



Introduction to the Census of the Queensland flora 2017

Queensland Herbarium

2017 Version 1.0

Prepared by

Peter D Bostock and Ailsa E Holland
Queensland Herbarium
Science Delivery Division
Department of Science, Information Technology and Innovation
PO Box 5078
Brisbane QLD 4001

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About the Queensland Herbarium collections

The Queensland Herbarium houses the state's flora collections, comprising more than 850,000 specimens and associated data, of mainly Queensland species of plants, fungi and algae. Botanists and members of the public contribute thousands of specimens to the herbarium collection each year, representing new species records and new distribution records for both native and naturalised species. Specimens are mostly pressed and dried, and mounted on archival sheets. Some bulky specimens are stored in boxes or paper bags and some delicate specimens are stored in preserving liquid. Each specimen is labelled with the collector, collector's number, date of collection, location, habitat and the plant's features such as bark and flower colour. This information is recorded in the database HERBRECS, and the Queensland native and naturalised specimens data are available on the [open data portal](#) (<http://qldspatial.information.qld.gov.au/catalogue/custom/search.page?q=Queensland+Herbarium+records>), and through [Wildlife Online](#) (<https://www.qld.gov.au/environment/plants-animals/species-list/>) and [Australia's Virtual Herbarium](#) (<http://avh.chah.org.au/>). The information is summarised in the [census lists](#) (<https://data.qld.gov.au/dataset/census-of-the-queensland-flora-2017>).

A manual explaining [how to collect plant specimens](#) (<https://www.qld.gov.au/environment/plants-animals/plants/herbarium/identify-specimens/>) is available. Algae and fungi require specialist processing, please contact us for further information on these groups.

Significance of the collections

The Queensland Herbarium specimen collections are fundamental and irreplaceable materials and data sources used to document the flora and vegetation of Queensland. They are essential for: taxonomic and phylogenetic research, the application of scientific names, new species discovery, identification of species, mapping the distribution of species, conservation planning and management, ecology of species, biodiversity assessment, state legislation (*Vegetation Management Act, Nature Conservation Act, Land Protection Act, Environmental Protection Act*), weed identification and ecology, agriculture, ethnobotany, forensic botany, molecular biology and education.

Type specimens

A type specimen is a specimen assigned by a taxonomist to be the reference point/material for the application of a scientific name. All species with a scientific name have type material, usually a plant specimen held in a Herbarium. The Queensland Herbarium holds more than 10,000 type specimens. High resolution images of the vascular plant type specimens held at the Queensland Herbarium (BRI) are now available on line at [JSTOR](#) (Global Plants Initiative) (<http://plant.jstor.org>) as part of the Global Plants Initiative. New species must be published under international rules that standardise botanical name usage across the world (McNeil et al. 2012) and all must be assigned a type specimen housed in an internationally recognised Herbarium.

Voucher specimens

Scientists using plants in their research are usually required to deposit voucher specimens in a herbarium collection as a permanent and verifiable record of the plant sampled. Voucher specimens are also required to verify a new declared weed or threatened species record and are often used as points of reference for a published photographs of species, seed bank accessions or other record. Please contact us before collecting voucher specimens to find out what is required.

Census of the Queensland flora

This census provides authoritative published lists of all the known native and naturalised species of plants, algae, fungi and lichens in Queensland, updated from the previous census lists (Bostock & Holland 2016). Separate listings of the naturalised and doubtfully naturalised flora are also presented, along with an all combined data list. Species that occur in Queensland and that are only known from cultivation are not included in any of the census lists.

The names of all native and naturalised species, subspecies, varieties, forms and hybrids known to occur in Queensland are listed, generated from the Queensland Herbarium specimen information database (HERBRECS) as at 4 July 2017. These records are primarily based on the Queensland Herbarium specimen collections representing 247 years of verified specimen data.

2017 presentation

The [Census of the Queensland Flora 2017 lists](https://data.qld.gov.au/dataset/census-of-the-queensland-flora-2017) (<https://data.qld.gov.au/dataset/census-of-the-queensland-flora-2017>) are provided in spreadsheet compatible format on the Queensland open data portal (<https://data.qld.gov.au/dataset/census-of-the-queensland-flora-2017>). The census lists include scientific names, distributions (pastoral districts) and status of all currently known Queensland plants, algae, fungi and lichens (see definitions below). Print format for some lists is also available on request.

A list of name and status changes, since the publication of the *Census of the Queensland Flora 2016* (Bostock & Holland 2016), is provided in Appendix A of this document (vascular plants only).

Census of the Queensland Flora 2017 lists (spreadsheet compatible format)

All combined records: Names, distributions and status of Queensland plants, algae, fungi, lichens and cyanobacteria combined into one list.

Full data set: The full data set includes the botanical names broken down into parts (genus, species etc.), names with and without authors and botanical classification number (unique identifier for each name).

Vascular plants (Plantae): Queensland native and naturalised flowering plants, conifers, cycads and ferns.

Vascular plants (Plantae) linked to JSTOR images: Full data for Queensland native and naturalised vascular plants with links to images of type specimens held on [JSTOR](http://plants.jstor.org) (Global Plants Initiative) <http://plants.jstor.org>.

Threatened, Near Threatened and Presumed Extinct (new): plants listed under Queensland's *Nature Conservation Act (1992)*, as of 4 July 2017.

Non-vascular plants (Plantae): Queensland mosses, liverworts and hornworts.

Green and red algae (Plantae): Queensland green and red algae.

Macrofungi (Fungi): Queensland macrofungi (microfungi are excluded).

Lichens (Fungi): Queensland lichens.

True algae (Chromista): Queensland Chromista.

Bacteria (Cyanobacteria only): Queensland cyanobacteria.

Naturalised plants: non-native plants that have become naturalised in Queensland.

Native plants naturalised in Qld: native Queensland plants that have naturalised outside of their native range.

Formerly naturalised plants: plants that have previously been naturalised in Queensland, but have not persisted.

Doubtfully naturalised plants: plants with populations occurring outside of cultivation, but that are not yet considered to be naturalised (established) in Queensland.

The **Plantae** (green plants) comprise vascular plants (flowering plants, conifers, cycads, ferns and fern allies) and non-vascular plants (mosses, liverworts, hornworts, green algae and red algae).

True algae include brown algae and some related groups, together with diatoms (Chromista).

Bacteria are here restricted to the cyanobacteria, previously called blue-green algae. More information on the classification of these groups is given below.

Specimen counts are given for each Queensland district, together with regional (non-Queensland) counts where applicable. Queensland collections not identifiable to a district are recorded under "Qld". Explanatory maps are provided for World regions (Map 1) and Australian States and Territories and Queensland pastoral districts (Map 2), at the end of this document. Note that districts of Queensland, normally abbreviated as 2 letters e.g. Mo for Moreton, have been prefaced by a capital Q_ in the spreadsheets, to distinguish them from other regions e.g. Q_Wa for Warrego, Qld, and WA for Western Australia.

Where species and intraspecific taxa (subspecies and varieties) are recognised to exist, but not yet formally described, a temporary phrase name linked to a herbarium specimen is provided e.g. *Tephrosia* sp. (Barkly Downs S.L.Everist 3384). Taxa that are known to occur in Queensland but which are only represented by verified specimen(s) held at another herbarium are included with a value of "0" (zero).

