

IMPROVING THE DELINEATION OF REGIONALLY SIGNIFICANT WETLANDS IN OTAGO



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IMPROVING THE DELINEATION OF REGIONALLY SIGNIFICANT WETLANDS IN OTAGO

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1. INTRODUCTION

Otago's wetlands are some of the most valuable ecosystems in the region, and as part of previous work to recognise and protect their ecological, cultural and socio-economic values, Otago Regional Council (ORC) have identified 170 Regionally Significant Wetlands and Wetland Management Areas (42 out of the 170 are wetland complexes or wetland management areas). However, the recently revised and operative National Policy Statement for Freshwater Management (NPS-FW) provides a definition of natural wetlands and requires regional councils to identify these within each Freshwater Management Unit (FMU). This definition does not align completely with the criteria previously used to assess regionally significant wetlands. Previous mapping was undertaken to determine significant wetlands according to a range of ecological significance criteria, and utilised a more limited range of tools and aerial imagery with which to map wetland boundaries.

Additionally, Policy 6 of the NPS-FM requires “*no further loss of extent of natural inland wetlands, their values are protected, and their restoration is promoted*”.

In order to achieve this, it is imperative that all natural inland wetlands are accurately mapped. ORC therefore contracted Wildland Consultants Ltd provide a to undertake the following:

1. Mapping of natural wetlands within the Upper Taieri Wetlands Complex, to help identify practical fencing boundaries. [Undertaken as a separate project]
2. Desktop delineation of wetland boundaries (if required) for all wetlands as contained within Schedule 9 of the Otago Regional Plan: Water for Otago, Schedule 9 lists Otago’s identified 170 Regionally Significant Wetlands and Wetland Management Areas¹, comprising 435 individual wetland polygons. The delineation of Schedule 9 wetlands is to be re-mapped at sufficient resolution to include all wetland areas (apart from those within the Upper Taieri Wetlands Complex) meeting the definition of ‘natural wetland’, using more recent aerial imagery, and provide recommendations for wetlands that require ground-truthing to better resolve wetland boundaries. The output of this task is to provide revised wetland boundaries (where required) for the wetlands currently contained within Schedule 9.
3. Otago Regional Council later requested Wildland Consultants to ground-truth a selection of twenty wetlands and wetland complexes that were difficult to delineate with confidence based on aerial imagery alone.

This report describes the methods used for Task 2 above, comprising better delineation of 432 individual wetland polygons from 169 identified regionally significant wetlands, excluding those in the Upper Strath Taieri Wetlands Complex. The report also describes the methods used for ground-truthing. A brief assessment of outcomes of both tasks is also provided.

¹ This does not comprise an exhaustive list of natural inland wetlands within the region.

2. DESKTOP METHODS

The mapping project was undertaken on a desktop basis, using aerial imagery alone to determine wetland boundaries, wetland class, and indigenous cover. Aerial photography dating from 2019-2021 was used as the base imagery in an ArcGIS online project. Other imagery, such as Google Earth imagery, was often used side by side with the ArcGIS project to help identify wetland boundaries, wetland classes, and indigenous cover. Existing regionally significant wetland polygons were imported into ArcGIS online project, which enabled editing of these wetland polygons, or their replacement by other existing wetland mapping, either from mapping of current ecosystem wetlands in Otago Region (Wildland Consultants 2020a) or fine scale mapping of wetlands in Dunedin City (Wildland Consultants 2019). In some cases, wetlands were manually mapped because no existing wetland polygons were sufficiently accurate. Points with editable values across a range of attributes were added to each regionally significant wetland or wetland cluster (Table 1). This enables the Table 1 attributes to be linked to the relevant polygons in GIS applications. For regionally significant wetlands comprising several polygons, the same attributes were linked to each wetland in the regionally significant wetland cluster.

Table 1: Attributes added for each regionally significant wetland.

Field	Description	Values
ID	Numerical regionally significant wetland number	Integers in the range 1-170
Name	Wetland name provided by ORC	Text
Wetland Class	Wetland class as per Johnson & Gerbeaux (2004). This was assessed mainly on the dominant vegetation.	Bog, Fen, Swamp, Marsh, Ephemeral wetland, Shallow water, Seepage, Inland saline, Pakihi and Gumland, Mixed
Wetland Status	Extent of indigenous dominance in the wetland vegetation	Indigenous, Mixed, Exotic, Uncertain
Wetland Source	Determines the source of the final wetland polygon. Regionally significant wetland was selected if the wetland polygon was either unmodified or edited.	Regionally Significant Wetland, Current Ecosystem, DCC, Manually Created
Comment	Comment relating to field verification or other issues	Free text

All edited polygons and attributes were reviewed by experienced staff familiar with wetlands in Otago Region, prior to provision of the final layer to the client.

Regionally significant wetland 161, the Upper Taieri Wetland Complex, was not re-delineated in this project, as it is subject to a separate 'deep learning' GIS project to address the numerous individual wetlands in this complex.

3. RESULTS

3.1 Overview

One hundred and sixty-nine regionally significant wetlands and wetland complexes were assessed and where necessary, re-delineated. Most of the regionally significant wetland polygons required editing of their boundaries, with only seventeen of these wetlands having the original boundary adopted in the revised layer (Table 2). The re-delineation process increased the size of some wetlands, and decreased the size of others. Overall, the re-delineated wetlands are 927 hectares smaller in extent than the original regionally significant wetland layer. One regionally significant wetland, denoted the Fernhill Marsh, near the Taieri River not far below Sutton, was assessed as terrestrial vegetation (Plate 1), and no comparable marsh wetland was present at this site. This wetland was therefore deleted from the revised layer.

Table 2: Regionally significant wetlands and wetland management areas with unchanged boundaries following the re-delineation process.

Regionally Significant Wetland	Wetland Class	Status
Murrays Road Inland Saline Wetland Management Area	Inland saline	Mixed
Blair Swamp	Swamp	Exotic
Clutha River Mouth Lagoon	Shallow water	Exotic
Finegand Lagoon Marsh	Marsh	Exotic
Dunard Inland Saline Wetland Management Area	Inland saline	Indigenous
Great Moss Swamp	Mixed	Indigenous
Hut Creek Swamps	Marsh	Indigenous
John O'Groats Hill Fen	Fen	Indigenous
Otanomomo Tuatiki Reserve	Swamp	Indigenous
Tomahawk Lagoon	Mixed	Indigenous
Belmont Inland Saline Wetland Management Area	Inland saline	Mixed
Blackmans Inland Saline Wetland Management Area	Inland saline	Mixed
Conroys Dam Inland Saline Wetland Management Area	Inland saline	Mixed
Galloway No 1 Inland Saline Wetland Complex	Inland saline	Mixed
Hawkdun Runs Road Marsh	Marsh	Mixed
Rigney Pond Margins	Swamp	Mixed
Upper Taieri Wetlands Complex	Swamp	Mixed



Plate 1: The Fernhill Marsh regionally significant wetland was mapped on terrestrial vegetation comprising grey shrubland on rocky, uncultivated ground.

3.2 Reductions in re-delineated wetland extent

Sixty-seven regionally significant wetlands and wetland management areas were re-mapped to a smaller extent in the revised layer, mostly due to more precise mapping of these wetlands. The six wetlands that lost the greatest area when re-mapped are listed in Table 3. These were where the original regionally significant wetland polygons had generalised boundaries containing a number of smaller wetlands, and expanses of intervening terrestrial habitats. The greatest reduction in size was for the Maungatua Summit Wetland Management Area, originally 556 hectares in size, which was reduced to 86 hectares of wetland vegetation.

