

Plant species of the Sperrgebiet (Diamond Area 1)

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Abstract

Based on specimen records, published sources and own observations, an updated list of plant species is presented for the Sperrgebiet, the southwestern corner of Namibia. This area is in the transitional zone of winter and summer rainfall in Namibia and a remarkable 1038 species of flowering plants, 13 ferns and 22 mosses and their relatives occur. This comprises nearly 25% of the entire flora of vascular plants in Namibia and some 21% of the plant diversity of the Succulent Karoo Biome. We conclude that the Sperrgebiet is undoubtedly one of Namibia's prime plant diversity hotspots.

Zusammenfassung

Wir stellen hier eine neue Liste von Pflanzen vor, die im Sperrgebiet, dem südwestlichen Teil Namibias vorkommen. Diese Liste basiert auf Herbariumbelegen, veröffentlichter Literatur und unseren eigenen Beobachtungen. Eine bemerkenswerte Vielfalt von Arten – 1038 Blütenpflanzen, 13 Farne und 22 Moose und verwandte Arten – kommen in diesem Übergangsbereich von Sommer- und Winterregen vor. Das sind beinahe 25% der gesamten Flora des Landes und machen das Sperrgebiet damit eindeutig zu einem Diversitätszentrum von Pflanzen in Namibia.

Keywords: Mesembryanthemaceae, Namibia, species diversity, southern Namib, Succulent Karoo Biome

Introduction

The Sperrgebiet (Diamond Area 1) comprises Namibia's section of the Succulent Karoo Biome (Rutherford 1997), a biodiversity hotspot of global significance (Myers *et al.* 2000). This northern-most tip of the Succulent Karoo Biome is postulated to be an area rich in plant species in Namibia (Maggs *et al.* 1998; Craven 2002). However, exactly how many species occur has been a matter of speculation for some time. In

1997, as part of a stratification of the area into floristic zones, Williamson published a species list with some 660 species of vascular plants (ferns and angiosperms).

Recognising the importance of the area, the National Botanical Research Institute of Namibia, in collaboration with various researchers, has since 1996 embarked on annual collecting trips during the main growing season (July-October), and systematically covered the area.

Not only has the collecting coverage been vastly improved since the publication of the earlier species list, but also many groups of taxa, most notably amongst the Mesembryanthemaceae, have since been substantially revised by a number of workers (e.g. Klak & Linder 1998; Hartmann 1998; 2002a and 2002b). Building onto Williamson's (1997) work, an updated species list is now badly needed. Recently there has also been increasing interest in the area by exploration and mining companies on one hand, and conservation initiatives on the other (e.g. Succulent Karoo Ecosystem Plan 2002). An updated record of the status quo regarding plant diversity hence provides a crucial baseline.

The aims of this paper are twofold:

- (1) to present an updated account of plant species diversity in the Sperrgebiet and
- (2) to provide, as far as possible, a traceable record of the changes since the previous publication (Williamson 1997).

Methods

Study area

The study area covers the restricted Diamond Area 1 (Sperrgebiet) in south-western Namibia, an area which is positioned in the winter-summer rain transitional zone in Namibia. The area is arid, with annual mean rainfall ranging between some 20 mm near the coast to just about 60 mm in the eastern sections. A variety of landscapes comprising coastal dunes, sand plains, mobile dunes, gravel plains and rocky outcrops, inselbergs (isolated mountains rising above the plains) and mountains provide diverse habitats for plants to take a foothold (Burke 2003). Fog is an important moisture source in the entire area, although its frequency abates along a coast-inland gradient (Olivier 1995). The constantly strong, prevailing southerly winds are another important climatic variable to be reckoned with.

The vegetation comprises largely low leaf-succulent shrubs, which in most areas reach about 30 cm in height. The stem-succulent *Euphorbia gummifera* is a dominant species in many parts of the area. The eastern sand and gravel plains also support grassland (Burke 2003).

Data preparation

This species list is based on data from the Specimens Database of the Namibian National Botanical Research Institute (NBRI), the previous published species list (Williamson 1997), selected published literature (for those groups where major revisions were available) and own observations by the authors. For the purpose of this study the study area was defined based on quarter degree squares and included 41 quarter degree squares from 2615CA in the northwest to 2816BB in the southeast. Towards the east, the following quarter degree squares formed the boundary: 2615DB, 2616CC, 2716AB, 2716AD, DA and DC. These were included. We excluded the northern extension of the Sperrgebiet into the Namib sand sea and the quarter degree square of Aus.

A complete list of all species of vascular plants, ferns, mosses and liverworts was compiled based on the sources above. We then screened the list for obvious mistakes in the records and database, updated taxonomic changes and used relevant literature (e.g. Van Zyl 2000; Venter 2000; Germishuizen & Meyer 2003) to cross-check dubious records. However, no comprehensive literature search was undertaken. Species were eliminated from Williamson's list (1997), if there were (a) no specimens lodged at PRE (National Herbarium, National Botanical Institute, Pretoria, South Africa) or WIND (National Herbarium Namibia), (b) the species had not been observed by the authors and (c) closest distribution records from the literature and NBRI Specimens Database made it unlikely that this species would occur in the area. The nomenclature largely follows Germishuizen & Meyer (2003), the exception being where a different practice is followed by the National Herbarium of Namibia (e.g. for *Lavrania* and *Zygophyllum*, *Aloe dichotoma*, *Carissa haematocarpa* and *Pelargonium mirabile*). These follow Craven (1999) and later taxonomic revisions of several groups (e.g. Van Zyl 2000).

Results and discussion

The following 33 species listed by Williamson (1997) were eliminated, as there were no geographically close records or herbarium specimens to be found: *Acanthopsis hoffmannseggiana*, *Argemone mexicana*, *Babiana torta*, *Bergia anagalloides*, *Bulbine frutescens*, *Chaetobromus dregeanus*, *Chlorophytum calyptrocarpum*, *Cleome monophylla*, *Commelina africana*, *Crassula atropurpurea* var. *watermeyeri*, *Diplachne fusca*, *Frankenia repens*, *Galenia hemisphaerica*, *Galenia sarcophylla*, *Helichrysum tinctum*, *Indigastrum burkeana*, *Kedrostis hirtella*, *Lachenalia zebrina*, *Lithops karasmontana*, *Lycium ferocissimum*, *Moquinella rubra*, *Oncosiphon piluliferum*, *Ornithogalum nanodes*, *Ornithogalum toxicarium*, *Ornithoglossum dinteri*, *Peliostomum virgatum*, *Polygala pygmaea*, *Salsola contrariifolia*, *Suaeda fruticosa*, *Tetragonia echinata*, *Tetragonia pillansii*, *Tetragonia sarcophylla* and *Tribulocarpus dimorphanthus*.

We have also excluded four species that are either of questionable taxonomic status at present (*Opophytum aquosum*) or that may occur in the area, but no voucher specimens were found (*Brownanthus ciliatus* subsp. *ciliatus*, *Putterlickia pyracantha* and *Tylecodon aridimontanus*).

The most common alien species recorded thus far are *Argemone ochroleuca*, *Datura innoxia*, *Datura stramonium*, *Eucalyptus camaldulensis*, *Nicotiana glauca*, *Prosopis* spp. and *Ricinus communis*. There are many more naturalised weedy, alien species, as indicated in Appendix 1. At present the majority of these only occur along the Orange River and near settlements.

In total, 1038 flowering plants, 13 ferns and 22 moss and liverwort species are now reported to occur in the Sperrgebiet. Compared to the previously recorded 660 vascular plants (angiosperms and ferns) this represents 391 new records, which is a nearly 60 percent increase from the previous list. Overall, the 1051 species represent 24.3 percent of the total flora of vascular plants in Namibia.

This constitutes 21.5 percent of the flowering plant diversity in the entire Succulent Karoo Biome based on Hilton-Taylor's (1996) estimate of total plant diversity in this biome. This is fair portion of the biome's plant diversity, considering that the Sperrgebiet land surface covers approximately 20 % of the Succulent Karoo Biome.

We conclude that the Sperrgebiet is a biodiversity hotspot unrivalled in Namibia, and also of great importance in the Succulent Karoo region.

Future collecting should particularly focus on taxa of doubtful status, such as the genus *Salsola* and geophytes, which are still poorly collected in many areas.

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Appendix 1. Plant species recorded in the Sperrgebiet (* = alien). The species are organised phylogenetically according to the main phyla, subphyla and classes. Within these, families and species are organised alphabetically.