Native status

Native species are here defined as those that are considered to have evolved in Queensland unaided by humans, or have migrated to and persisted in Queensland without assistance from humans, from an area in which they are considered to be native. The conservation status (X = Presumed Extinct in the wild, E = Endangered, V = Vulnerable or N = Near Threatened) is as recorded in the Queensland [Nature Conservation Act 1992](#)

(<https://www.legislation.qld.gov.au/LEGISLTN/CURRENT/N/NatureConA92.pdf>) for species listed in the [Nature Conservation \(Wildlife\) Regulation 2006](#)

(<https://www.legislation.qld.gov.au/LEGISLTN/CURRENT/N/NatureConAdR06.pdf>) as of 4 July 2017. The remaining native plant species have a conservation status of Least Concern and these are not marked with a symbol in the status column.

Non-native status

Naturalised species are here defined as those that are considered to have established populations outside of their native range, by reproducing there without cultivation or other human intervention. Naturalised species are indicated by an asterisk (*) in the status column. Queensland native plants that have become naturalised in a pastoral district outside their native range are also recorded in a separate list.

There are separate census lists for naturalised (*), doubtfully naturalised (D) and formerly naturalised plant species (!). Formerly naturalised species are those that were previously

considered naturalised, but are presumed to have disappeared from the landscape (not collected for more than 50 years). Doubtfully naturalised species have populations that may be in the early stages of naturalisation and not yet established in the landscape, or their continued existence in the landscape may be doubtful, for example where the entire Queensland population has been subject to an eradication program. Adventive plants or weeds appearing only in gardens and other cultivated situations are not considered to be either doubtfully naturalised or naturalised. Plants known only from cultivation are excluded from all lists.

Many naturalised and doubtfully naturalised species pose a threat to natural ecosystems, agriculture and grazing lands. More than 100 of these species are listed as pests (restricted or prohibited) under the [Queensland Biosecurity Act 2014](#) (<https://www.legislation.qld.gov.au/LEGISLTN/CURRENT/B/BiosecurityA14.pdf>).

Scientific names

The scientific names used in these census lists comply with the rules of the [International Code of Nomenclature of Algae, Fungi and Plants \(Melbourne Code\)](#) (<http://www.iapt-taxon.org/nomen/main.php>) (McNeill *et. al.* 2012) and the International Code of Nomenclature for Cultivated Plants (Brickell *et al.* 2009). Author abbreviations are available from the [International Plant Names Index](#) (<http://www.ipni.org/index.html>). Names at the level of Kingdom and Phylum follow Cavalier-Smith (2004).

Data limitations

These census lists are a snapshot of the flora of Queensland as at 4 July 2017, reflecting the accepted scientific names and distribution of Queensland plants, algae, cyanobacteria, lichens and macrofungi in the State of Queensland based primarily on the Queensland Herbarium collections. Other Australian herbarium collections holding Queensland plant data are not included: see comment above regarding species not represented by a Queensland Herbarium specimen. Additional locations from other herbaria may be accessed from the [Australasian Herbarium](#) (<http://avh.chah.org.au/>)

Readers may submit specimen collections to fill obvious distribution gaps, but are requested to please contact us first and find out what is required. Bryophytes, algae, lichens and fungi usually require additional processing. Note that a permit is required for collecting activities on state lands or where listed threatened species are involved. Contact the Queensland Herbarium Queensland.Herbarium@qld.gov.au

Queensland flora statistics 2017

The Queensland native flora is currently represented by 14,304 native species across all groups, nearly double the number listed by Bailey in 1913 (7,781 species). These native species include 974 species currently listed as threatened: Endangered (E), Vulnerable (V), Near Threatened (N) or Extinct in the wild (X). The remaining native species are listed as Least Concern (no symbol in the census lists).

There are currently 1,331 non-native species that are known to have become naturalised (*) in Queensland, including two fungi species. The naturalised flora of Queensland has been increasing at the rate of approximately 10 species per year for more than 100 years according to Queensland Herbarium records, and now represents more than 13% of the total vascular flora. A further 343 species are considered to be doubtfully naturalised (D). In addition, 22 native Queensland species are recorded here as naturalised outside of their native range. In Queensland, 96 non-native

species previously considered to be naturalised have now disappeared from the landscape (not collected for more than 50 years) are here listed as formerly naturalised (!).

One hundred and four years of flora species discovery is summarised in **Table 1**. Census data over the last 23 years are summarised in **Figure 1**.

Plantae: vascular plants

Vascular plants are those that have distinct vascular tissue (xylem and phloem), as opposed to the non-vascular plants (see below). They are considered to have evolved from a single freshwater green algal ancestor and now include approximately 250,000 species worldwide. The flowering plants (angiosperms) are the largest group, but Queensland also has many native conifers, cycads and ferns. The classification presented here generally follows that of the [Australian Plant Census](https://biodiversity.org.au/nsi/services/apc) (<https://biodiversity.org.au/nsi/services/apc>) and the [Angiosperm Phylogeny Group III](http://www.mobot.org/MOBOT/research/APweb/) (<http://www.mobot.org/MOBOT/research/APweb/>) with some exceptions.

Queensland's 8,585 native vascular plant species represent about half of the known Australian vascular flora. More than one third of these species are endemic, that is they are only found in Queensland. New vascular plant species are still being discovered and described in Queensland at the rate of approximately 20 species per year. Queensland has a wide diversity of [regional ecosystems](http://www.qld.gov.au/environment/plants-animals/plants/herbarium/mapping-ecosystems/) (<http://www.qld.gov.au/environment/plants-animals/plants/herbarium/mapping-ecosystems/>): currently there are 1,461 identified ecosystems which include many unique habitats such as lowland tropical rainforests and desert dune systems. Queensland is also the Australian centre of diversity for several iconic plant groups such as the cycads and zamia palms (44 species) and the ferns and fern allies (386 species).

The three largest families of native vascular plant species in Queensland are the legumes (Leguminosae) 885 species, the grasses (Poaceae 633 species) and myrtles and eucalypts (Myrtaceae 597 species); these three families dominate many ecosystems. The next largest families are the orchids (Orchidaceae 439 species – see below), the sedges (Cyperaceae 377 species) and the daisies (Asteraceae 376 species). The family with the most naturalised species is the grasses (Poaceae 184 species), followed by the legumes (Leguminosae 180 species) and the daisies (Asteraceae 138 species).

Ailsa Holland

Orchids

The taxonomy of a number of plant families is being actively researched. This particularly applies in Orchidaceae at the generic level. Queensland Herbarium staff are working towards a consensus regarding the application of scientific names to orchids where the views of researchers vary.

Mike Mathieson

Algae

Algae and Cyanobacteria (blue-green algae) have traditionally been grouped together based on their ability to undertake photosynthesis in aquatic environments. Unlike land plants which evolved from a common ancestor, different lineages of algae have evolved separately in aquatic environments over the last three billion years. These different evolutionary histories are reflected in the current classification scheme which assigns 'algal' species to four of the six Kingdoms of Life on Earth: cyanobacteria (Bacteria), red and green algae (Plantae), euglenoids and dinoflagellates (Protozoa, not covered in this census) and the brown algae, diatoms and several other phyla

(Chromista, algae in the narrow sense). The classification of the ‘algae’ has changed markedly over the last fifty years and is expected to undergo further revisions as new species are discovered and more intensive studies generate new data. The arrangement of the kingdoms and their constituent cyanobacterial and algal species in this census follows Cavalier-Smith (2004).

Globally, there are approximately 34,000 described species of cyanobacteria and algae, but this is probably only a tenth of the total species as there are many species still to be discovered. These organisms play an important role in aquatic ecosystems underpinning food webs including those supporting commercial fisheries, contributing to global carbon, nitrogen and sulphur cycles, stabilizing sediments to improve water quality and providing habitat for many other species.

