

INDIGENOUS SCRUB AND FOREST FLORA OF THE MACAULAY RIVER CATCHMENT, NORTHEAST MACKENZIE BASIN

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The Macaulay River flows into the Godley River near the head of Lake Tekapo (Fig. 1). Its valley extends 28 km northward between the Sibbald and Two Thumb Ranges. The highest peaks are Mt Sibbald, 2811 m and the Thumbs, 2546 m. Small glaciers lie on the high mountain shoulders near the valley head. Many signs of ancient glaciation are evident: big cirques and hanging valleys, prominent moraines, gorged side creeks (the largest, North-East Gorge Stm flows from beneath the Thumbs and associated peaks), and some high waterfalls. Like most larger Canterbury rivers the Macaulay has a wide gravel floodplain, some grassy flats and steep sides with jagged ridges and screes.

The most abundant vegetation is tussock grassland (short tussock on the valley floor, with many adventive species present and tall tussock on higher slopes with *Chionochloa* spp.) Scrub is abundant also, but the only relatively common tree is the small, winter deciduous *Hoheria lyallii*, mountain ribbonwood. Lilybank Station, near the Godley-Macaulay confluence, surrounded by exotic conifers, is the only settlement in the catchment.

Hugh Wilson recorded the flora of the upper Godley Valley for his Mount Cook National Park study (Wilson 1976) and David Scott made some records in the lower Godley (Scott 1960, 1963). As far as I know there are no published botanical records from the Macaulay. I have visited the Valley half a dozen times between 1958 and 1999 during climbing expeditions, or studying glacial geology. The latest trip opportunity was when my friends Peter Bain and Robbie Kroll went up the valley to Lower Tindill Stm by truck, aiming to climb Mt Sibbald, in Jan. 1999. I went as expedition botanist, and spent three days examining the lower valley sides and the lower parts of the tributaries between Twin Waterfall Stms and Stony Stm (west side) and Tom's Stm to North-East Gorge Stm (east side). Although there were hints of a forest flora in several of the tributaries and along the valley walls, I had pleasant surprises in finding small stands of mountain totara (*Podocarpus hallii*), associated with mountain toatoa (*Phyllocladus alpinus*) and a variety of other shrubs, and mountain ribbonwood, in Toms Stm and in two steep tributaries just south of the North-East Gorge Stm confluence, Third Waterfall and Second Waterfall Stms (not much imagination in the creek names – there is also a First Waterfall and a Waterfall Stm!). Most of the other shrubs, and vines and ferns are more generally and widely distributed.

I walked down the valley in the late afternoon of the second day, sleeping out under the stars near Stony Stm. The joy of being in this lovely mountain environment was leavened a bit by the extreme daytime heat, the problem of frozen boots and sox next morning, and the hordes of sandflies which drove me out of my camp at first light.

However it was great to find such interesting botany and to be picked up on the third day by the cheerful and successful, but very heat-affected mountaineers. The woody plant flora listed in Table 1 is fairly similar to that of the eastern Arrowsmith Range (Burrows 1996). It indicates that, like vast areas between the Rakaia Valley and Mount Cook, the Macaulay was once well-wooded, but lost most of its forest to fire during the Polynesian settlement era, and into European settlement times. Charred logs were evident in several places in the Macaulay tributaries. The surviving old mountain totaras in Second and Third Waterfall Stms and Tom's Stm had been protected from fire by their "hull-down" positions in gorges with rocky back-drops.

