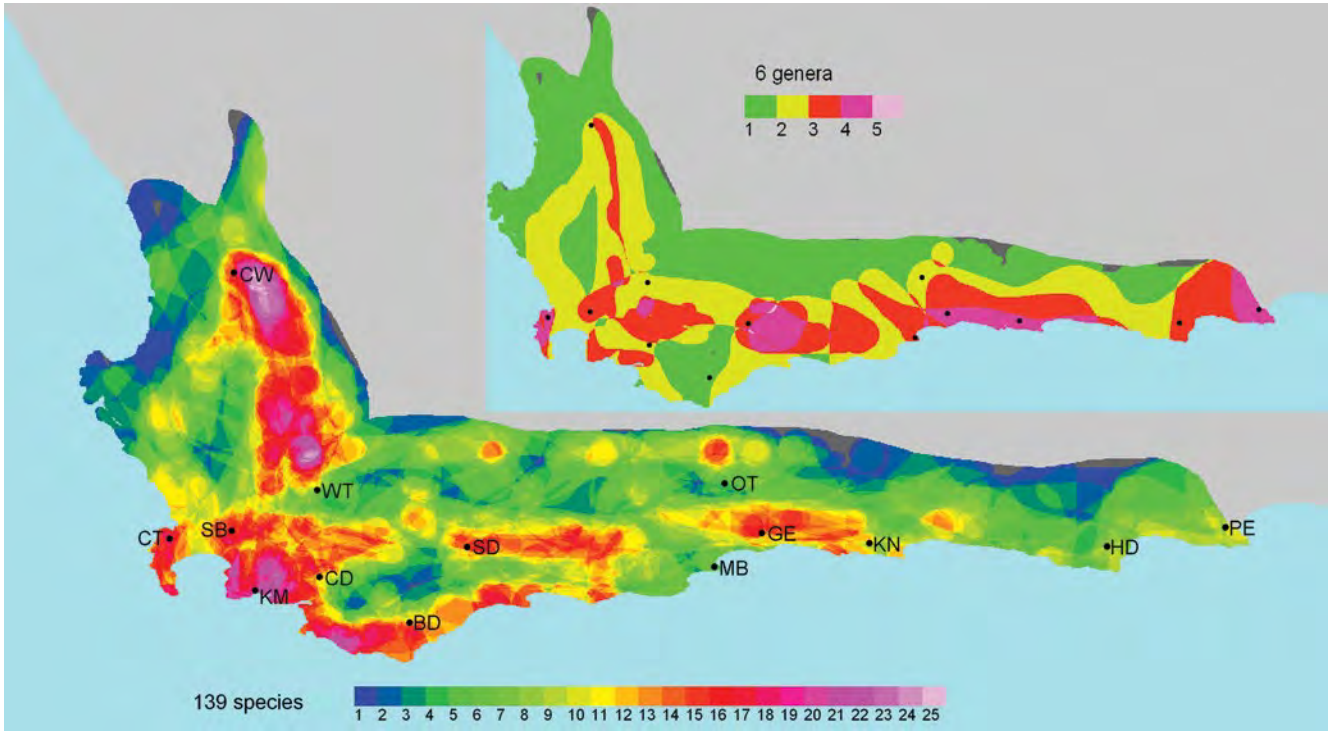
Ranunculaceae



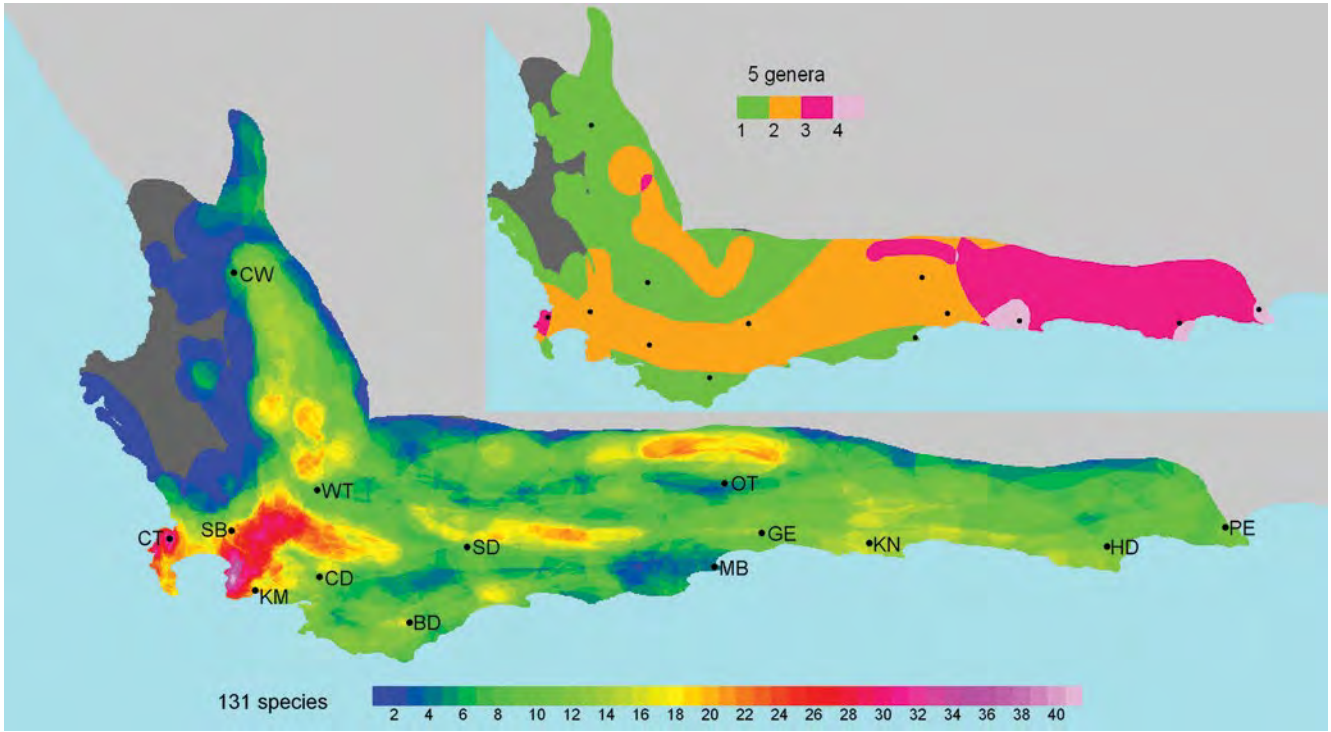
Resedaceae



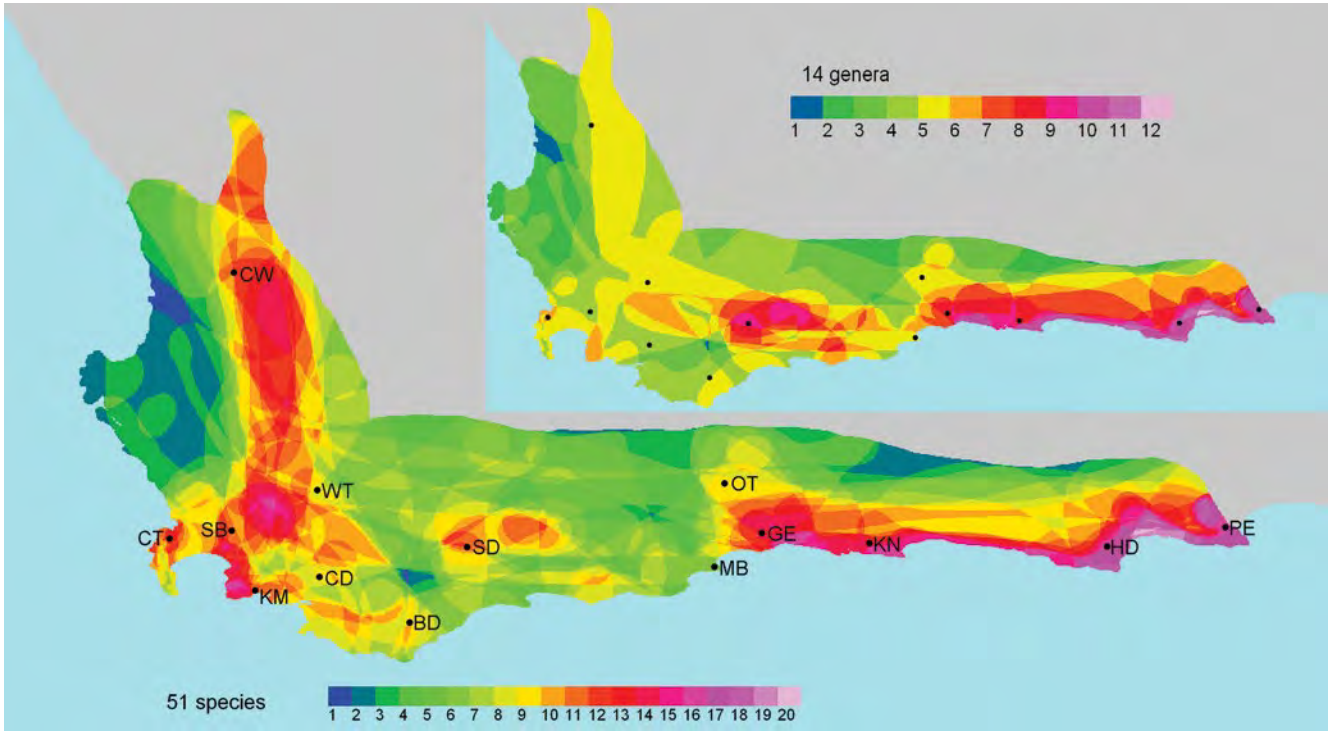
Restionaceae


6 genera
1 2 3 4 5
CW
WT
OT
CT
SB
SD
GE
KN
HD
PE
CD
MB
KM
BD
139 species
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

Rhamnaceae


5 genera
1 2 3 4
CW
WT
OT
CT
SB
SD
GE
KN
HD
PE
CD
MB
KM
BD
131 species
2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40

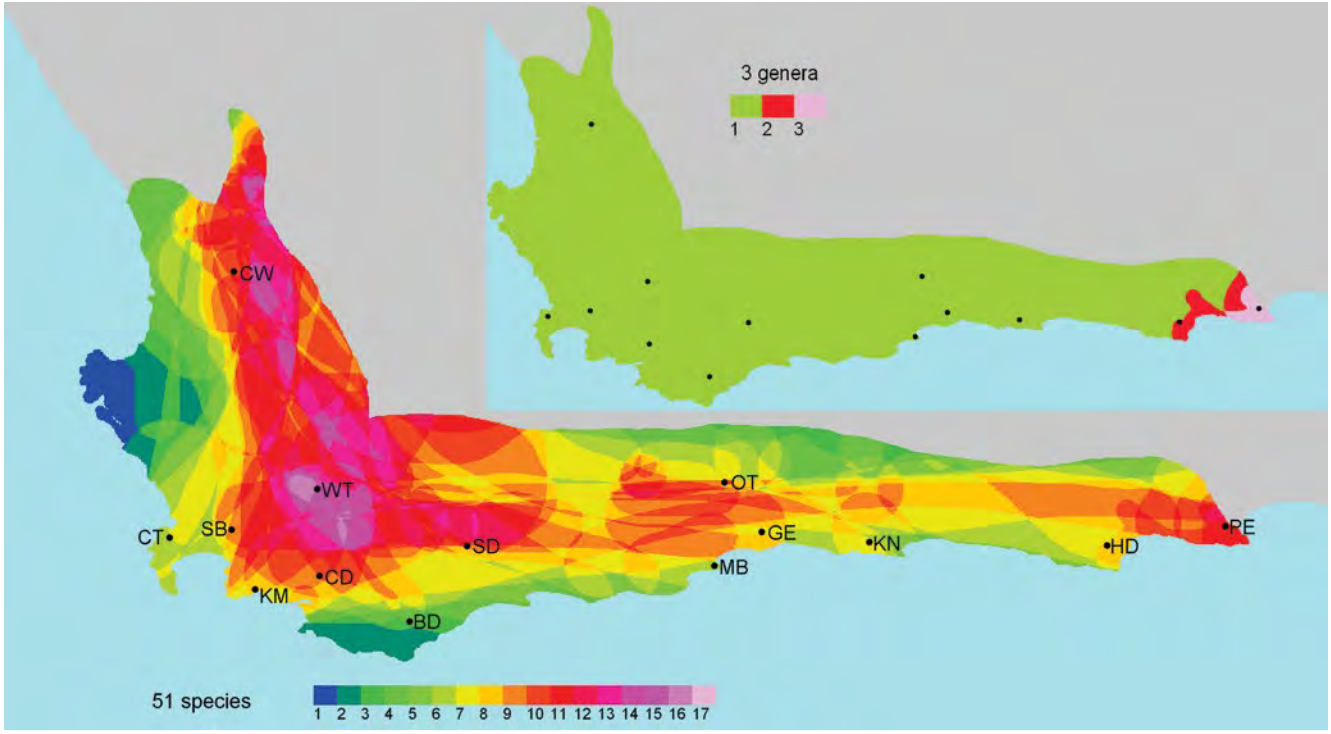
Rosaceae


14 genera
1 2 3 4 5 6 7 8 9 10 11 12
CW
WT
CT
SB
SD
CD
KM
BD
OT
GE
KN
HD
PE
MB
51 species
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