Table 3: Regionally significant wetlands and wetland management areas which were reduced by more than 100 hectares in extent.

Regionally Significant Wetland	Original Area (ha)	Revised Area (ha)	Reduction (ha)
Maungatua Summit Wetland Management Area	556.38	86.42	-469.97
Loch Luella Fen Complex	873.64	594.13	-279.51
Kirkwoods Creek Wetland Management Area	256.39	36.52	-219.87
Okia Flat Wetland Management Area	221.82	26.07	-195.75
Red Bank Wetland Management Area	122.13	0.38	-121.76
Sutton Salt Lake Wetland Management Area	131.57	10.64	-120.94

Another way to look at wetlands that were reduced in size following the re-delineation process is to assess those that had the greatest proportional reduction in extent. Nine wetlands were re-mapped to less than 10% of their original extent (Table 4). These instances mostly related to ephemeral wetlands, but also to some other wetlands where

a large boundary containing significant terrestrial habitat was used instead of precise delineation of the smaller wetlands within.

Table 4: Regionally significant wetlands and wetland management areas which were remapped to less than 10% of their original extent.

Regionally Significant Wetland	Wetland Class	Revised Area (ha)	Percentage Remaining
Red Bank Wetland Management Area	Mixed	0.37	<1
Styx Ephemeral Wetland Management Area	Ephemeral wetland	0.30	3
Glyn Wye Wetland Management Area	Ephemeral wetland	1.36	3
Church Hill Wetland Complex	Marsh	3.25	3
False Islet Wetland Management Area	Marsh	1.95	5
Black Rock Marshes	Ephemeral wetland	3.26	5
Nenthorn Ridge Wetland Management Area	Ephemeral wetland	4.50	7
Sutton Salt Lake Wetland Management Area	Ephemeral wetland	10.64	8
Trig Q Ephemeral Pool	Ephemeral wetland	0.044	9

It is important to note that these significant reductions in extent are all due to the original mapping being generalised and not precisely mapped around individual wetland boundaries. These reductions in extent do not necessarily mean there has been any loss of wetland extent on the ground.

3.3 Increases in re-delineated wetland extent

The re-delineation process increased the size of 87 of the regionally significant wetlands and wetland management areas, seven of which were increased in size by more than 50 hectares (Table 5), and twenty-one of which were increased to more than twice their original extent (Table 6).

Table 5: Regionally significant wetlands and wetland management areas which were increased in size by more than 50 hectares.

Regionally Significant Wetland	Original Area (ha)	Revised Area (ha)	Increase (ha)
Stuarts Marsh	20.84	88.11	67.27
Peat Moss Hills Fen Complex	36.00	109.51	73.51
Von Valley Wetland Management Area	544.56	637.04	92.48
Matukituki Valley Wetland Management Area	75.93	175.88	99.95
Glenorchy Lagoon Wetland	128.18	238.98	110.80
Lake Reid Wetland	39.87	178.46	138.59
Middle Swamp	66.57	205.30	138.73

Table 6: Regionally significant wetlands and wetland management areas which were remapped to more than twice their original extent.

Regionally Significant Wetland	Wetland Class	Revised extent (ha)	Percentage increase
Totara Creek Inland Saline Wetland	Inland saline	18.07	205
Moke Creek Swamp	Marsh	2.65	220
Waianakarua River Estuary Swamp	Shallow water	6.25	221
Black Swamp	Bog	13.73	231

Matukituki Valley Wetland Management Area	Mixed	175.88	231
Ellison Saltmarsh	Marsh	19.08	234
Galloway No 2 Inland Saline Wetland Management Area	Inland saline	15.41	248
Malones Dam Margins	Swamp	5.53	263
Island Block Pond Marshes	Swamp	10.45	290
Peat Moss Hills Fen Complex	Fen	109.51	304
Middle Swamp	Mixed	205.30	308
Scaifes Lagoon	Swamp	17.87	322
Timber Creek Seepage	Seepage	3.32	335
Blackcleugh Burn Swamp	Swamp	11.95	337
Tahakopa Marsh Complex	Mixed	14.23	355
Pomahaka River Oxbow Marsh (Koi Creek)	Marsh	7.12	360
Stuarts Marsh	Bog	88.11	423
Lake Reid Wetland	Swamp	178.46	448
Te Matai Marsh Complex	Marsh	4.98	464
Upper Waiareka Creek Swamp	Marsh	7.64	1,885
Little Boggy Swamp	Swamp	3.72	2,385

3.4 Wetland classes

Most of the re-delineated wetlands, both in number and area, were marsh and swamp wetlands (Table 7). Only two regionally significant wetlands were identified as seepages, and four as shallow water wetlands. While only ten of the regionally significant wetlands are of the ephemeral wetland class, these contain a much larger assemblage of individual wetlands. A relatively low number and extent of bog and fen wetlands are included in the regionally significant wetland layer, which reflects a relatively small proportion of these wetlands compared to their actual extent in Otago (Wildland Consultants 2020), but many bog wetlands are part of wetland complexes with mixed status, so a larger number and extent of bog and fen wetlands will be captured in the regionally significant wetland layer.

Table 7: Wetland classes among the re-delineated regionally significant wetlands and wetland complexes.

Wetland Class	Number of Wetlands	Total Area (ha)
Bog	10	307
Fen	7	313
Swamp	48	6,321
Marsh	57	2,453
Seepage	2	11
Shallow water	4	53
Ephemeral wetland	10	24
Inland saline	13	119
Mixed classes	19	2,637

3.5 Wetland status

The vast majority of wetlands were assessed as indigenous or mixed status, with only 16 identified as exotic in character, and three of uncertain character (Table 8).

Table 8: Wetland status among the re-delineated regionally significant wetlands and wetland complexes.

Wetland Class	Number of Wetlands	Total Area (ha)
Indigenous	77	5,298
Mixed	73	6,785
Exotic	16	129
Uncertain	3	26

3.6 Wetlands requiring ground truthing

Twenty regionally significant wetland complexes were identified as requiring further ground truthing, mainly to better determine the wetland boundary when this was not clear in desktop imagery (Table 9). The majority of these are marsh and swamp wetlands, which being more productive wetland classes, typically have greater cover of exotic grasses and herbs which can make delineation of the wetland boundary difficult using only aerial imagery, particularly when these wetlands are surrounded by pasture grassland.

Table 9: Regionally significant wetlands and wetland management areas requiring ground-truthing.

Wetland	Wetland Class	Area (hectares)
Akatore Creek Swamp	Marsh	58.88
Blackcleugh Burn Swamp	Swamp	11.95
Camp Stream Swamp	Swamp	6.65
Catlins River Wetland	Marsh	64.93
False Islet Wetland Management Area	Marsh	1.95
Fortification Stream Headwaters Swamp	Swamp	14.90
Henley Swamp	Swamp	10.02
John O'Groats Hill Fen	Fen	11.59
Kaikorai Lagoon Swamp	Marsh	38.33
Lamb Hill Fen Complex	Mixed	12.35
Loch Luella Fen Complex	Swamp	594.13
Makarora Flat Swamp Complex	Marsh	100.67
Matukituki Valley Wetland Management Area	Mixed	175.88
Measly Beach Wetland Complex	Mixed	57.75
Molyneux Bay Swamp	Marsh	100.26
Nevis Red Tussock Fen	Marsh	48.95
Old Dunstan Road Swamp	Marsh	3.43
Tokomairiro River Swamp	Marsh	181.96
Two Stone Hill Stream Swamp	Swamp	9.20
Wairepo Creek Marsh Complex	Marsh	49.77

4. WETLAND GROUND-TRUTHING

4.1 Overview

Sixteen regionally significant wetlands were visited to ground-truth wetland boundaries determined by the desktop study. Wairepo Creek Marsh Complex, Lamb Hill Fen

Complex and Henley Swamp were not included as landowner permission was not granted.