Julie Phillips, Glenn McGregor

Plantae: non-vascular plants—bryophytes

“Bryophyte” is a collective term for three distinct lineages of non-vascular land plants within the Kingdom Plantae: mosses (Bryophyta), liverworts (Marchantiophyta) and hornworts (Anthocerotophyta). The three lineages are grouped together because of shared traits, primarily small stature, lack of vascular tissue and a life cycle including a sporophyte (diploid spore producing phase) and a dominant gametophyte (haploid sexual phase which is the most easily seen form). From an evolutionary viewpoint, the bryophytes mark the transition from aquatic to terrestrial environments and are considered the closest modern relatives of terrestrial plants but the classification and relationships of the three lineages is still debated. There are an estimated 20,000 species worldwide with approximately 1,800 occurring in Australia. With just over 1,000 known species occurring in Queensland, the Bryophytes are the second-most diverse group of land plants after the angiosperms.

In Queensland, bryophytes occupy a diverse range of habitats from arid environments through to tropical rainforests. They are often among the first species to colonise exposed surfaces such as road cuttings. Along with cyanobacteria, lichens and algae, bryophytes are a critical component of the biological crusts which bind the soil surface in semi-arid to arid areas.

The true mosses (Bryophyta) are the most diverse group and generally have leaves spirally arranged around the stem and usually have a mid-rib (costa). Mosses are generally erect in form and are attached to the substrate via root-like structures (rhizoids).

Liverworts (Marchantiophyta) may be either flat (thallose) or leafy and superficially resemble mosses but leaves lack a mid-rib. Many species grow on other plants, especially in high-rainfall forests and are important as habitats for invertebrates and in regulating forest hydrology.

Hornworts (Anthocerotophyta) have distinctive elongated sporophytes that split longitudinally to release the spores, while the gametophytes are flat. Most species are terrestrial, growing on moist earthen banks or in gaps between ground covers. One genus (*Dendroceros*) is epiphytic, growing on rough barked trees in rainforests.

The bryophyte flora of Queensland is far from complete with many areas yet to be properly surveyed. However, with more identification resources readily available such as Australian Mosses Online and well-illustrated field guides, a greater understanding of the bryophyte diversity and distribution in Queensland will be possible.

Andrew Franks, Ross Patterson

Fungi: macrofungi

Fungi are an important part of ecosystem processes. The roles of different fungi include decomposers that recycle nutrients, mycorrhizal fungi that are associated with plant roots and assist water and nutrient absorption, along with disease fungi such as myrtle rust which attack their hosts. Many fungi are important food sources for native animals.

Fungi appear in the fossil record at around the same time as plants and animals. The macrofungi recorded here include those with larger, more visible fruiting bodies and are mainly decomposers or mycorrhiza. Two groups are included in this census, reflecting the majority of fungal collections: the sac fungi (Ascomycetes) and the club fungi (Basidiomycetes). The sac fungi are recognised by the typical ascus (plural asci), a cup or sac usually containing eight sexually-produced spores. These include the cup fungi, morels, truffles and most lichens. Club fungi are recognised by their distinctive basidium (plural basidia), or club shaped cells, which usually bear sexually-produced spores in groups of four. They include the mushrooms, puffballs, coral fungi, bracket fungi and many other forms.

The fungal biodiversity of Queensland is still largely unknown and the classification of fungi is undergoing rapid changes due to the results of molecular studies. Recent surveys in south-eastern Queensland have shown that more than 70% of fungi species in this area are new to science. The Queensland Herbarium and the [Queensland Mycological Society](http://qldfungi.org.au/) (<http://qldfungi.org.au/>) are actively involved in discovering and documenting the fungi flora.

Two non-native species are known to be naturalised in Queensland.

Nigel Fechner, Megan Prance

Fungi: lichens

The lichens are a group of organisms characterised by a symbiotic relationship between a fungus and a photobiont (photosynthetic organism). The photobiont is usually a green alga or a cyanobacterium (blue-green alga). The fungus is almost always a sac fungus (Ascomycete) but may also be a club fungus (Basidiomycete). About 40% of sac fungi are lichenized. Lichens are considered to be ancient in origin, appearing in the earliest known land floras.

A lichen name is strictly applicable to the fungal component only, the photobiont being classified separately. Most of the green-algal photobionts are not known to occur outside of lichens and many show genetic adaptation to the lichen life-style. Lichenization has occurred at least five times within the Ascomycota and several times in the Basidiomycota.

About half of the known Australian lichens occur in Queensland, with many more yet to be discovered, especially in central and northern Queensland. The Queensland Herbarium and the Queensland Mycological Society are actively involved in discovering and documenting the lichen flora.

Rod Rogers

Table 1. Census of the Queensland Flora Statistics—1913 to 2017

	Kingdom & Group	2017	2013	2010	2007	2002	1997	1994	1913 (Bailey)
Plantae: Angiosperms (flowering plants)	Native	8,133	8,078	8,005	7,901	7,677	7,512	7,252	4,626
	Naturalised	1,312	1,262	1,241	1,175	1,066	1,001	910	297
	Subtotal	9,446	9,340	9,246	9,076	8,743	8,513	8,162	4,923
Plantae: Gymnosperms (conifers, cycads and allies)	Native	65	64	62	62	59	60	54	29
	Naturalised	6	6	6	6	3	3	3	0
	Subtotal	71	70	68	68	62	63	57	29
Plantae: Pteridophytes (ferns and allies)	Native	386	381	381	381	377	374	375	233
	Naturalised	11	11	11	10	10	7	5	0
	Subtotal	397	392	392	391	387	381	380	233
Plantae: Non-vascular plants	Mosses (Bryophyta)	569	561	555	556	574	595	not listed	360
	Liverworts & hornworts	448	437	421	411	315	not listed	not listed	113
Algae (Plantae, Chromista and Cyanobacteria)	Algae	1561	1,555	1,505	1,433	1,011	1,004	not listed	718
Fungi (lichens and macrofungi groups)	Lichens	2,052	1,962	1,888	1,742	1,558	1,370	not listed	828
	Native Macrofungi	1,090	1,036	1,026	not listed	not listed	not listed	not listed	874
	Naturalised fungi	2	2	—	—	—	—	—	—
Totals	Total native	14,304	14,076	—	—	—	—	—	7,781
	Total naturalised	1331	1,279	1,258	1,191	1,079	1,011	918	297
	Overall total native and naturalised	15,635	15,355	—	—	—	—	—	8,078

