

## **Crown Pastoral Land Tenure Review**

**Lease name : MINARET STATION**

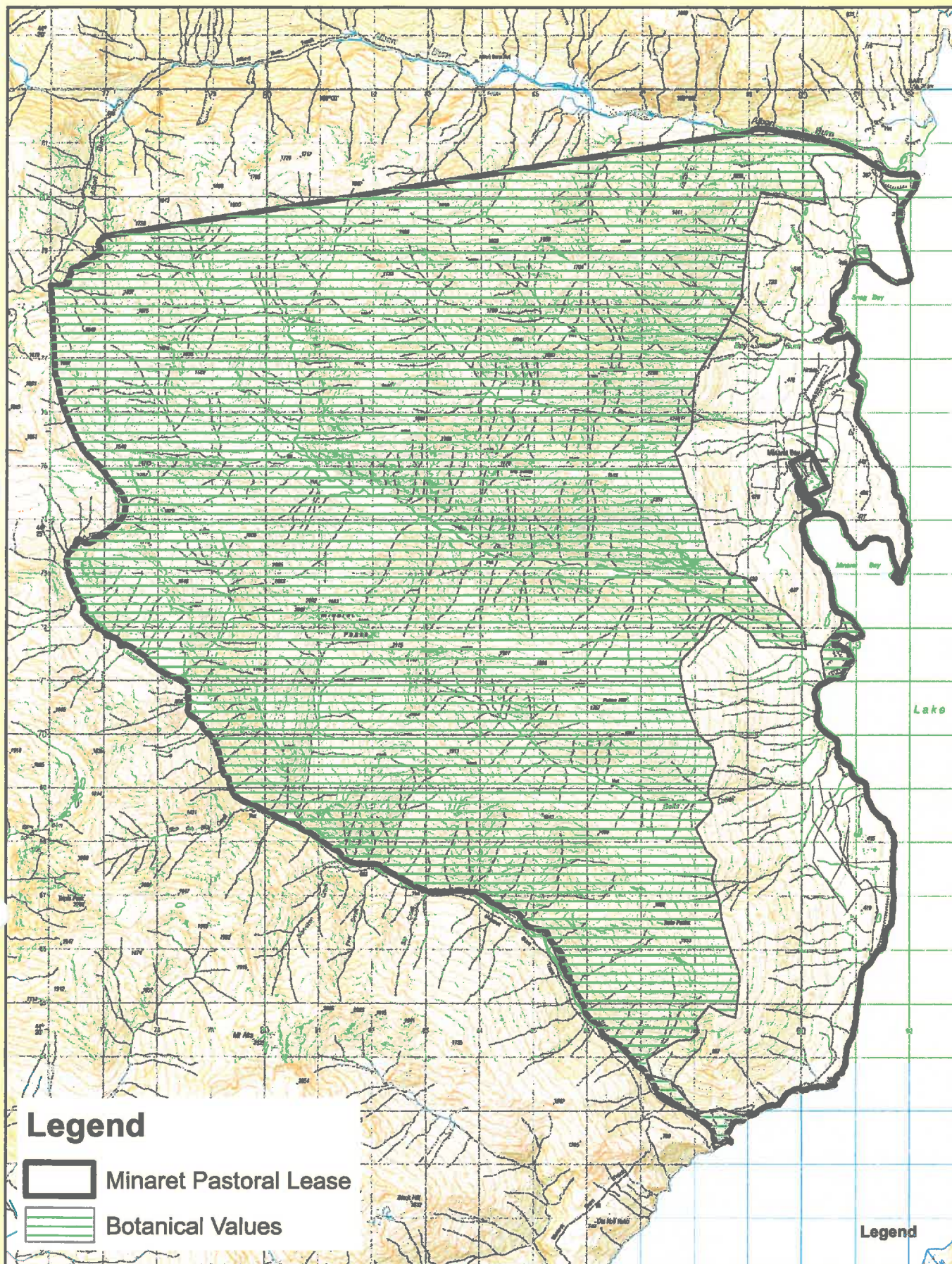
**Lease number : PO 274**

### **Conservation Resources Report – Part 2**

As part of the process of Tenure Review, advice on significant inherent values within the pastoral lease is provided by Department of Conservation officials in the form of a Conservation Resources Report. This report is the result of outdoor survey and inspection. It is a key piece of information for the development of a preliminary consultation document.

