

Olearia colensoi and its Relatives

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THE genus *Olearia* includes a group of closely related shrubs: stout; woody-stemmed; closely branched; tough in the leaf, which is either toothed or serrate, more or less glabrous in maturity, tomentose in youth, densely so beneath (and on the young twigs).

Olearia colensoi, with its rayless flower-heads, was subdivided by Simpson in 1945 (*Trans. R. Soc. N.Z.* 75, p. 198) to include the variety *grandis*. The Allan *Flora* (1961, p. 660) also recognises a variety *argentea*, listing *O. colensoi* as occurring in "N., S., St., Solander Id. Montane to subalpine scrub from lat. 38° southwards, descending to sealevel in southernmost part of range . . . Type locality: Mount Hikurangi". The type locality of *O. colensoi* var. *argentea* is Dusky Sound; that of var. *grandis*, Stewart Island, in coastal scrub.

Olearia colensoi occurs in various shapes and sizes. It may be a stunted shrub or a twelve-foot-high tree, with a trunk anything up to two foot through with grooved and rugged bark. Its toothed or serrate leaves, downy beneath and on top too when young, vary in outline from boat-shaped (in plan) to inverse egg; they grow from two to six inches long, and sometimes nearly equally broad, on short thick stalks. The branches curve widely upwards and are leafy only at the ends, the older stems being clad in thin bark. The subalpine form has jaggedly toothed leaves reminiscent of a fretsaw, but the coastal Stewart Island one has its teeth swollen into tiny green knobs almost buried in the overlapping edging of tomentum. This feature is not apparent in dried specimens, when the knobs shrivel and shrink and look like teeth.

The flower-heads, 2-3 ins in diameter, cluster in groups of 4-10 in downy racemes at the ends of the branches; the heads are dark red to dark brown, with smooth, loose involucre bracts arranged below the tightly massed florets. These tiny individual flowers are all tube-shaped; the female ones are set in a single ring, each with a 3-lobed corolla as a rule, and are narrower than the other (bisexual) florets. The dry seed with its pappus of hairs is grooved and silky.

Olearia colensoi scrub is densely massed and penetrable with difficulty. As Stewart Island coastal tupari, it favours bleak and exposed parts of the shore, giving place elsewhere to teteaweka (even tougher in habitat), or muttonbird scrub, or inaka, or rata, depending on the degree of exposure, temperature and other factors. As mountain leatherwood, *O. colensoi* forms tough dense scrub on much of the high country of both the North and South Islands, and also on Stewart Island, where it (or possibly an intermediate form, or series



Olearia colensoi var. *grandis*: Ulva, Stewart Island.

of forms) descends to sea-level. The rigid habit, tough leathery leaves and matted felt of tomentum are no doubt protection against excessive transpiration in the often inhospitable corners it occupies. The coastal var. *grandis* with its swollen teeth is further modified against drying out in salty gales; I don't know var. *argentea*, but the name suggests plenty of tomentum. Transplanted *grandis* does quite well at Ohiro Bay, but I have had no luck with mountain tupari—straight-out *O. colensoi*—from any district, N., S. or St. The southerlies, cold, salty and violent, have a long fetch before they slam into my garden. At some time or other I have had *O. grandis*, *O. angustifolia* (teteaweka), the formerly so-called *O. traillii* (tupari/teteaweka cross), *O. lyallii* and *O. semidentata* in my garden: of these, teteaweka and tupari have weathered conditions best. The others, battered and knocked about by southerlies, have then succumbed to dry nor'-westerly spells, transplanting, or over-picking of the candelabra-like branches. One horticultural show finished off an interesting violet-flowered "*traillii*" hybrid, unlike any other I'd seen.

The Stewart Island coastal variety, Simpson's *Olearia colensoi* var. *grandis* (tupari to Stewart Islanders), is usually associated with teteaweka, *O. angustifolia*, with which it crosses. Teteaweka is a handsome shrub or small tree with narrow serrate leaves and pretty daisy-heads, complete with a white frill of ray florets round the purple disc. It closely resembles *O. oporina* of the West Coast Sounds (in which, however, the disc florets are yellow), and has affinities too with *O. chathamica* (disc florets purple, ray florets white to purple) and *O. semidentata* (leaves rather distantly serrate in upper half only, ray florets purple, disc florets violet-purple), which both occur, with variations, in the Chatham Islands.

To revert to the tupari/teteaweka complex: "*O. traillii*" Kirk (*Trans. N.Z. Inst.* 16, 1884, p. 372) has long been recognised as a hybrid only. It is an attractive plant, often quite tall, with long soft leaves varying from fairly narrow to fairly wide. The flowers are like those of tupari; possibly some are rayless, but those that have been noticed have had rays, shorter than in teteaweka, white (Ulva Island, old landing), pink (seen by Mrs Eileen Willa at The Neck), or violet (specimen collected at Ulva as seedling, grown at Ohiro Bay, bereft of flowers and subsequently a victim of dry rot). The last may have been a descendent of some Chatham Island plant introduced by Chas. Traill, but I doubt it. Dr Salmon and the Botany Division have transparencies of its flowers. One day it may turn up again in some hybrid swarm. According to Allan, *Flora* p. 660, *O. semidentata* has pink and white varieties too. In *O. angustifolia* proper, the purple of the disc fades as the florets mature, and a second flowering in February (the earlier one is in November) seems on the whole to produce paler discs, lilac or cream shading

into buff. Teteaweka grows on both sides of Foveaux Strait. It would be interesting to find out just where it gives place to *O. oporina*. Plants of the latter brought back by Dr Morice from Secretary Island unfortunately died before I could establish them at Ohiro Bay. My oldest surviving teteaweka bush, now some seventeen years old, has flowered profusely each November (never in February, though), until the dry blow following the "Wahine" storm turned most of its leaves brown for half their length. The following November it managed one flower; now (April, 1969) it is as green and bushy as before.