Bryophyta and Hepatophyta (mosses and liverworts)

Aytoniaceae

Plagiochasma rupestre (J.R. Forst. & G. Forst.) Steph. var. *rupestre*

Bryaceae

Bryum argenteum Hedw.

Fabroniaceae

Ischyrodon lepturus (Taylor) Schelpe

Fissidentaceae

Fissidens rufescens Hornsch.

Funariaceae

Funaria sp.

Goniomitrium africanum (Müll. Hal.) Broth.

Gigaspermaceae

Chamaebryum pottiioides Thér. & Dixon

Grimmiaceae

Grimmia laevigata (Brid.) Brid.

Grimmia pulvinata (Hedw.) Sm.

Leucoperichaetium eremophilum Magill

Orthotrichaceae

Orthotrichum diaphanum (Schrad. ex Brid.) Lindb.

Pottiaceae

Barbula sp.

Crossidium spiralifolium Magill

Pseudocrossidium crinitum (Schultz) R.H. Zander

Syntrichia chisosa (Magill, Delgad. & L.R. Stark) R.H. Zander

Syntrichia papillosa (Wilson) Jur.

Tortula atrovirens (Sm.) Lindb.

Tortula muralis Hedw.

Trichostomum brachydontium Bruch.

Weissia latiuscula Müll. Hal.

Ricciaceae

Riccia argenteolimbata O.H. Volk & Perold

Riccia cavernosa Hoffm. emend. Raddi

Pteridophyta (ferns)

Aspleniaceae

Asplenium cordatum (Thunb.) Sw.

Azollaceae

Azolla filiculoides Lam.*

Equisetaceae

Equisetum ramosissimum Desf. subsp. *ramosissimum*

Ophioglossaceae

Ophioglossum polyphyllum A. Braun

Pteridaceae

Cheilanthes capensis (Thunb.) Sw.

Cheilanthes deltoidea Kunze

Cheilanthes hastata (L.f.) Kunze

Cheilanthes hirta Sw.

Cheilanthes kunzei Mett.

Cheilanthes namaquensis (Baker) Schelpe & N.C. Anthony

Cheilanthes rawsonii (Pappe) Mett. ex Kuhn

Cheilanthes robusta (Kunze) R.M. Tyron

Pellaea calomelanos (Sw.) Link var. *calomelanos*

Spermatophyta

Angiospermae (flowering plants)

Monocotyledonae

Amaryllidaceae

Ammocharis coranica (Ker Gawl.) Herb.

Ammocharis longifolia (L.) M. Roem.

Boophone disticha (L.f.) Herb.

Gethyllis namaquensis (Schönland) Oberm.

Haemanthus coccineus L.

Haemanthus namaquensis R.A. Dyer

Hessea speciosa Snijman

Namaquanula bruce-bayeri D. Müll.-Doblies & U. Müll.-Doblies

Strumaria bidentata Schinz

Strumaria phonolithica Dinter

Anthericaceae

Chlorophytum rangei (Engl. & K. Krause) Nordal

Chlorophytum viscosum Kunth

Asparagaceae

Asparagus asparagoides (L.) Druce

Asparagus capensis L. var. *capensis*

Asparagus denudatus (Kunth) Baker

Asparagus exuvialis Burch. forma *exuvialis*

Asparagus juniperoides Engl.
Asparagus pearsonii Kies
Asparagus retrofractus L.
Asparagus undulatus (L.f.) Thunb.

Asphodelaceae

Aloe dichotoma Masson
Aloe erinacea Hardy
Aloe gariepensis Pillans
Aloe microstigma Salm-Dyck subsp. *microstigma*
Aloe pachygaster Dinter
Aloe pearsonii Schönland
Aloe pillansii L.Guthrie
Aloe ramosissima Pillans
Aloe striata Haw. subsp. *karasbergensis* (Pillans) Glen & D.S. Hardy
Aloe variegata L.
Bulbine caput-medusae G. Will.
Bulbine francescae G.Will. & Baijnath
Bulbine longifolia Schinz
Bulbine namaensis Schinz
Bulbine praemorsa (Jacq.) Spreng.
Bulbine rhopalophylla Dinter
Gasteria pillansii Kensit var. *ernesti-ruschii* (Dinter & Poelln.) Van Jaarsv.
Haworthia venosa (Lam.) Haw. subsp. *tesselata* (Hax.) M.B. Bayer
Trachyandra bulbinifolia (Dinter) Oberm.
Trachyandra ciliata (L.f.) Kunth
Trachyandra falcata (L.f.) Kunth
Trachyandra lanata (Dinter) Oberm.
Trachyandra laxa (N.E.Br.) Oberm. var. *laxa*
Trachyandra muricata (L.f.) Kunth

Colchicaceae

Androcymbium exiguum Roessler subsp. *exiguum*
Androcymbium circinatum Baker
Hexacyrtis dickiana Dinter
Ornithoglossum parviflorum B.Nord. var. *parviflorum*
Ornithoglossum undulatum Sweet
Ornithoglossum vulgare B.Nord.

Cyperaceae

Bolboschoenus maritimus (L.) Palla
Cyperus laevigatus L.
Cyperus marginatus Thunb.
Schoenoplectus scirpoideus (Schrud.) J. Browning
Scirpoides dioecus (Kunth) J. Browning

Eriospermaceae

Eriospermum buchbergense Dinter
Eriospermum halenbergense Dinter
Eriospermum namaquanum P.L. Perry

Hyacinthaceae

Albuca exuviata Baker
Albuca maxima Burm.f.
Albuca namaquensis Baker
Albuca setosa Jacq.
Albuca viscosa L.f.
Dipcadi brevifolium (Thunb.) Fourc.
Dipcadi crispum Baker
Dipcadi gracillimum Baker
Dipcadi spirale Baker
Drimea physodes (Jacq.) Jessop
Lachenalia buchbergensis Dinter
Lachenalia giessii W.F.Barker
Lachenalia klinghardtiana Dinter
Lachenalia namibiensis W.F.Barker
Lachenalia nordenstamii W.F.Barker
Lachenalia pearsonii (P.E.Glover) W.F.Barker
Massonia sessiliflora (Dinter) U. Müll.-Doblies & D. Müll.-Doblies
Neopatersonia falcata G.J.Lewis
Ornithogalum geniculatum Oberm.
Ornithogalum glandulosum Oberm.
Ornithogalum hispidum Hornem. subsp. *hispidum*
Ornithogalum flexuosum (Thunb.) U. Müll.-Doblies & D. Müll.-Doblies
Ornithogalum prasinum Lindl.
Ornithogalum puberulum Oberm.
Ornithogalum stapffii Schinz
Ornithogalum suaveolens Jacq.
Ornithogalum tubiforme (Oberm.) Oberm.
Ornithogalum unifolium Retz var. *unifolium*
Drimia namibensis (Oberm.) J.C.Manning & Goldblatt
Drimia secunda (B. Nord.) J.C.Manning & Goldblatt
Drimia intricata (Baker) J.C.Manning & Goldblatt
Drimia filifolia (Jacq.) J.C.Manning & Goldblatt
Drimia multifolia (G.J.Lewis) Jessop
Whiteheadia biflora (Jacq.) Baker
Whiteheadia etesionamibensis U. Müll.-Doblies & D. Müll.-Doblies

Hypocidaceae

Spiloxene scullyi (Baker) Garside

Iridaceae

Babiana falcata G.J.Lewis
Babiana longicollis Dinter
Babiana namaquensis Baker
Ferraria divaricata Sweet subsp. *divaricata*
Ferraria schaeferi Dinter
Freesia viridis (Aiton) Goldblatt & J.C.Manning
Gladiolus orchidiflorus Andrews
Gladiolus saccatus (Klatt) Goldblatt & M.P.De Voss
Lapeirousia barklyi Baker

Lapeirousia dolomitica Dinter subsp. *dolomitica*
Melasphaerula ramosa (L.) N.E.Br.
Moraea namibensis Goldblatt
Moraea rigidifolia Goldblatt
Xenoscapa fistulosa (Spreng. ex Klatt) Goldblatt & J.C.Manning

Juncaceae
Juncus rigidus Desf.

Juncaginaceae
Triglochin striata Ruiz & Pav.

