THE BOTANY OF OTANERITO STATION, BANKS PENINSULA

Hugh Wilson[1]

Otanerito

Otanerito Station, neighbouring Hinewai Reserve in the southeast corner of Banks Peninsula, is one of the largest and wildest properties on the Peninsula. Its 900 ha takes in the top of Stony Bay Peak at 806 m, and falls nearly to sea level in the Otanerito Valley. It also takes in a substantial part of the Stony Bay catchment and laps over on to the Akaroa side of Stony Bay Peak down to about 600 m.

Last century the block was farmed by the Narbeys who were the first Europeans to settle in the valley. Narbey descendants still farm between Otanerito Station and the sea, but Otanerito has passed through many hands since Charles Narbey left the valley during the 1930s depression. The Hinewai block itself was split off from Otanerito in 1960 and sold cheaply, because what was not carrying beech, kanuka or mixed second-growth bush was under old man gorse. Most of Otanerito Station, too, steadily reverted to gorse, broom and second-growth bush. A succession of hopefuls tried to reassert control with burning, spraying and grazing. During my botanical survey of Banks Peninsula between 1983 and 1988 the Otanerito block changed hands twice.

The present owners are the Wright-Stows and Kevin Brookfield in partnership. Stuart and Angela Wright-Stow are our neighbours at Hinewai, living one hour's walk down-valley in Charles Narbey's old house which they refurbished in 1987. Like their predecessors, the Wright-Stows have also found that the problems of pastoral farming on their block are large. They decided that forestry would be their best option. With the Ministry of Forestry as consultant, their proposal is to plant about 400 ha in exotic trees. Finance is to be raised through the involvement of up to 25 people in a private company, or through other arrangements involving more shareholders.

Because of distance from markets and the difficult nature of the land, the planners included high value timbers for such end purposes as furniture and veneers. Currently the plan is for less than half of the 400 ha to be planted in *Pinus radiata*, the rest in cypresses (*Cupressus macrocarpa* and *C. lusitanica*), eucalypts, Tasmanian blackwood (*Racosperma melanoxylon*) and a small area in European hardwoods such as ash. In addition about 10 or 20 ha are designated for red beech (*Nothofagus fusca*) which is indigenous to the area.