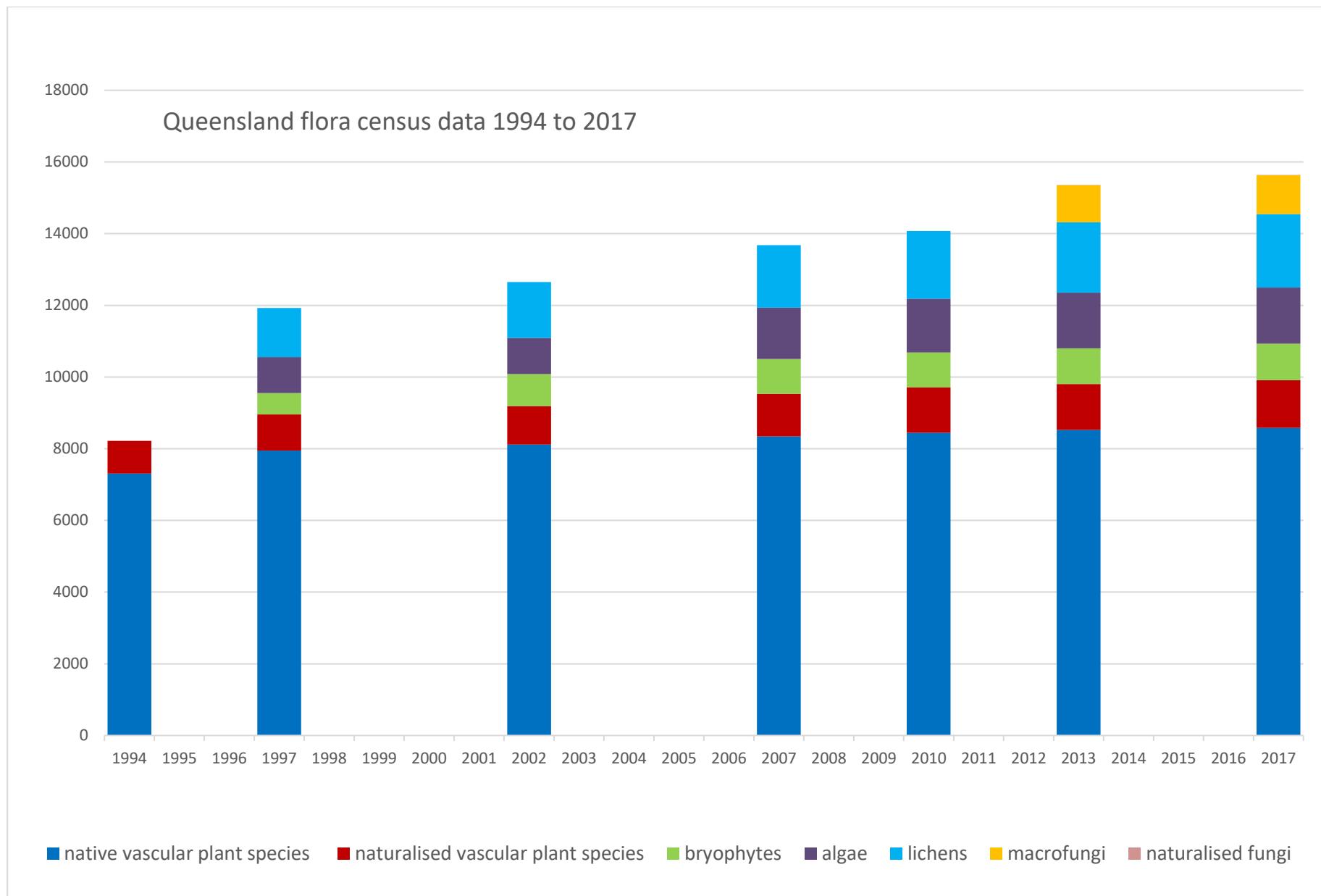


Figure 1 Census of the Queensland Flora Statistics —1994 to 2017

Useful references and web resources

Australasian Virtual Herbarium, Council of Heads of Australasian Herbaria <http://avh.chah.org.au>

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Contributors

[*= Queensland Herbarium honorary research associate or external contributor]

Flowering Plant families (Angiosperms)

Bean, A.R.: Acanthaceae, Adoxaceae, Amaranthaceae, Apiaceae, Balsaminaceae, Caprifoliaceae, Chrysobalanaceae, Cleomaceae, Hydatellaceae, Hydroleaceae, Lythraceae, Mazaceae, Melastomataceae, Myodocarpaceae, Myrtaceae (Leptospermoideae), Passifloraceae, Pedaliaceae, Plantaginaceae, Ranunculaceae, Rhamnaceae, Rosaceae, Solanaceae, Sphenocleaceae, Stylidiaceae, Thymelaeaceae.

Bean, A.R. & Jessup, L.W.*: Araliaceae.

Bean, A.R. & Forster, P.I.: Lamiaceae.

Booth, R.: Centrolepidaceae, Cyperaceae, Restionaceae.

Clarkson, J.R.*: Erythroxylaceae.

Crayn, D.*: Ericaceae.

Dowling, R: Rhizophoraceae.

Edginton, M.: Brassicaceae, Chenopodiaceae, Cucurbitaceae, Santalaceae, Scrophulariaceae, Viscaceae.

Fechner, N.: Linderniaceae, Phrymaceae, Stackhousiaceae.

Fensham, R.J.: Burmanniaceae, Eriocaulaceae, Pandanaceae.

Field, A.R.: Cymodoceaceae, Nymphaeaceae, Ruppiaceae, Zosteraceae.

Forster, P.I.: Agavaceae, Amaryllidaceae, Apocynaceae, Arecales, Argophyllaceae, Asphodelaceae, Blandfordiaceae, Bromeliaceae, Cactaceae, Campanulaceae, Carpodetaceae,

Commelinaceae, Costaceae, Crassulaceae, Dioscoreaceae, Doryanthaceae, Dracaenaceae, Escalloniaceae, Flagellariaceae, Haemodoraceae, Hyacinthaceae, Iridaceae, Loganiaceae, Melianthaceae, Phyllanthaceae, Piperaceae, Proteaceae (Edginton M.: *Grevillea & Hakea*); Ptaeroxylaceae, Putranjivaceae, Quintiniaceae, Ripogonaceae, Rutaceae, Smilacaceae, Stemonaceae, Taccaceae, Violaceae, Vitaceae, Xanthorrhoeaceae, Xyridaceae.

Forster, P.I. & Guymer, G.P.: Sapindaceae.

Forster, P.I. & Halford, D.A.*: Euphorbiaceae, Picrodendraceae, Rubiaceae.

Forster, P.I. & Laidlaw, M.J.: Araceae.

Forster, P.I. & Ngugi, L.: Zingiberaceae.

Guymer, G.P.: Aceraceae, Alseuosmiaceae, Balanopaceae, Bignoniaceae, Bombacaceae, Byttneriaceae, Capparaceae, Corynocarpaceae, Elaeagnaceae, Elaeocarpaceae, Gesneriaceae, Helicteraceae, Icacinaceae, Leptaulaceae, Loranthaceae, Malvaceae, Nothofagaceae, Orobanchaceae, Pennantiaceae, Pentapetaceae, Simaroubaceae, Stemonuraceae, Sterculiaceae (McDonald W.J.: *Argyrodendron*), Surianaceae, Tamaricaceae, Winteraceae.

Guymer, G.P. & Jessup, L.W.*: Myrtaceae (Myrtoideae).

Halford, D.A.*: Brownlowiaceae, Convolvulaceae, Muntingiaceae, Sparrmanniaceae.

Harris, W.K.*: Oleaceae.

Hodgon, J.*: Juncaceae.

Holland, A.E.: Bataceae, Begoniaceae, Cannabaceae, Casuarinaceae, Corsiaceae, Dilleniaceae, Goodeniaceae, Gyrostemonaceae, Hydrangeaceae, Martyniaceae, Moringaceae, Nitrariaceae, Olacaceae, Oxalidaceae, Papaveraceae, Petiveriaceae, Phytolaccaceae, Plumbaginaceae, Resedaceae, Triuridaceae, Tropaeolaceae, Zygophyllaceae.

Holland, A.E. & Bean, A.R.: Asteraceae.

Holland, A.E. & Pedley, L.*: Fabaceae.

Hosking, J.* & Bean, A.R.: naturalised species.