Najadaceae
Najas marina L. subsp. *armata* (Lindb.f.) H.Horn

Orchidaceae
Holothrix filicornis Immelman & Schelpe

Poaceae
Aristida adscensionis L.
Aristida engleri Mez var. *engleri*
Aristida engleri Mez var. *ramosissima* De Winter
Aristida parvula (Nees) De Winter
Bromus catharticus Vahl *
Bromus rubens L. *
Cenchrus ciliaris L.
Centropodia glauca (Nees) Cope
Chaetobromus involucreatus (Schrud.) Nees subsp. *sericeus* (Nees) Verboom
Cladoraphis cyperoides (Thunb.) S.M.Phillips
Cladoraphis spinosa (L.f.) S.M.Phillips
Cynodon dactylon (L.) Pers.
Dregeochloa pumila (Nees) Conert
Ehrharta calycina Sm.
Ehrharta delicatula (Nees) Stapf
Ehrharta longiflora Sm.
Ehrharta pusilla Nees ex Trin.
Ehrharta thunbergii Gibbs Russ.
Ehrharta triandra Nees ex Trin.
Enneapogon cenchroides (Roem. & Schult.) C.E.Hubb.
Enneapogon desvauxii P. Beauv.
Enneapogon scaber Lehm.
Eragrostis brizantha Nees
Eragrostis kingesii De Winter
Eragrostis rotifer Rendle
Fingerhuthia africana Lehm.
Hemarthria altissima (Poir.) Stapf & C.E.Hubb.
Karrochloa schismoides (Stapf ex Conert) Conert & Tuerpe
Leucophrys mesocoma (Nees) Rendle
Merxmuellera rangei (Pilg.) Conert
Odyssea paucinervis (Nees) Stapf
Pennisetum foermeranum Leeke
Pentaschistis airoides (Nees) Stapf subsp. *airoides*

Phragmites australis (Cav.) Steud.
Polypogon monspeliensis (L.) Desf.
Polypogon viridis (Gouan.) Breistr. *
Schismus barbatus (Loefl. ex L.) Thell.
Schmidtia kalahariensis Stent
Spartina maritima (Curtis) Fernald
Sporobolus virginicus (L.) Kunth
Stipagrostis anomala De Winter
Stipagrostis ciliata (Desf.) De Winter var. *capensis* (Trin. & Rupr.) De Winter
Stipagrostis dregeana Nees
Stipagrostis fastigiata (Hack.) De Winter
Stipagrostis garubensis (Pilg.) De Winter
Stipagrostis geminifolia Nees
Stipagrostis gonostachys (Pilg.) De Winter
Stipagrostis hermannii (Mez) De Winter
Stipagrostis hirtigluma (Trin. & Rupr.) De Winter subsp. *patula* (Hack.) De Winter
Stipagrostis lanipes (Mez) De Winter
Stipagrostis lutescens (Nees) De Winter var. *lutescens*
Stipagrostis lutescens (Nees) De Winter var. *marlothii* (Hack.) De Winter
Stipagrostis namaquensis (Nees) De Winter
Stipagrostis obtusa (Delile) Nees
Stipagrostis sabulicola (Pilg.) De Winter
Stipagrostis schaeferi (Mez) De Winter
Stipagrostis subacaulis (Nees) De Winter
Triraphis pumilio R.Br.

Potamogetonaceae
Potamogeton pectinatus L.

Ruppiaceae
Ruppia cirrhosa (Petagna) Grande
Ruppia maritima L.

Tecophilaceae
Cyanella ramosissima (Engl. & K. Krause) Engl. & K. Krause

Dicotyledonae

Acanthaceae
Acanthopsis disperma Nees
Barleria rigida Nees
Blepharis furcata (L.f.) Pers.
Blepharis mitrata C.B. Clarke
Blepharis spinifex Merxm.
Justicia cuneata Vahl subsp. *hoerleiniana* (P.G.Mey.) Immelman
Monechma cleomoides (S. Moore) C.B. Clarke
Monechma crassiusculum P.G.Mey.
Monechma desertorum (Engl.) C.B. Clarke
Monechma distichotrichum (Lindau) P.G.Mey.
Monechma incanum (Nees) C.B. Clarke
Monechma leucoderme (Schinz) C.B. Clarke
Monechma mollissimum (Nees) P.G.Mey.

Aizoaceae

Aizoon schellenbergii Adamson
Galenia africana L.
Galenia crystallina (Eckl. & Zeyh.) Fenzl var. *crystallina*
Galenia dregeana Fenzl ex Sond.
Galenia fruticosa (L.f.) Sond.
Galenia meziana K. Müll.
Galenia papulosa (Eckl. & Zeyh.) Sond.
Galenia pruinosa Sond.
Galenia secunda (L.f.) Sond.
Plinthus karooicus I. Verd.
Sesuvium sesuvioides (Fenzl) I. Verd.
Tetragonia arbuscula Fenzl
Tetragonia calycina Fenzl
Tetragonia decumbens Mill.
Tetragonia microptera Fenzl
Tetragonia reduplicata Welw. ex Oliv.
Tetragonia schenkii (Schinz) Engl.
Tetragonia verrucosa Fenzl
Trianthema parvifolia E. Mey. ex Sond. var. *parvifolia*
Trianthema triquetra Rottler ex Willd. subsp. *triquetra* var. *triquetra*

Amaranthaceae

Amaranthus thunbergii Moq.
Calicorema capitata (Moq.) Hook.f.
Calicorema squarrosa (Schinz) Schinz
Hermbsstaedtia glauca (J.C. Wendl.) Rchb. ex Steud.
Sericocoma avolans Fenzl
Sericocoma heterochiton Lopr.

Anacardiaceae

Ozoroa concolor (C. Presl. ex Sond.) De Winter
Ozoroa crassinervia (Engl.) R.Fern. & A.Fern.
Ozoroa dispar (C. Presl.) R.Fern. & A.Fern.
Rhus burchellii Sond. ex Engl.
Rhus lancea L.f.
Rhus pendulina Jacq.
Rhus populifolia E. Mey. ex Sond.
Rhus problematodes Merxm. & Roessler
Rhus undulata Jacq.
Schinus molle L.*

Apiaceae

Deverra denudata (Viv.) Pfisterer & Podlech subsp. *aphylla* (Cham. & Schltd.) Pfisterer & Podlech
Marlothiella gummifera H. Wolff
Peucedanum upingtoniae (Schinz) Drude
Polemanniopsis sp. nov.

Apocynaceae

Carissa haematocarpa (Eckl.) A.DC.

Cynanchum meyeri (Decne) Schltr.
Ectadium latifolium (Schinz) N.E.Br.
Ectadium virgatum E. Mey.
Gomphocarpus filiformis (E.Mey.) D.Dietr.
Gomphocarpus fruticosus (L.) Aiton f.
Hoodia alstonii (N.E.Br.) Plowes
Hoodia gordonii (Masson) Sweet ex Decne
Hoodia officinalis (N.E.Br.) Plowes subsp. *deletaetiana* (Dinter) Bruyns
Huernia namaquensis Pillans
Larryleachia marlothii (N.E.Br.) Plowes
Larryleachia perlata (Dinter) Plowes
Larryleachia picta (N.E.Br.) Plowes
Microloma armatum (Thunb.) Schltr. var. *armatum*
Microloma calycinum E. Mey.
Microloma incanum Decne
Microloma penicillatum Schltr.
Orphanthera albida Schinz
Pachypodium namaquanum (Wyley ex Harv.) Welw.
Pergularia daemia (Forssk.) Choiv. var. *leiocarpa* (K.Schum.) H.Huber
Piaranthus decorus (Masson) N.E.Br. subsp. *cornutus* (N.E.Br.) Meve
Quaqua acutiloba (N.E.Br.) Bruyns
Quaqua incarnata (L.f.) Bruyns subsp. *hottentotorum* (N.E.Br.) Bruyns
Quaqua mammillaris (L.) Bruyns
Rhyssolobium dumosum E.Mey.
Sarcostemma viminalis (L.) R.Br. subsp. *viminalis*
Stapelia gariepensis Pillans
Stapelia similis N.E.Br.
Stapeliopsis neronis Pillans
Tridentea jucunda (N.E.Br.) L.C.Leach
Tridentea pachyrrhiza (Dinter) L.C.Leach
Tromotriche aperta (Masson) Bruyns
Tromotriche longipes (C.A.Lückh.) Bruyns
Tromotriche ruschiana (Dinter) Bruyns

Asteraceae

Amellus flosculosus DC.
Amellus nanus DC.
Amphiglossa thuja (Merxm.) Koekemoer
Amphiglossa tomentosa (Thunb.) Harv.
Arctotis fastuosa Jacq.
Arctotis frutescens Norl.
Berkheya canescens DC.
Berkheya chamaepeuce (S.Moore) Roessler
Berkheya ferox O.Hoffm.
Berkheya schinzii O.Hoffm.
Berkheya spinosissima (Thunb.) Willd. subsp. *spinosissima*
Chrysanthemoides incana (Burm.f.) Norl.
Chrysocoma ciliata L.
Chrysocoma puberula Merxm.
Conyza scabrida DC.
Cotula anthemoides L.
Cotula coronopifolia L.