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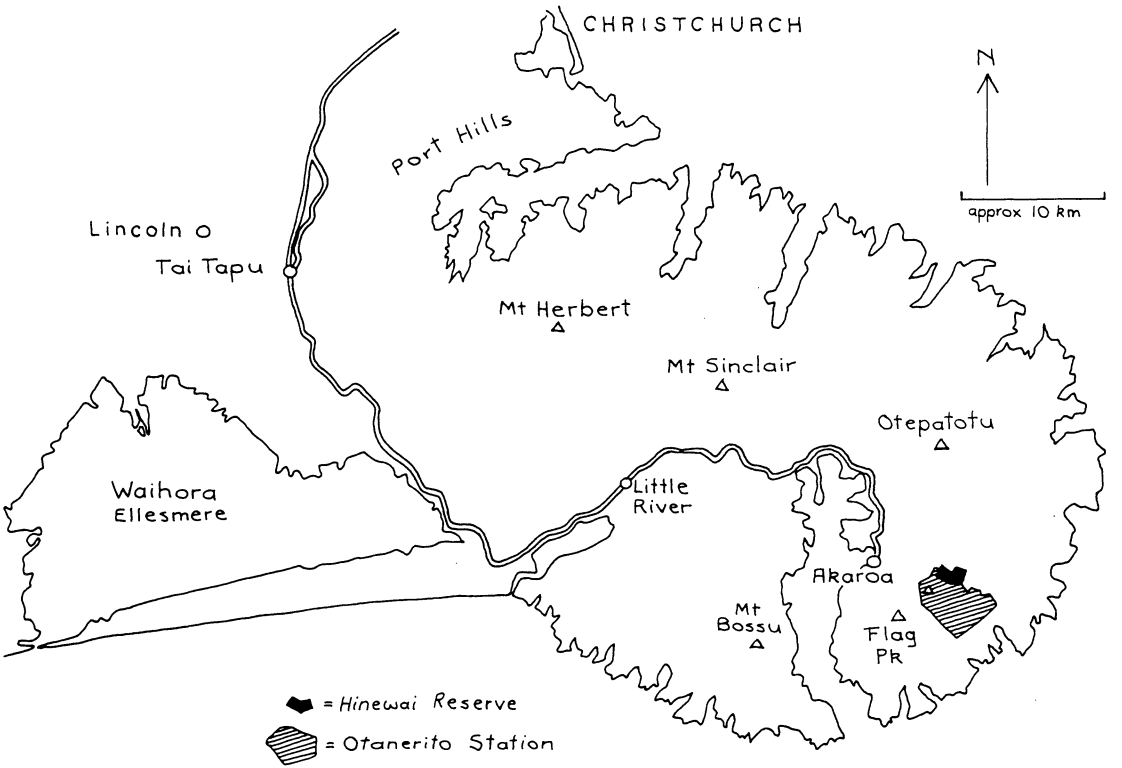
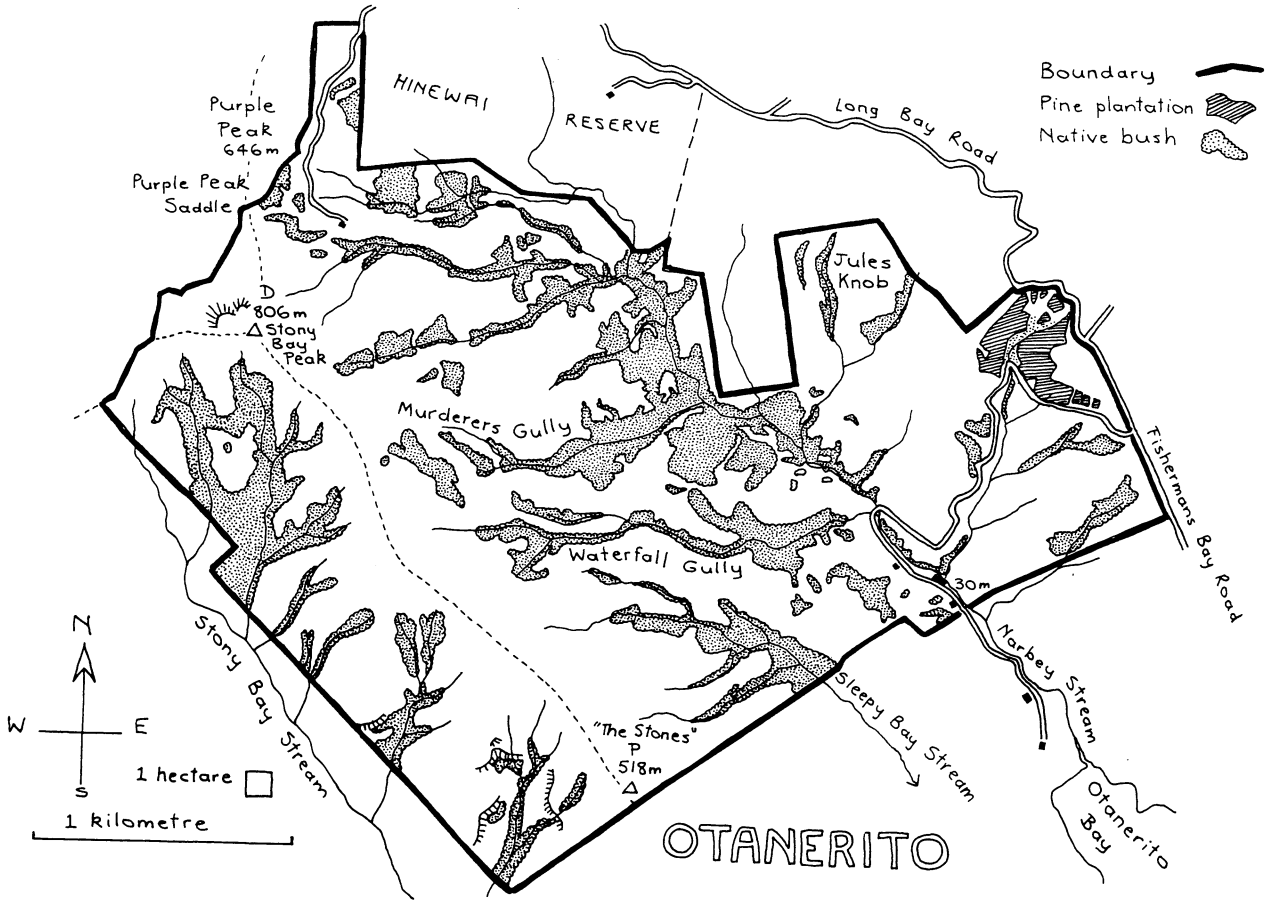
[1] Hinewai Reserve, Eastern Bays R.D., Akaroa


