Stewart Island Plants

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Stewart Island is about the size Wellington Province would be if it were cut across from Paekakariki to Palliser Bay, the harbour then being equivalent to Paterson Inlet. The hill country is not as high as the Tararuas, the highest peak (Mt. Anglem) being only a little higher than Mt. Matthews in the Orongorongos. Nevertheless, the subalpine scrub and the open tops are almost identical in aspect with those of the Tararuas. Bush gives way to scrub at about 1800 feet and at 2000 feet the vegetable-sheep and mountain daisies appear.

The coast on the west side of the island between South Cape and Rugged Island is extremely wild and exposed; that on the Foveaux Strait side is more sheltered, but still subject to the type of gale experienced in the Cook Strait area. In the most sheltered bays, bush consisting mainly of rata (*Metrosideros umbellata*) and inaka (*Dracophyllum longifolium*) comes right down to the water's edge; where there is less shelter muttonbird scrub, dominated by *Senecio puffini* (*rotundifolius*), is found; and on the most exposed cliffs there is tupari scrub. Tupari (*Olearia colensoi* var. *grandis*) grows either by itself or in association with tete-a-weka (*O. angustifolia*). *Hebe elliptica* is common on most parts of the coast. Of the small plants, *Myosotis albida* seems to be able to stand the most severe gales; *Samolus repens, Tillaea moschata, Gentiana saxosa* (see head-piece) and other close-growing plants form a damp salty turf on wave-cut rock-platforms; and plants like *Dendrobium cunninghamii* and the filmy ferns hang over the water from rocks and branches in sheltered bays.

In Stewart Island the bush forms a more or less wide fringe round the edge, rising to the foothills. Deer have cleared most of it of the once-luxuriant undergrowth of ferns and saplings, with the exception of small islands where some regeneration is rendered poss-

ible by keeping the deer chased off. The common type of bush is rimu-rata-kamahi with thin-bark totara, miro, broadleaf, *Nothopanax* species and stinkwood (*Coprosma foetidissima*). Matai and kahikatea are rare and local. Lawyer, supplejack and the tree-ferns, *Cyathea smithii, Dicksonia squarrosa* and *D. fibrosa,* are common. Mamaku (*Cyathea medullaris*) is only found in a few places on the coast. At the head of Paterson Inlet the bush alters to the bog-pine type, in which *Dacrydium biforme* and *D. intermedium* are prominent. *Plagianthus betulinus* and *P. divaricatus, Aristotelia fruticosa, Senecio elaeagnifolius, Cassinia vauvilliersii* and tall manuka grow along the riverbanks here. In clearings about Halfmoon Bay appears the characteristic second-growth of young rimu, stinkwood, wineberry, *Suttonia australis,* etc.

The muttonbird islands in Foveaux Strait have a special group of plants of their own, although much of the scrub and bush resembles that on Stewart Island itself. *Senecio stewartiae,* giant nettles (*Urtica australis*) and punui (*Stilbocarpa lyallii*) are characteristic of this luxuriant, well-manured vegetation.

The subalpine scrub closely resembles the coastal scrub, mainly on account of the dominant tupari. The mountain tupari, however, is distinct from the coastal tupari: the former is close to the original *Olearia colensoi* from the Ruahines; the latter, named *O. colensoi* var. *grandis* by the late Mr. Simpson, is nearer *O. layallii* from the Snares and Auckland Islands. A series of *Dracophyllum* shrubs from the tall *D. longifolium* to the cushion-forming *D. politum* is found on ascending any Stewart Island mountain. One species that cannot be mistaken for any other is the broad-leaved *D. menziesii,* found only on Mt. Anglem, along with another localized plant, *Archeria traversii* var. *australis.*

The herbfields in the summer are flecked with yellow and white mountain daisies, especially on Table Hill where the *Senecio scorzoneroides-S. lyallii* series seems to attain all possible tints from bright yellow to white. *Chrysobactron gibbsii, Aciphylla traillii, Danthonia pungens, Senecio bellidioides, Celmisia polyvena, C. clavata,* at least

Myosotis albida, a common plant of coastal cliffs in Stewart Island.

two other species of *Celmisia,* and great hard masses of the vegetable sheep *Raoulia goyeni* are characteristic of Table Hill and Mt. Rakeahua. Mt. Anglem has a local set of species including *Ranunculus lyallii, Leucogenes grandiceps* and several species of *Ourisia.* The edelweiss is also found on Mt. Allen, and some of the others may be there too.

Most of the centre of the island, apart from the high ranges, is taken up with the flats. These consist of old sandhills and riverbeds, with tussock (mainly *Danthonia rigida*), toetoe, *Carmichaelia, Pratia, Ranunculus kirkii* (see tail-piece), *Gentiana grisebachii,* flax and manuka. In summer the orchid *Thelymitra venosa* may be seen in lovely clumps of blue and mauve flowers under every manuka bush. The white coral-lichen, *Cladonia retipora,* clusters with bright-berried heaths (*Cyathodes, Pentachondra, Leucopogon*) along the track to Mason Bay. In the swamps there are various communities of rushes, sedges and sphagnum moss, and an occasional stand of white pine. Bog cushions (*Gaimardia* and *Oreobolus*), sundews (*Drosera* species), bladderwort (*Utricularia*) and the lovely *Epilobium pallidiflorum* give the swamps a colourful beauty of their own, unpleasant as they are underfoot. *Libertia peregrinans* covers acres of the drier sandy ground towards Mason Bay.

Celmisia rigida, a plant found only in Stewart Island, where it grows on cliffs to the south of Mason Bay and in a few other places.

Although a great deal has already been accomplished there is still much work to be done on the Stewart Island flora. Cockayne's Report (Dept. of Lands, 1909) is an excellent guide considering the short time he had there, but several revisions are needed. Charles Traill, who lived on the island for many years, was a keen field worker and has a species each of *Cotula, Aciphylla* and *Olearia* named after him. Poppelwell spent useful time on the flats and muttonbird islands. The late Messrs. George Simpson and Scott Thompson included in their valuable work on the New Zealand flora many investigations into the status of Stewart Island species and varieties. Mr. William Martin's ecological studies of the Stewart Island mosses and hepatics are well-known. On the island itself, Mrs. P. Willa has made a collection of seaweeds for Mr. Lindauer; Mr. and Mrs. C. Smith are studying the local orchids; Miss Olive Allan has made collections of Stewart Island plants now growing in the Otari Gardens; and until a short time ago many Stewart Island plants were growing in Miss Baker's garden, which she presented to the Government--with disastrous results at the hands of one of its employees.

How long the Stewart Island flora lasts depends on the deer and other pests. The character of the bush has already been drastically altered, although regeneration would still take place if the deer could be exterminated. This is impossible for the whole island; but my father, who is the ranger, keeps the islets in Paterson Inlet free of deer, and thinks that the fencing off of a few areas would save something. The deer have already discovered the open tops; *Ranunculus lyallii* is fast vanishing from Anglem, the only local peak where it grows, and I have found there only one edelweiss plant. The Rakeahua Valley alone has a unique flora; the deer, however, are as plentiful there as everywhere else. The Government policy of deer-culling, no matter how strenuously pursued, is only scratching the surface. Unless some other method of dealing with this problem is found and practised very soon, it will be too late for a thorough study of the plants of Stewart Island.