Jessup, L.W.*: Actinidiaceae, Akaniaceae, Aphanopetalaceae, Aristolochiaceae, Atherospermataceae, Austrobaileyaceae, Basellaceae, Berberidaceae, Berberidopsidaceae, Bixaceae, Burseraceae, Cardiopteridaceae, Caricaceae, Clusiaceae, Cochlospermaceae, Connaraceae, Daticaceae, Dichapetalaceae, Elatinaceae, Eupomatiaceae, Hamamelidaceae, Hanguanaceae, Hernandiaceae, Himantandraceae, Idiospermaceae, Lauraceae, Malpighiaceae, Meliaceae, Memecylaceae, Menispermaceae, Moraceae, Myristicaceae, Myrsinaceae, Ochnaceae, Opiliaceae, Paulowniaceae, Pittosporaceae, Samolaceae, Sapotaceae, Sphenostemonaceae, Theaceae, Trimeniaceae, Turneraceae, Ulmaceae.

Jessup, L.W.* & Field, A.R.: Annonaceae, Ebenaceae.

Jessup, L.W.* & Halford, J.J.*: Anacardiaceae, Aquifoliaceae, Celastraceae, Cornaceae, Flacourtiaceae, Monimiaceae, Symplocaceae, Urticaceae

Jessup, L.W.* & Laidlaw, M.J.: Cunoniaceae.

Laidlaw, M.J.: Calceolariaceae, Heliconiaceae, Salicaceae, Tetrachondraceae.

Mathieson, M.T.: Byblidaceae, Droseraceae, Frankeniaceae, Lentibulariaceae.

Mathieson, M.T., Field, A.R. & Bostock, P.D.*: Orchidaceae.

McDonald, W.J.*: Combretaceae.

Ngugi, L.B.: Asparagaceae, Cannaceae, Marantaceae, Musaceae.

Pedley, L.*: Caesalpiniaceae, Verbenaceae.

Pedley, L.*, Brown, G.: Mimosaceae.

Pennay, C.: Alismataceae, Aponogetonaceae, Cabombaceae, Ceratophyllaceae, Haloragaceae, Hydrocharitaceae, Juncaginaceae, Limnocharitaceae, Maundiaceae, Mayacaceae, Menyanthaceae, Najadaceae, Nelumbonaceae, Onagraceae, Philydraceae, Podostemaceae, Polygonaceae, Pontederiaceae, Potamogetonaceae, Typhaceae.

Pollock, A.: Nyctaginaceae.

Thomas, M.B.: Aizoaceae, Caryophyllaceae, Molluginaceae, Portulacaceae.

Thompson, E.J.*: Boraginaceae, Polygalaceae.

Thompson, E.J.*: Poaceae; Kelman, D. (*Bambusa*).

Wang, J.: Alliaceae, Alstroemeriaceae, Anthericaceae, Balanophoraceae, Boryaceae, Cecropiaceae, Colchicaceae, Gentianaceae, Hemerocallidaceae, Hugoniaceae, Hypoxidaceae, Johnsoniaceae, Laxmanniaceae, Liliaceae, Linaceae, Luzuriagaceae, Maesaceae, Pentaphylacaceae, Petermanniaceae.

Wilson, G.*: Nepenthaceae.

Wood, A.: Geraniaceae, Lecythidaceae, Strelitziaceae.

Wood, A. & Cameron, P.*: cultivated species.

Conifers, cycads and allies (gymnosperms): Forster, P.I.; Edginton, M. (Pinaceae)

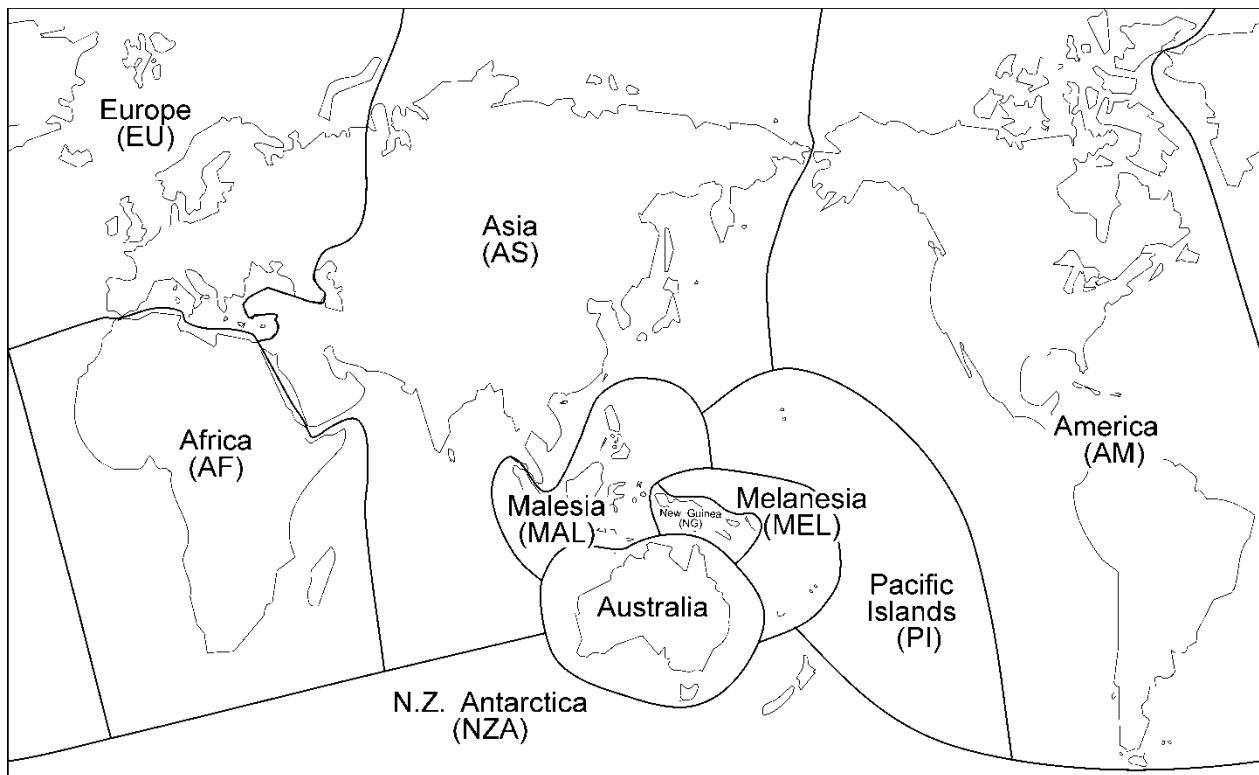
Ferns and fern allies (pteridophytes): Field, A.R. & Bostock, P.D.*