CHRISTCHURCH
N
approx 10 km
Port Hills
Lincoln O
Tai Tapu
Mt Herbert
Mt Sinclair
Otepatotu
Waihora
Ellesmere
Little
River
Akaroa
Mt
Bossu
Flag
Pk
= Hinewai Reserve
= Otanerito Station


Boundary
Pine plantation
Native bush
HINEWAI
RESERVE
Long Bay Road
Purple Peak 646m
Purple Peak Saddle
Jules Knob
806m
Stony Bay Peak
Murderers Gully
Waterfall Gully
Fishermans Bay Road
30m
Narbey Stream
Sleepy Bay Stream
Stony Bay Stream
"The Stones" P 518m
Otanerito Bay
OTANERITO
N
W
E
S
1 hectare
1 kilometre

Some observers have expressed grave doubts about the economic viability of the scheme, but others, including Ministry of Forestry officials, are optimistic and confident about the prospects. They stress the superb growing conditions in Otanerito Valley, and a predicted high demand for plantation-grown timber when the Otanerito trees reach maturity.

Some of the remaining 500 ha would be used for continued pastoral farming; sheep and possibly cattle. Substantial areas would be set aside to protect existing native bush, and to allow native trees to regenerate through gorse, broom and bracken. Thus the scheme does have significant plusses for conservation. It must be conceded too that such land use would be an advance on the sort of burn, bash and bust that has characterised Otanerito for the last 100 years. Furthermore those of us involved with Hinewai have a very good friendly relationship with the Wright-Stows and would certainly work with them to maximise the conservation aspects of their management. Over the last year Otanerito has had an intensive campaign against wild goats, chiefly to prepare the way for the establishment of exotic trees but with enormous respite for the remnant native flora as well. A year ago some 2000 wild goats were devastating Otanerito and threatening to reinvade Hinewai. Now their numbers are low.

Despite all this I have to admit to some deep regrets should the forestry scheme proceed. There are of course the usual worries about herbicides, fire and heavy machinery close to Hinewai. The plans also entail the conversion of extensive, tall, valley-side kanuka into blackwoods, initially by strip-felling the kanuka and interplanting the blackwoods in the shelter provided by kanuka left temporarily standing. Tall kanuka has been undervalued on Banks Peninsula for too long; it is significant for all sorts of landscape, botanical and zoological reasons, not least of which is its importance as habitat for creatures such as brown creeper, bellbird, and jewelled gecko.

Overall the planners have been sensitive to landscape considerations, but the scheme is big, and the Otanerito Valley will be dominated by exotic forest for the foreseeable future. The trouble is, I have this vision of the valley as a prime site for a 'summit to sea' reserve. Current reserves on Banks Peninsula are pocket handkerchiefs, insufficient to protect the whole range of landscape and biota. With Hinewai as the nucleus, the Otanerito Valley seems the best opportunity of achieving a sufficient reserve. Once it is committed to extensive exotic forestry, however, the opportunity would pass. That is not a criticism of the current owners of Otanerito Station and their consultants, but it is an expression of regret from a botanist and naturalist.