Cotula tenella E.Mey. ex DC.
Dicoma capensis Less.
Dicoma nachtigallii O.Hoffm.
Didelta carnosus (L.f.) Aiton var. *carnosus*
Didelta carnosus (L.f.) Aiton var. *tomentosa* (Less.) Roessler
Didelta spinosa (L.f.) Aiton
Dimorphotheca pluvialis (L.) Moench
Dimorphotheca polyptera DC.
Dimorphotheca sinuata DC.
Eremothamnus marlothianus O.Hoffm.
Eriocephalus ambiguus (DC.) M.A.N. Müller
Eriocephalus dinteri S.Moore
Eriocephalus ericoides (L.f.) Druce subsp. *ericoides*
Eriocephalus giessii M.A.N.Müller
Eriocephalus kingesii Merxm. & Eberle
Eriocephalus klinghardtensis M.A.N. Müller
Eriocephalus merxmülleri M.A.N. Müller
Eriocephalus pauperrimus Merxm. & Eberle
Eriocephalus scariosus DC.
Euryops lateriflorus (L.f.) DC.
Euryops mucosus B.Nord.
Euryops multifidus (Thunb.) DC.
Euryops namaquensis Schltr.
Euryops namibensis (Merxm.) B.Nord.
Euryops subcarnosus DC subsp. *subcarnosus*
Felicia filifolia (Vent.) Burt Davy subsp. *schaeferi* (Dinter) Grau
Felicia hirsuta DC.
Felicia microsperma DC.
Felicia namaquana (Harv.) Merxm.
Foveolina dichotoma (DC.) Kallersjö
Garuleum schinzii O.Hoffm. subsp. *schinzii*
Gazania jurineifolia DC. subsp. *scabra* (DC.) Roessler
Gazania lichtensteinii Less.
Gazania schenckii O.Hoffm.
Gazania tenuifolia Less.
Geigeria vigintiquamea O.Hoffm.
Gnaphalium confine Harv.
Gnaphalium polycaulon Pers.*
Gorteria corymbosa DC.
Gorteria diffusa Thunb. subsp. *parviligulata* Roessler
Helichrysum alsinoides DC.
Helichrysum argyrosphaerum DC.
Helichrysum garipepinum DC.
Helichrysum leontonyx DC.
Helichrysum micropoides DC.
Helichrysum obtusum (S. Moore) Moeser
Helichrysum revolutum (Thunb.) Less.
Helichrysum tomentosulum (Klatt) Merxm. subsp. *tomentosulum*
Hirpicium echinus Less.
Ifloga molluginoides (DC.) Hilliard
Kleinia cephalophora Compton
Kleinia longiflora DC.

Laggera decurrens (Vahl) Hepper & J.R.I.Wood
Lasiopogon glomerulatus (Harv.) Hilliard
Lasiopogon micropoides DC.
Lasiopogon ponticulus Hilliard
Lasiopogon volkii (B.Nord.) Hilliard
Lasiospermum brachyglossum DC.
Leysera tenella DC.
Litogyne gariepina (DC.) Anderb.
Lopholaena cneorifolia (DC.) S.Moore
Myxopappus acutilobus (DC.) Källersjö
Nidorella resedifolia DC. subsp. *resedifolia*
Nolletia gariepina (DC.) Mattf.
Oncosiphon grandiflorum (Thunb.) Källersjö
Oncosiphon suffruticosum (L.) Källersjö
Osteospermum armatum Norl.
Osteospermum karoocium (Bolus) Norl.
Osteospermum pinnatum (Thunb.) Norl.
Osteospermum spinescens Thunb.
Othonna arbuscula (Thunb.) Sch.Bip.
Othonna clavifolia Marloth
Othonna cylindrica (Lam.) DC.
Othonna filicaulis Jacq.
Othonna furcata (Lindl.) Druce
Othonna graveolens O.Hoffm.
Othonna lasiocarpa (DC.) Sch.Bip.
Othonna opima Merxm.
Othonna protecta Dinter
Othonna sedifolia DC.
Othonna sparsiflora (S.Moore) B.Nord.
Pegolettia gariepina Anderb.
Pegolettia oxyodonta DC.
Pegolettia plumosa M.D.Hend.
Pegolettia retrofracta (Thunb.) Kies
Pentatrichia petrosa Klatt
Pentzia incana (Thunb.) Kuntze
Pentzia monocephala S.Moore
Pentzia pinnatisecta Hutch.
Pentzia spinescens Less.
Pseudognaphalium luteo-album (L.) Hilliard & B.L.Burt
Pteronia acuta Muschl.
Pteronia anisata B.Nord.
Pteronia ciliata Thunb.
Pteronia cylindracea DC.
Pteronia divaricata (P.J.Bergius) Less
Pteronia glabrata L.f
Pteronia glauca Thunb.
Pteronia lucilioides DC.
Pteronia mucronata DC.
Pteronia onobromoides DC.
Pteronia paniculata Thunb.
Pteronia pomonae Merxm.
Pteronia rangei Muschl.

Pteronia spinulosa E. Phillips
Pteronia unguiculata S. Moore
Pulicaria scabra (Thunb.) Druce
Senecio acaulis (L.f.) Sch. Bip.
Senecio aloides DC.
Senecio apiifolius (DC.) Benth. & Hook. f. ex O. Hoffm.
Senecio arenarius Thunb.
Senecio bulbifolius DC.
Senecio cakilefolius DC.
Senecio consanguineus DC.
Senecio eenii (S. Moore) Merxm.
Senecio flavus (Decne) Sch. Bip.
Senecio giessii Merxm.
Senecio maydae Merxm.
Senecio piptocoma O. Hoffm.
Senecio pinguifolius (DC.) Sch. Bip.
Senecio radicans (L.f.) Sch. Bip.
Senecio sarcoides C. Jeffrey
Senecio sisymbriifolius DC.
Sonchus oleraceus L.*
Tripteris breviradiata (Norl.) B. Nord.
Tripteris clandestina Less.
Tripteris crassifolia O. Hoffm.
Tripteris microcarpa (Harv.) subsp. *microcarpa*
Tripteris oppositifolia (Aiton) B. Nord.
Tripteris polycephala DC.
Tripteris sinuata (DC.) var. *sinuata*
Troglophyton capillaceum (Thunb.) Hilliard & B.L. Burtt subsp. *capillaceum*
Troglophyton parvulum (Harv.) Hilliard & B.L. Burtt
Ursinia anthemoides (L.) Poir. subsp. *versicolor* (DC.) Prassler
Ursinia frutescens Dinter
Ursinia nana DC. subsp. *nana*
Ursinia speciosa DC.
Verbesina encelioides (Cav.) Benth. & Hook. var. *encelioides* *

Bignoniaceae

Rhigozum trichotomum Burch.

Boraginaceae

Codon royenii L.
Ehretia alba Retief & A.E. van Wyk
Heliotropium ciliatum Kaplan
Heliotropium curassavicum L.*
Heliotropium hereroense Schinz
Heliotropium ovalifolium Forssk.
Heliotropium tubulosum E. Mey. ex A. DC.
Trichodesma africanum (L.) Lehm.
Wellstedtia dinteri Pilg.

Brassicaceae

Coronopus integrifolius (DC.) Spreng.
*Heliophila carnos*a (Thunb.) Steud.
Heliophila cornuta Sond. var. *cornuta*
Heliophila crithmifolia Willd.
Heliophila deserticola Schltr. var. *deserticola*
Heliophila eximia Marais
Heliophila lactea Schltr.
Heliophila thunbergii (Eckl. & Zeyh.) Steud. var. *macrostylis* (E. Mey. ex Sond.) B. Nord.
Heliophila obibensis Marais
Heliophila trifurca Burch. ex DC.
Lepidium africanum (Burm. f.) DC. subsp. *divaricatum* (Aiton) Jonsell
Lepidium desertorum Eckl. & Zeyh.

Buddlejaceae

Gomphostigma virgatum (L. f.) Baill.