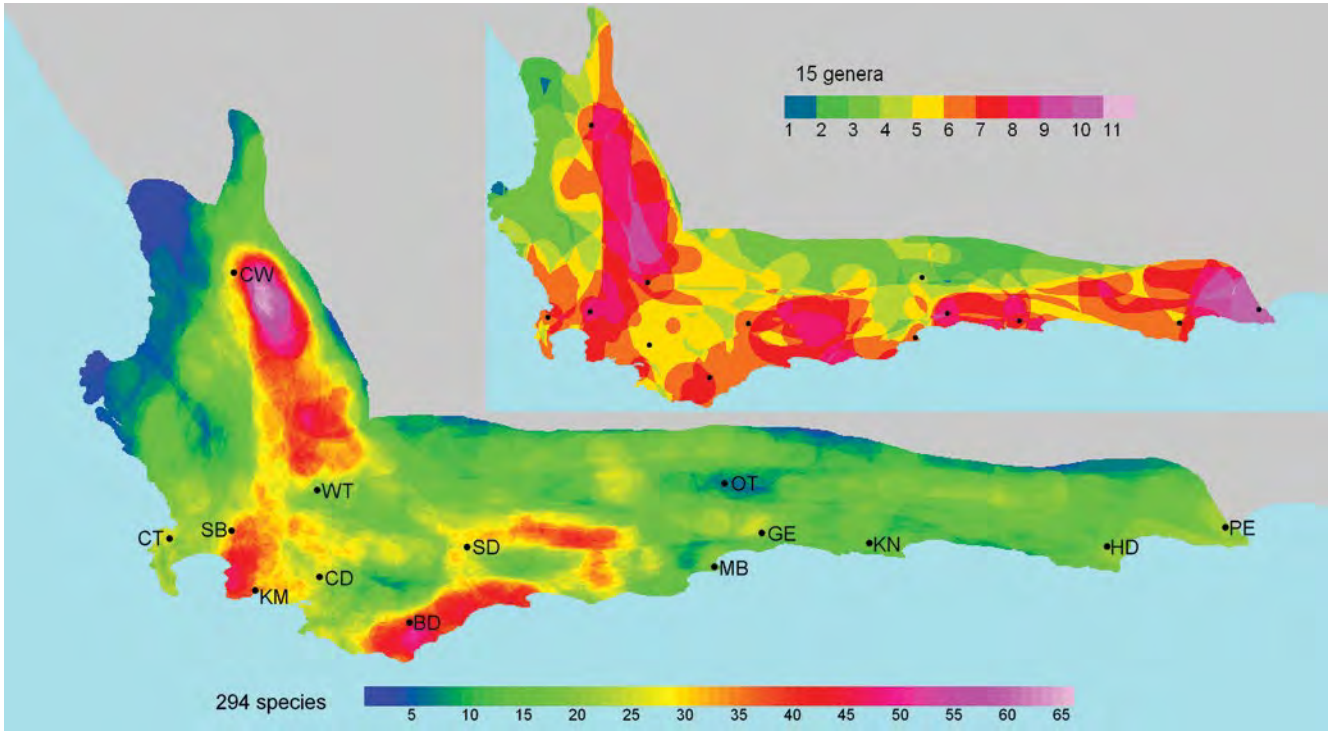
Rubiaceae



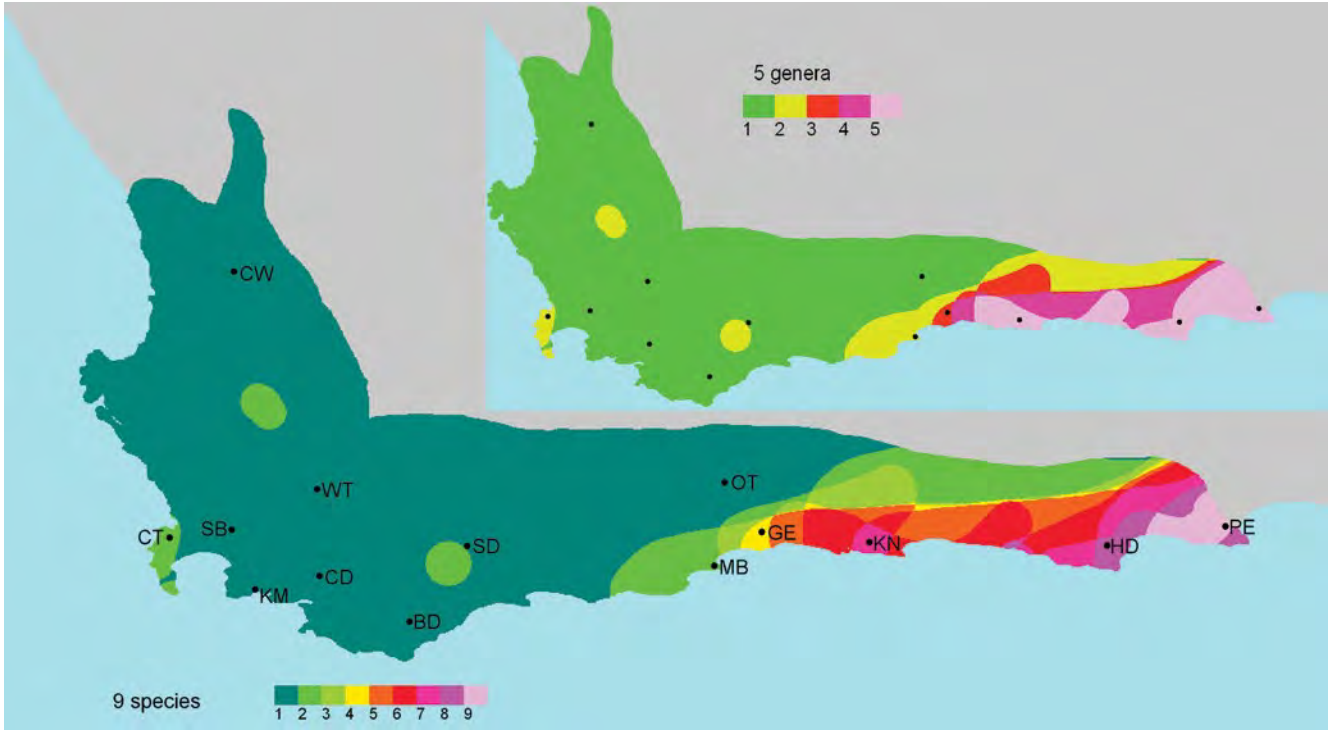
Ruppiaceae


3 genera
1 2 3
CW
WT
OT
CT
SB
SD
GE
KN
HD
PE
CD
MB
KM
BD
51 species
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

Ruscaceae


15 genera
1 2 3 4 5 6 7 8 9 10 11
CW
WT
OT
CT
SB
SD
GE
KN
HD
PE
MB
CD
KM
BD
294 species
5 10 15 20 25 30 35 40 45 50 55 60 65

Rutaceae

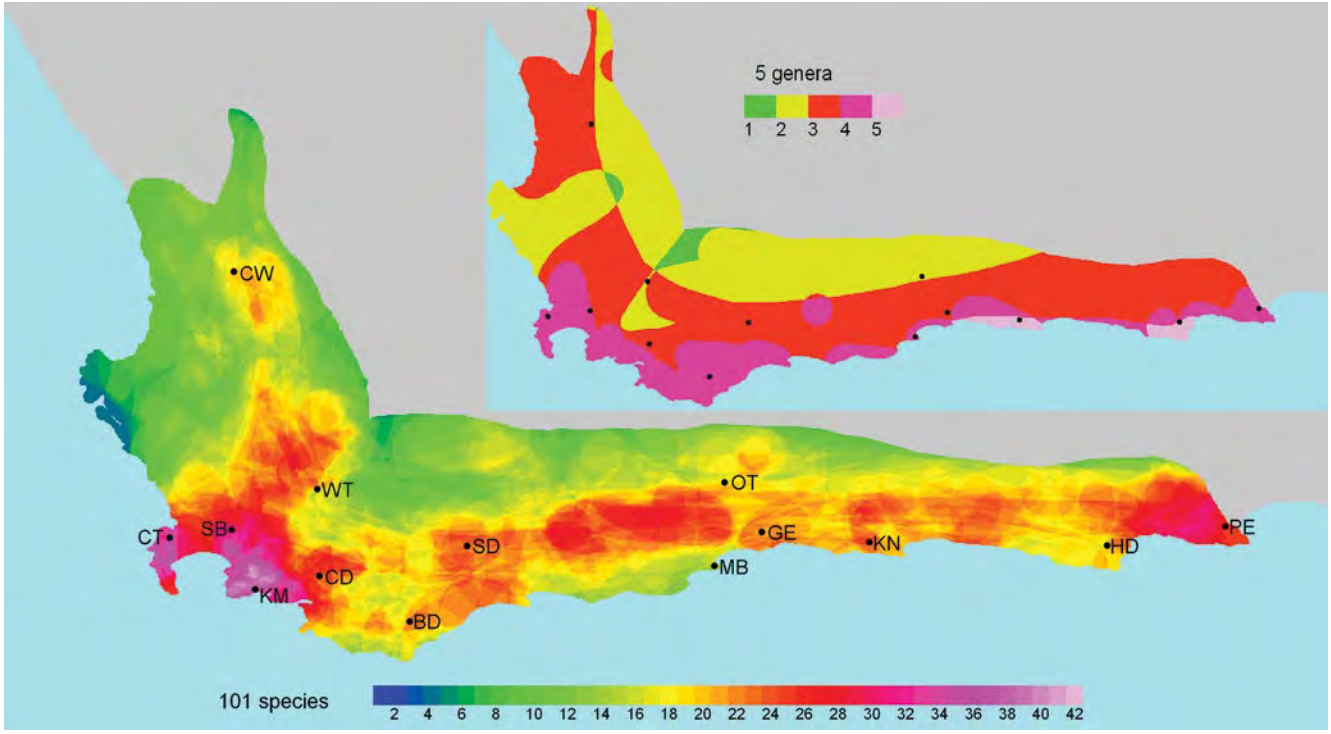

5 genera
1 2 3 4 5
CW
WT
OT
CT
SB
SD
GE
KN
HD
PE
MB
CD
KM
BD
9 species
1 2 3 4 5 6 7 8 9