It is possible that the Forestry scheme will not proceed and that Otanerito Station would again come up for sale. It is valued at around $300,000. The prospect of managing a 1000 ha reserve instead of a 109 ha one is about as daunting as that valuation. On the other hand it is also impossible to

escape the conclusion that it would be a conservation gain for Banks Peninsula of enormous importance.

Even in economic terms it should be remembered that Hinewai and Otanerito together provide a substantial proportion of the Banks Peninsula Track. This is a recreational experience for paying clients run by cooperating local landowners as part of their economic diversification. Last year the Banks Peninsula Track, in its first year of operation, brought in $20,000 to the local economy through track fees alone, quite apart from money spent off the track in Akaroa on food, accommodation etc. Increasingly, indigenous landscapes, flora and wildlife will be the big drawcards for such walkers.

I summarise below some of the main botanical features of Otanerito Station. This is primarily to help assess how much effort would be justified in purchasing the land as a reserve if the opportunity did arise. If the forestry scheme proceeds I hope the information will be of some use in management decisions within that context.

The pre-human vegetation cover

One thousand years ago Otanerito was undoubtedly almost entirely forested. Enough remnants exist to allow us to reconstruct what such forest cover would have been like. Beech forest was extensive, predominantly red (*Nothofagus fusca*) but with black beech (*N. solandri*) characteristic of rocky spurs and thinner soils. Associated with the beech was thin-bark totara and a wide diversity of angiosperm trees and shrubs such as broadleaf, horopito, putaputaweta, mahoe, pokaka, lancewood and fivefinger.

Below about 300 m beech would have mingled with lowland species such as pigeonwood, kawakawa and supplejack. Kahikatea and matai would have been more common than at higher altitudes. Lowland totara would have taken the place of thin-bark totara, and lowland fivefinger the place of mountain fivefinger. Silver tree fern would have joined the abundant ranks of soft-leaved tree fern and wheki.

From about 200 m downwards beech would have given way altogether to lowland podocarp/hardwood forest of kahikatea, matai, lowland totara and diverse angiosperm trees, shrubs and vines. Interestingly enough, kanuka and manuka were undoubtedly very sparse indeed. Nor was there much land free of trees.

Only on the steep bluffs and outcrops would snow tussock shrubland hold a place. They held a rich enough mountain flora nonetheless. The list of genera sounds like the distant Southern Alps; *Chionochloa, Dracophyllum, Aciphylla, Poa, Festuca, Gaultheria, Brachyglottis, Celmisia, Phormium, Ourisia, Forstera, Hebe, Gingidia, Leucopogon* and *Pentachondra.*

The present vegetation cover

Forest removal probably started in Maori times, allowing tussockland to expand along burnt summits and spurs and allowing kanuka, ribbonwood, lacebark, mahoe, fuchsia, wineberry and kowhai to increase, as second-growth forest rushed to fill in the gaps. From the 1850s onwards forest removal by European settlers was ruthless and quick. They also introduced gorse, broom and exotic conifers, and sowed exotic grasses.

The landscape now is a rather battered-looking mosaic. Remnants of all the original forest types hang on in gullies, although the lowland forest is represented now only by scattered surviving kahikatea and matai. Second-growth forest, especially of kanuka, is extensive. Snow tussock vegetation persists on summits, bluffs and roadsides. In between are expanses of bracken, gorse and broom, the last two flooding the landscape with bright yellow for much of the year. A pine plantation bristles on steep ground in the northeast corner of the block, occupying about 10 ha. Pasture is limited and shrinking. Nature is averse to leaving ground in open pasture for long in this climate. At most about 20% (say 180 ha) is pasture at the moment, predominantly exotic grasses such as browntop, sweet vernal, yorkshire fog, crested dogstail, cocksfoot and ryegrass, but mixed with native species, especially danthonia (*Rytidosperma* spp.) and some silver and fescue tussock. Both the exotic pasture and the tussock are being actively invaded by gorse, broom and kanuka. The advance of the woody species is slowed, but not halted, by grazing and rotary slashing. Over the last few years burning and spraying have not been used much on Otanerito, but both are regarded as management tools in the establishment of exotic forestry.