The report attached is released under the Official Information Act 1982.

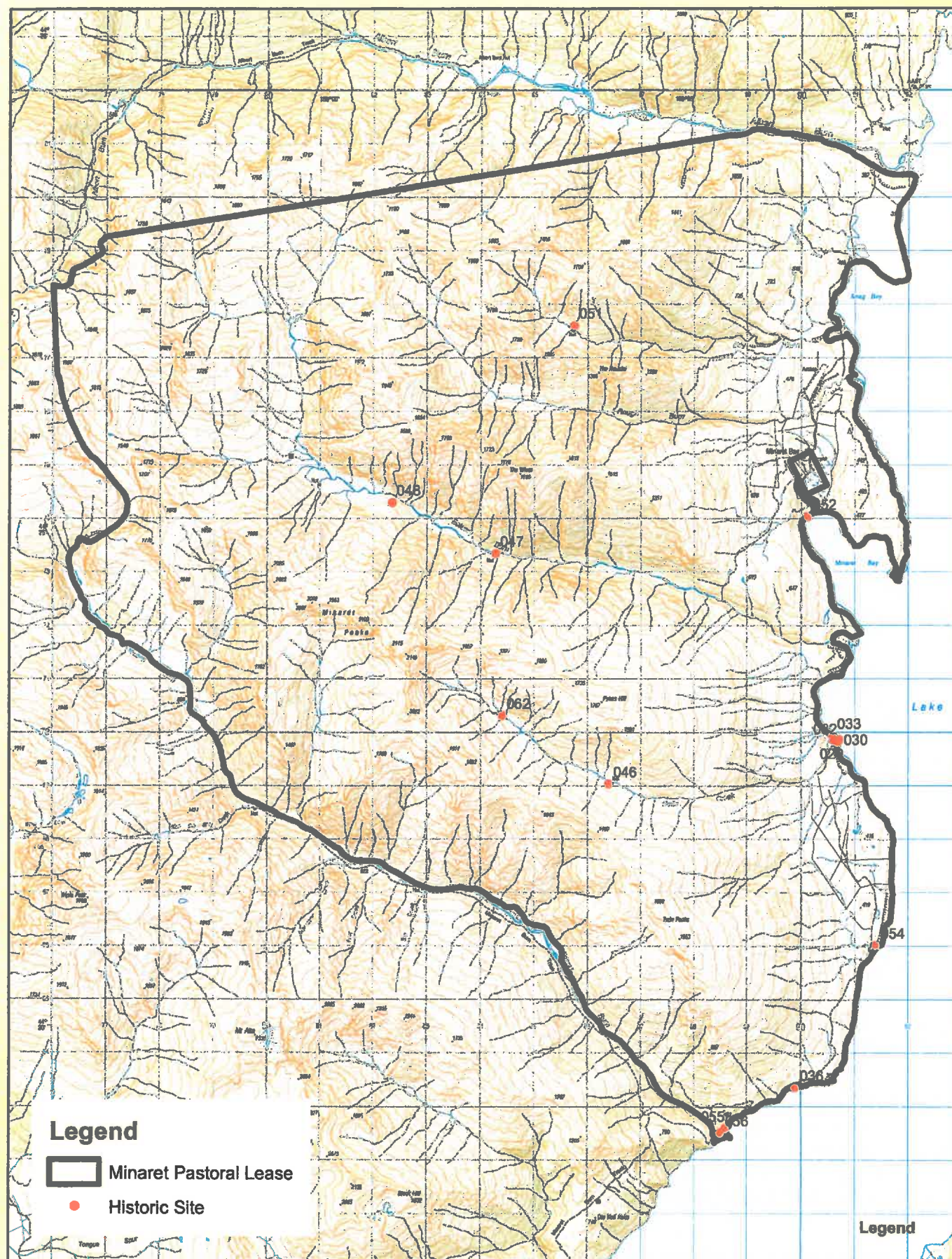




## 4.2.3

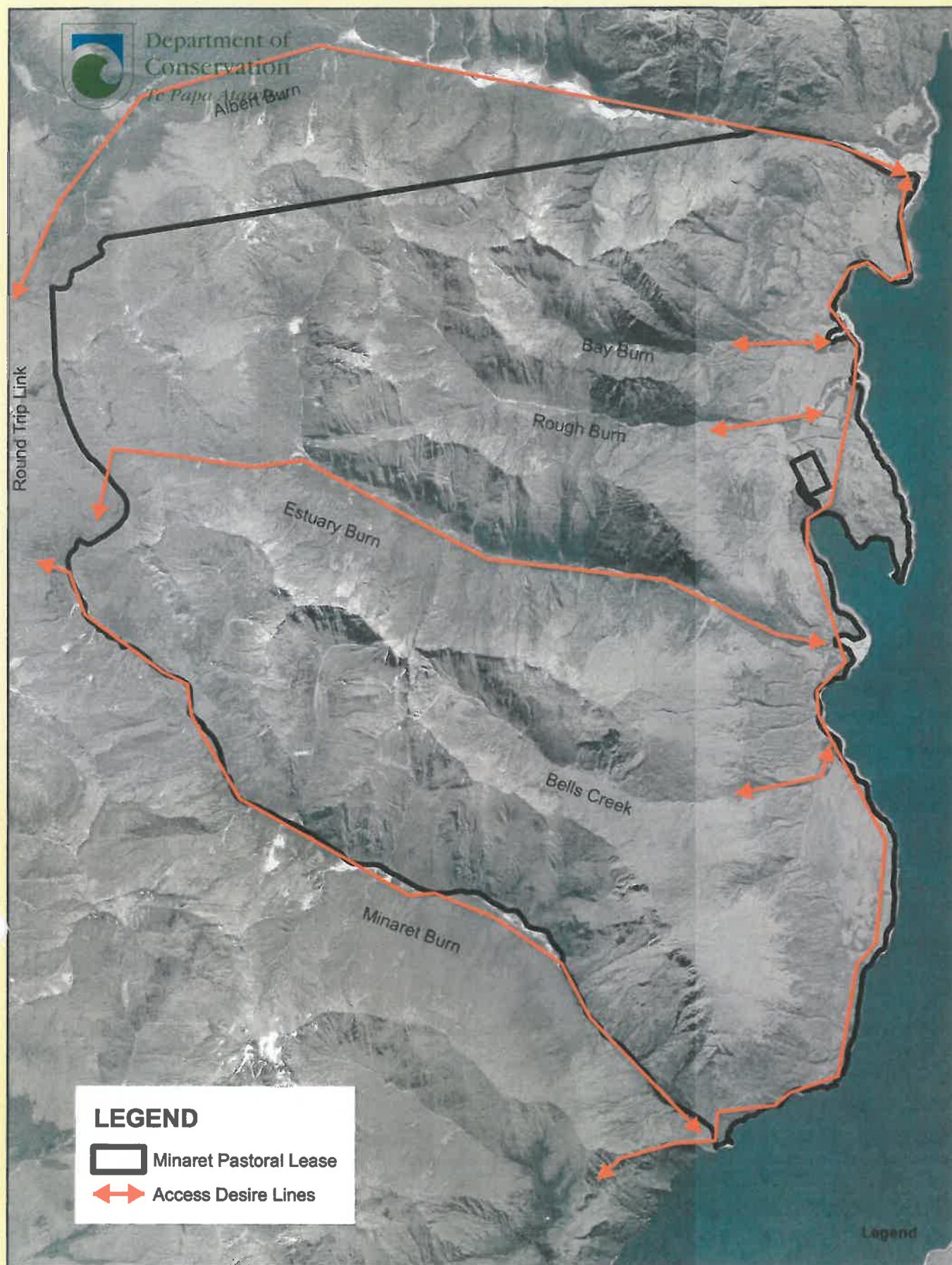