Mosses, liverworts, hornworts (bryophytes): Franks, A.J.*

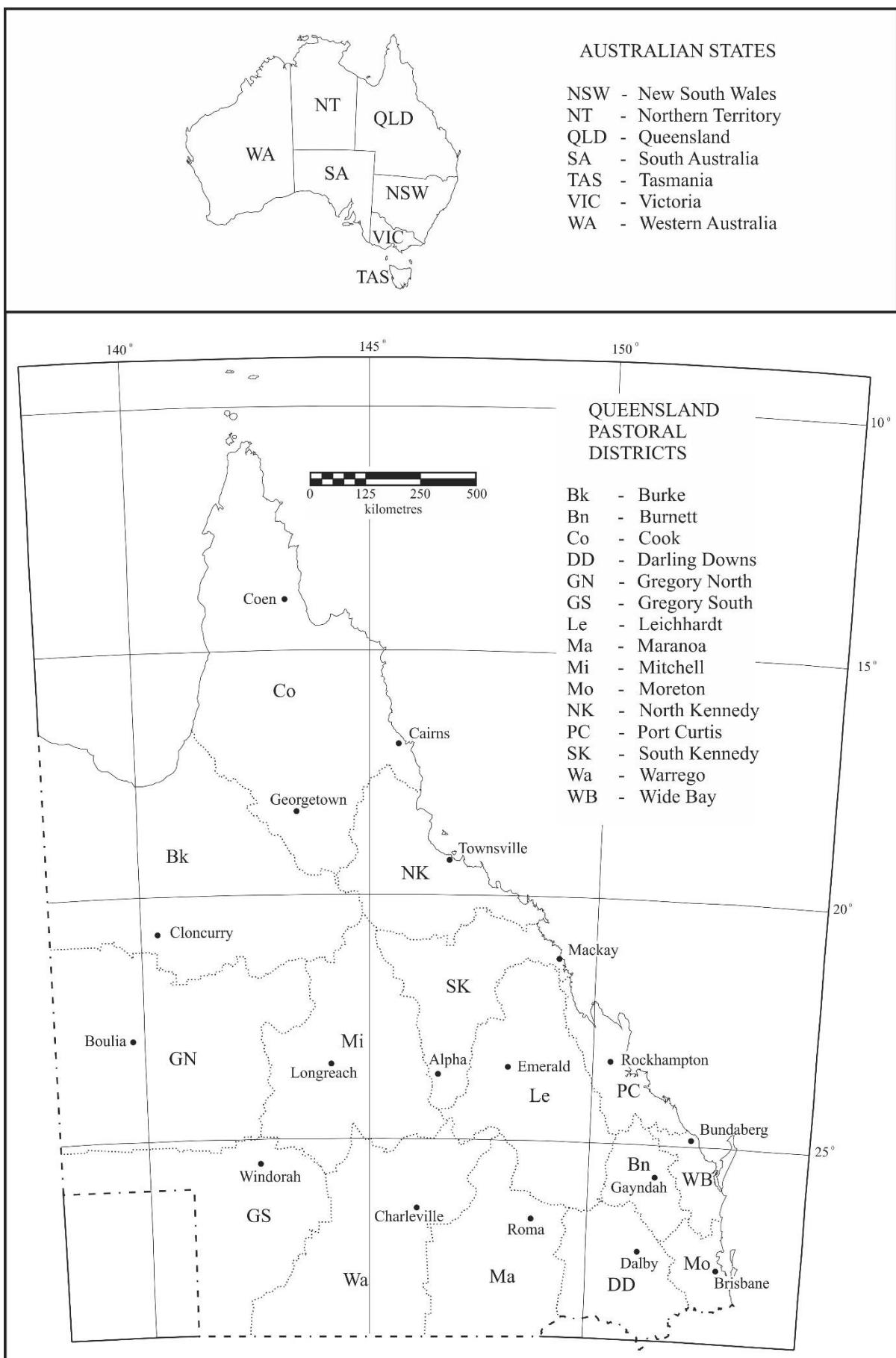
Algae (all groups): McGregor, G.B.* (freshwater); Phillips, J.A.* (marine)

Lichens: Rogers, R.* and Holland, A.E.

Macrofungi: Fechner, N., Prance, M. (*Trametes*, *Gastrum*), Leonard P.* , Guard F.* & Evans G.*



Map 1. Regions of the world

**Map 2. States of Australia and pastoral districts of Queensland**

Appendix A: New names and name and status changes 2016 census to 2017 census

(vascular plants only)

X = Extinct in the wild

E = Endangered

V = Vulnerable

N = Near Threatened

LC = Least Concern (blank in this document)

* = naturalised

D = doubtfully naturalised

Ferns and fern allies

Thelypteridaceae

Amphineuron tildeniae Holttum, a new record for Queensland

Flowering plants

Acanthaceae

Avicenniaceae – family removed, all species moved to Acanthaceae

Graptophyllum pictum (L.) Griff. removed, specimen cultivated

**Odontonema tubaeforme* (Bertol.) Kuntze removed, Queensland specimens re-determined to

**Odontonema cuspidatum* (Nees) Kuntze, a new record as naturalised

**Ruellia repens* L. removed, Queensland specimens re-determined to **Dipteracanthus prostratus* (Poir.) Nees

**Strobilanthes anisophylla* (Wall. ex Hook.) T.Anderson to **Strobilanthes persicifolia* (Lindl.) J.R.I.Wood, a new record as naturalised

Adoxaceae E.Mey. (a new family record)

Sambucaceae removed, all species moved to Adoxaceae

**Viburnum odoratissimum* Ker Gawl., **Viburnum odoratissimum* var. *awabuki* (K.Koch) Zabel, previously in Caprifoliaceae moved to Adoxaceae

Amaranthaceae

X *Ptilotus senarius* A.R.Bean, status change from Least Concern to Presumed Extinct (not seen for more than 50 years)

Apocynaceae

**Ambrosia confertiflora* DC., re-instated as naturalised, previously formerly naturalised

D *Asclepias tuberosa* L., a new doubtfully naturalised species for Queensland

Asteraceae

**Bidens pilosa* L. var. *pilosa* and **Bidens pilosa* var. *minor* (Blume) Sherff, varieties now recognised

**Bidens subalternans* DC. var. *subalternans* and **Bidens subalternans* var. *simulans* Sherff, varieties now recognised

Calocephalus sp. (Edgbaston J.Silcock JLS800) to *Calocephalus birchii* P.S.Short, a new species for Queensland

V *Calocephalus* sp. (Eulo M.E.Ballingall MEB2590) to **V** *Calocephalus glabratus* P.S.Short, a new species for Queensland

Cassinia longifolia R.Br. removed, specimens re-determined elsewhere

**Helianthus debilis* Nutt. to **Helianthus debilis* subsp. *cucumerifolius* (Torr. & A.Gray) Heiser, the only subspecies in Australia

! *Jacobeaea maritima* (L.) Pelser & Meijden, previously doubtfully naturalised (not collected for 50 years)

Lagenophora brachyglossa Jian Wang ter & A.R.Bean, a new species for Queensland

Lagenophora fimbriata Jian Wang ter & A.R.Bean, a new species for Queensland

Lagenophora sp. (Forty Mile Scrub R.J.Fensham 1113) to *Lagenophora queenslandica* Jian Wang ter & A.R.Bean, a new species for Queensland

Olearia racemosa Domin removed, specimen re-determined to *Olearia subspicata* (Hook.) Benth.

D *Palafoxia texana* DC. var. *texana*, removed, specimen cultivated

E *Pluchea alata* A.R.Bean, status change from Least Concern to Endangered

V *Pluchea tenuis* A.R.Bean, status change from Least Concern to Vulnerable

Pluchea tetrantha F.Muell., a new record for Queensland

N *Rutidosis lanata* A.E.Holland, status change from Vulnerable to Near Threatened

N *Sphaeromorphaea major* A.R.Bean, status change from Least Concern to Near Threatened

**Verbesina alata* L., a new naturalised species for Queensland

**Verbesina encelioides* (Cav.) Benth. & Hook.f. to **Verbesina encelioides* (Cav.) Benth. & Hook.f. var. *encelioides*, the only variety in Australia

D *Xanthium orientale* L. removed, specimens re-determined to *Xanthium occidentale* Bertol.

