

Plant Formations in the Lord Howean BioProvince

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Lord Howean Lowland Rain Forest

These forests are generally characterized by the endemic *Ficus columnaris* (Moraceae) and *Howea forsteriana* (Arecaceae), while other large endemic trees include *Guioa coriacea* (Sapindaceae), and the endemic *Pandanus forsteri* (Pandanaeae) is frequent in gullies. Smaller endemic trees include *Coprosma putida* (Rubiaceae), *Dysoxylum pachyphyllum* (Meliaceae), *Geniostoma petiolosum* (Loganiaceae), *Psychotria carronis* (Rubiaceae) and *Randia stipulosa* (Rubiaceae), and the ancient *Bubbia howeana* (Winteraceae). Lianas are very common with the largest of these remarkable plants including *Lyonsia reticulata* and *Marsdenia rostrata*, but epiphytes such as the endemic epiphytic orchid *Dendrobium moorei* (Orchidaceae) are scarce. The undergrowth is composed of a variety of species including the endemic *Exocarpus homaloclada* (Santalaceae), *Senecio insularis* (Asteraceae) and the endemic fern *Asplenium milnei* (Aspleniaceae). Small trees, such as the endemic *Celtis amblyphylla* (Cannabaceae) and *Rapanea platystigma* (Myrsinaceae) dominate the exposed outer edges of the forest. Also in the lowland rain forest are two endangered Red Data Book species. These are *Marrattia salicina* (horseshoe fern), which is an endemic sub-species, confined to certain ledges and terraces, and *Passiflora herbertiana* subsp. *insulae-howeii* (Lord Howe Island passion fruit) another endemic sub-species that grows as a low twiner. Another endemic found in the lowland forest is *Sideroxylon howeanum* (Sapotaceae).

Lord Howean Hill Forest

The endemic *Acicalyptus fullagari* (Myrtaceae) and *Howea belmoreana* (Arecaceae) are two of the main characteristic trees of these forests. Other endemic trees include *Guioa coriacea* (Sapindaceae) and *Notelaea quadristaminea* (Oleaceae) but most of the smaller trees found here such as *Bubbia howeana* are also found in the lowland forest. One exception, occurring mainly in the valleys, is the strange endemic *Negria rhabdothamnoides* (family?), which is representative of one of the island's endemic genera. Tree ferns are uncommon but the two endemics *Alsophila robusta* (Cyathaceae) are fairly common with *Flagellaria indica* and *Malaisa scandens* frequent and conspicuous. The shrub layer includes the endemic *Metsideros nervulosa*, while damp banks support a variety of ferns including the endemic *Dryopteris apiculis* and *Polystichum whiteleggei* (Dryopteridaceae). Another endemic *Polystichum* (*Polystichum moorei*) occurs beneath overhangs and in caves. At elevations above 300 m, palms of the endemic genus *Howea* are replaced by the endemic palm *Hedyscepe canterburgana* (Arecaceae). Trees in this part of the forest also include the endemic *Alyxia squamulosa* (Apocynaceae), *Evodia polybotrya* (Rutaceae) and *Olearia ballii* (Asteraceae), whilst in among the damp rocks can be found the endemic fern *Asplenium howeanum* (Aspleniaceae) and *Brachycoma segmentosa* (Asteraceae).

Lord Howean Mountain Moss Forest

Above altitudes of about 600 m these forests are often enveloped in clouds, and more or less permanently saturated. They are largely composed of small trees, shrubs, palms and tree ferns most of which are endemic. *Dracophyllum fitzgeraldi* (Ericaceae), the palms *Clinostigma mooreanum* and *Hedyscepe canterburyana* (Arecaceae), the tree ferns *Cyathea brevipinna*, *C. macarthuri* (Cyatheaceae) and *Hemitelia moorei* (Cyatheaceae) are some of the more conspicuous endemics. Many of the endemic shrubs found here can also be found in the lower forests, but *Cryptocarya gregsoni* (Lauraceae) and *Olearia mooneyi* (Asteraceae) are possibly more closely associated with these mountain forests.