Salicaceae

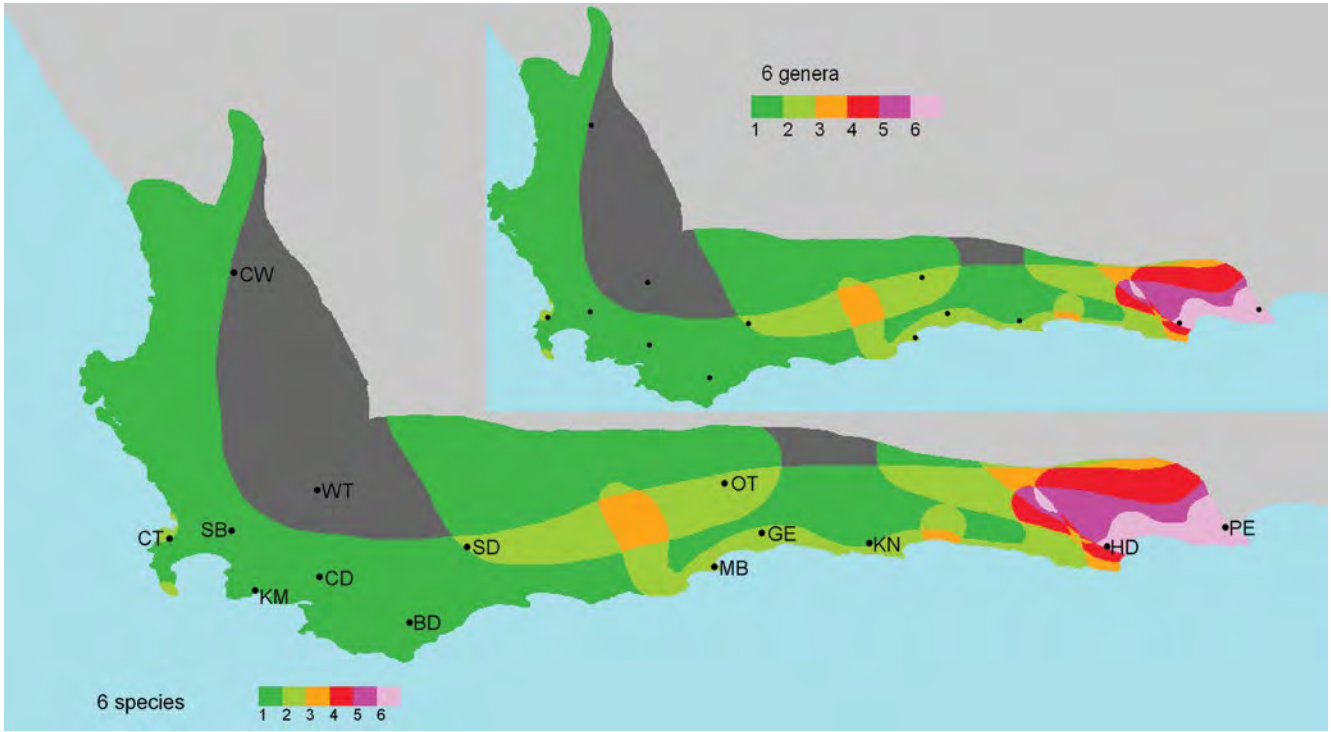


S

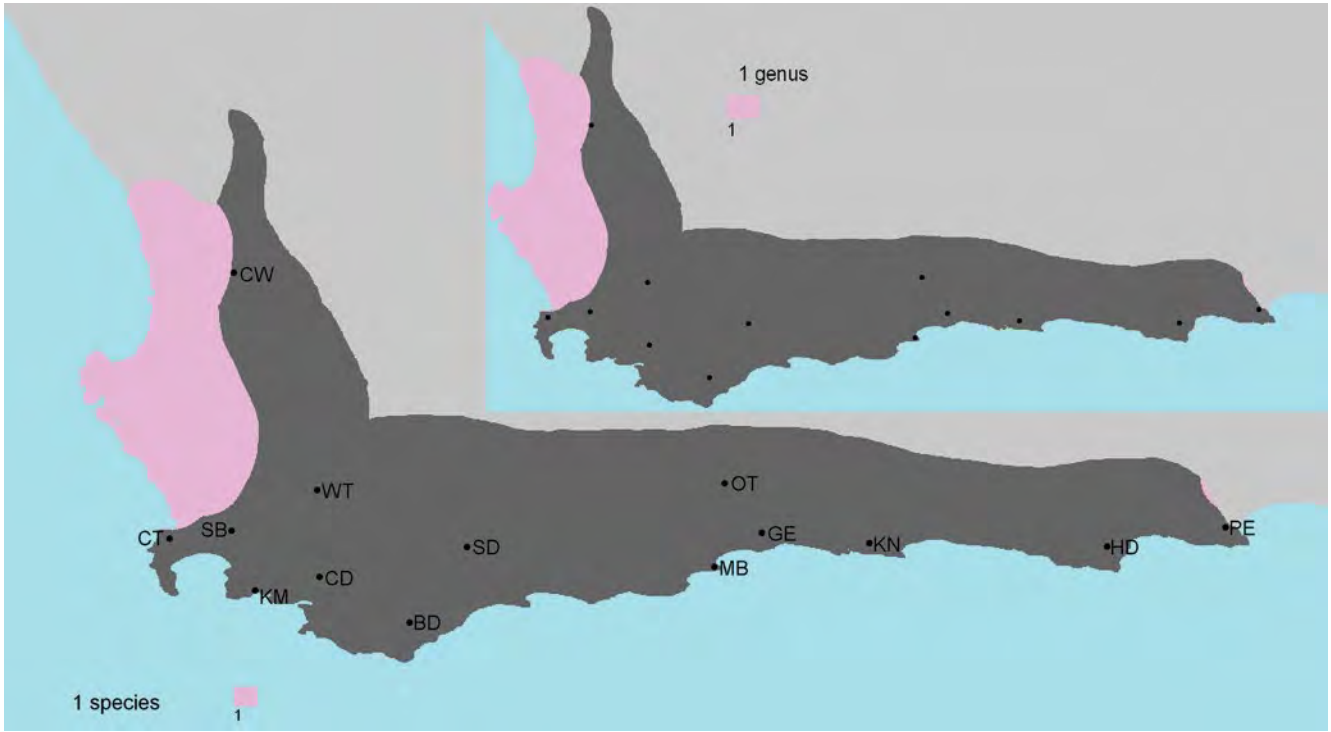
Salvadoraceae



Santalaceae

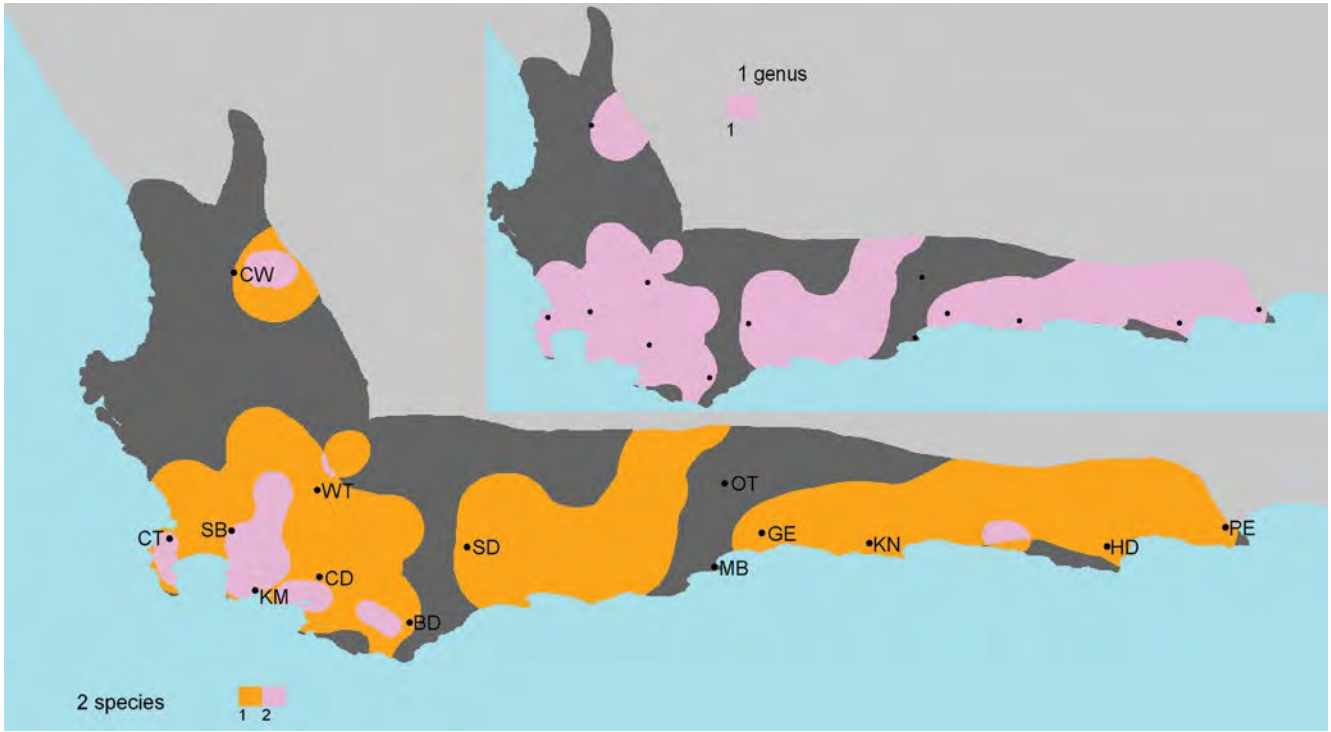


Sapindaceae



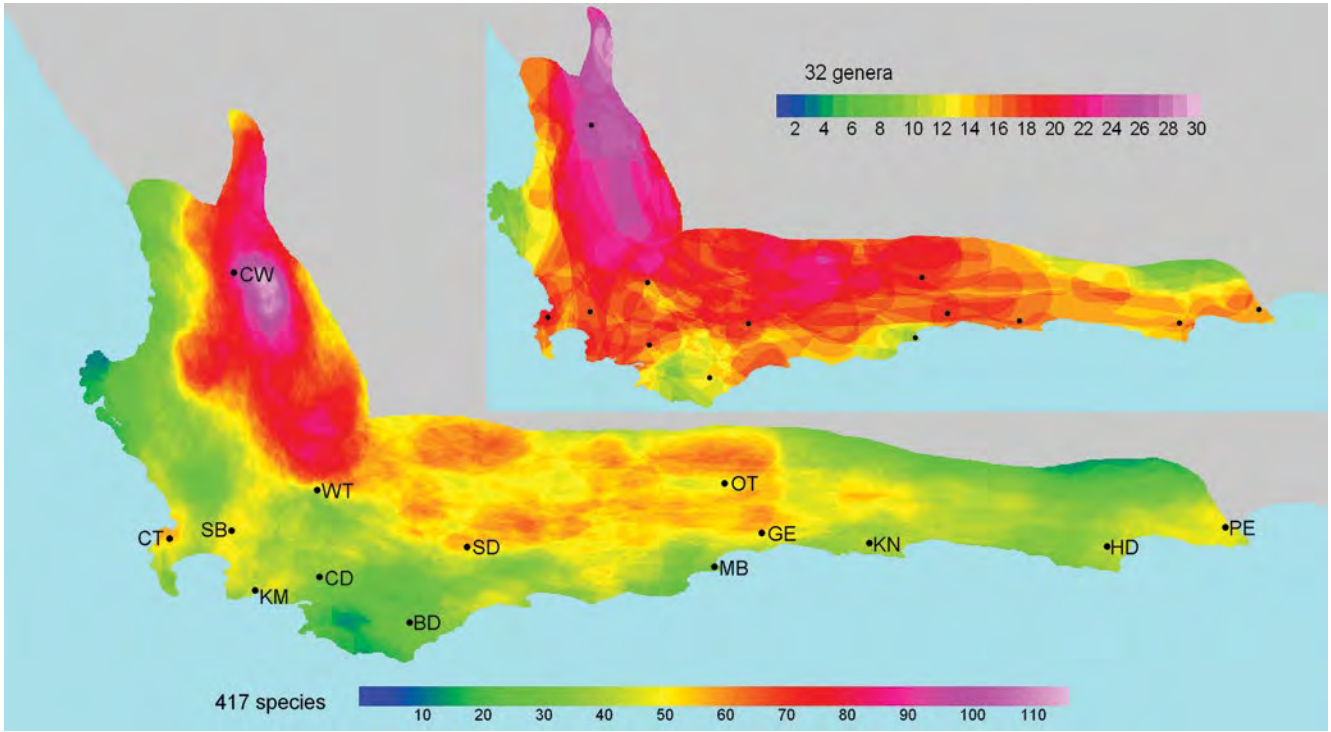
S

Sapotaceae

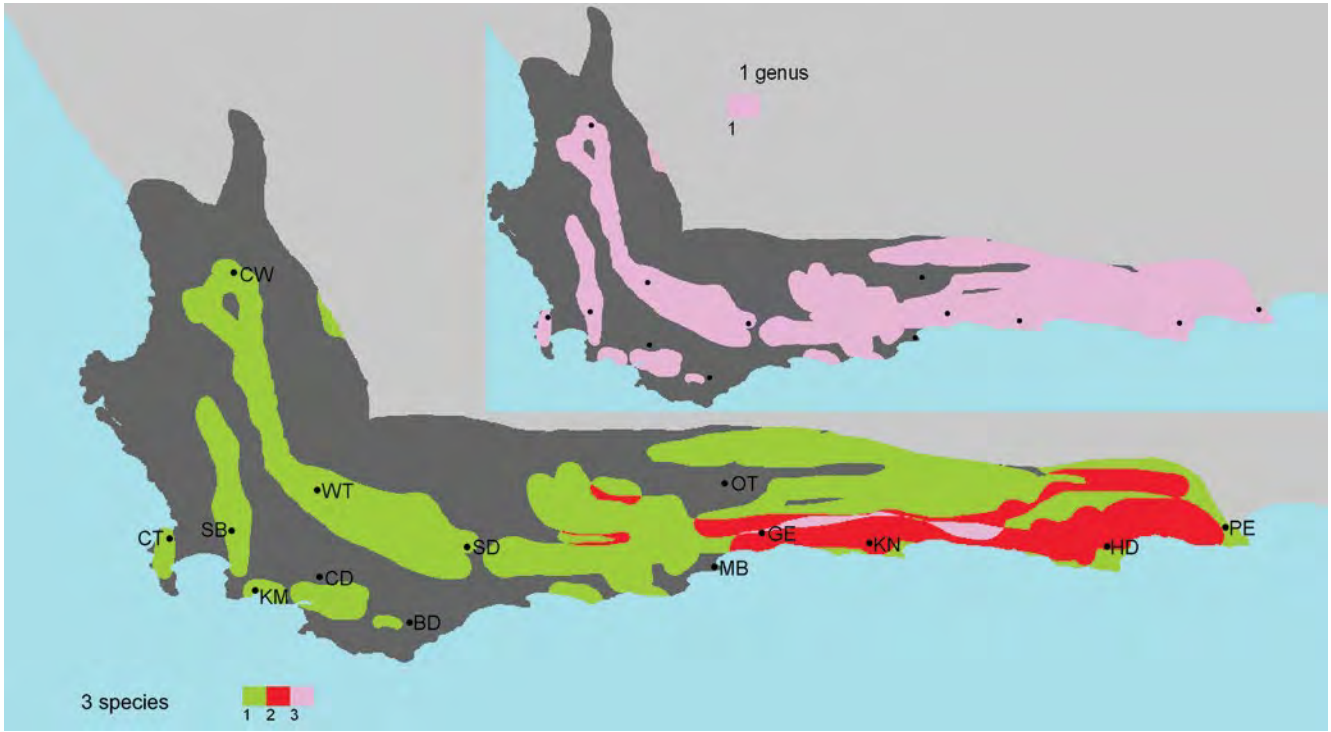


S