Burseraceae

Commiphora capensis (Sond.) Engl.
Commiphora namaensis Schinz

Campanulaceae

Wahlenbergia androsacea A. DC.
Wahlenbergia annularis A. DC.
Wahlenbergia denticulata (Burch.) A. DC. var. *denticulata*
Wahlenbergia erophiloides Markgr.
Wahlenbergia oxyphylla A. DC.
Wahlenbergia patula A. DC.
Wahlenbergia subrosulata Brehmer
Wahlenbergia subumbellata Markgr.
Wahlenbergia thunbergiana (H. Buek) Lammers

Capparaceae

Boscia albitrunca (Burch.) Gilg & Gilg-Ben.
Boscia foetida Schinz subsp. *foetida*
Cadaba aphylla (Thunb.) Wild
Capparis hereroensis Schinz
Cleome angustifolia Forssk. subsp. *diandra* (Burch.) Kers
Cleome foliosa Hook. f. var. *lutea* (Sond.) Codd & Kers
Cleome paxii (Schinz) Gilg. & Gilg-Ben.
Cleome suffruticosa Schinz
Maerua gilgii Schinz
Maerua schinzii Pax

Caryophyllaceae

Dianthus namaensis Schinz var. *namaensis*
Pollichia campestris Aiton
Silene burchellii Otth. var. *burchellii*
Spergularia media (L.) C. Presl. ex Griseb.*

Celastraceae

Gymnosporia linearis (L.f.) Loes. subsp. *lanceolata* (E.Mey. ex Sond.) M.Jordaan
Gymnosporia syszylowieczii (Kuntze) M.Jordaan subsp. *namibensis* M.Jordaan

Chenopodiaceae

Atriplex cinerea Poir. subsp. *bolusii* (C.H.Wright) Aellen
Atriplex semibaccata R.Br. var. *typica* Aellen
Atriplex suberecta I.Verd.
Atriplex vestita (Thunb.) Aellen var. *appendiculata* Aellen
Bassia diffusa (Thunb.) Kuntze
Bassia dinteri (Botsch) A.J.Scott
Chenopodium album L.*
Chenopodium ambrosioides L.*
Chenopodium botryodes Sm.*
Chenopodium mucronatum Thunb.
Chenopodium murale L. var. *murale**
Chenopodium pumilio R.Br.*
Manochlamys albicans (Aiton) Aellen
Salicornia uniflora Tölken
Salsola aphylla L.f.
Salsola araneosa Botsch.
Salsola arborea C.A.Sm. ex Aellen
Salsola armata C.S.Sm. ex Aellen
Salsola barbata Aellen
Salsola cryptoptera Aellen
Salsola dinteri Botsch.
Salsola dolichostigma Botsch.
Salsola gemmifera Botsch.
Salsola kali L.
Salsola luederitzensis Botsch.
Salsola merxmuelleri Aellen
Salsola namibica Botsch.
Salsola nollothensis Aellen
Salsola procera Botsch.
Salsola robinsonii Botsch.
Salsola ruschii Aellen
Salsola schreiberae Botsch.
Salsola zeyheri (Moq.) Bunge
Sarcocornia natalensis (Bunge ex Ung.-Sternb.) A.J.Scott var. *affinis* (Moss) O'Callaghan
Sarcocornia perennis (Mill.) A.J.Scott var. *lignosa* (Woods) O'Callaghan
Sarcocornia pillansii (Moss) A.J.Scott var. *dunensis* (Moss) O'Callaghan
Suaeda inflata Aellen
Suaeda merxmuelleri Aellen
Suaeda plumosa Aellen

Crassulaceae

Adromischus alstonii (Schönland & Baker f.) C.A.Sm.
Adromischus filicaulis (Eckl. & Zeyh.) C.A.Sm. subsp. *filicaulis*
Adromischus marianiae (Marloth) A.Berger var. *kubusensis* (Uitewaal) Tölken
Adromischus montium-klinghardtii (Dinter) A.Berger
Adromischus schuldianus (Poelln) Poelln subsp. *schuldianus*

Cotyledon orbiculata L. var. *orbiculata*
Crassula atropurpurea (Haw.) D.Dietr. var. *cultriformis* (Friedrich) Tölken
Crassula aurusbergensis G.Will.
Crassula ausensis Hutchison subsp. *ausensis*
Crassula brevifolia Harv. subsp. *brevifolia*
Crassula campestris (Eckl. & Zeyh.) Endl. ex Walp.
Crassula capitella Thunb. subsp. *thyrsiflora* (Thunb.) Tölken
Crassula columnaris Thunb. subsp. *prolifera* Friedrich
Crassula corallina Thunb. subsp. *corallina*
Crassula cotyledonis Thunb.
Crassula deceptor Schönland & Baker f.
Crassula deltoidea Thunb.
Crassula elegans Schönland & Baker f. subsp. *elegans*
Crassula elegans Schoenl. & Baker f. subsp. *namibensis* (Friedrich) Tölken
Crassula expansa Dryand. subsp. *pyrifolia* (Compton) Tölken
Crassula fusca Herre
Crassula garibina Marloth & Schönland subsp. *garibina*
Crassula luederitzii Schönland
Crassula macowaniana Schönland & Baker f.
Crassula mesembrianthemopsis Dinter
Crassula muscosa L. var. *muscosa*
Crassula muscosa L. var. *obtusifolia* (Harv.) G.D.Rowley
Crassula nemorosa (Eckl. & Zeyh.) Endl. ex Walp.
Crassula numaisensis Friedrich
Crassula oblanceolata Schönland & Baker f.
Crassula plegmatoides Friedrich
Crassula pseudohemisphaerica Friedrich
Crassula rupestris Thunb. subsp. *commutata* (Friedrich) Tölken
Crassula sericea Schönland var. *hottentotta* (Marloth & Schönland) Tölken
Crassula sericea Schönland var. *sericea*
Crassula sericea Schönland var. *velutina* (Friedrich) Tölken
Crassula sladenii Schönland
Crassula subacaulis Schönland & Baker f. subsp. *erosula* (N.E.Br.) Tölken
Crassula subaphylla (Eckl. & Zeyh.) Harv. var. *subaphylla*
Crassula tenuipedicellata Schönland & Baker f.
Crassula tomentosa Thunb. var. *glabrifolia* (Harv.) G.D. Rowley
Crassula tomentosa Thunb. var. *tomentosa*
Kalanchoe brachyloba Welw. ex Britten
Tylecodon aurusbergensis G.Will. & Van Jaarsv.
Tylecodon buchholzianus (Schuldt & P. Stephan) Tölken
Tylecodon hallii Tölken
Tylecodon paniculatus (L.f.) Tölken
Tylecodon racemosus (Harv.) Tölken
Tylecodon reticulatus (L.f.) Tölken subsp. *phyllopodium* Tölken
Tylecodon rubrovenosus (Dinter) Tölken
Tylecodon schaeferianus (Dinter) Tölken
Tylecodon similis (Tölken) Tölken
Tylecodon wallichii (Harv.) Tölken subsp. *ecklonianus* (Harv.) Tölken

Cucurbitaceae
Acanthosicyos horridus Welw. ex Hook.f.
Citrullus eccirrhosus Cogn.

Citrullus lanatus (Thunb.) Matsum. & Nakai
Corallocarpus dissectus Cogn.
Corallocarpus schinzii Cogn.
Cucumis africanus L.f.
Cucumis rigidus E. Mey. ex Sond.
Kedrostis capensis (Sond.) A.Meeuse
Momordica balsamina L.

Ebenaceae

Diospyros lycioides Desf. subsp. *lycioides*
Diospyros ramulosa (E.Mey. ex A.DC.) De Winter
Euclea asperrima Friedr.-Holzh.
Euclea pseudebenus E.Mey. ex A.DC.
Euclea undulata Thunb.