Native plants of particular interest

The beeches, still common here, are a rarity on Banks Peninsula generally, being restricted to the south-east corner of Akaroa Ecological District. The summit area of Stony Bay Peak is particularly rich in uncommon peninsula species. It is the only known site for *Myrsine nummularia* and one of only two known sites for *Pentachondra pumila*. Three of the Peninsula's few endemic species grow here: *Hebe lavaudiana, H. strictissima,* and *Celmisia mackaui*. Other species of note on Stony Bay Peak are *Hymenophyllum minimum, Forstera tenella, Gingidia enysii, G. montana, Drapetes dieffenbachii, Acaena caesiiglauca, Gonocarpus incanus, Ourisia lactea, Cyathea colensoi* and *Grammitis poeppigiana*. Both species of *Aciphylla* native to Banks Peninsula grow here, *A. aurea* and *A. subflabellata*. At the head of Stony Bay Stream are a few adults of *Cordyline indivisa*.

The general area of Otanerito - Hinewai - Akaroa is the type locality for several species, mostly resulting from the collections of Raoul in 1840. The list is: *Chionochloa rigida, Gunnera monoica, Hebe strictissima, H. lavaudiana, Celmisia mackaui, Coprosma robusta, Olearia avicenniaefolia, Brachyglottis lagopus, Uncinia leptostachya, U. rupestris, Adiantum fulvum* and *Pittosporum obcordatum*. All except the last two species are still found on Otanerito Station. *Adiantum fulvum* and *Pittosporum obcordatum* appear to be locally extinct.

Otanerito has some of the best populations of *Olearia avicenniaefolia* on Banks Peninsula. The climbing groundsel, *Brachyglottis sciadophila* is not uncommon. *Tmesipteris tannensis* and *Pteris tremula* are both rare, the *Pteris* being at its southern limit of natural distribution.

Other notable species very close to Otanerito's boundaries

Several species of outstanding interest lie just outside the boundaries of Otanerito Station. In the Stony Bay Valley the two of note are nikau palm and mamaku tree fern. Downstream from the boundary in Otanerito and Sleepy Bays are titoki, akeake (*Dodonaea*) and *Griselinia lucida*. *Raoulia hookeri* and *Myosotis* 'drucei', the former, in particular, a real rarity on the peninsula, both occur along the ridge towards Stony Bay Saddle. A few species common on Banks Peninsula but not yet recorded from Otanerito Station are noted a little closer to the sea, among them *Carmichaelia arborea* s.l., *Ileostylus micranthus, Coprosma virescens, Parsonsia capsularis* and *Scandia geniculata.*

Some naturalised species of interest

Otanerito is in the middle of the distribution of two naturalised species of restricted occurrence on Banks Peninsula, inkweed (*Phytolacca octandra*) and wild basil (*Clinopodium vulgare*). Gorse, broom, and Himalayan honeysuckle (*Leycesteria formosa*) are abundant. Wilding *Pinus radiata* is scattered here and there, including some mature adults. The male fern (*Dryopteris filix-mas*) appears to be spreading.

The ideal Otanerito Reserve

From a conservation point of view, it would be marvellous if some sort of protected status and management could encompass Stony Bay Peak and Purple Peak, extend right to the water course of Stony Bay Stream, and reach the coast at least down the Sleepy Bay Valley. Safeguarding the scattered big kahikateas and other riches of the mid-Otanerito Valley is highly important. Land purchase is the most secure option, but there are other ways. Covenanting areas identified as high in natural values is a good possibility if the landowners agree. I am currently writing up Protected Natural Areas recommendations for the Department of Conservation which might help secure greater protection for critical areas in the Otanerito - Stony Bay area. The success of the Banks Peninsula Track may add weight to such proposals.

Preliminary Checklist of the native vascular flora of Otanerito Station

• = not yet noted on Hinewai Reserve
A = common to abundant
B = not so common
C = rare, local

This list is undoubtedly incomplete.