REFERENCES

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- Scott, D. 1960: Seasonal behaviour of some montane plant species. *N.Z. Journal of Science* 3: 694–669.
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Table 1. Woody plant flora of the Macaulay River Catchment**Taxa****Trees***Hoheria lyalli*, mtn ribbonwood*Podocarpus hallii*, mtn totara 1,2,3,4**Shrubs***Aristotelia fruticosa*, shrub wineberry*Carmichaelia angustata*, native broom*C. australis*, native broom*Coprosma ciliata*, ciliate c.*C. cf. depressa*, creeping c.*C. propinqua*, miki miki*C. cf. pseudocuneata*, fleshy-leaved c.*Corokia cotoneaster*, korokio*Discaria toumatou*, matagouri*Dracophyllum longifolium*, long-leaved d.*D. kirkii*, glaucous d.*D. uniflorum*, single-flowered d.*Gaultheria crassa*, lily of the valley shrub*Hebe buchananii*, Buchanan's h.*H. cf. pinguifolia*, glaucous h.*H. subalpina*, subalpine h.*Helichrysum intermedium*, whipcord sungold*Hymenanthera alpina*, whare karara*Leptospermum scoparium*, manuka 3*Olearia arborescens*, broadleaved akeake 3*O. avicenniaefolia*, silver akeake 3*O. cymbifolia*, boat leaved o.*O. nummularifolia*, coin leaved o.*O. fimbriata* (= *odorata*), scented o.*Ozothamnus vauvilliersii*, mountain tauhinu*Phyllocladus alpinus*, mountain toa toa*Pimelea traversii*, Travers' daphne*Pittosporum anomalum*, toothed-leaf p.*Podocarpus nivalis*, snow totara*P. nivalis* x *hallii*, hybrid totara 3,4*Senecio cassinioides*, yellow shrub daisy**Vines***Clematis marata*, small green-flowered c.*Muehlenbeckia complexa*, shrubby pohuehue*Rubus schmidelioides*, hairy-leaved lawyer*R. squarrosus*, narrow-leaved lawyer**Herb***Phormium cookianum*, wharariki**Ferns***Asplenium flabellifolium*, fan-leaved spleenwort*A. richardii*, Richard's spleenwort*A. trichomanes*, maidenhair spleenwort 3*Cystopteris tasmanica*, bladder fern*Grammitis* sp., strap fern*Hypolepis millefolium*, soft fern*Hymenophyllum multifidum*, filmy fern*Polystichum vestitum*, prickly shield fern1, Tom's Stm; 2, 2nd Waterfall Stm; 3, 3rd Waterfall Stm; 4, near Stony Stm

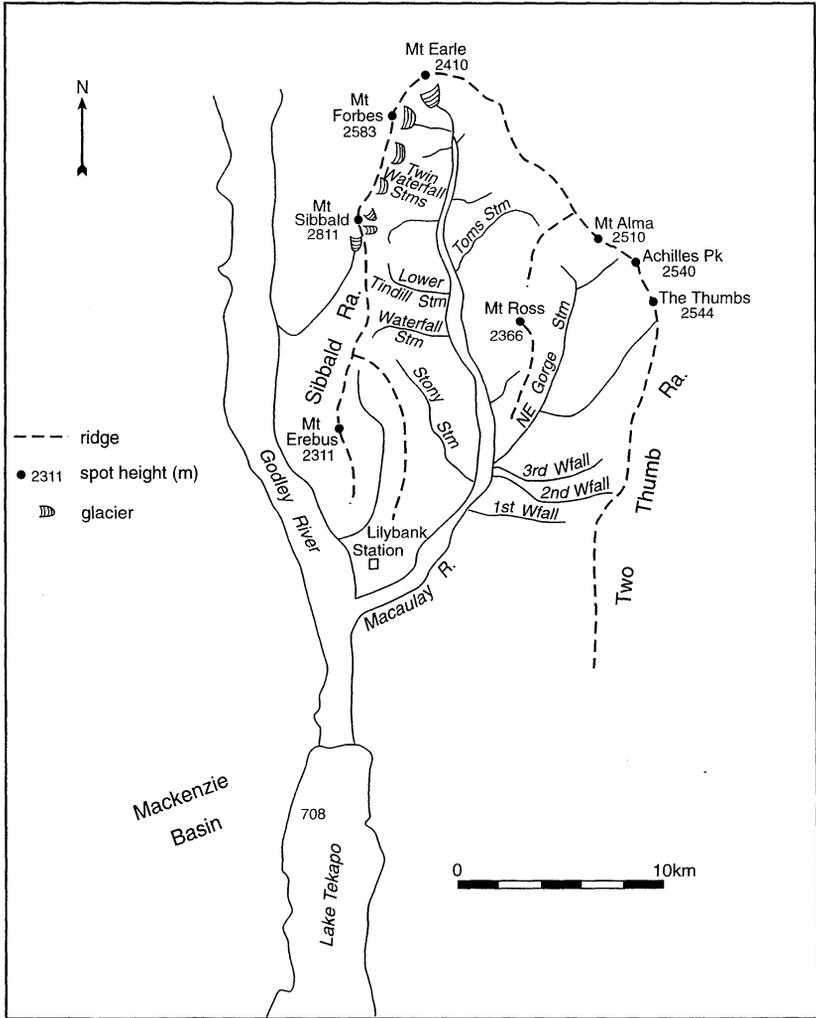


Fig. 1. The Macaulay Valley