4.2 Methods

Site visits were undertaken between April 2022 and April 2023. Key areas of the previously mapped wetlands which were more difficult to determine off aerial imagery were identified for each complex prior to the site visit, these specific areas were the targets of ground-truthing. In most cases, wetland complexes span across multiple property titles, and in most cases, access was only gained for some of the properties. All vascular plants identified at each site visit were also recorded (Appendix 1).

Wetland Delineation Protocols

The boundaries of wetlands were determined using wetland vegetation delineation protocols (Clarkson 2013, MfE 2020) in situations where the boundaries were not immediately obvious in the field and the plot locations were in mappable vegetation. Three tests were utilised in field assessments, the rapid test as well as the plot-based dominance and prevalence tests. All three of these tests rely on the presence and/or relative abundance of hydrophytic plants as indicators. Hydrophytes are plant species capable of growing in soils that are often or constantly saturated with water during the growing season. Wetland indicator plants have been divided into the following categorises (Clarkson *et al.* 2021, Clarkson 2013):

- Obligate (OBL): occurs almost always in wetlands (estimated probability >99% in wetlands).
- Facultative Wetland (FACW): occurs usually in wetlands (67–99%).
- Facultative (FAC): equally likely to occur in wetlands or non-wetlands (34–66%).
- Facultative Upland (FACU): occurs occasionally in wetlands (1–33%).
- Upland (UPL): rarely occurs in wetlands (<1%), almost always in ‘uplands’ (non-wetlands).

According to the wetland delineation protocols described by MfE 2020 and Clarkson 2013, rapid wetland assessments are to be used initially when determining the boundaries of a wetland, if the result is uncertain, then the dominance and prevalence test can be used to provide more certainty. For a rapid test to confirm the area as a wetland, all dominant species must be either OBL or FACW species.

Wetlands initially mapped in the desktop study were digitised and added to an ARCGIS field maps app prior to field work. Edits to wetland boundaries based on field surveys and delineation were updated in the field and in the office.

Rapid tests were most often utilised in the field during walk through surveys. For situations where the rapid test was difficult to assess in the field or inconclusive, the dominance and prevalence tests were applied. The dominance test is used to identify dominant wetland species by applying the 50/20 rule. Essentially, an area is identified as a wetland if the dominant species plus species with more than 20% cover exceed 50% cover and comprise obligate (OBL), facultative wetland (FAW), or facultative (FAC) plant species. Facultative upland (FACU) and upland (UPL) plants are not wetland indicators. If the threshold is met but all of the dominant species are facultative

plants then the Prevalence Index can be used to provide further evidence of wetland status.

The Prevalence Index is a vegetation-based method of weighted averages, using the cover values of all vascular species (and Sphagnum) in the plant community. An area is considered to be wetland if the Prevalence Index value is ≤ 3 . If the index is >3 then the area is not considered to be a wetland.

Plots were established within representative vegetation types, 2 metre \times 2 metre plots in grassland and herbfield and 5-metre radius plots in shrubland. All plants within each plot were recorded and given a percentage cover score. Vegetation data collected in the field was processed off site, with plots being assigned a status of wetland or not wetland based on the results of the dominance and prevalence tests.

4.3 Results

Following the ground-truthing exercise, the extent of all 16 wetlands changed at least slightly as boundaries were further defined (Table 10). Ground-truthing resulted in a notable decrease in size in four wetlands, while seven wetlands increased in extent and the remainder had minor changes in area. The biggest decrease in area was for the Loch Luella Fen Complex, where copper tussock growing in terrestrial habitat had been contained within the original wetland boundary. With these areas removed, the Loch Luella Fen Complex decreased by approximately 90 hectares. The biggest increase to a wetland was to the Matukituki Valley Wetland Management Area which increased in size by 23 hectares (Table 10).

Table 10: Results of ground-truthing regionally significant wetlands and wetland management.

Wetland	Desktop Area (ha)	Ground-Truthed Area (ha)	Change In Size
Akatore Creek Swamp	58.88	64.41	Increase
Blackcleugh Burn Swamp	11.95	6.25	Decrease
Camp Stream Swamp	6.65	9.29	Increase
Catlins River Wetland	64.93	67.17	Increase
Fortification Stream Headwaters Swamp	14.90	14.93	Little change
John O'Groats Hill Fen	11.59	6.43	Decrease
Kaikorai Lagoon Swamp	38.33	82.62	Increase
Loch Luella Fen Complex	594.13	523.90	Decrease
Makarora Flat Swamp Complex	100.67	101.69	Increase
Matukituki Valley Wetland Management Area	175.88	198.67	Increase
Measly Beach Wetland Complex	57.75	68.07	Increase
Molyneux Bay Swamp	100.26	102.73	Little change
Nevis Red Tussock Fen	48.95	31.91	Decrease
Old Dunstan Road Swamp	3.43	3.11	Little change
Tokomairiro River Swamp	181.96	182.60	Little change
Two Stone Hill Stream Swamp	9.20	9.51	Little change

5. CONCLUSIONS

The relatively small number of regionally significant wetlands that were left with unchanged boundaries indicates that the re-delineation process was worthwhile and has resulted in a much more accurate delineation of regionally significant wetlands. The more accurately determined 171 regionally significant wetlands and wetland complexes mapped a total area of 12,239 hectares. Overall, this represents a reduction of 927 hectares in extent compared to the original mapping, as a number of originally mapped wetland complexes included significant areas of terrestrial habitat. In addition, one originally mapped wetland was assessed as entirely terrestrial habitat and removed from the revised layer. Swamps and marshes made up the greatest extent of the re-delineated wetlands, and the vast majority of wetlands were assessed as of indigenous or mixed status. Ground truthing of 16 of the regionally significant wetlands resulted in some wetlands increasing in size, some changing very little, and some decreasing, with an overall reduction in size of six hectares.

ACKNOWLEDGMENTS

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VASCULAR PLANT SPECIES LISTS