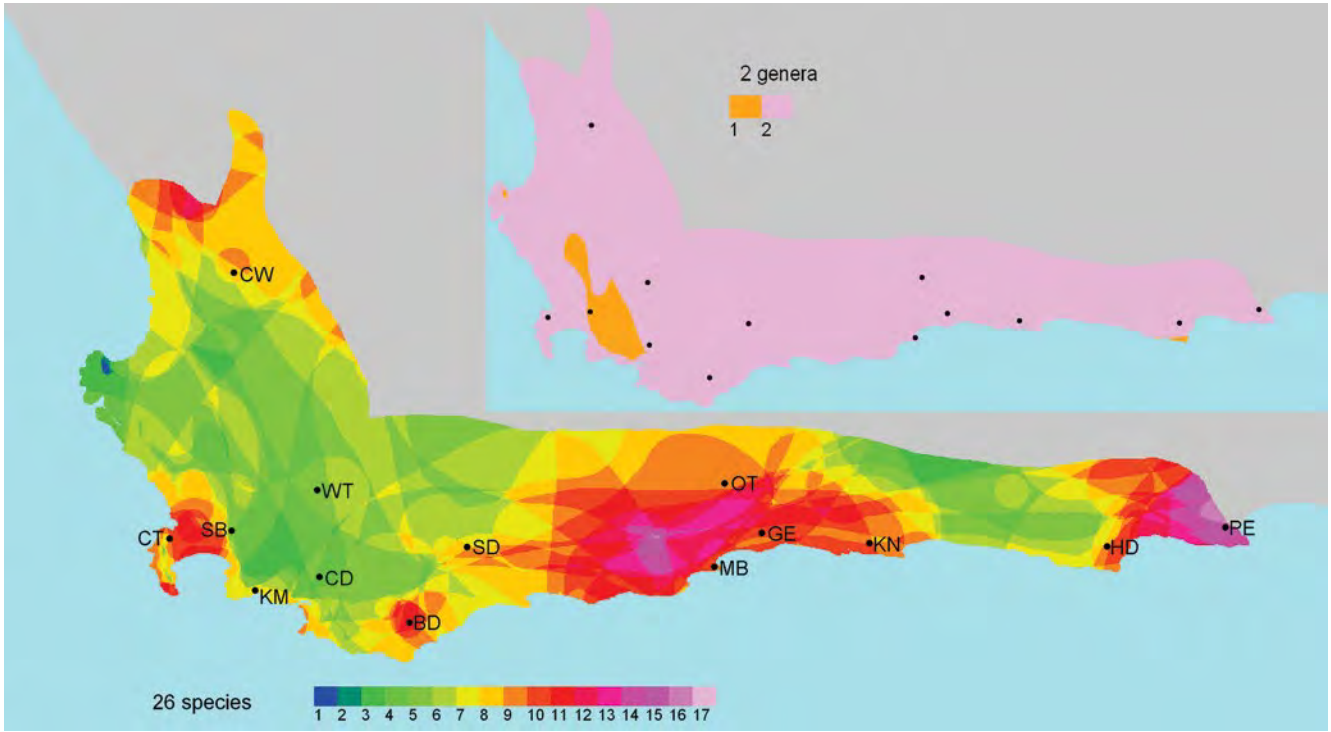
Schizaeaceae



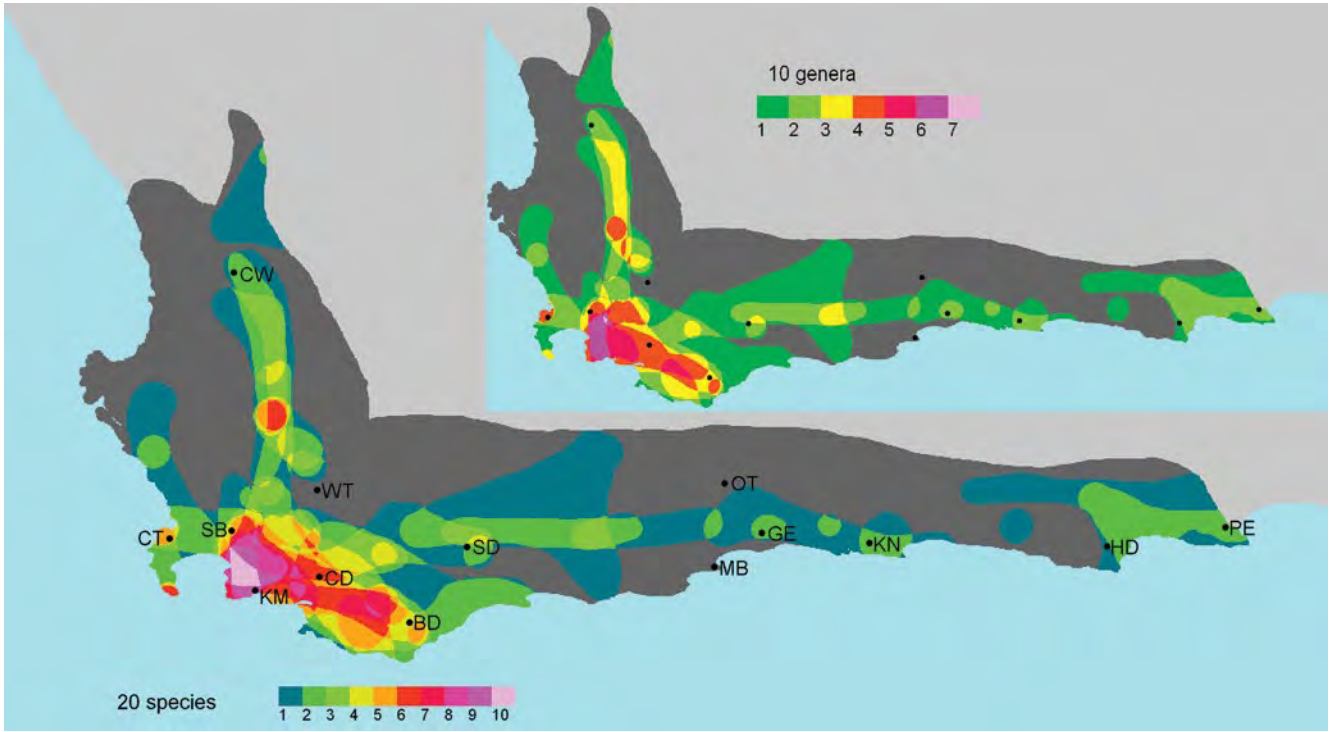
Scrophulariaceae



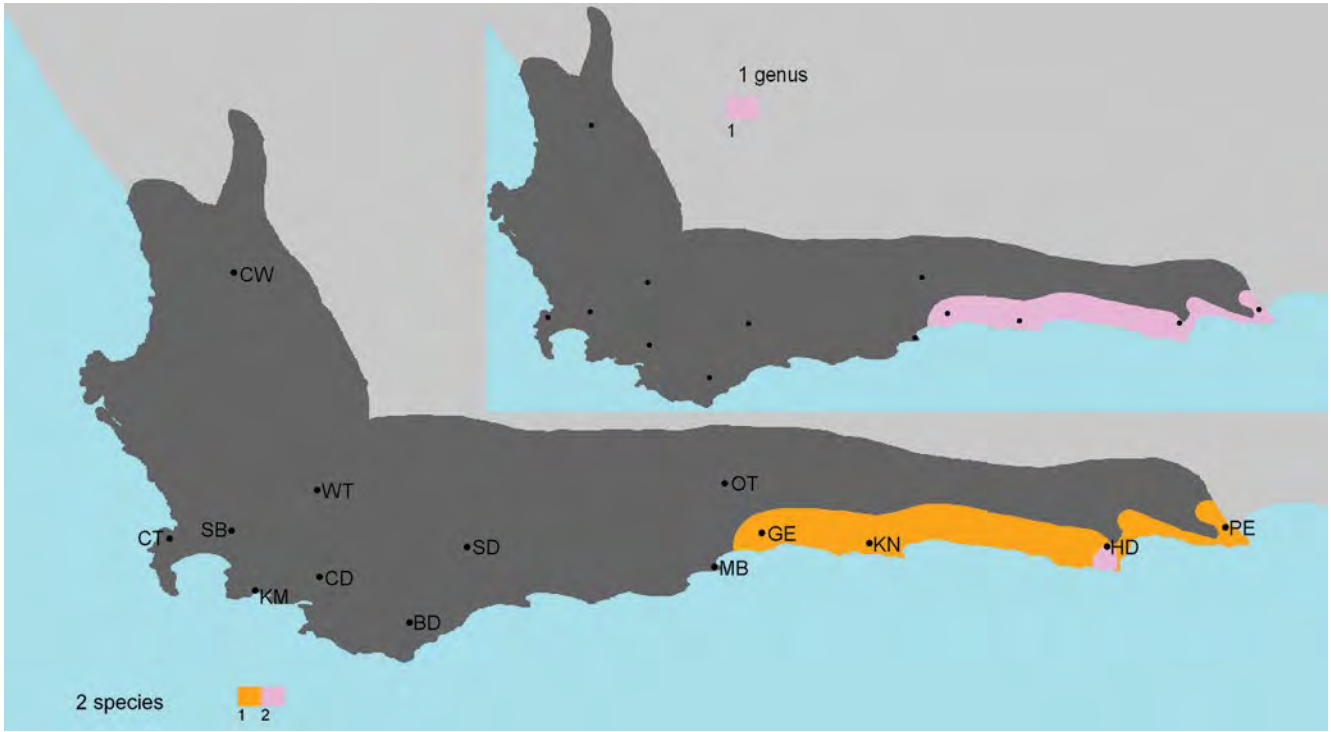
Selaginellaceae


2 genera
1 2
CW
WT
OT
CT
SB
SD
GE
KN
HD
PE
CD
MB
KM
BD
26 species
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