Euphorbiaceae

Euphorbia angrae N.E.Br.
Euphorbia brachiata E.Mey.ex Boiss.
Euphorbia burmannii E.Mey.ex Boiss.
Euphorbia chersina N.E.Br.
Euphorbia cibdela N.E.Br.
Euphorbia decussata E. Mey. ex Boiss.
Euphorbia dregeana E.Mey. ex Boiss.
Euphorbia ephedroides E.Mey. ex Boiss. var. *ephedroides*
Euphorbia ephroides E. Mey. ex Boiss. var. *imminuta* L.C. Leach & G.Will.
Euphorbia gariepina Boiss. subsp. *gariepina*
Euphorbia gregaria Marloth
Euphorbia guerichiana Pax
Euphorbia gummifera Boiss.
Euphorbia hamata (Haw.) Sweet
Euphorbia herrei A.C.White, R.A.Dyer & B.Sloane
Euphorbia inaequilatera Sond. var. *inaequilatera*
Euphorbia juttæ Dinter
Euphorbia lignosa Marloth
Euphorbia mauritanica L. var. *mauritanica*
Euphorbia mauritanica L. var. *corallothamnus* (Dinter) A.C.White, R.A.Dyer & B.Sloane
Euphorbia mauritanica L. var. *namaquensis* N.E.Br.
Euphorbia mauritanica L. var. *foetens* A.C.White, R.A.Dyer & B.Sloane
Euphorbia melanohydrata Nel
Euphorbia namibensis Marloth
Euphorbia phylloclada Boiss.
Euphorbia spinea N.E.Br.
Euphorbia stapelioides Boiss.
Euphorbia verruculosa N.E.Br.
Euphorbia virosa Willd. subsp. *virosa*
Jatropha orangeana Dinter ex P.G. Mey.
Ricinus communis L. var. *communis* *

Fabaceae

Acacia erioloba E.Mey.
Acacia karroo Hayne
Acacia mellifera (Vahl) Benth.subsp. *detinens* (Burch.) Brenan

Adenolobus garipensis (E.Mey.) Torre & Hillc.
Crotalaria colorata Schinz subsp. *erecta* (Schinz) Polhill
Crotalaria meyeriana Steud.
Cullen tomentosum (Thunb.) J.W. Grimes
Indigastrum argyraeum (Eckl. & Zeyh.) Schrire
Indigastrum argyroides (E.Mey) Schrire
Indigastrum candissimum (Dinter) Schrire
Indigofera acanthoclada Dinter
Indigofera adenocarpa E.Mey.
Indigofera alternans DC. var. *alternans*
Indigofera auricoma E.Mey.
Indigofera merxmuelleri A.Schreib.
Indigofera nudicaulis E.Mey.
Indigofera pungens E.Mey.
Lebeckia acanthoclada Dinter
Lebeckia cinerea E.Mey.
Lebeckia dinteri Harms
Lebeckia halenbergensis Merxm. & A.Schreib.
Lebeckia linearifolia E.Mey.
Lebeckia multiflora E.Mey.
Lebeckia spinescens Harv.
Lessertia acanthorachis (Dinter) Dinter
Lessertia benguellensis Baker f.
Lessertia candida E.Mey.
Lessertia cryptantha Dinter
Lessertia eremicola Dinter
Lessertia falciformis DC.
Lessertia incana Schinz
Lessertia macrostachya DC. var. *macrostachya*
Lotononis falcata (E.Mey.) Benth.
Lotononis maculata Dummer
Lotononis pachycarpa Dinter ex B.-E. van Wyk
Lotononis platycarpa (Viv.) Pic.Serm.
Lotononis rabenaviana Dinter & Harms
Lotononis strigillosa (Merxm.& A.Schreib.) A.Schreib.
Melolobium candicans (E.Mey.) Eckl.& Zeyh.
Melolobium microphyllum (L.f.) Eckl. & Zeyh.
Parkinsonia africana Sond.
Prosopis glandulosa Torr. var. *glandulosa**
Ptychlobium biflorum (E. Mey.) Brummit subsp. *biflorum*
Schotia afra (L.) Bodin Thunb. var. *angustifolia* (E.Mey.) Harv.
Sesbania pachycarpa DC. c.f. subsp. *dinterana* G.B. Gillett
Sutherlandia frutescens (L.) R.Br.
Tephrosia dregeana E. Mey. var. *dregeana*
Trigonella hamosa L.*

Frankeniaceae

Frankenia pomonensis Pohnert
Frankenia pulverulenta L.

Fumariaceae

Cysticapnos vesicaria (L.) Fedde

Gentianaceae

Sebaea pentandra E.Mey. var. *burchellii* (Gilg) Marais

Geraniaceae

Monsonia deserticola Dinter ex R.Knuth

Monsonia drudeana Schinz

Monsonia ignorata Merxm. & A.Schreib.

Monsonia parvifolia Schinz

Monsonia umbellata Harv.

Pelargonium antidysentericum (Eckl. & Zeyh.) Kostel L'Her. subsp. *antidysentericum*

Pelargonium carnosum (L.) L'Her.

Pelargonium ceratophyllum L'Her.

Pelargonium cortusifolium L'Her.

Pelargonium crassicaule L'Her.

Pelargonium crithmifolium Sm.

Pelargonium desertorum Vorster

Pelargonium grandicalcaratum R.Knuth

Pelargonium klinghardtense R.Knuth

Pelargonium minimum (Cav.) Willd.

Pelargonium mirabile Dinter

Pelargonium paniculatum Jacq.

Pelargonium redactum Vorster

Pelargonium sibthorpiiifolium Harv.

Pelargonium spinosum Willd.

Pelargonium tenuicaule R.Knuth

Pelargonium xerophyton Schltr. ex R.Knuth

Sarcocaulon crassicaule Rehm

Sarcocaulon flavescens Rehm

Sarcocaulon inerme Rehm

Sarcocaulon multifidum E.Mey. ex R.Knuth

Sarcocaulon patersonii (DC.) G.Don

Sarcocaulon peniculinum Moffett

Sarcocaulon salmoniflorum Moffett

Gisekiaceae

Gisekia africana (Lour.) Kuntze var. *africana*

Gisekia pharmacioides L. var. *pharmacioides*

Hydnoraceae

Hydnora africana Thunb.

Hydnora triceps Drege & E.Mey.

Lamiaceae

Acrotome pallescens Benth.

Ballota africana (L.) Benth.

Leucas glabrata (Vahl) Sm. var. *glabrata*

Salvia garipensis E.Mey. ex Benth.

Salvia verbenaca L.

Stachys burchelliana Launert

Stachys rugosa Aiton

Tetradenia riparia (Hochst.) Codd

Loasaceae

Kissenia capensis Endl.

Lobeliaceae

Cyphia dentariifolia C.Presl. var. *dentariifolia*

Loranthaceae

Plicosepalus kalachariensis (Schinz) Danser
Plicosepalus undulatus (E.Mey. ex Harv.) Tiegh.
Septulina glauca (Thunb.) Tiegh.
Septulina ovalis (E.Mey. ex Harv.) Tiegh.
Tapinanthus oleifolius (J.C.Wendl.) Danser

Lythraceae

Nesaea luederitzii Koehne var. *luederitzii*

Malvaceae

Malva parviflora L. var. *parviflora* *
Radyera urens (L.f.) Bullock

Meliaceae

Nymania capensis (Thunb.) Lindb.

Melanthaceae

Melianthus comosus Vahl
Melianthus pectinatus Harv. subsp. *garipepinus* (Merxm.& Roessler) S.A.Tansley

Menispermaceae

Antizoma angustifolia (Burch.) Miers ex Harv.
Antizoma miersiana Harv.
Cissampelos capensis L.f.

Mesembryanthemaceae

Amphibolia obscura H.E.K.Hartmann
Amphibolia rupis-arcuatae (Dinter) H.E.K.Hartmann
Amphipolia saginata (L. Bolus) H.E.K.Hartmann
Antimima aurasensis H.E.K.Hartmann
Antimima buchbergensis (Dinter) H.E.K.Hartmann
Antimima dolomitica (Dinter) H.E.K.Hartmann
Antimima modesta (L.Bolus) H.E.K.Hartmann
Antimima perforata (L.Bolus) H.E.K.Hartmann
Antimima quarzitica (Dinter) H.E.K.Hartmann
Aptenia geniculiflora (L.) Bittrich ex Gerbaulet
Aridaria brevicarpa L.Bolus
Aridaria noctiflora (L.) Schwantes subsp. *noctiflora*
Aridaria noctiflora (L.) Schwantes subsp. *straminea* (Haw.) Gerbaulet
Aridaria serotina L.Bolus
Astridia citrina (L.Bolus) L.Bolus
Astridia hallii L. Bolus
Astridia velutina Dinter
Brownanthus arenosus (Schinz) Ihlenf.& Bittrich