* indicates exotic species

AKATORE CREEK

Species	Common Name	Plant Type
<i>Achillea millefolium</i>	Yarrow*	Dicot herb
<i>Agrostis capillaris</i>	Brown top*	Grass
<i>Agrostis stolonifera</i>	Creeping bent*	Grass
<i>Alopecurus aequalis</i>		Grass
<i>Anthoxanthum odoratum</i>	Sweet vernal*	Grass
<i>Atriplex prostrata</i>	Orache*	Dicot herb
<i>Blechnum penna-marina</i>	Little hard fern	Fern
<i>Carex coriacea</i>	Cutty grass, rautahi	Sedge
<i>Carex geminata</i>	Cutty grass, rautahi	Sedge
<i>Carex secta</i>	Pūrei, pūkio	Sedge
<i>Carex sinclairii</i>		Sedge
<i>Carex virgata</i>	Swamp sedge	Sedge
<i>Celmisia gracilentia</i>	Slender mountain daisy, pekapeka	Dicot herb
<i>Cirsium arvense</i>	Californian thistle*	Dicot herb
<i>Cirsium vulgare</i>	Scotch thistle*	Dicot herb
<i>Cordyline australis</i>	Cabbage tree, tī kōuka	Tree
<i>Cortaderia richardii</i>	Toetoe	Grass
<i>Cotula coronopifolia</i>	Bachelors button	Dicot herb
<i>Crepis capillaris</i>	Hawksbeard*	Dicot herb
<i>Cynosurus cristatus</i>	Crested dogstail*	Grass
<i>Dactylis glomerata</i>	Cocksfoot*	Grass
<i>Eleocharis acuta</i>	Sharp spike sedge	Sedge
<i>Erythranthe guttata</i>	Monkey musk*	Dicot herb
<i>Galium aparine</i>	Cleavers*	Dicot herb
<i>Gonocarpus aggregatus</i>		Dicot herb
<i>Holcus lanatus</i>	Yorkshire fog*	Grass
<i>Isolepis species</i>		Sedge
<i>Juncus articulatus</i>	Jointed rush*	Rush
<i>Juncus bufonius</i>	Toad rush*	Rush
<i>Juncus edgariae</i>	Leafless rush, wī	Rush
<i>Juncus effusus</i>	Soft rush*	Rush
<i>Leontodon taraxacoides</i>	Hawkbit*	Dicot herb
<i>Leptinella dioica</i>	Button daisy	Dicot herb
<i>Leptocarpus similis</i>		
<i>Leptospermum scoparium</i>	Mānuka, tea tree	Tree
<i>Leycesteria formosa</i>	Himalayan honeysuckle*	Shrub
<i>Lotus pedunculatus</i>	Lotus*	Dicot herb
<i>Phormium tenax</i>	Lowland flax, harakeke	Monocot herb
<i>Plagianthus divaricatus</i>	Saltmarsh ribbonwood, mākaka	Shrub
<i>Plantago lanceolata</i>	Narrow-leaved plantain*	Dicot herb
<i>Potentilla anserinoides</i>	Silverweed	Dicot herb
<i>Prunella vulgaris</i>	Selfheal*	Dicot herb
<i>Ranunculus amphitrichus</i>	Buttercup, waioriki	Dicot herb
<i>Ranunculus cheesemanii</i>	Buttercup	Dicot herb
<i>Ranunculus glabrifolius</i>	Buttercup, waioriki	Dicot herb
<i>Ranunculus repens</i>	Creeping buttercup*	Dicot herb
<i>Samolus repens</i>	Sea primrose, shore pimpernel	Dicot herb

Species	Common Name	Plant Type
<i>Selliera radicans</i>	Remuremu	Dicot herb
<i>Stellaria media</i>	Chickweed*	Dicot herb
<i>Thyridia repens</i>	Native musk	Dicot herb
<i>Trifolium repens</i>	White clover*	Dicot herb
<i>Triglochin striatum</i>		Monocot herb
<i>Ulex europaeus</i>	Gorse*	Shrub
<i>Viola cunninghamii</i>	White violet	Dicot herb

BLACKLEUGH BURN

Species	Common Name	Plant type
<i>Aciphylla aurea</i>	Golden spaniard	Dicot herb
<i>Agrostis capillaris</i>	Brown top*	Grass
<i>Carex coriacea</i>	Cutty grass, rautahi	Sedge
<i>Carex secta</i>	Pūrei, pūkio	Sedge
<i>Coprosma propinqua</i>	Mingimingi, mikimiki	Shrub
<i>Cordyline australis</i>	Cabbage tree, tī kōuka	Tree
<i>Dactylis glomerata</i>	Cocksfoot*	Grass
<i>Festuca novae-zelandiae</i>	Fescue tussock, hard tussock	Grass
<i>Juncus articulatus</i>	Jointed rush*	Rush
<i>Juncus edgariae</i>	Leafless rush, wī	Rush
<i>Juncus effusus</i>	Soft rush*	Rush
<i>Olearia bullata</i>	Shrub daisy	Shrub
<i>Olearia lineata</i>		Tree
<i>Pinus radiata</i>	Radiata pine*	Tree
<i>Ranunculus repens</i>	Creeping buttercup*	Dicot herb
<i>Rubus fruticosus</i>	Blackberry*	Shrub
<i>Trifolium pratense</i>	Red clover*	Dicot herb
<i>Trifolium repens</i>	White clover*	Dicot herb

CAMP STREAM

Species	Common Name	Plant Type
<i>Acaena novae-zelandiae</i>	Red bidibidi	Dicot herb
<i>Agrostis capillaris</i> *	Brown top	Grass
<i>Agrostis stolonifera</i> *	Creeping bent	Grass
<i>Anthoxanthum odoratum</i> *	Sweet vernal	Grass
<i>Austroderia richardii</i>	Toetoe	Grass
<i>Blechnum minus</i>	Swamp kiokio	Fern
<i>Blechnum penna-marina</i>	Little hard fern	Fern
<i>Carex coriacea</i>	Cutty grass, rautahi	Sedge
<i>Carex diandra</i>	Sedge	Sedge
<i>Carex geminata</i>	Cutty grass, rautahi	Sedge
<i>Carex secta</i>	Pūrei, pūkio	Sedge
<i>Carex sinclairii</i>		Sedge
<i>Carex virgata</i>	Swamp sedge	Sedge
<i>Carmichaelia petriei</i>	Desert broom	Shrub
<i>Cerastium fontanum</i> *	Mouse-ear chickweed	Dicot herb
<i>Chionochloa rubra</i> subsp. <i>cuprea</i>	Red tussock	Grass
<i>Cirsium arvense</i> *	Californian thistle	Dicot herb
<i>Cirsium vulgare</i> *	Scotch thistle	Dicot herb
<i>Coprosma dumosa</i>		Shrub
<i>Coprosma elatirioides</i>		Shrub
<i>Coprosma propinqua</i>	Mingimingi, mikimiki	Shrub

Species	Common Name	Plant Type
<i>Coprosma rugosa</i>		Shrub
<i>Cordyline australis</i>	Cabbage tree, tī kōuka	Tree
<i>Cotoneaster simonsii</i> *	Himalayan cotoneaster, khasia berry	Shrub
<i>Cynosurus cristatus</i> *	Crested dogstail	Grass
<i>Dactylis glomerata</i> *	Cocksfoot	Grass
<i>Digitalis purpurea</i> *	Foxglove	Dicot herb
<i>Eleocharis acuta</i>	Sharp spike sedge	Sedge
<i>Epilobium chionanthum</i>	Willow herb	Dicot herb
<i>Epilobium ciliatum</i> *	Tall willowherb	Dicot herb
<i>Erica lusitanica</i> *	Spanish heath	Shrub
<i>Erythranthe moschata</i> *	Musk	Dicot herb
<i>Gleichenia flabellatus</i>		Fern
<i>Gonocarpus aggregatus</i>		Dicot herb
<i>Gunnera prorepens</i>	Native gunnera	Dicot herb
<i>Holcus lanatus</i> *	Yorkshire fog	Grass
<i>Hypochaeris radicata</i> *	Catsear	Dicot herb
<i>Juncus articulatus</i> *	Jointed rush	Rush
<i>Juncus edgariae</i>	Leafless rush, wī	Rush
<i>Juncus effusus</i> *	Soft rush	Rush
<i>Leontodon taraxacoides</i> *	Hawkbit	Dicot herb
<i>Leycesteria formosa</i> *	Himalayan honeysuckle	Shrub
<i>Lobelia angulata</i>	Pratia	Dicot herb
<i>Lolium perenne</i> *	Ryegrass	Grass
<i>Lotus pedunculatus</i> *	Lotus	Dicot herb
<i>Muehlenbeckia australis</i>	Large-leaved pōhuehue	Vine
<i>Olearia bullata</i>	Shrub daisy	Shrub
<i>Olearia lineata</i>		Tree
<i>Ozothamnus leptophyllus</i>	Tauhinu, cottonhead	Shrub
<i>Phormium tenax</i>	Lowland flax, harakeke	Monocot herb
<i>Pinus radiata</i> *	Radiata pine	Tree
<i>Pittosporum tenuifolium</i>	Kōhūhū, black matipo	Tree
<i>Polystichum vestitum</i>	Prickly shield fern, pūniu	Fern
<i>Potamogeton cheesemanii</i>	Red pondweed, mānihi	Dicot herb
<i>Prunella vulgaris</i> *	Selfheal	Dicot herb
<i>Ranunculus amphitrichus</i>	Buttercup, waioriki	Dicot herb
<i>Ranunculus flammula</i> *	Spearwort	Dicot herb
<i>Ranunculus repens</i>	Creeping buttercup	Dicot herb
<i>Salix cinerea</i> *	Grey willow	Tree
<i>Solanum dulcamara</i> *	Bittersweet	Vine
<i>Stellaria alsine</i> *	Bog stitchwort	Dicot herb
<i>Stellaria media</i> *	Chickweed	Dicot herb
<i>Trifolium pratense</i> *	Red clover	Dicot herb
<i>Trifolium repens</i> *	White clover	Dicot herb
<i>Triglochin striatum</i>		Monocot herb
<i>Ulex europaeus</i> *	Gorse	Shrub
<i>Veronica salicifolia</i>	Koromiko	Shrub