Gymnosperm trees

•	Dacrycarpus dacrydioides	C	kahikatea
	Podocarpus hallii	A	thin-bark totara
	Prumnopitys taxifolia	B	matai

Angiosperm trees, shrubs, dwarf shrubs

	Aristotelia serrata	A	wineberry, makomako
	Carpodetus serratus	A	putaputaweta, marbleleaf
	Coprosma areolata	A	mikimiki
	Coprosma crassifolia	A	mikimiki
	Coprosma linariifolia	B	yellow-wood
	Coprosma lucida	A	karamu
	Coprosma propinqua	A	mikimiki
	Coprosma propinqua x robusta	B	
	Coprosma rhamnoides	A	mikimiki
	Coprosma rigida	B	mikimiki
	Coprosma robusta	A	karamu
	Coprosma rotundifolia	A	mikimiki
	Coprosma sp 't' aff parviflora	A	mikimiki
	Cordyline australis	B	cabbage tree, ti kouka
	Cordyline indivisa	C	broadleaved cabbage tree, toi
	Coriaria arborea	B	tree tutu
	Discaria toumatou	C	matagouri
	Dracophyllum acerosum	C	turpentine shrub, inaka
	Fuchsia excorticata	A	fuchsia, kotukutuku
	Fuchsia excorticata x perscandens	C	shrubby fuchsia
	Gaultheria antipoda	B	bush snowberry
	Gaultheria sp ('depressa var novae-zelandiae')	C	snowberry
	Griselinia littoralis	B	broadleaf
•	Hebe lavaudiana	C	
	Hebe salicifolia	B	koromiko
	Hebe strictissima	B	
	Hedycarya arborea	B	pigeonwood, porokaiwhiri
	Helichrysum lanceolatum	B	niniao
	Hoheria angustifolia	A	narrow-leaved lacebark, houi
	Kunzea ericoides	A	kanuka
	Leucopogon fraseri	B	patotara

•	Lophomyrtus obcordata	C	rohutu
	Macropiper excelsum	B	kawakawa
	Melicope simplex	B	poataniwha
	Melicytus alpinus	A	porcupine shrub
	Melicytus ramiflorus	A	mahoe
	Myoporum laetum	B	ngaio
	Myrsine australis	B	mapou
•	Myrsine divaricata	C	weeping mapou
•	Myrsine nummularia	C	creeping mapou
	Nothofagus fusca	A	reed beech, tawai raunui
	Nothofagus fusca x solandri	C	
	Nothofagus solandri	B	black beech, tawai rauriki
	Olearia avicenniaefolia	B	mountain akeake
	Olearia paniculata	C	akiraho
	Pennantia corymbosa	A	kaikomako
•	Pentachondra pumila	C	dwarf heath
	Pittosporum eugenioides	A	tarata, lemonwood
	Pittosporum tenuifolium	B	kohuhu
	Plagianthus regius	A	manatu, lowland ribbonwood
	Pseudopanax arboreus	B	lowland fivefinger
	Pseudopanax colensoi	A	mountain fivefinger
	Pseudopanax crassifolius	A	lancewood, horoeka
	Pseudowintera colorata	A	horopito, pepperwood
	Schefflera digitata	B	sevenfinger, pate
	Solanum aviculare	B	poroporo
	Sophora microphylla	A	kowhai
	Urtica ferox	A	ongaonga, tree nettle

Climbers and related trailers

	Brachyglottis sciadophila	B	climbing groundsel
	Calystegia tuguriorum	B	pohue, native bindweed
	Clematis foetida	A	yellow clematis
	Clematis paniculata	A	puawananga, clematis
•	Fuchsia perscandens	C	climbing fuchsia
	Metrosideros diffusa	B	white climbing rata
	Muehlenbeckia australis	A	pohuehue
	Parsonsia heterophylla	A	akakiore, NZ jasmine
	Ripogonum scandens	B	supplejack, kareao
	Rubus cissoides	A	lawyer, tataramoa
	Rubus schmidelioides	C	lawyer, tataramoa

Herbaceous dicots

	Acaena anserinifolia	A	biddibid
•	Acaena caesiiglauca	C	glaucous biddibid
	Acaena novae-zelandiae	B	(probably naturalised) biddibid
•	Aciphylla aurea	B	golden spaniard, taramea