Xerochrysum subundulatum (Sch.Bip.) R.J.Bayer removed, this species not in Queensland

Bignoniaceae

Dolichandrone alternifolia (R.Br.) F.M.Bailey, this species re-instated in Queensland

Dolichandrone alternifolia (R.Br.) F.M.Bailey subsp. *alternifolia* and *Dolichandrone alternifolia* subsp. *variabilis* Jackes – these subspecies not accepted at BRI

Byttneriaceae

Lasiopetalum parviflorum Rudge, a new record for Queensland

Caesalpiniaceae

Caesalpinia bonduc (L.) Roxb. to *Guilandina bonduc* L.

**Caesalpinia decapetala* (Roth) Alston to **Biancaea decapetala* (Roth) O.Deg.

Caesalpinia erythrocarpa Pedley to *Mezoneuron erythrocarpum* (Pedley) R.Clark & E.Gagnon

**Caesalpinia gilliesii* (Wall. ex Hook.) D.Dietr. to **Erythrostemon gilliesii* (Wall. ex Hook.) Klotzsch

N *Caesalpinia hymenocarpa* (Prain) Hattink to **N** *Mezoneuron hymenocarpum* Wight & Arn. ex Prain

Caesalpinia nitens (F.Muell. ex Benth.) Pedley to *Mezoneuron nitens* (F.Muell. ex Benth.) R.Clark & E.Gagnon

Caesalpinia scorchedinii (F.Muell.) Hattink to *Mezoneuron scorchedinii* F.Muell.

Caesalpinia sp. (Bromley B.P.Hyland 9022) to *Mezoneuron scorchedinii* F.Muell.

Caesalpinia subtropica Pedley to *Mezoneuron brachycarpum* Benth.

Caesalpinia traceyi Pedley to *Mezoneuron scorchedinii* F.Muell.

Cynometra roseiflora W.E.Cooper, a new species for Queensland

Cynometra sp. (Paira Homestead Rd G.Sankowsky+ 1223) to *Cynometra ramiflora* L., a new record for Queensland

Chenopodiaceae

Atriplex australasica Moq., a new record for Queensland

Sclerolaena costata (R.H.Anderson) A.J.Scott, a new record for Queensland

Convolvulaceae

Davenportia davenportii (F.Muell.) R.W.Johnson to *Distimake davenportii* (F.Muell.) A.R.Simoes & Staples

Merremia aegyptia (L.) Urb. to *Distimake aegyptius* (L.) A.R.Simoes & Staples

**Merremia dissecta* (Jacq.) Hallier f. to **Distimake dissectus* (L.) A.R.Simoes & Staples

Merremia peltata (L.) Merr. to *Decalobanthus peltatus* (L.) A.R.Simoes & Staples

Merremia quinata (R.Br.) Ooststr. to *Distimake quinatus* (R.Br.) A.R.Simoes & Staples

**Merremia quinquefolia* (L.) Hallier f. to **Distimake quinquefolius* (L.) A.R.Simoes & Staples

**Merremia tuberosa* (L.) Rendle to **Distimake tuberosus* (L.) A.R.Simoes & Staples

Merremia umbellata subsp. *orientalis* (Hallier f.) Ooststr. to *Camonea umbellata* (L.) A.R.Simoes & Staples

Merremia umbellata (L.) Hallier f. subsp. *umbellata* to *Camonea umbellata* (L.) A.R.Simoes & Staples

Cyperaceae

Isolepis subtilissima Boeckeler, a new record for Queensland

Dilleniaceae

Hibbertia acuminata B.J.Conn, a new record for Queensland

Hibbertia surcularis Toelken, a new record for Queensland

Eriocaulaceae

Eriocaulon carsonii subsp. *euloense* R.J.Davies removed, new synonym of *E. carsonii* subsp. *orientale* R.J.Davis

Euphorbiaceae

Mallotus pleiogynus Pax & K.Hoffm., a new record for Queensland

Fabaceae

Cajanus mareebensis (S.T.Reynolds & Pedley) Maesen, status change from Endangered to Least Concern

! *Crotalaria ochroleuca* G.Don, previously naturalised (not collected for 50 years)

Dalbergia densa var. *australis* Prain to *Dalbergia densa* Benth., varieties are no longer recognised

Dalbergia ferruginea Roxb., a new record for Queensland

Daviesia filipes Benth. to *Daviesia filipes* Benth. subsp. *filipes*

Daviesia filipes subsp. (Stannary Hills T.L.Bancroft AQ259595) to *Daviesia filipes* subsp. *terminalis* Crisp & G.Chandler

! *Glycine max* (L.) Merr., previously naturalised (not collected for 50 years, however still present as a cultivated crop)

D *Indigofera drepanocarpa* Taub., a new doubtfully naturalised species for Queensland, previously cultivated at Samford, Brisbane

Indigofera saxicola F.Muell. ex Benth. removed, these specimens re-determined elsewhere

! *Lathyrus sativus* L., previously doubtfully naturalised (not collected for 50 years)

Swainsona canescens (Benth.) F.Muell. removed, Queensland specimens re-determined elsewhere

Lamiaceae

**Clerodendrum thomsoniae* Balf. to **Clerodendrum x speciosum* Dombrain

Mentha diemenica Spreng. removed, specimens re-determined elsewhere

Oncinocalyx betchei F.Muell. to *Teucrium betchei* (F.Muell.) Kattari & Salmaki

! *Salvia farinacea* Benth., previously doubtfully naturalised (not collected for 50 years)

E *Spartothamnella juncea* (A.Cunn. ex Walp.) Briq. to *Teucrium junceum* (A.Cunn. ex Walp.) Kattari & Heubl.

Spartothamnella puberula (F.Muell.) Maiden & Betche to *Teucrium puberulum* (F.Muell.) Kattari & Brauchler

Spartothamnella teucriiflora (F.Muell.) Moldenke to *Teucrium teucriiflorum* (F.Muell.) Kattari & Salmaki

Westringia longifolia R.Br., a new record for Queensland

Linaceae

**Linum trigynum* L., a re-instated naturalised species for Queensland, previously formerly naturalised

Linderniaceae

Lindernia clausa (F.Muell.) F.Muell., a new record for Queensland

D *Lindernia procumbens* (Krock.) Philcox, a new doubtfully naturalised species for Queensland

D *Lindernia rotundifolia* (L.) Alston, a new doubtfully naturalised species for Queensland

Lindernia sp. (Hann River J.R.Clarkson 7953) to *Lindernia stantonii* Wannan, a new species for Queensland

Lindernia sp. (Merapah B.S.Wannan 5240) to *Lindernia beasleyi* Wannan, a new species for Queensland

Loganiaceae

Logania pusilla R.Br. to *Orianthera pusilla* (R.Br.) C.S.P.Foster & B.J.Conn

Malvaceae

Hibiscus diversifolius Jacq. to *Hibiscus diversifolius* Jacq. subsp. *diversifolius* and **Hibiscus diversifolius* subsp. *rivularis* (Bremek. & Oberm.) Exell (this subspecies naturalised in Queensland)

Hibiscus meraukensis Hochr. x *H. splendens* C.Fraser ex Graham removed, specimens re-determined to *Hibiscus townsvillensis* Craven

Hibiscus sankowskyorum Craven, a new species for Queensland

Hibiscus townsvillensis Craven, a new species for Queensland

Mimosaceae

Acacia deanei (R.T.Baker) M.B.Welch, Coombs & McGlynn subsp. *deanei* to *Acacia deanei* (R.T.Baker) M.B.Welch, Coombs & McGlynn (*Acacia deanei* subsp. *paucijuga* (F.Muell. ex N.A.Wakef.) Tindale to *Acacia paucijuga* F.Muell. ex N.A.Wakef., NSW)