CATLINS RIVER

Species	Common Name	Plant Type
<i>Agrostis stolonifera</i> *	Creeping bent	Grass
<i>Agrostis stolonifera</i> *	Creeping bent	Grass
<i>Alopecurus aequalis</i> *		Grass
<i>Apodasmia similis</i>	oioi	Rush
<i>Atriplex prostrata</i> *	Orache	Dicot herb
<i>Carex coriacea</i>	Cutty grass, rautahi	Sedge

Species	Common Name	Plant Type
<i>Carex leporina</i> *	Oval sedge	Sedge
<i>Carex secta</i>	Pūrei, pūkio	Sedge
<i>Carex virgata</i>	Swamp sedge	Sedge
<i>Coprosma dumosa</i>		Shrub
<i>Coprosma propinqua</i>	Mingimingi, mikimiki	Shrub
<i>Cordyline australis</i>	Cabbage tree, tī kōuka	Tree
<i>Cortaderia richardii</i>	Toetoe	Grass
<i>Cotula coronopifolia</i>	Bachelors button	Dicot herb
<i>Crepis capillaris</i> *	Hawksbeard	Dicot herb
<i>Cynosurus cristatus</i> *	Crested dogstail	Grass
<i>Dacrycarpus dacrydioides</i>	Kahikatea, white pine	Tree
<i>Dactylis glomerata</i> *	Cocksfoot	Grass
<i>Eleocharis acuta</i>	Sharp spike sedge	Sedge
<i>Erythranthe guttata</i> *	Monkey musk	Dicot herb
<i>Festuca arundinacea</i> *	Tall fescue	Grass
<i>Glyceria maxima</i> *	Reed sweet grass	Grass
<i>Holcus lanatus</i> *	Yorkshire fog	Grass
<i>Hydrocotyle heteromeria</i>	Pennywort	Dicot herb
<i>Isolepis species</i>	Club rush	Sedge
<i>Juncus articulatus</i> *	Jointed rush	Rush
<i>Juncus edgariae</i>	Leafless rush, wī	Rush
<i>Juncus effusus</i> *	Soft rush	Rush
<i>Juncus planifolius</i>	Flat-leaved rush	Rush
<i>Leontodon taraxacoides</i> *	Hawkbit	Dicot herb
<i>Leptinella dioica</i>	Button daisy	Dicot herb
<i>Leptocarpus similis</i>		#ref!
<i>Lobelia angulata</i>	Pratia	Dicot herb
<i>Lotus pedunculatus</i> *	Lotus	Dicot herb
<i>Microtis unifolia</i>	Onion orchid, maikaika	Orchid
<i>Myrsine divaricata</i>	Weeping matipo, weeping māpou	Tree
<i>Phormium tenax</i>	Lowland flax, harakeke	Monocot herb
<i>Plagianthus divaricatus</i>	Saltmarsh ribbonwood, mākaka	Shrub
<i>Potentilla anserinoides</i>	Silverweed	Dicot herb
<i>Ranunculus cheesemanii</i>	Buttercup	Dicot herb
<i>Ranunculus flammula</i> *	Spearwort	Dicot herb
<i>Ranunculus glabrifolius</i>	Buttercup, waioriki	Dicot herb
<i>Ranunculus repens</i> *	Creeping buttercup	Dicot herb
<i>Rubus fruticosus</i> *	Blackberry	Shrub
<i>Rumex crispus</i> *	Curled dock	Dicot herb
<i>Samolus repens</i>	Sea primrose, shore pimpernel	Dicot herb
<i>Trifolium repens</i> *	White clover	Dicot herb
<i>Triglochin striatum</i> *		Monocot herb
<i>Ulex europaeus</i> *	Gorse	Shrub
<i>Viola cunninghamii</i>	White violet	Dicot herb

FORTIFICATION STREAM HEADWATERS SWAMP

Species	Common Name	Plant Type
<i>Agrostis capillaris</i> *	Brown top	Grass
<i>Anthoxanthum odoratum</i> *	Sweet vernal	Grass
<i>Blechnum penna-marina</i>	Little hard fern	Fern
<i>Bulbinella angustifolia</i>	Māori onion	Monocot
<i>Carex coriacea</i>	Cutty grass, rautahi	Sedge
<i>Carex echinata</i>	Star sedge	Sedge
<i>Carex secta</i>	Pūrei, pūkio	Sedge

Species	Common Name	Plant Type
<i>Chionochloa rigida</i> subsp. <i>rigida</i>	Narrow-leaved snow tussock	Grass
<i>Chionochloa rubra</i> subsp. <i>cuprea</i>	Red tussock	Grass
<i>Cirsium arvense</i> *	Californian thistle	Dicot herb
<i>Festuca novae-zelandiae</i>	Fescue tussock, hard tussock	Grass
<i>Glyceria species</i> *		Grass
<i>Holcus lanatus</i> *	Yorkshire fog	Grass
<i>Juncus effusus</i> *	Soft rush	Rush
<i>Juncus species</i>		Rush
<i>Ranunculus cheesemanii</i>	Buttercup	Dicot herb
<i>Ranunculus glabrifolius</i>	Buttercup, waioriki	Dicot herb
<i>Rumex acetosella</i> *	Sheeps sorrel	Dicot herb