•	Aciphylla subflabellata	B	spaniard
	Anisotome aromatica	B	
	Brachyglottis lagopus	B	yellow rock daisy
	Cardamine debilis agg.	A	bittercress
•	Celmisia gracilenta	C	slender mountain daisy
	Celmisia mackaui	C	Akaroa daisy
	Centella uniflora	C	
•	Colobanthus strictus	C	
•	Cotula coronopifolia	C	
	Craspedia minor	B	
	Crassula sieberiana	C	
	Dichondra repens	B	
	Drapetes dieffenbachii	B	
	Epilobium atriplicifolium	B	'little round leaf' form 'upland' form
	Epilobium brunnescens	B	creeping willowherb
	Epilobium cinereum	B	willowherb
	Epilobium komarovianum	C	creeping willowherb
	Epilobium nerteroides	B	creeping willowherb
	Epilobium nummulariifolium	B	creeping willowherb
	Epilobium pedunculare	B	creeping willowherb
	Epilobium pubens	B	willowherb
	Epilobium rotundifolium	B	willowherb
•	Forstera tenella	C	
	Galium propinquum	C	
	Geranium microphyllum	B	
•	Geranium sessiliflorum	C	
•	Gingidia enysii	C	
•	Gingidia montana	C	mountain anise
	Gnaphalium audax	A	
	Gnaphalium limosum	B	
•	Gnaphalium cf traversii	C	
•	Gonocarpus incanus	C	
	Gunnera monoica	B	
	Haloragis erecta	C	toatoa
	Helichrysum bellidioides	A	everlasting daisy
	Helichrysum filicaule	A	
	Hydrocotyle heteromeria	A	waxweed
	Hydrocotyle microphylla	B	pennywort
	Hydrocotyle sp 'montana'	B	pennywort
	Hydrocotyle moschata	A	pennywort
	Hypericum japonicum	C	
	Lagenifera pinnatifida	A	
•	Lagenifera pumila	C	
	Lagenifera strangulata	B	papataniwhaniwha
	Leptinella dioica x squalida	B	
•	Myriophyllum propinquum	C	milfoil
	Nertera depressa	B	
	Oreomyrrhis rigida	C	

•	Ourisia lactea	C	
	Oxalis exilis	A	yellow oxalis
	Pelargonium inodorum	C	
	Pratia angulata	A	panakenake
	Pseudognaphalium luteoalbum	B	jersey cudweed
•	Ranunculus foliosus	C	buttercup
•	Ranunculus multiscapus	C	buttercup
	Ranunculus reflexus	A	buttercup
	Raoulia glabra	B	mat daisy
•	Raoulia subsericea	B	mat daisy
	Schizeilema trifoliolatum	B	
•	Scleranthus uniflorus	B	
	Senecio glomeratus	B	native groundsel
	Senecio minimus	B	native groundsel
	Senecio wairauensis	C	native groundsel
	Stellaria decipiens	A	native chickweed
	Viola cunninghamii	A	white violet
	Viola filicaulis	C	forest violet
	Wahlenbergia gracilis	A	harebell