Brownanthus schenckii (Schinz) Schwantes
Brownanthus marlothii (Pax) Schwantes
Brownanthus namibensis (Marloth) Bullock
Brownanthus neglectus S.M.Pierce & Gerbaulet
Brownanthus nucifer (Ihlenf. & Bittrich) S.M.Pierce & Gerbaulet
Brownanthus pseudoschlichianus S.M.Pierce & Gerbaulet
Brownanthus pubescens (N.E.Br. ex C.A.Maass) Bullock
Cephalophyllum compressum L. Bolus
Cephalophyllum confusum (Dinter) Dinter & Schwantes
Cephalophyllum ebracteatum (Schltr. & Diels) Dinter & Schwantes
Cephalophyllum herrei L. Bolus
Cheiridopsis brownii Schick & Tischer
Cheiridopsis caroli-schmidtii (Dinter & A. Berger) N.E.Br.
Cheiridopsis robusta (Haw.) N.E.Br.
Cheiridopsis verrucosa L. Bolus
Conophytum halenbergense (Dinter & Schwantes) N.E.Br.
Conophytum jucundum (N.E.Br.) N.E.Br. subsp. *jucundum*
Conophytum klinghardtense Rawe subsp. *baradii* (Rawe) S.A. Hammer
Conophytum klinghardtense Rawe subsp. *klinghardtense*
Conophytum loeschianum Tischer
Conophytum pageae (N.E.Br.) N.E.Br.
Conophytum quaesitum (N.E.Br.) N.E.Br. subsp. *densipunctum* (L. Bolus) S.A. Hammer
Conophytum ricardianum Loesch & Tischer subsp. *ricardianum*
Conophytum saxetanum (N.E.Br.) N.E.Br.
Conophytum taylorianum (Dinter & Schwantes) subsp. *ernianum* (Loesch & Tischer) de Boer ex S.A. Hammer
Conophytum taylorianum (Dinter & Schwantes) N.E.Br. subsp. *taylorianum*
Delosperma klinghardtianum Dinter & Schwantes
Dracophilus dealbatus (N.E.Br.) Walgate
Dracophilus delaetianus (Dinter) Dinter & Schwantes
Dracophilus montis-draconis (Dinter) Dinter & Schwantes
Dracophilus proximus (L. Bolus) Walgate
Drosanthemum albens L. Bolus
Drosanthemum curtophyllum L. Bolus
Drosanthemum hispidum (L.) Schwantes
Drosanthemum inornatum (L. Bolus) L. Bolus
Drosanthemum luederitzii (Engl.) Schwantes
Drosanthemum pauper (Dinter) Dinter & Schwantes
Drosanthemum subcompressum (Haw.) Schwantes
Eberlanzia clausa (Dinter) Schwantes
Eberlanzia cyathiformis (L. Bolus) H.E.K. Hartmann
Eberlanzia ebracteata (L. Bolus) H.E.K. Hartmann
Eberlanzia schneideriana (A. Berger) H.E.K. Hartmann
Eberlanzia sedoides (Dinter & A. Berger) Schwantes
Ebracteola derenbergiana (Dinter) Dinter & Schwantes
Fenestraria rhopalophylla (Schltr. & Diels) N.E.Br. subsp. *aurantiaca* (N.E.Br.) H.E.K. Hartmann
Fenestraria rhopalophylla (Schltr. & Diels) N.E.Br. subsp. *rhopalophylla*
Hartmanthus hallii (L. Bolus) S.A. Hammer
Hartmanthus pergamentaceus (L. Bolus) S.A. Hammer
Hereroa hesperantha (Dinter & A. Berger) Dinter & Schwantes
Jordaniella cuprea (L. Bolus) H.E.K. Hartmann

Juttadinteria albata (L.Bolus) L.Bolus
Juttadinteria attenuata Walgate
Juttadinteria ausensis (L.Bolus) Schwantes
Juttadinteria deserticola (Marloth) Schwantes
Juttadinteria kovisimontana (Dinter) Schwantes
Juttadinteria simpsonii (Dinter) Schwantes
Juttadinteria suavissima (Dinter) Schwantes
Lampranthus borealis L.Bolus
Lampranthus hoerleinianus (Dinter) Friedrich
Lampranthus otzenianus (Dinter) Friedrich
Leipoldtia alborosea (L.Bolus) H.E.K.Hartmann & Stüber
Leipoldtia weingangiana (Dinter) Dinter & Schwantes subsp. *grandiflora* (L.Bolus)
H.E.K.Hartmann & S.Rust
Leipoldtia weingangiana (Dinter) Dinter & Schwantes subsp. *littlewoodii* (L.Bolus)
H.E.K.Hartmann & S.Rust
Leipoldtia weingangiana (Dinter) Dinter & Schwantes subsp. *weingangiana*
Lithops francisci (Dinter & Schwantes) N.E.Br.
Lithops gesineae de Boer
Lithops herrei L. Bolus
Lithops optica (Marloth) N.E.Br.
Mesembryanthemum barklyi N.E.Br.
Mesembryanthemum cryptanthum Hook.f.
Mesembryanthemum guerichianum Pax
Mesembryanthemum hypertrophicum Dinter
Mesembryanthemum inachabense Engl.
Mesembryanthemum nodiflorum L.
Mesembryanthemum pellitum Friedrich
Namibia cinerea (Marloth) Schwantes
Namibia pomonae (Dinter) Dinter & Schwantes ex Walgate
Namibia ponderosa (Dinter) Dinter & Schwantes ex H. Jacobsen
Phyllobolus melanospermus (Dinter & Schwantes) Gerbaulet
Phyllobolus oculatus (N.E.Br.) Gerbaulet
Prenia tetragona (Thunb.) Gerbaulet
Psammophora longifolia L.Bolus
Psammophora modesta (Dinter & A.Berger) Dinter & Schwantes
Psammophora nissenii (Dinter) Dinter & Schwantes
Psammophora saxicola H.E.K.Hartmann
Psilocaulon coriarium (Burch. ex N.E.Br.) N.E.Br.
Psilocaulon dinteri (Engl.) Schwantes
Psilocaulon salicornioides (Pax) Schwantes
Psilocaulon subnodosum (A.Berger) N.E.Br.
Ruschia abbreviata L.Bolus
Ruschia deminuta L.Bolus
Ruschia divaricata L.Bolus
Ruschia muelleri (L.Bolus) Schwantes
Ruschia namusmontana Friedrich
Ruschia odontocalyx (Schltr. & Diels) Schwantes
Ruschia pollardii Friedrich
Ruschia ruschiana (Dinter) Dinter & Schwantes
Ruschia spinosa (L.) Dehn
Ruschia tumidula (Haw.) Schwantes
Schwantesia herrei L. Bolus

Stoeberia arborea Van Jaarsv.
Stoeberia beetzii (Dinter) Dinter & Schwantes
Stoeberia carpii Friedrich
Stoeberia frutescens (L.Bolus) van Jaarsv.
Stoeberia gigas (Dinter) Dinter & Schwantes
Stoeberia utilis (L.Bolus) Van Jaarsv.
Synaptophyllum juttae (Dinter & A.Berger) N.E.Br.
Titanopsis schwantesii (Dinter) Schwantes

Molluginaceae

Adenogramma glomerata (L.f.) Druce
Coelanthum grandiflorum E.Mey. ex Fenzl
Glinus lotooides L. var. *lotooides* *
Hypertelis angrae-pequenae Friedr.
Hypertelis salsoloides (Burch.) Adamson var. *salsoloides*
Hypertelis spergulacea E.Mey. ex Fenzl
Limeum aethiopicum Burm. subsp. *namaense* Friedrich var. *namaense*
Limeum deserticum Dinter & G.Schellenb.
Limeum fenestratum (Fenzl) Heim. var. *fenestratum*
Mollugo cerviana (L.) Ser.ex DC. var. *cerviana*
Mollugo walteri Friedrich
Pharnaceum albens L.f.
Pharnaceum confertum (DC.) Eckl. & Zeyh.
Pharnaceum exiguum Adamson
Pharnaceum brevicaulis (DC.) Bartl.
Pharnaceum croceum E.Mey.ex Fenzl
Suessenguthiella scleranthoides (Sond.) Friedrich

Montiniaceae

Montinia caryophyllacea Thunb.

Moraceae

Ficus cordata Thunb. subsp. *cordata*
Ficus ilicina (Sond.) Miq.

Myrtaceae

Eucalyptus camaldulensis Dehnb.*

Neuradaceae

Grielum humifusum Thunb.
Grielum sinuatum Licht.ex Burch.
Neuradopsis austro-africana (Schinz) Bremek. & Oberm.

Onagraceae

Oenothera indecora Cambess. subsp. *indecora* *

Orobanchaceae

Hyobanche barklyi N.E.Br.

Oxalidaceae

Oxalis beneprotecta Dinter ex R.Knuth
Oxalis copiosa F.Bolus

Oxalis laxicaulis R. Knuth
Oxalis luederitzii Schinz
Oxalis obtusa Jacq.
Oxalis pseudo-cernua R. Knuth

Papaveraceae
Argemone ochroleuca Sweet subsp. *ochroleuca* *
Papaver aculeatum Thunb.