JOHN O'GROATS

Species	Common Name	Plant Type
<i>Aciphylla aurea</i>	Golden spaniard	Dicot herb
<i>Agrostis capillaris</i> *	Brown top	Grass
<i>Anaphaloides bellidioides</i>	Everlasting daisy, hells bells	Dicot herb
<i>Anthoxanthum odoratum</i> *	Sweet vernal	Grass
<i>Aporostylis bifolia</i>		Orchid
<i>Astelia nervosa</i>		Monocot herb
<i>Betula pendula</i> *	Silver birch	Tree
<i>Blechnum minus</i>	Swamp kiokio	Fern
<i>Blechnum penna-marina</i>	Little hard fern	Fern
<i>Carex coriacea</i>	Cutty grass, rautahi	Sedge
<i>Carex punicea</i>		Sedge
<i>Carex secta</i>	Pūrei, pūkiō	Sedge
<i>Carex tenuiculmis</i>		Sedge
<i>Celmisia gracilentia</i>	Slender mountain daisy, pekapeka	Dicot herb
<i>Chaerophyllum colensoi</i>	Mountain myrrh	Dicot herb
<i>Chionochloa rubra</i> subsp. <i>cuprea</i>	Red tussock	Grass
<i>Coprosma dumosa</i>		Shrub
<i>Coprosma propinqua</i>	Mingimingi, mikimiki	Shrub
<i>Cytisus scoparius</i> *	Scotch broom	Shrub
<i>Digitalis purpurea</i> *	Foxglove	Dicot herb
<i>Dracophyllum longifolium</i> subsp. <i>longifolium</i>	Inaka	Shrub
<i>Gaultheria crassa</i>	Lily of the valley shrub	Shrub
<i>Gaultheria macrostigma</i>	Prostrate snowberry	Shrub
<i>Geranium potentilloides</i>		Dicot herb
<i>Helichrysum filicaule</i>	Slender everlasting daisy	Dicot herb
<i>Hieracium lepidulum</i> *	Tussock hawkweed	Dicot herb
<i>Hierochloa redolens</i>	Holy grass, kāretu	Grass
<i>Histiopteris incisa</i>	Water fern, mātātā	Fern
<i>Holcus lanatus</i> *	Yorkshire fog	Grass
<i>Hypochaeris radicata</i> *	Catsear	Dicot herb
<i>Juncus edgariae</i>	Leafless rush, wī	Rush
<i>Juncus effusus</i> *	Soft rush	Rush
<i>Leptospermum scoparium</i>	Mānuka, tea tree	Tree
<i>Lophozonia menziesii</i>	Silver beech	Tree
<i>Lotus pedunculatus</i> *	Lotus	Dicot herb
<i>Lycopodium fastigiatum</i>	Alpine clubmoss, mountain clubmoss	Fern
<i>Olearia bullata</i>	Shrub daisy	Shrub
<i>Ozothamnus vauvilliersii</i>	Mountain tauhinu	Shrub
<i>Phormium tenax</i>	Lowland flax, harakeke	Monocot herb

Species	Common Name	Plant Type
<i>Pilosella officinarum</i> *	Mouse-ear hawkweed	Dicot herb
<i>Pinus radiata</i> *	Radiata pine	Tree
<i>Poa pratensis</i> *	Kentucky blue grass	Grass
<i>Polystichum vestitum</i>	Prickly shield fern, pūniu	Fern
<i>Rubus cissoides</i>	Bush lawyer, tātarāmoa	Vine
<i>Stellaria media</i> *	Chickweed	Dicot herb
<i>Ulex europaeus</i> *	Gorse	Shrub
<i>Veronica odora</i>		Shrub
<i>Viola lyallii</i>		Dicot herb

KAIKORAI LAGOON

Species	Common Name	Plant Type
<i>Agrostis capillaris</i> *	Brown top	Grass
<i>Agrostis stolonifera</i> *	Creeping bent	Grass
<i>Austroderia richardii</i>	Toetoe	Grass
<i>Carex coriacea</i>	Cutty grass, rautahi	Sedge
<i>Carex secta</i>	Pūrei, pūkio	Sedge
<i>Cordyline australis</i>	Cabbage tree, tī kōuka	Tree
<i>Cortaderia species</i> *		Grass
<i>Dactylis glomerata</i> *	Cocksfoot	Grass
<i>Juncus articulatus</i> *	Jointed rush	Rush
<i>Juncus edgariae</i>	Leafless rush, wī	Rush
<i>Juncus effusus</i> *	Soft rush	Rush
<i>Phormium tenax</i>	Lowland flax, harakeke	Monocot herb
<i>Ranunculus repens</i> *	Creeping buttercup	Dicot herb
<i>Rubus fruticosus</i> *	Blackberry	Shrub
<i>Salix species</i> *		Tree
<i>Ulex europaeus</i> *	Gorse	Shrub

LOCH LUELLA FEN COMPLEX

Species	Common Name	Plant Type
<i>Chionochloa rubra</i>	Red tussock	Grass
<i>Juncus effusus</i>	Soft rush	Rush
<i>Olearia lineata</i>	Twiggy tree daisy	Tree
<i>Olearia bullata</i>	Shrub daisy	Shrub
<i>Carex coriacea</i>	Cutty grass, rautahi	Sedge
<i>Carex sinclairii</i>		Sedge
<i>Carduus tenuiflorus</i>	Winged thistle	Dicot herb
<i>Juncus articulatus</i>	Jointed rush	Rush
<i>Gunnera prorepens</i>	Native gunnera	Dicot herb
<i>Holcus lanatus</i>	Yorkshire fog	Grass
<i>Leontodon taraxacoides</i>	Hawkbit	Dicot herb
<i>Ranunculus glabrifolius</i>	Buttercup, waioriki	Dicot herb
<i>Montia fontana</i>	Blinks, dwarf montia	Dicot herb
<i>Ozothamnus vauvilliersii</i>	Mountain tauhinu	Shrub
<i>Festuca rubra</i>	Red fescue	Grass
<i>Hypericum androsaemum</i>	Tutsan	Shrub
<i>Poa trivialis</i>	Rough-stalked meadow grass	Grass
<i>Juncus edgariae</i>	Leafless rush, wī	Rush
<i>Cytisus scoparius</i>	Scotch broom	Shrub

<i>Ulex europaeus</i>	Gorse	Shrub
<i>Austroderia richardii</i>	Toetoe	Grass
<i>Blechnum penna-marina</i>	Little hard fern	Fern
<i>Carex secta</i>	Pūrei, pūkio	Sedge
<i>Ranunculus flammula</i>	Spearwort	Dicot herb
<i>Potamogeton cheesemani</i>	Red pondweed, mānihi	Dicot herb
<i>Gonocarpus micranthus</i>		Dicot herb
<i>Aciphylla aurea</i>	Golden spaniard	Dicot herb
<i>Chaerophyllum ramosum</i>	Myrrh	Dicot herb
<i>Polystichum vestitum</i>	Prickly shield fern, pūniu	Fern
<i>Nasturtium microphyllum</i>	Watercress	Dicot herb
<i>Eleocharis acuta</i>	Sharp spike sedge	Sedge
<i>Carex leporina</i>	Oval sedge	Sedge
<i>Holcus lanatus</i>	Yorkshire fog	Grass