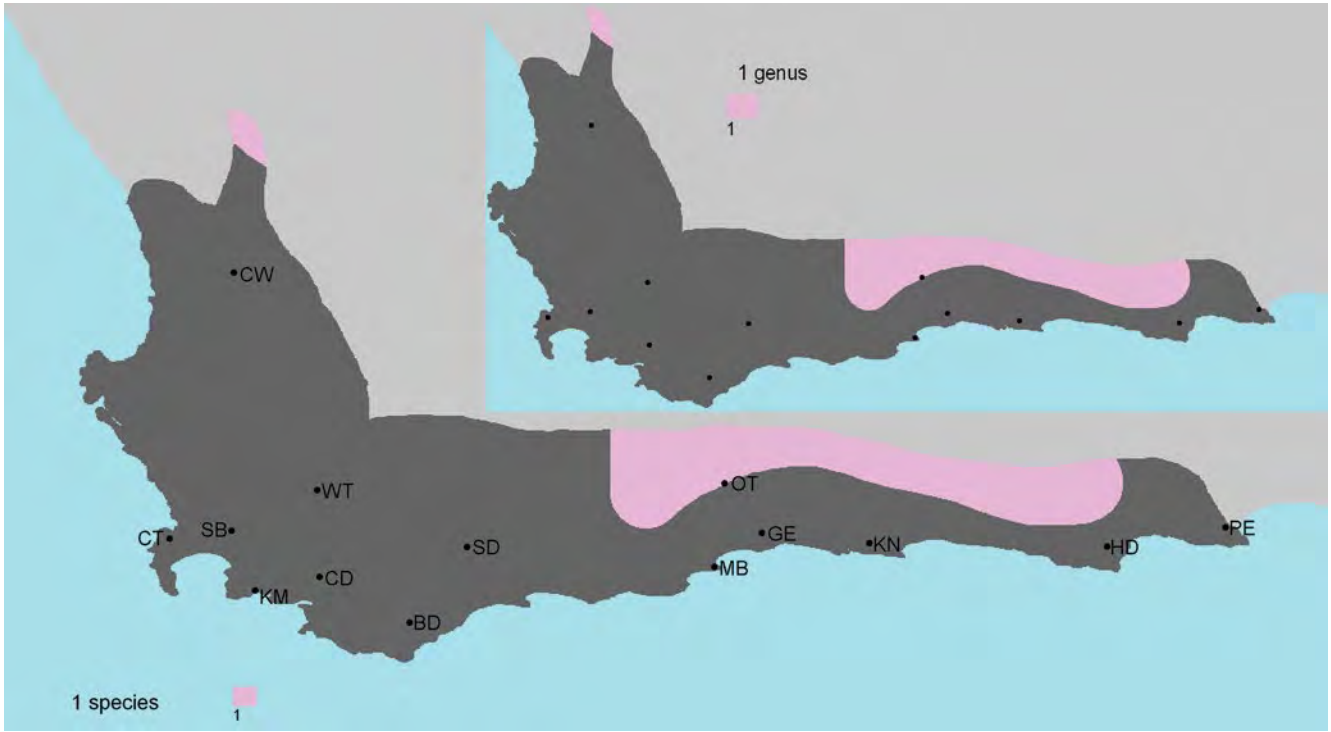
Solanaceae


10 genera
1 2 3 4 5 6 7
CW
WT
CT
SB
SD
CD
KM
BD
OT
GE
KN
MB
HD
PE
20 species
1 2 3 4 5 6 7 8 9 10