Pedaliaceae
Rogeria longiflora (Royen) J. Gay ex DC.
Sesamum capense Burm. f.

Phytolaccaceae
Lophiocarpus polystachyus Turcz.

Plantaginaceae
Plantago lanceolata L.

Plumbaginaceae
Dyerophytum africanum (Lam.) Kuntze
Limonium dyeri Lincz.
Limonium scabrum (Thunb.) Kuntze var. *scabrum*

Polygalaceae
Polygala leptophylla Burch.
Polygala mossii Exell
Polygala pallida E. Mey.
Polygala scabra L.
Polygala sp. nov.

Polygonaceae
Emex australis Steinh.
Rumex lativalvis Meisn.

Portulacaceae
Anacampseros baeseckeii Dinter
Anacampseros filamentosa (Haw.) Sims subsp. *namaquensis* (H. Pearson & Stephens)
G. D. Rowley
Anacampseros filamentosa (Haw.) Sims subsp. *tomentosa* (A. Berger) Gerbault
Anacampseros retusa Poelln.
Avonia albissima (Marloth) G. D. Rowley
Ceraria fruticulosa H. Pearson & Stephens
Ceraria namaquensis (Sond.) Pearson & Stephens
Portulacaria pygmaea Pillans

Resedaceae
Oligomeris dipetala (Aiton) Turcz. var. *dipetala*

Rhamnaceae
Ziziphus mucronata Willd.

Rosaceae

Potentilla supina L.

Rubiaceae

Anthospermum dregei Sond. subsp. *dregei*

Gaillonia crocylis (Sond.) Thulin

Galium tomentosum Thunb.

Kohautia caespitosa Schnizl. subsp. *brachyloba* (Sond.) D.Mantell

Kohautia ramosissima Bremek.

Salicaceae

Salix mucronata Thunb. subsp. *capensis* (Thunb.) Immelman

Santalaceae

Thesium lacinulatum A.W.Hill.

Thesium lineatum L.f.

Sapindaceae

Pappea capensis Eckl. & Zeyh.

Scrophulariaceae

Antherothamnus pearsonii N.E.Br.

Anticharis ebracteata Schinz

Anticharis inflata Marloth & Engl.

Anticharis juncea L. Bolus

Anticharis scoparia (E.Mey. ex Benth.) Hiern ex Benth. & Hook.f.

Aptosimum albomarginatum Marloth & Engl.

Aptosimum eriocephalum E.Mey.ex Benth.

Aptosimum lineare Marloth & Engl.

Aptosimum spinescens (Thunb.) F.E.Weber

Aptosimum tragacanthoides E.Mey.ex Benth.

Aptosimum viscosum Benth.

Diascia ausana Dinter

Diclis petiolaris Benth.

Dischisma spicatum (Thunb.) Choisy

Hebenstretia cordata L.

Hebenstretia integrifolia L.

Hebenstretia namaquensis Roessler

Hebenstretia parviflora E.Mey.

Jamesbrittenia adpressa (Dinter) Hilliard

Jamesbrittenia aridicola Hilliard

Jamesbrittenia atropupurea (Benth.) Hilliard subsp. *pubescens* Hilliard

Jamesbrittenia bicolor (Dinter) Hilliard

Jamesbrittenia canescens (Benth.) Hilliard var. *canescens*

Jamesbrittenia fruticosa (Benth.) Hilliard

Jamesbrittenia glutinosa (Benth.) Hilliard

Jamesbrittenia huillana (Diels) Hilliard

Jamesbrittenia integerrima (Benth.) Hilliard

Jamesbrittenia maxii (Hiern) Hilliard

Jamesbrittenia merxmulleri (Roessler) Hilliard

Jamesbrittenia ramosissima (Hiern) Hilliard

Jamesbrittenia sessilifolia (Diels) Hilliard

Lyperia tristis (L.f.) Benth.
Manulea androsacea E.Mey. ex Benth.
Manulea aridicola Hilliard
Manulea gariepina Benth.
Manulea minuscula Hilliard
Manulea namibensis (Roessler) Hilliard
Nemesia fleckii Thell.
Nemesia fruticans (Thunb.) Benth.
Nemesia gracilis Benth.
Nemesia violiflora Roessler
Nemesia viscosa E.Mey.ex Benth.
Peliostomum leucorrhizum E.Mey.ex Benth.
Peliostomum viscosum E.Mey.ex Benth.
Phyllopodium hispidulum (Thell.) Hilliard
Phyllopodium maxii (Hiern) Hilliard
Phyllopodium namaense (Thell.) Hilliard
Selago angolensis Rolfe
Selago angustibractea Hilliard
Selago dinteri Rolfe subsp. *pseudodinteri* Hilliard
Selago divaricata L.f.
Veronica anagallis-aquatica L.
Zaluzianskya benthamiana Walp.
Zaluzianskya diandra Diels
Zaluzianskya peduncularis (Benth.) Walp.

Solanaceae

Datura inoxia Mill.*
Datura stramonium L.*
Lycium amoenum Dammer
Lycium bosciifolium Schinz
Lycium cinereum Thunb.
Lycium gariepense A.M.Venter
Lycium grandicalyx Joubert & A.M.Venter
Lycium horridum Thunb.
Lycium pilifolium C.H.Wright
Lycium schizocalyx C.M.Wright
Lycium tetrandum L.f.
Lycopersicon pimpinellifolium (L.) Mill.*
Nicotiana glauca R.C.Graham *
Nicotiana longiflora Cav.*
Solanum burchellii Dunal
Solanum capense L.
Solanum nigrum L.*
Solanum rigescens Jacq.

Sterculiaceae

Hermannia abrotanoides Schrad.
Hermannia affinis K.Schum.
Hermannia amoena Dinter ex Friedr.-Holzh.
Hermannia comosa Burch.ex DC.
Hermannia complicata Engl.
Hermannia desertorum Eckl.& Zeyh.

Hermannia disermifolia Jacq.
Hermannia engleri Schinz
Hermannia gariepina Eckl. & Zeyh.
Hermannia macra Schltr.
Hermannia minutiflora Engl.
Hermannia modesta (Ehrenb.) Mast.
Hermannia paucifolia Turcz.
Hermannia pfeilii K. Schum.
Hermannia spinosa E.Mey.ex Harv.
Hermannia stricta (E.Mey.ex Turcz.) Harv.
Hermannia trifurca L.

Tamaricaceae

Tamarix usneoides E.Mey.ex Bunge

Thymelaceae

Gnidia polycephala (C.A.Meyer) Gilg
Gnidia suavissima Dinter

Urticaceae

Didymodoxa capensis (L.f.) Friis & Wilmot-Dear var. *capensis*
Forsskaolea candida L.f.
Forsskaolea hereroensis Schinz

Vahliaceae

Vahlia capensis (L.f.) Thunb. subsp. *vulgaris* var. *vulgaris*

Verbenaceae

Chascanum garipense E.Mey.
Chascanum namaquanum (Bolus ex H. Pearson) Moldenke
Lantana camara L.*

Viscaceae

Viscum capense L.f.
Viscum rotundifolium L.f.

Zygophyllaceae

Augea capensis Thunb.
Fagonia capensis Hadidi
Fagonia isotricha Murb. var. *spinescens* (O.Schwartz) Hadidi
Sisyndite sparteae E.Mey.ex Sond.
Tribulus cristatus C.Presl
Tribulus terrestris L.
Tribulus zeyheri Sond. subsp. *zeyheri*
Zygophyllum applanatum Van Zyl
Zygophyllum chrysopteron Retief
Zygophyllum clavatum Schltr. & Diels
Zygophyllum cordifolium L.f.
Zygophyllum decumbens Del. var. *decumbens* A.Hosny
Zygophyllum foetidum Schrad. & Wendl.
Zygophyllum hirticaule Van Zyl
Zygophyllum leptopetalum Sond.

Zygophyllum leucocladum Diels
Zygophyllum longicapsulare Schinz
Zygophyllum longistipulatum Schinz
Zygophyllum macrocarpon Retief
Zygophyllum microcarpum Cham.
Zygophyllum morsana L.
Zygophyllum patenticaule Van Zyl
Zygophyllum prismatocarpum Sond.
Zygophyllum pterocaula Van Zyl
Zygophyllum pubescens Schinz
Zygophyllum retrofractum Thunb.
Zygophyllum rigidum Schinz
Zygophyllum schreiberanum Merx. & Giess
Zygophyllum segmentatum Van Zyl
Zygophyllum simplex L.