MATUKITUKI VALLEY WETLAND

Species	Common Name	Plant Type
<i>Agrostis capillaris</i> *	Brown top	Grass
<i>Alopecurus geniculatus</i> *	Kneed foxtail	Grass
<i>Anthoxanthum odoratum</i> *	Sweet vernal	Grass
<i>Blechnum minus</i>	Swamp kiokio	Fern
<i>Blechnum penna-marina</i>	Little hard fern	Fern
<i>Callitriche stagnalis</i> *	Starwort	Dicot herb
<i>Carex capillacea</i>		Sedge
<i>Carex coriacea</i>	Cutty grass, rautahi	Sedge
<i>Carex diandra</i>	Sedge	Sedge
<i>Carex echinata</i>	Star sedge	Sedge
<i>Carex gaudichaudiana</i>		Sedge
<i>Carex leporina</i> *	Oval sedge	Sedge
<i>Carex maorica</i>	Cutty grass, rautahi	Sedge
<i>Carex secta</i>	Pūrei, pūkio	Sedge
<i>Cerastium fontanum</i> *	Mouse-ear chickweed	Dicot herb
<i>Cirsium vulgare</i> *	Scotch thistle	Dicot herb
<i>Coprosma propinqua</i>	Mingimingi, mikimiki	Shrub
<i>Coprosma rugosa</i>		Shrub
<i>Coprosma rugosa</i>		Shrub
<i>Coriaria sarmentosa</i>	Tutu	Shrub
<i>Cynosurus cristatus</i> *	Crested dogstail	Grass
<i>Discaria toumatou</i>	Matagouri, tūmatakuru	Tree
<i>Eleocharis acuta</i>	Sharp spike sedge	Sedge
<i>Epilobium pedunculare</i>	Willow herb	Dicot herb
<i>Erythranthe moschata</i> *	Musk	Dicot herb
<i>Festuca rubra</i> *	Red fescue	Grass
<i>Gaultheria parvula</i>		Dicot herb
<i>Glyceria species</i> *		Grass
<i>Glyceria declinata</i> *	Glaucous sweetgrass	Grass
<i>Gonocarpus micranthus</i>		Dicot herb
<i>Hieracium lepidulum</i> *	Tussock hawkweed	Dicot herb
<i>Holcus lanatus</i> *	Yorkshire fog	Grass
<i>Hydrocotyle novae-zeelandiae</i>	Pennywort	Dicot herb
<i>Hydrocotyle sulcata</i>	Pennywort	Dicot herb
<i>Hypolepis millefolium</i>	Thousand-leaved fern	Fern
<i>Hypericum perforatum</i> *	St Johns wort	Dicot herb
<i>Hypericum pusillum</i>	Swamp hypericum	Dicot herb

Species	Common Name	Plant Type
<i>Isolepis aucklandica</i>		Sedge
<i>Juncus articulatus</i> *	Jointed rush	Rush
<i>Juncus bufonius</i> *	Toad rush	Rush
<i>Juncus effusus</i> *	Soft rush	Rush
<i>Juncus tenuis</i> *	Slender rush	Rush
<i>Leontodon taraxacoides</i> *	Hawkbit	Dicot herb
<i>Luzula rufa</i>	Woodrush	Rush
<i>Microtis unifolia</i>	Onion orchid, maikaika	Orchid
<i>Montia fontana</i>	Blinks, dwarf montia	Dicot herb
<i>Myosotis laxa</i> *	Water forget-me-not	Dicot Herb
<i>Nasturtium officinale</i> *	Watercress	Dicot herb
<i>Nertera balfouriana</i>	Nertera	Dicot herb
<i>Poa annua</i> *	Annual poa	Grass
<i>Poa cita</i>	Silver tussock, wī	Grass
<i>Polystichum vestitum</i>	Prickly shield fern, pūniu	Fern
<i>Populus nigra</i> *	Black poplar, Lombardy poplar	Tree
<i>Portulaca oleracea</i> *	Purslane	Dicot herb
<i>Potentilla anglica</i> *	Creeping cinquefoil	Dicot herb
<i>Prasophyllum species</i>		Orchid
<i>Ranunculus amphitrichus</i>	Buttercup, waioriki	Dicot herb
<i>Ranunculus repens</i> *	Creeping buttercup	Dicot herb
<i>Rosa rubiginosa</i> *	Sweet briar, briar rose	Shrub
<i>Rumex acetosella</i> *	Sheeps sorrel	Dicot herb
<i>Rumex crispus</i> *	Curled dock	Dicot herb
<i>Rumex flexuosus</i>	Māori dock, NZ dock, runa	Dicot herb
<i>Rumex obtusifolius</i> *	Broad-leaved dock	Dicot herb
<i>Salix xfragilis</i> *	Crack willow	Tree
<i>Sambucus nigra</i> *	Elderberry	Tree
<i>Schoenus pauciflorus</i>	Bog rush	Sedge
<i>Sphagnum species</i>	Sphagnum	Moss
<i>Stellaria gracilentia</i>	Chickweed	Dicot herb
<i>Trifolium dubium</i> *	Suckling clover	Dicot herb
<i>Trifolium pratense</i> *	Red clover	Dicot herb
<i>Trifolium repens</i> *	White clover	Dicot herb
<i>Typha orientalis</i>	Raupō, bull rush	Rush
<i>Viola lyallii</i>		Dicot herb

MEASLY BEACH COMPLEX

Species	Common Name	Plant Type
<i>Agrostis capillaris</i> *	Brown top	Grass
<i>Agrostis stolonifera</i> *	Creeping bent	Grass
<i>Apodasmia similis</i>	Oioi	Rush
<i>Aristotelia serrata</i>	Wineberry, makomako	Tree
<i>Blechnum minus</i>	Swamp kiokio	Fern
<i>Blechnum penna-marina</i>	Little hard fern	Fern
<i>Cardamine species</i>		Dicot herb
<i>Carex coriacea</i>	Cutty grass, rautahi	Sedge
<i>Carex secta</i>	Pūrei, pūkio	Sedge
<i>Carex sinclairii</i>		Sedge
<i>Carex virgata</i>	Swamp sedge	Sedge
<i>Carpodetus serratus</i>	Marbleleaf, putaputawētā	Tree
<i>Cerastium fontanum</i> *	Mouse-ear chickweed	Dicot herb
<i>Cirsium arvense</i> *	Californian thistle	Dicot herb
<i>Cirsium vulgare</i> *	Scotch thistle	Dicot herb

Species	Common Name	Plant Type
<i>Conium maculatum</i> *	Hemlock	Dicot herb
<i>Coprosma propinqua</i>	Mingimingi, mikimiki	Shrub
<i>Coprosma repens</i>	Taupata	Shrub
<i>Cordyline australis</i>	Cabbage tree, tī kōuka	Tree
<i>Coriaria arborea</i>	Tree tutu	Shrub
<i>Cortaderia richardii</i>	Toetoe	Grass
<i>Cytisus scoparius</i> *	Scotch broom	Shrub
<i>Dactylis glomerata</i> *	Cocksfoot	Grass
<i>Digitalis purpurea</i> *	Foxglove	Dicot herb
<i>Dryopteris filix-mas</i> *	Male fern	Fern
<i>Empodisma minus</i>	Wire rush	Rush
<i>Epilobium chionanthum</i>	Willow herb	Dicot herb
<i>Erica lusitanica</i> *	Spanish heath	Shrub
<i>Ficinia nodosa</i>	Club rush, wiwi	Sedge
<i>Glyceria plicata</i> *		Grass
<i>Holcus lanatus</i> *	Yorkshire fog	Grass
<i>Hydrocotyle novae-zeelandiae</i>	Pennywort	Dicot herb
<i>Ileostylus micranthus</i>	Green mistletoe	Mistletoe
<i>Juncus articulatus</i> *	Jointed rush	Rush
<i>Juncus bufonius</i> *	Toad rush	Rush
<i>Juncus effusus</i> *	Soft rush	Rush
<i>Juncus pallidus</i>	Giant rush, leafless rush, wī	Rush
<i>Lemna disperma</i>	Common duckweed	Monocot herb
<i>Leptospermum scoparium</i>	Mānuka, tea tree	Tree
<i>Leycesteria formosa</i> *	Himalayan honeysuckle	Shrub
<i>Lotus pedunculatus</i> *	Lotus	Dicot herb
<i>Melicytus ramiflorus</i>	Māhoe, whiteywood	Tree
<i>Montia fontana</i>	Blinks, dwarf montia	Dicot herb
<i>Muehlenbeckia australis</i>	Large-leaved pōhuehue	Vine
<i>Myosotis laxa</i> *	Water forget-me-not	Dicot herb
<i>Phormium tenax</i>	Lowland flax, harakeke	Monocot herb
<i>Pinus radiata</i> *	Radiata pine	Tree
<i>Pittosporum tenuifolium</i>	Kōhūhū, black matipo	Tree
<i>Poa</i> species		Grass
<i>Potamogeton cheesemanii</i>	Red pondweed, mānihi	Dicot herb
<i>Pseudopanax crassifolius</i>	Lancewood, horoeka	Tree
<i>Pteridium esculentum</i>	Bracken, rārahu, rauaruhe	Fern
<i>Ranunculus flammula</i> *	Spearwort	Dicot herb
<i>Ranunculus glabrifolius</i>	Buttercup, waioriki	Dicot herb
<i>Ranunculus repens</i> *	Creeping buttercup	Dicot herb
<i>Senecio minimus</i>	Native fireweed	Dicot herb
<i>Sphagnum cristatum</i>	Sphagnum	Moss
<i>Stellaria media</i> *	Chickweed	Dicot herb
<i>Taraxacum officinale</i> *	Dandelion	Dicot herb
<i>Trifolium repens</i> *	White clover	Dicot herb
<i>Ulex europaeus</i> *	Gorse	Shrub
<i>Veronica salicifolia</i>	Koromiko	Shrub