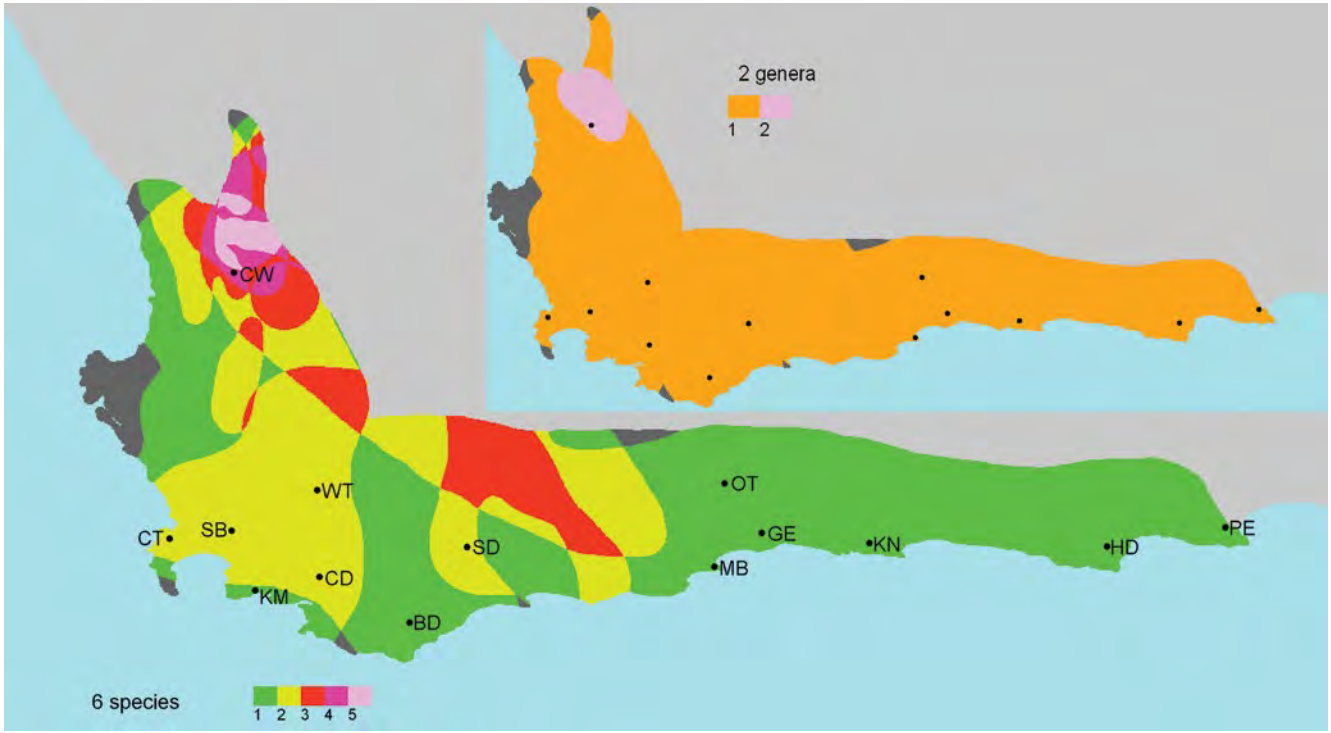
Stilbaceae



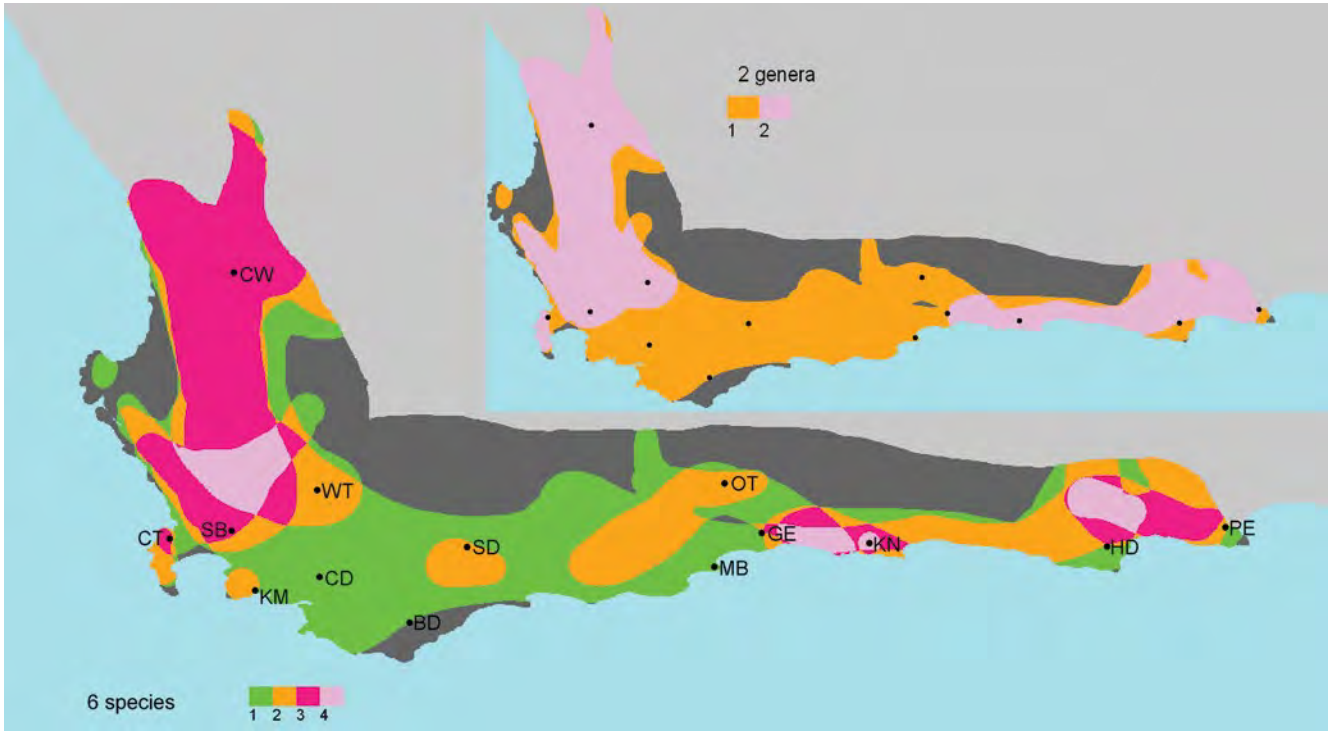
Strelitziaceae



Tamaricaceae



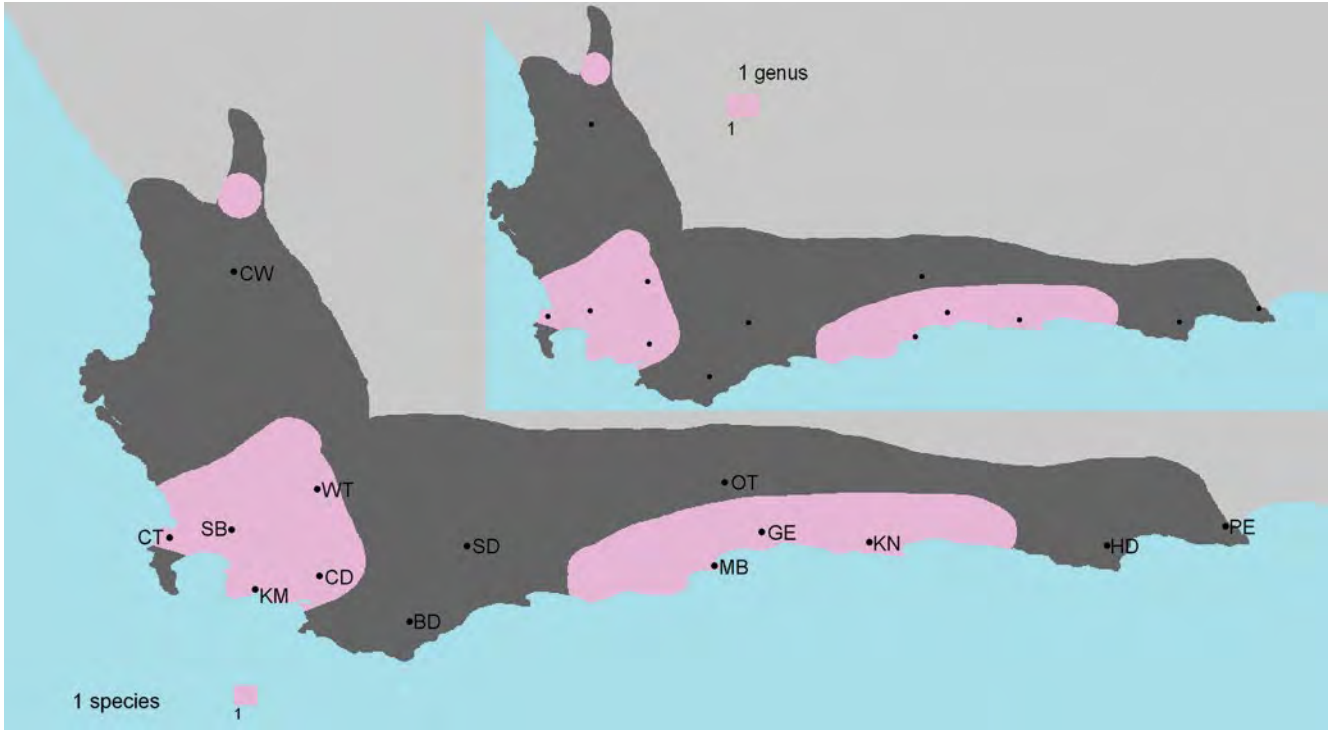
Tecophilaeaceae



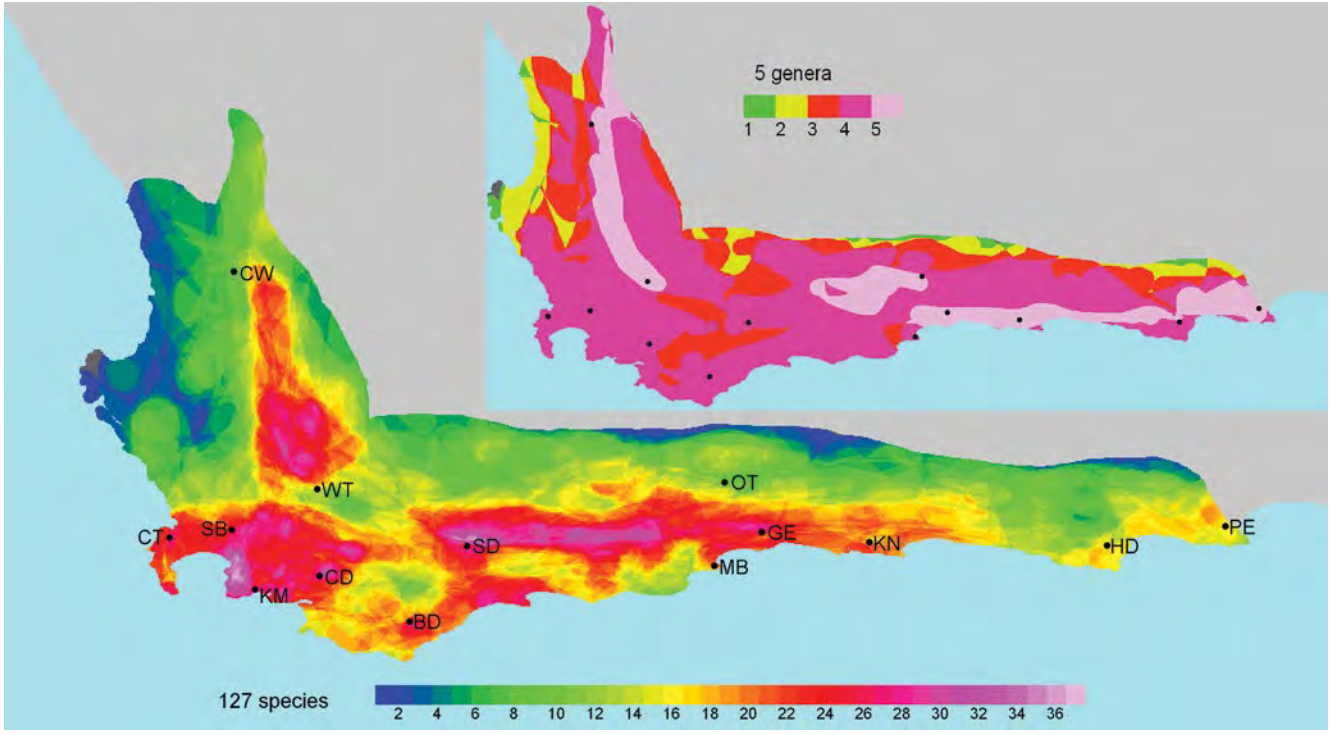
Thelypteridaceae



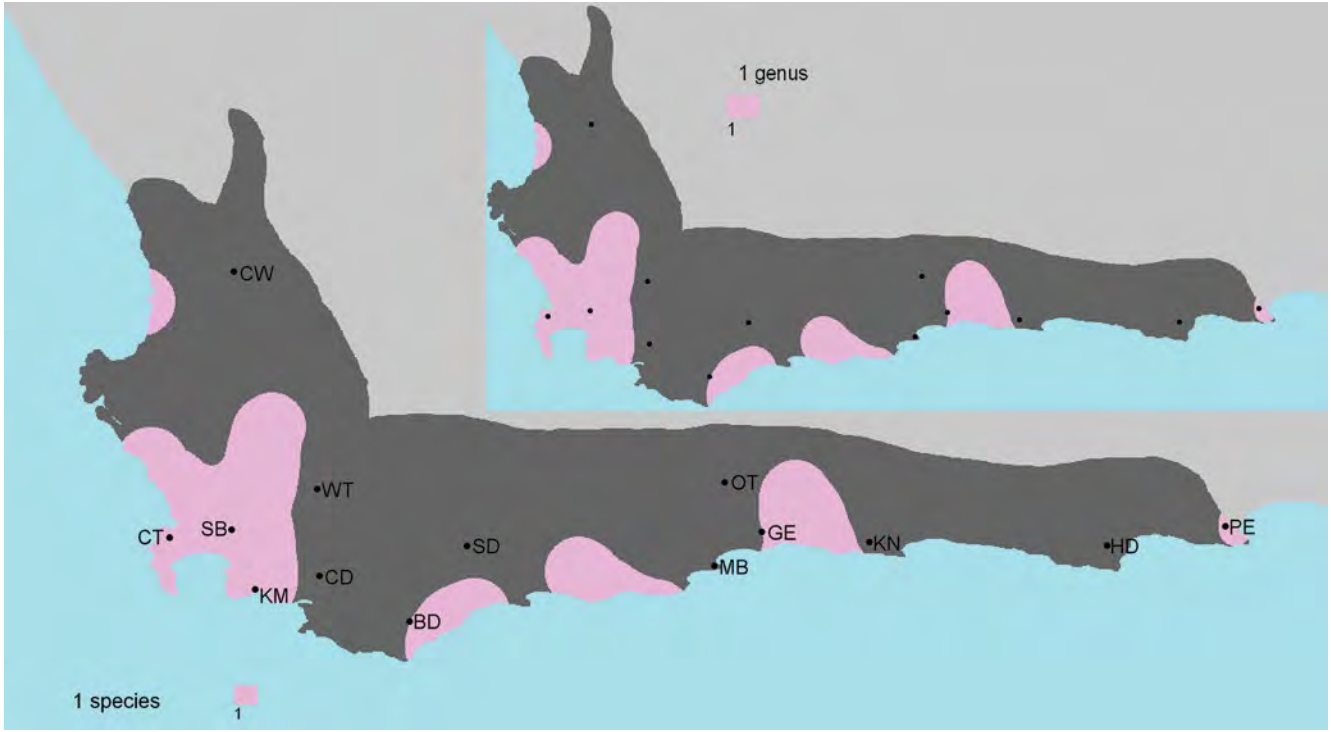
Theophrastaceae



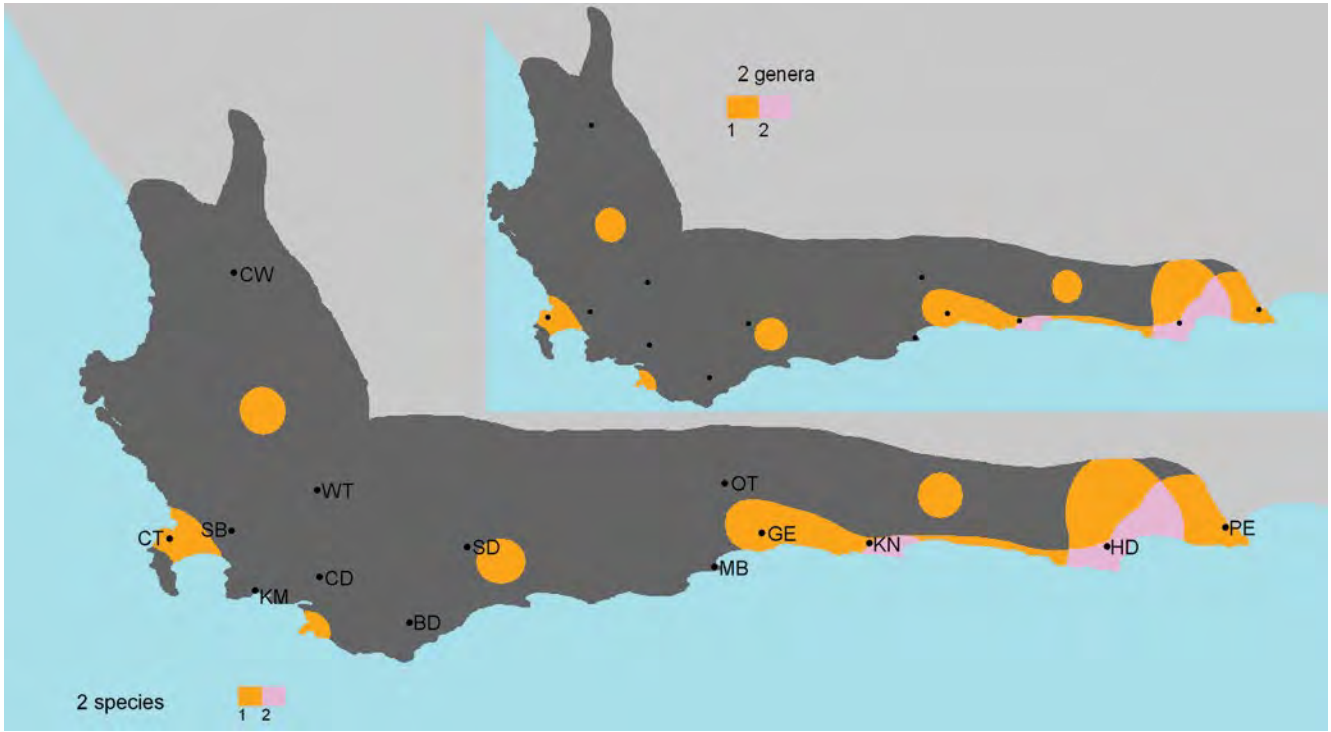
Thurniaceae



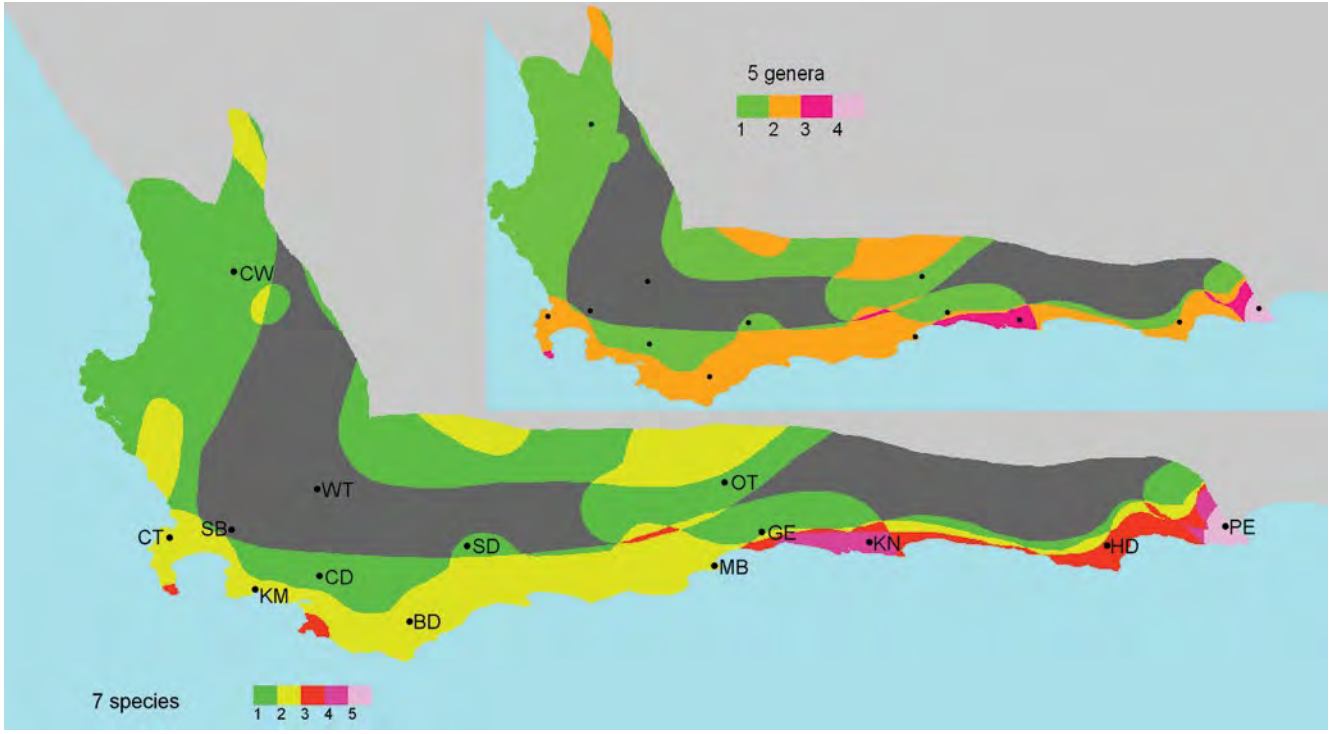
Thymelaeaceae



Typhaceae



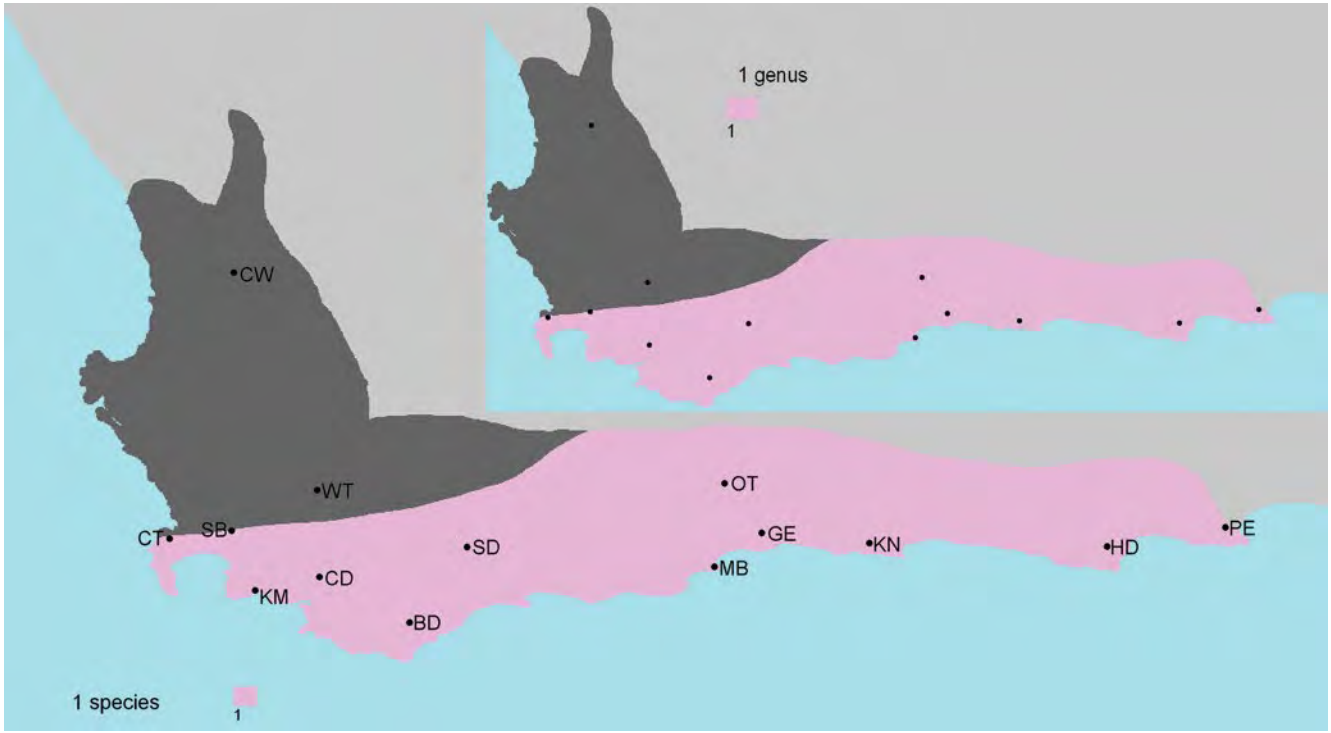
Ulmaceae


5 genera
1 2 3 4
CW
WT
OT
CT
SB
SD
GE
KN
HD
PE
CD
MB
KM
BD
7 species