D *Acacia dunnii* Turrill, a new doubtfully naturalised species for Queensland, native to Western Australia

Acacia malloclada Maiden & Blakely, a new record for Queensland

Myrtaceae

N *Eucalyptus tereticornis* subsp. *rotunda* A.R.Bean, status change from Least Concern to Near Threatened

E *Homoranthus tricolor* A.R.Bean, status change from Least Concern to Endangered

Kunzea caduca Toelken, a new species for Queensland

Kunzea capitata Rchb. removed, Queensland specimens re-determined to *Kunzea obovata* Byrnes

Kunzea sp. (Darling Downs K.A.Williams 75106) removed, synonym of *Kunzea obovata* Byrnes

E *Kunzea* sp. (Dicks Tableland A.R.Bean 3672) to **E** *Kunzea sericothrix* Toelken, a new species for Queensland

E *Kunzea* sp. (Herbert River R.J.Cumming 11309) to **E** *Kunzea truncata* Toelken, a new species for Queensland

Melaleuca sp. (Walshs Pyramid P.I.Forster PIF13767) to *M. pyramidalis* Craven

Nepenthaceae

Nepenthes parvula G.W.Wilson & S. Venter, a new species for Queensland

Oleaceae

Notelaea longifolia forma *glabra* P.S.Green to *Notelaea punctata* R.Br.

Notelaea longifolia forma *intermedia* P.S.Green and *Notelaea longifolia* Vent. forma *longifolia*, both to *Notelaea longifolia* Vent.

Notelaea microcarpa R.Br. var. *microcarpa* to *Notelaea microcarpa* R.Br.

Notelaea microcarpa var. *velutina* (F.M.Bailey) P.S.Green to *Notelaea longifolia* Vent.

Orchidaceae

Calochilus gracillimus Rupp to *Calochilus therophilus* D.L.Jones, a new record for Queensland

Dipodium atropurpureum D.L.Jones removed, Queensland specimens re-determined to *Dipodium punctatum* (Sm.) R.Br.

Dockrillia sulphurea D.L.Jones & M.A.Clem., a new record for Queensland

D *Eulophia graminea* Lindl., a new doubtfully naturalised species for Queensland

Luisia teretifolia Gaudich. removed, Queensland specimens re-determined to *Luisia atacta* D.L.Jones

E *Oberonia attenuata* Dockrill, status change from Presumed Extinct to Endangered following re-discovery in the wild

Pterostylis borealis (D.L.Jones) D.L.Jones, a new species for Queensland

Pterostylis sp. (Mt Mee M.T.Mathieson+ MTM725) to *Pterostylis exquisita* (D.L.Jones) D.L.Jones, a new species for Queensland

Pterostylis sp. (Mt Moffatt NP R.Crane 2037) to *Pterostylis antennifera* (D.L.Jones) D.L.Jones, a new species for Queensland

Taeniophyllum clementsii (D.L.Jones & B.Gray) Kocyan & Schuit., a new record for Queensland.

Taeniophyllum explanatum B.Gray, a new species for Queensland

Orobanchaceae

**Striga angustifolia* (D.Don) C.J.Saldanha, a new naturalised species for Queensland

Passifloraceae

**Passiflora coccinea* Aubl., a new naturalised species for Queensland, previously doubtfully naturalised

**Passiflora morifolia* Mast., a new naturalised species for Queensland, previously doubtfully naturalised

**Passiflora suberosa* L. to **Passiflora pallida* L. and **Passiflora suberosa* subsp. *litoralis* (Kunth) Port. – Util. ex M.A.M.Azevedo et al. (only this subspecies in Queensland)

! *Passiflora tarminiana* Coppens & V.E.Barney, previously doubtfully naturalised (not collected for 50 years)

Paulowniaceae

**Paulownia tomentosa* (Thunb.) Steud., a new naturalised species for Queensland, previously doubtfully naturalised

Phyllanthaceae

Actephila longipedicellata P.I.Forst. to *Actephila forsteri* B.J.Conn

! *Phyllanthus acidus* (L.) Skeels, previously naturalised (not collected for 50 years)

Phyllanthus triandrus subsp. (Mt May P.I.Forster+ PIF11778) removed, synonym of *Phyllanthus hirtellus* F.Muell. ex Muell.Arg.

Sauropus ochrophyllus (Benth.) Airy Shaw removed, Queensland specimens re-determined elsewhere

Poaceae

Amphibromus nervosus (Hook.f.) Baill., a new record for Queensland

! *Hordeum hystrich* Roth, previously doubtfully naturalised (not collected for 50 years)

!. *Panicum gilvum* Launert, previously doubtfully naturalised (not collected for 50 years)

D *Paspalum ciliatifolium* Michx., a new doubtfully naturalised species for Queensland

Proteaceae

Banksia spinulosa var. *cunninghamii* (Sieber ex Rchb.) A.S.George removed, Queensland specimens re-determined elsewhere.

Rubiaceae

Spermacoce sp. (Temple Bay P.I.Forster PIF8975) removed, these specimens re-determined to *Spermacoce pogostoma* var. *hispida* F.M.Bailey (not a synonym of *S. baileyanus* Domin).

Rutaceae

E *Clausena smyrelliana* P.I.Forst. to **E** *Murraya crenulata* Oliv.

Samolaceae

Samolus eremaeus S.W.L.Jacobs, a new record for Queensland

Sapotaceae

N *Chrysophyllum roxburghii* G.Don to **N** *Donella lanceolata* (Blume) Aubrev.

Solanaceae

**Datura wrightii* Regel removed, Queensland specimens re-determined elsewhere

E *Solanum adoxum* A.R.Bean, status change from Least Concern to Endangered

E *Solanum orgadophilum* A.R.Bean, status change from Least Concern to Endangered

E *Solanum unispinum* A.R.Bean, status change from Least Concern to Endangered

Solanum yirrkalense Symon removed, Queensland specimens re-determined to *Solanum discolor* R.Br.

Stemonaceae

N *Stemonia angusta* I.Telford, status change from Vulnerable to Near Threatened

Thymelaeaceae

Pimelea curviflora var. *sericea* Benth. removed, Queensland specimens re-determined elsewhere

Thecanthes cornucopiae (Vahl) Wikstr. to *Pimelea cornucopiae* Vahl

Thecanthes sanguinea (F.Muell.) Rye to *Pimelea sanguinea* F.Muell.

Turneraceae

**Turnera subulata* Sm., a new naturalised species for Queensland, previously doubtfully naturalised

Violaceae

Hybanthus enneaspermus (L.) F.Muell. to *Afrohybanthus enneaspermus* (L.) Flicker

Hybanthus stellaroides (Domin) P.I.Forst. to *Afrohybanthus stellaroides* (Domin) Flicker

Viscaceae

Korthalsella japonica forma *grayi* (Barlow) Molvray to *Korthalsella grayi* Barlow

Korthalsella japonica (Thunb.) Engl. forma *japonica* to *Korthalsella japonica* subsp. *brassiana* (Blakely) Barlow

Korthalsella japonica forma *rubra* (Tiegh.) Molvray to *Korthalsella rubra* (Tiegh.) Engl. subsp. *rubra*

Korthalsella taenioides forma *pendula* (Wawra) Molvary to *Korthalsella breviarticulata* (Tiegh.)
Danser

Korthalsella taenioides (Comm. ex DC.) Engl. forma *taenioides* to *Korthalsella rubra* subsp.
geijericola Barlow