MOLYNEUX BAY

Species	Common Name	Plant Type
<i>Agrostis capillaris</i> *	Brown top	Grass
<i>Agrostis stolonifera</i> *	Creeping bent	Grass
<i>Carex secta</i>	Pūrei, pūkio	Sedge
<i>Dactylis glomerata</i> *	Cocksfoot	Grass

Species	Common Name	Plant Type
<i>Galium aparine</i> *	Cleavers	Dicot herb
<i>Juncus articulatus</i> *	Jointed rush	Rush
<i>Juncus edgariae</i>	Leafless rush, wī	Rush
<i>Juncus effusus</i> *	Soft rush	Rush
<i>Phormium tenax</i>	Lowland flax, harakeke	Monocot herb
<i>Prunella vulgaris</i> *	Selfheal	Dicot herb
<i>Ranunculus repens</i> *	Creeping buttercup	Dicot herb
<i>Rubus fruticosus</i> *	Blackberry	Shrub
<i>Rumex obtusifolius</i> *	Broad-leaved dock	Dicot herb
<i>Salix species</i> *		Tree
<i>Trifolium repens</i> *	White clover	Dicot herb
<i>Ulex europaeus</i> *	Gorse	Shrub
<i>Old dunstan road</i>		
<i>Agrostis capillaris</i> *	Brown top	Grass
<i>Anthoxanthum odoratum</i> *	Sweet vernal	Grass
<i>Carex coriacea</i>	Cutty grass, rautahi	Sedge
<i>Carex secta</i>	Pūrei, pūkio	Sedge
<i>Carex species</i>		Sedge
<i>Dactylis glomerata</i> *	Cocksfoot	Grass
<i>Juncus articulatus</i> *	Jointed rush	Rush
<i>Juncus edgariae</i>	Leafless rush, wī	Rush
<i>Juncus effusus</i> *	Soft rush	Rush
<i>Ranunculus flammula</i> *	Spearwort	Dicot herb
<i>Ranunculus repens</i> *	Creeping buttercup	Dicot herb
<i>Rubus fruticosus</i> *	Blackberry	Shrub
<i>Trifolium pratense</i> *	Red clover	Dicot herb
<i>Trifolium repens</i> *	White clover	Dicot herb

TOKO MOUTH

Species	Common Name	Plant Type
<i>Agrostis capillaris</i> *	Brown top	Grass
<i>Anthoxanthum odoratum</i> *	Sweet vernal	Grass
<i>Apodasmia similis</i>	Oioi	Rush
<i>Carex coriacea</i>	Cutty grass, rautahi	Sedge
<i>Carex secta</i>	Pūrei, pūkio	Sedge
<i>Carex species</i>		Sedge
<i>Dactylis glomerata</i> *	Cocksfoot	Grass
<i>Juncus articulatus</i> *	Jointed rush	Rush
<i>Juncus edgariae</i>	Leafless rush, wī	Rush
<i>Juncus effusus</i> *	Soft rush	Rush
<i>Ranunculus flammula</i> *	Spearwort	Dicot herb
<i>Ranunculus repens</i> *	Creeping buttercup	Dicot herb
<i>Rubus fruticosus</i> *	Blackberry	Shrub
<i>Trifolium pratense</i> *	Red clover	Dicot herb
<i>Trifolium repens</i> *	White clover	Dicot herb

TWO STONE HILL

Species	Common Name	Plant Type
<i>Agrostis capillaris</i> *	Brown top	Grass
<i>Austroderia richardii</i>	Toetoe	Grass
<i>Blechnum minus</i>	Swamp kiokio	Fern
<i>Blechnum penna-marina</i>	Little hard fern	Fern

<i>Carex secta</i>	Pūrei, pūkio	Sedge
<i>Chionochloa rubra</i> subsp. <i>cuprea</i>	Red tussock	Grass
<i>Cirsium arvense</i> *	Californian thistle	Dicot herb
<i>Cirsium vulgare</i> *	Scotch thistle	Dicot herb
<i>Coprosma propinqua</i>	Mingimingi, mikimiki	Shrub
<i>Cordyline australis</i>	Cabbage tree, tī kōuka	Tree
<i>Cytisus scoparius</i> *	Scotch broom	Shrub
<i>Dactylis glomerata</i> *	Cocksfoot	Grass
<i>Digitalis purpurea</i> *	Foxglove	Dicot herb
<i>Erica lusitanica</i> *	Spanish heath	Shrub
<i>Ficinia nodosa</i>	Club rush, wiwi	Sedge
<i>Galium aparine</i> *	Cleavers	Dicot herb
<i>Glyceria fluitans</i> *	Floating sweetgrass	Grass
<i>Griselinia littoralis</i>	Broadleaf, kāpuka	Tree
<i>Hoheria angustifolia</i>	Narrow-leaved lacebark, houhere	Tree
<i>Juncus effusus</i> *	Soft rush	Rush
<i>Myosotis laxa</i> *	Water forget-me-not	Dicot herb
<i>Phormium tenax</i>	Lowland flax, harakeke	Monocot herb
<i>Pittosporum tenuifolium</i>	Kōhūhū, black matipo	Tree
<i>Polystichum vestitum</i>	Prickly shield fern, pūniu	Fern
<i>Pseudopanax crassifolius</i>	Lancewood, horoeka	Tree
<i>Pteridium esculentum</i>	Bracken, rārahu, rauaruhe	Fern
<i>Ranunculus flammula</i> *	Spearwort	Dicot herb
<i>Ranunculus repens</i> *	Creeping buttercup	Dicot herb
<i>Rubus cissoides</i>	Bush lawyer, tātarāmoa	Vine
<i>Rubus fruticosus</i> *	Blackberry	Shrub
<i>Rumex species</i> *		Dicot herb
<i>Salix species</i> *		Tree
<i>Trifolium repens</i> *	White clover	Dicot herb
<i>Ulex europaeus</i> *	Gorse	Shrub



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