1 2 3 4 5

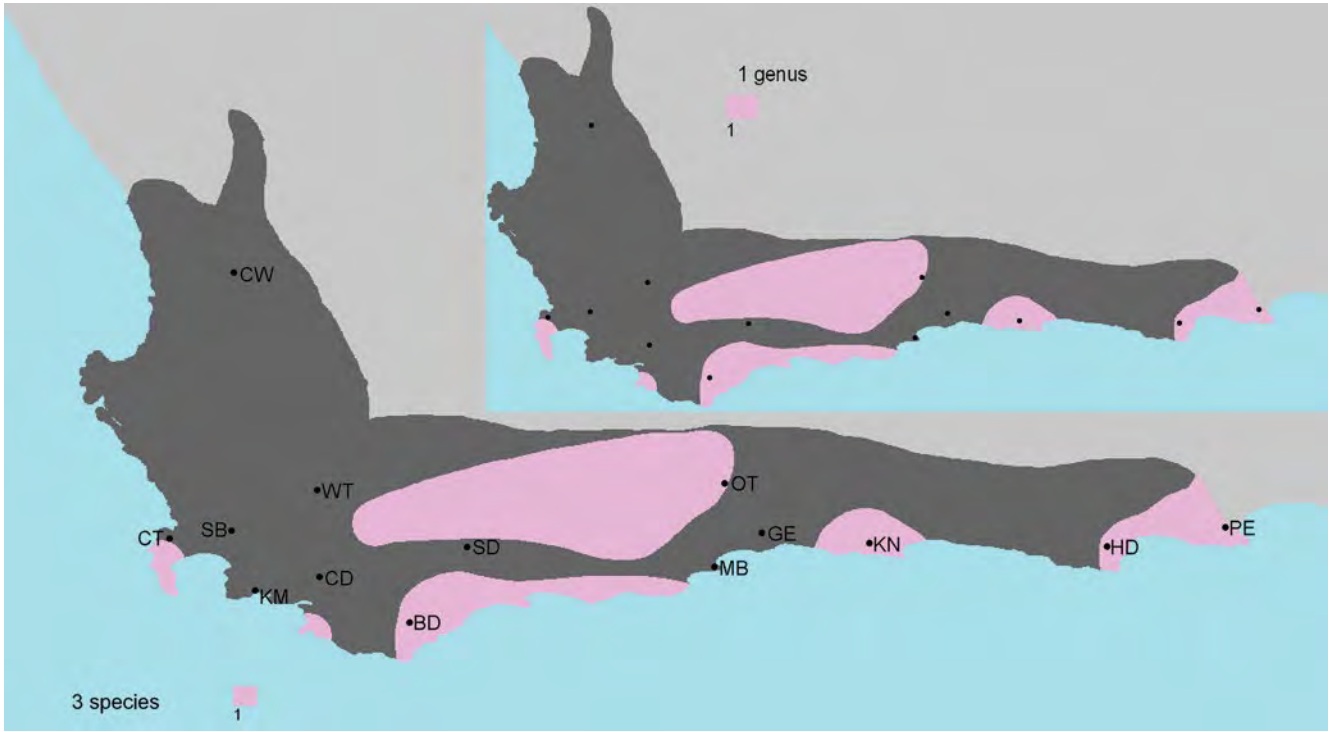
Urticaceae



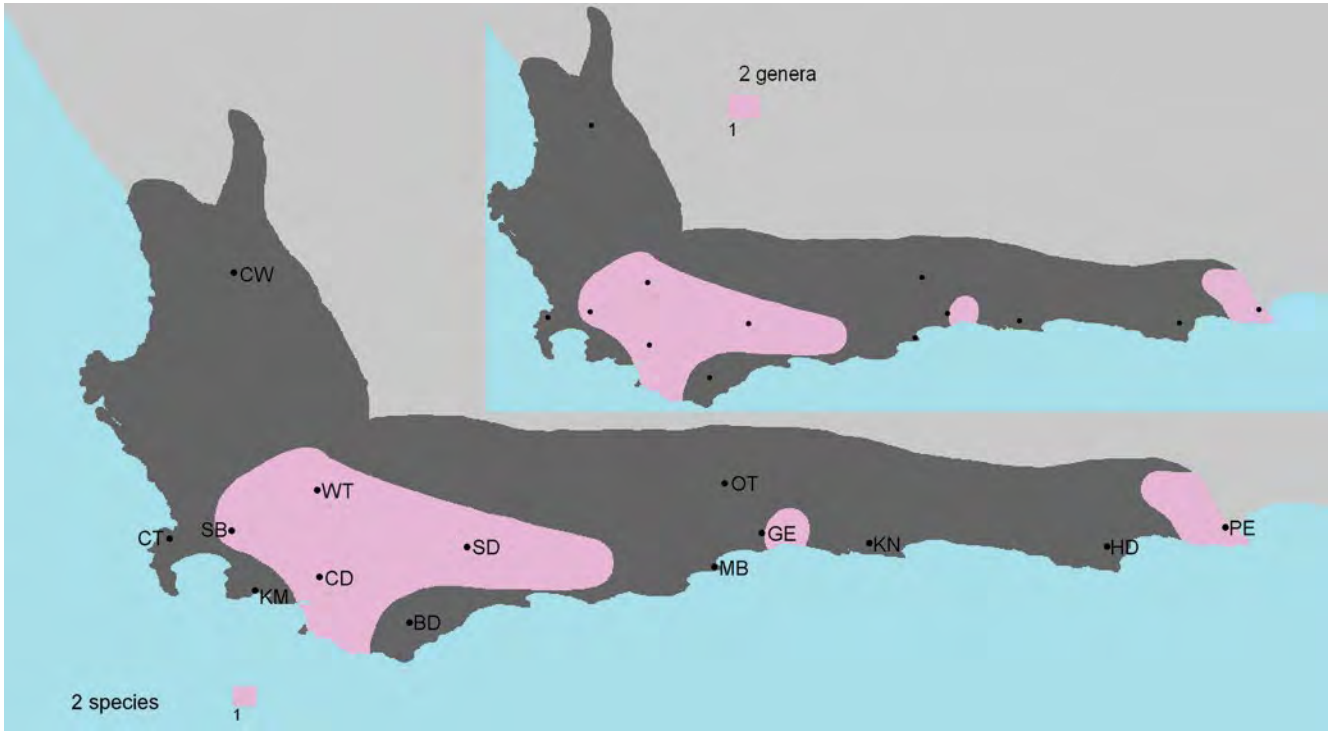
Vahliaceae



Valerianaceae

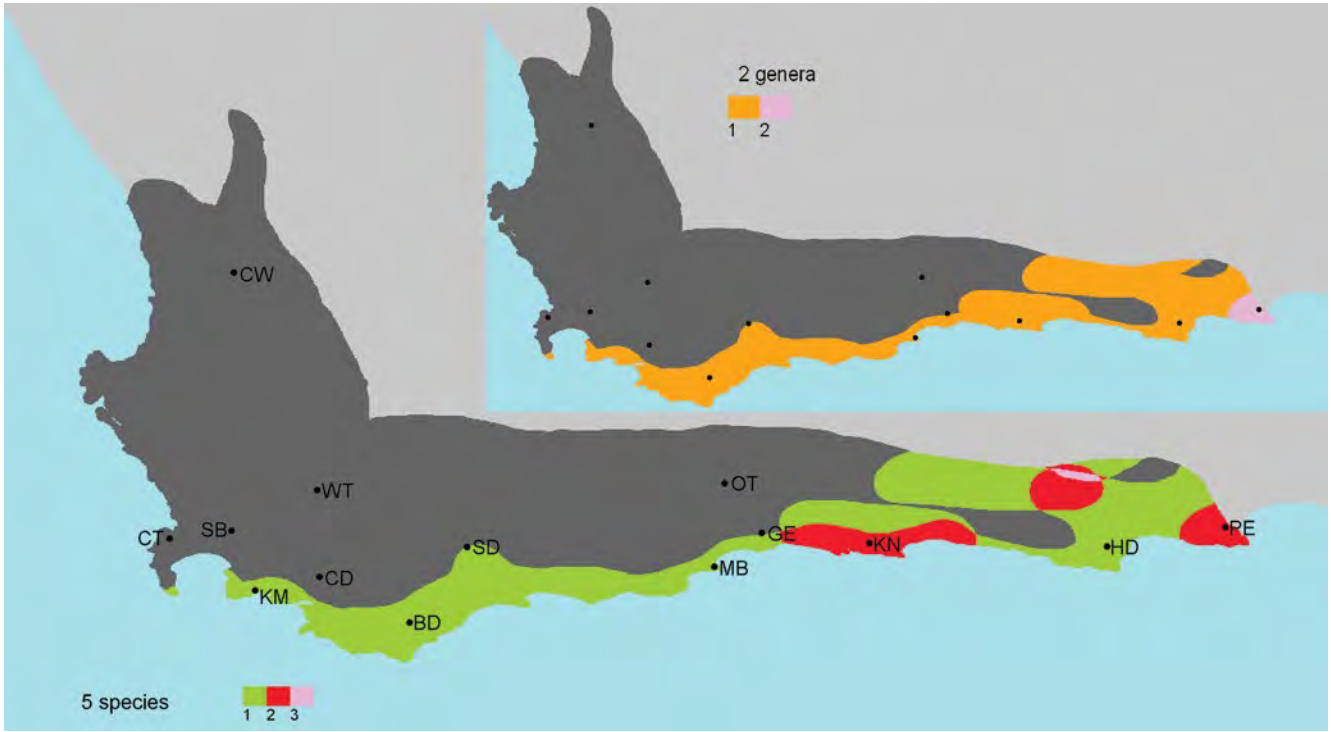


Verbenaceae

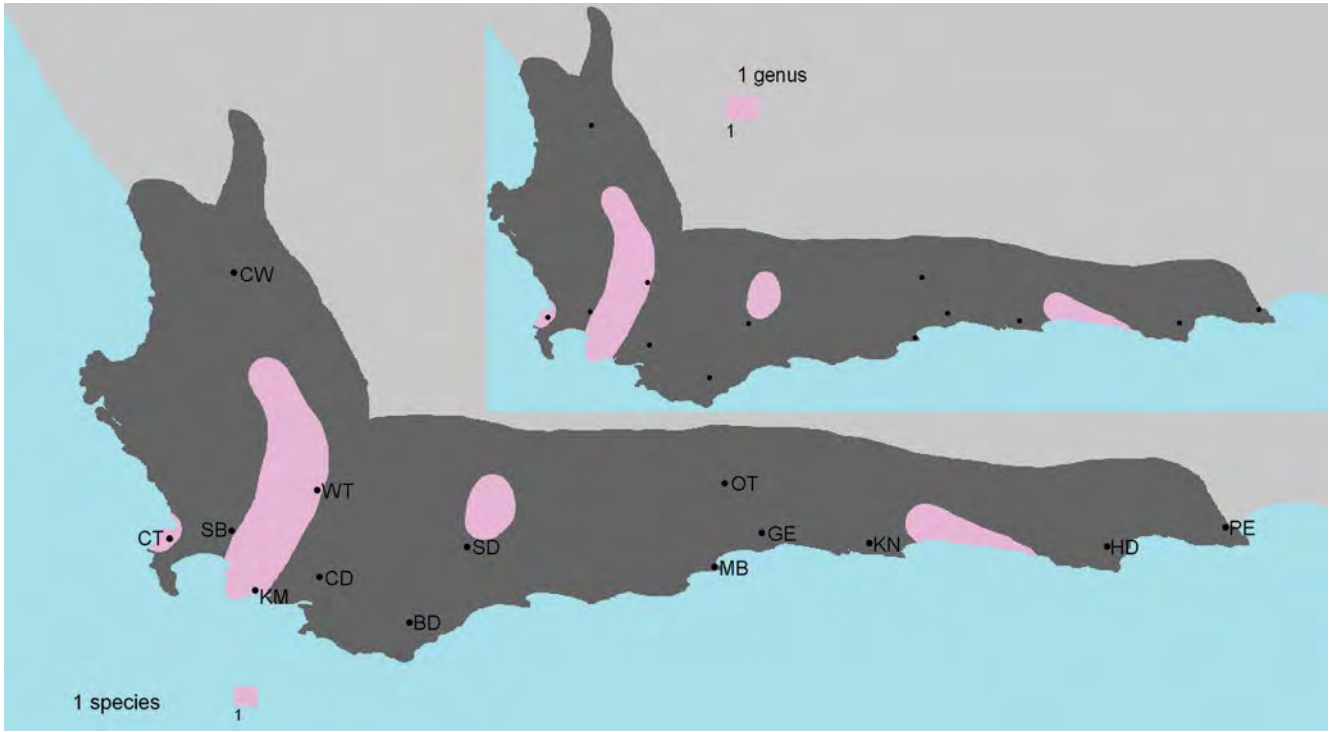


V

Violaceae

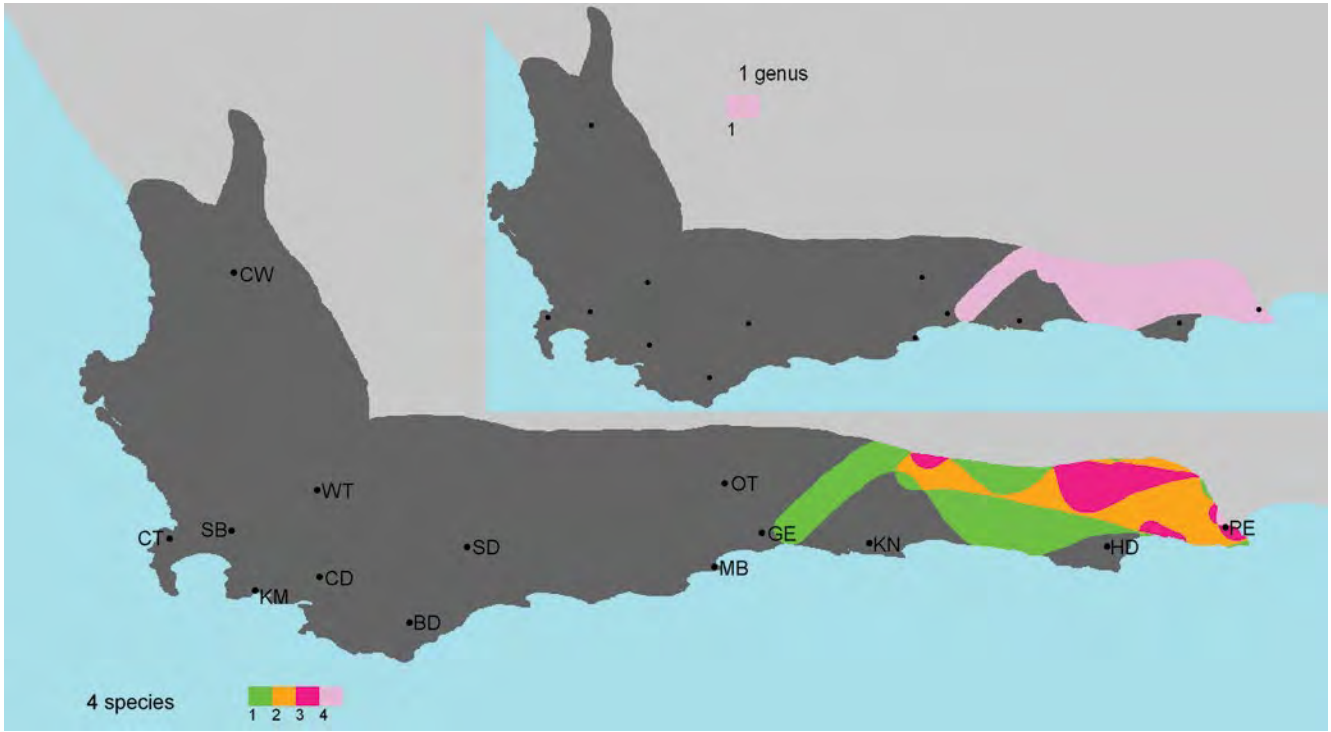


Vitaceae



X

Xyridaceae



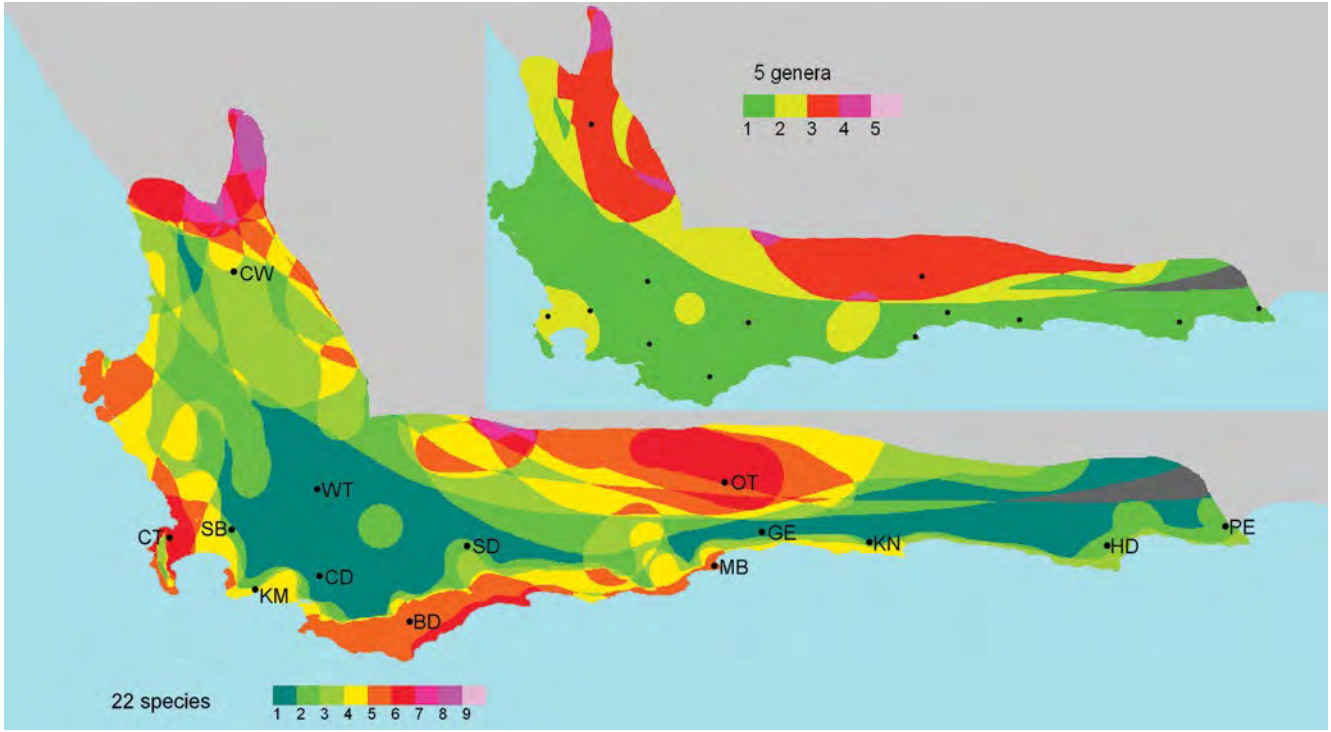
Z

Zamiaceae



Z

Zosteraceae



Z

Zygophyllaceae





The Core Cape Floristic Region comprises an estimated 9 383 species of vascular plants in 997 genera and 178 families. Available literature provides some guidance on roughly where to go to best explore this remarkably diverse and charismatic flora, but until now it has been nearly impossible to get a more exact idea of where to find the richest concentrations of species. This collection of floristic maps visualises the distribution of the Cape Flora at the taxonomic levels of family and genus, making it simpler for conservationists, botanists and tourists to identify centres of diversity and species richness within the region.









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