For the most part, the forest floor is covered with moss, but also various endemic ferns such as *Asplenium pteridoides* (Aspleniaceae), *Blechnum fullagari* (Blechnaceae) and *Diplazium melanochlamys* (Athyriaceae). Flowering plants are less common but may include the endemic *Brachycome segmentosa* (Asteraceae) and *Plantago hedleyi* (Plantaginaceae). Much more conspicuous are the many epiphytes. On branches the ancient *Tmesipteris tannensis* may be accompanied by the endemic tree orchid *Dendrobium gracilicaule* (Orchidaceae) and the endemic ferns *Polypodium diminutum* and *P. pulchellum* (Polypodiaceae). The lower parts of tree trunks usually support the climbing fern *Blechnum attenuata* and the moss *Spiridens muelleri*, while higher up the fern *Hymenophyllum multifidum*, the moss *Barbella enervis* and the foliaceous lichen *Sticta freycinetii* are often the main species. In some of the more exposed locations where scrub cover is less dense, the undergrowth may be almost impenetrable due to the presence of various tussock species such as *Gahnia xanthocarpa* and the endemic *Cladium insulare* (Cyperaceae) and *Moraea robinsoniana* (Iridaceae). The endemic scrub species found here including *Cassinia tenuifolia* (Asteraceae), *Olearia ballii* (Asteraceae) and *Senecio insularis* (Asteraceae). In some of the highest forests on the island grows the rare and vulnerable Red Data Book species *Carmichaelia exsul* a shrubby member of the Fabaceae. Other endemics found in the moss forest for which more information is required include *Alyxia lindii* (Apocynaceae), *Luzula longifolia* (Juncaceae) and the ferns *Hemitelia moorei* (Cyatheaceae) and *Leptopteris moori* (Osmundaceae). The latter species can be found on the island's summit. The endemic *Melicope contermina* (Rutaceae) and *Nothopanax cissodendron* (Araliaceae) are also found in parts of this forest and the endemic *Cleistoma erectum* (Orchidaceae) is found on rocks and trees, but the exact habitat of the endemic *Dryopteris nephrodioides* (Dryopteridaceae), *Rapanea myrtillina* (family?) and *Symplocos candelabrium* (Symplocaceae) is unknown.

Lord Howean Scrub

Various wind-pruned shrubs occur in the coastal zones. Two endemics on sea cliffs include *Cassinia tenuifolia* (Asteraceae) and *Coprosma prisca* (Rubiaceae), and moving away from the more maritime zones the endemic *Primelea congesta* (family?) occurs. Other endemic coastal shrubs include *Celtis amblyphylla* (Cannabaceae) and *Rapanea platystigma* (family?) but these appear to be more closely associated with the beaches. Other endemic shrubs on the island include *Boehmeria calophleba* (Urticaceae) and *Coprosma lanceolaris* (Rubiaceae).

Lord Howean Rush Formations

Situated on a stretch of level sand between the forest and the beach occurs a dense growth of rushes dominated by *Scirpus nodosus*. Other species found in this zone include the endemic *Lepidium howei-insulae* (Brassicaceae) and various trailing plants such as *Mucuna gigantea* and *Vincetoxicum carnosum*.

Lord Howean Sand Dunes

The dominant plant here is the trailing sand-binding grass *Spinifex hirsutus* and the trailing herbs *Ipomaea palmata*, *I. pes-caprae* and *Wedelia uniflora*. Also fairly common is the endemic *Lepidium howei-insulae* (Brassicaceae).

Lord Howean Coastal Succulent Formations

In some of the more exposed coastal cliff sites, the succulents *Mesembryanthemum aequilaterale* and *Lobelia anceps* form extensive patches, but on coastal rocks just above high tide the saltwater specialist is *Salicornia australis*.

Lord Howean Mangroves

Apart from a few *Avicennia officinalis* occurring on the shingle beaches and *Aegiceras corniculatum* in the mouth of a creek system, mangroves are not well represented.

Further information required.

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