Coastal tupari usually has very large leaves when growing in its natural state at Stewart Island. Often the leaves are nearly as big as those of the subantarctic *O. lyallii*, of which a specimen from the Snares flourishes in the next-door garden to my father's. Young tupari plants, and those growing back from the full strength of wind and spray, have the young leaves covered with soft down on both surfaces. It would be interesting to line these up with Allan's var. *argentea*, type locality Dusky Sound. The Snares *lyallii* seems to keep its tomentum on the upper surface longer than tupari normally does, but I have seen tupari looking like lambs' lugs too.

Stewart Island's tupari is not confined to the coast, at least in local nomenclatural usage. A mountain version tallying more closely with the type *O. colensoi* than with its var. *grandis* forms a typically rigid scrub over most of the open tops, where the weather at times approaches blizzard conditions. The flower-heads of this mountain tupari appear smaller and more crimson than those of the coast plant; the florets are fewer to a head, and the stalks stout and twisty, where *grandis* typically has straight, more slender stalks, and smaller and more numerous flowers tightly crammed on a much larger head. Below the dense subalpine scrub belt, odd tupari plants appear all the way down to sea level, or rather river level, growing as trees along the riverbanks at the head of Paterson Inlet. There is a gap for a few miles, then tupari reappears as typical *grandis* on the exposed headland of Dynamite Point. The riverbank plant, a tree up to 10 ft high, has its leaves harshly jagged as in the mountain form. On the bleak south-west coast of the Island, where mountain plants slope down to sea level, it may be possible to catch *O. colensoi* in the act of turning into *O. colensoi* var. *grandis*.

That's assuming that *grandis* is a variety of *O. colensoi* — but is it? Cockayne (*Botanical Report on Stewart Island*, 1909) was strongly tempted to identify Rakiura's coastal tupari with the *O. lyallii* of the islands further south. But Simpson (*Trans. R. Soc. N.Z.* 1945) objected that *lyallii* has erect branches, wider leaves and smaller regular teeth "almost concealed in the marginal tomentum". He did think the *mountain* tupari of Stewart Island, which he compared with the Fiordland leatherwood, might be "as



Olearia angustifolia



O. semidentata



buff-disked stage



O. colensoi var. grandis

O. colensoi var. grandis X angust.

the species" (*colensoi*), but he had not seen its flowers. Those I saw on the Thomson Range of Stewart Island looked mighty like those I had recently seen at Rangiwahia in the Ruahines — but a lot less like the flowers of the coastal *grandis*. Apparently the feature that is supposed to distinguish *colensoi* and *lyallii* is the structure of the

phyllaries or involucre bracts: 1-2 series in *colensoi*, "several series" in *lyallii*, 2-3 series in var. *grandis*! The leaves of *grandis* and *lyallii* are far from dissimilar, not only in the tomentose edge with its rows of succulent teeth (possibly a little more orderly in *lyallii*), but, perhaps more significantly, in the tendency for the side veins to branch off all the way up the main vein, rather than spring more conspicuously from near the basal region, as they do in typical *colensoi*. In this respect, the non-coastal, river-and-upland tupari of Stewart Island appears to hover between the two patterns. I have yet to see fresh flower heads of *lyallii*, but those dried heads in the Dominion Museum herbarium, long since gone to seed, do seem to me to resemble in size, colour, density of floral arrangement, and general aspect, those of typical *grandis*. Photographs of *O. lyallii* scrub along the shore of Auckland Island could just as easily have been taken on one of the Bravo Islands in Paterson Inlet, where rugged-trunked *grandis* leans and sprawls out over the cliffs and beaches.

Olearia colensoi var. *grandis*, then, seems to me to fall between two stools; it is not quite *colensoi*, and not quite *lyallii*. Perhaps an identification-parade of fresh flowers and other material, all the way from Mt Hikurangi to Auckland Island, could be managed in these days of helicopter transport, refrigerated storage and the affluent society?

Since this article was received, the relationships of the large-headed olearias have been further discussed by Drury (*N.Z. J. Bot.* 6:459-466) who also finds little to separate *O. lyallii* from *O. colensoi* var. *grandis*, nor *O. angustifolia* from *O. chathamica*.—Ed.

Book Review

New Zealand Mosses, by Sheila Natusch. Pegasus Press, Christchurch, 24 pp. Price 50 cents.

INFORMATION on New Zealand mosses is so inaccessible to a beginner that this small booklet cannot but be welcomed. It provides an excellent introduction to the subject. Although only a few of the 400-500 New Zealand mosses, and, of course, none of the introduced mosses, are mentioned, a careful selection has been made so as to include the more striking ones. Sketches by the author of 20 of these are a great help in identification. The informal style of the booklet should appeal to Junior Naturalists but others also will find the material useful.

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