Herbaceous monocots

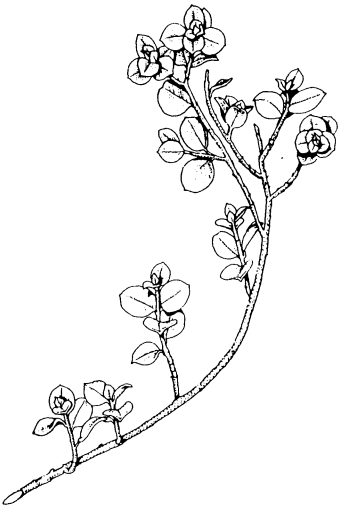
	Arthropodium candidum	B	star lily
	Astelia fragrans	C	bush flax, kakaha
•	Carex breviculmis	B	
•	Carex colensoi	B	
	Carex forsteri	B	
	Carex virgata	C	
	Chionochloa rigida	B	snow tussock, wi kura
	Cortaderia richardii	B	toetoe
	Corybas trilobus	B	spider orchid
	Deyeuxia avenoides	B	
	Dichelachne crinita	B	plume grass
	Eleocharis acuta	C	clubrush
	Elymus rectisetus	C	bluegrass
	Festuca novae-zelandiae	B	fescue tussock
	Hierochloe redolens	B	holy grass, karetu
	Isolepis cf inundata	B	
	Juncus distegus	B	rush, wiwi
	Juncus gregiflorus	B	rush, wiwi
	Juncus novae-zelandiae	B	
	Juncus sarophorus	B	rush, wiwi
•	Lachnagrostis richardii	C	windgrass
	Libertia ixioides	C	native iris, mikoikoi
	Luzula banksiana var orina	C	woodrush
	Luzula picta	B	woodrush
	Luzula rufa	B	woodrush
	Microlaena avenacea	B	bush ricegrass
	Microlaena stipoides	A	

	Microtis unifolia	B	onion orchid
	Phormium cookianum	B	mountain flax
	Poa cf anceps 'broad blue'	C	
	Poa breviglumis	B	
	Poa cita	B	silver tussock
	Poa colensoi	C	blue tussock
	Poa matthewsii	B	
	Prasophyllum colensoi	B	onion orchid
	Pterostylis graminea	B	greenhood orchid
	Rytidosperma clavatum	A	danthonia
	Rytidosperma corinum	C	bristle tussock
	Rytidosperma gracile	A	danthonia
	Rytidosperma cf merum	B	danthonia
	Rytidosperma unarede	B	danthonia
	Thelymitra longifolia	B	white sun orchid
	Uncinia rubra	C	red hooked sedge
•	Uncinia rupestris	C	
	Uncinia uncinata	A	hooked sedge, hookgrass

Ferns and fern allies

	Asplenium bulbiferum	B	hen and chickens fern
	Asplenium flabellifolium	B	necklace fern
	Asplenium flaccidum	C	hanging spleenwort
	Asplenium hookerianum	B	Hooker's spleenwort
	Asplenium terrestre	B	
	Blechnum chambersii	A	lance fern
	Blechnum colensoi	C	Colenso's hard fern
	Blechnum discolor	B	crown fern, piupiu
	Blechnum fluviatile	A	kiwakiwa
	Blechnum minus	C	kiokio
	Blechnum penna-marina	B	little hard fern
	Blechnum procerum	A	kiokio
	Blechnum sp 'black spot'	C	kiokio
	Blechnum vulcanicum	C	
	Ctenopteris heterophylla	C	
•	Cyathea colensoi	C	
	Cyathea dealbata	B	silver treefern
	Cyathea smithii	B	soft-leaved treefern
	Dicksonia squarrosa	B	wheki
	Grammitis billardierei	B	strap fern
•	Grammitis poeppigiana	C	
	Histiopteris incisa	A	waterfern, matamata
•	Hymenophyllum minimum	C	
	Hypolepis ambigua	B	
	Hypolepis ambigua x rufobarbata	C	
	Hypolepis millefolium	B	
	Hypolepis rufobarbata	B	
	Lastreopsis glabella	C	

	Leptolepia novae-zelandiae	C	
	Leptopteris hymenophylloides	C	crepe fern
	Lycopodium fastigiatum	C	
	Lycopodium varium	C	
	Lycopodium volubile	C	
	Ophioglossum coriaceum	C	adder's tongue
	Paesia scaberula	C	lace fern
	Pellaea rotundifolia	B	
	Phymatosorus diversifolius	C	hound's tongue fern
	Pneumatopteris pennigera	B	gully fern
	Polystichum richardii	B	
	Polystichum vestitum	A	shield fern
	Pteridium esculentum	A	bracken, rauaruhe
•	Pteris tremula	C	
	Pyrrosia serpens	C	leather leaf fern
•	Tmesipteris tannensis	C	
	Trichomanes venosum	C	



Myrsine nummularia. Drawing by Tim Galloway.