## MINARET BOTANICAL VALUES





## 4.2.4 MINARET HISTORIC SITES and WAYPOINT NUMBERS





## 4.2.5

## MINARET RECREATION PLAN

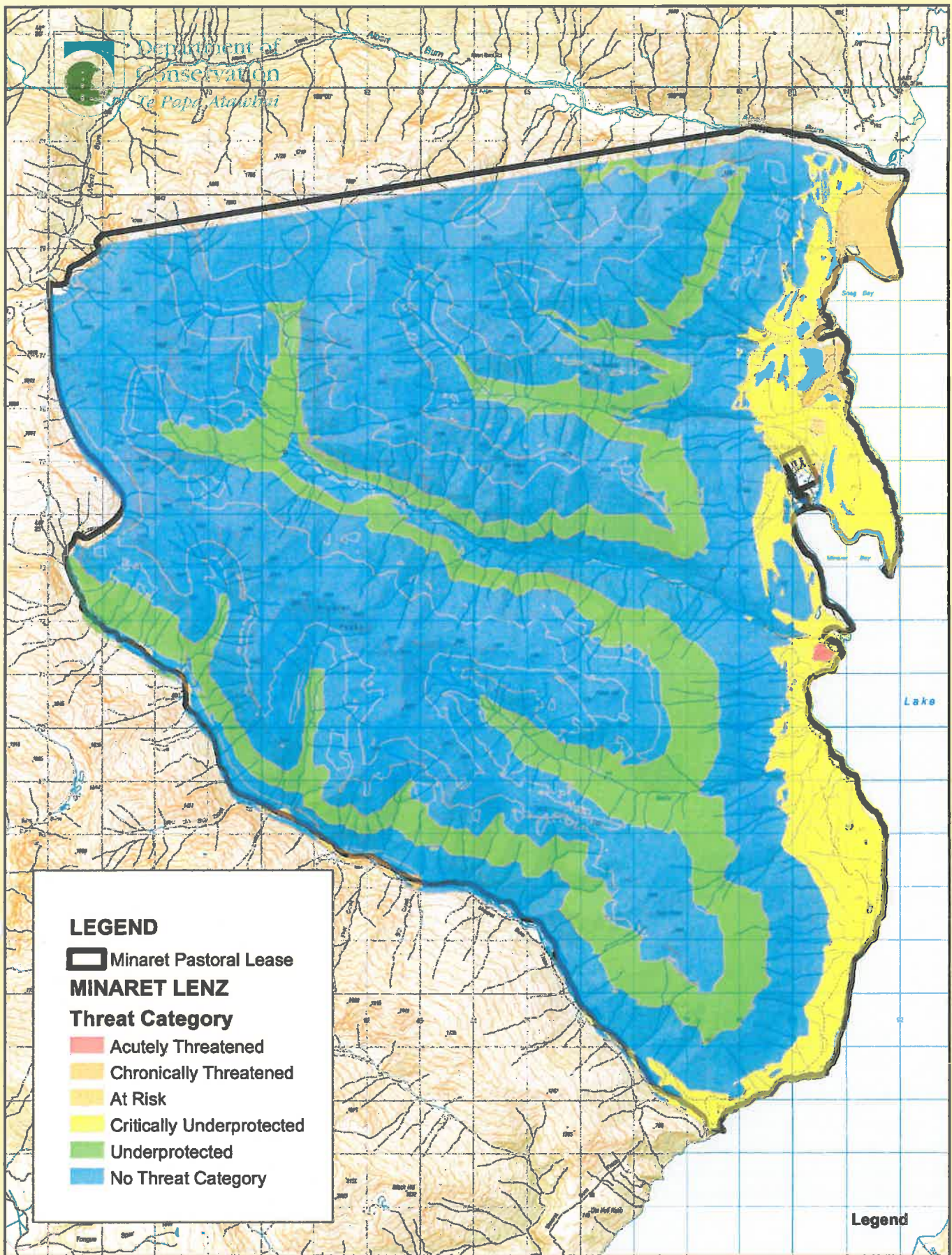


Department of Conservation  
Te Papa Atawhai

2 km

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NZGD 2000 New Zealand Transverse Mercator  
ArcGIS Lite  
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Date: 4/09/2012

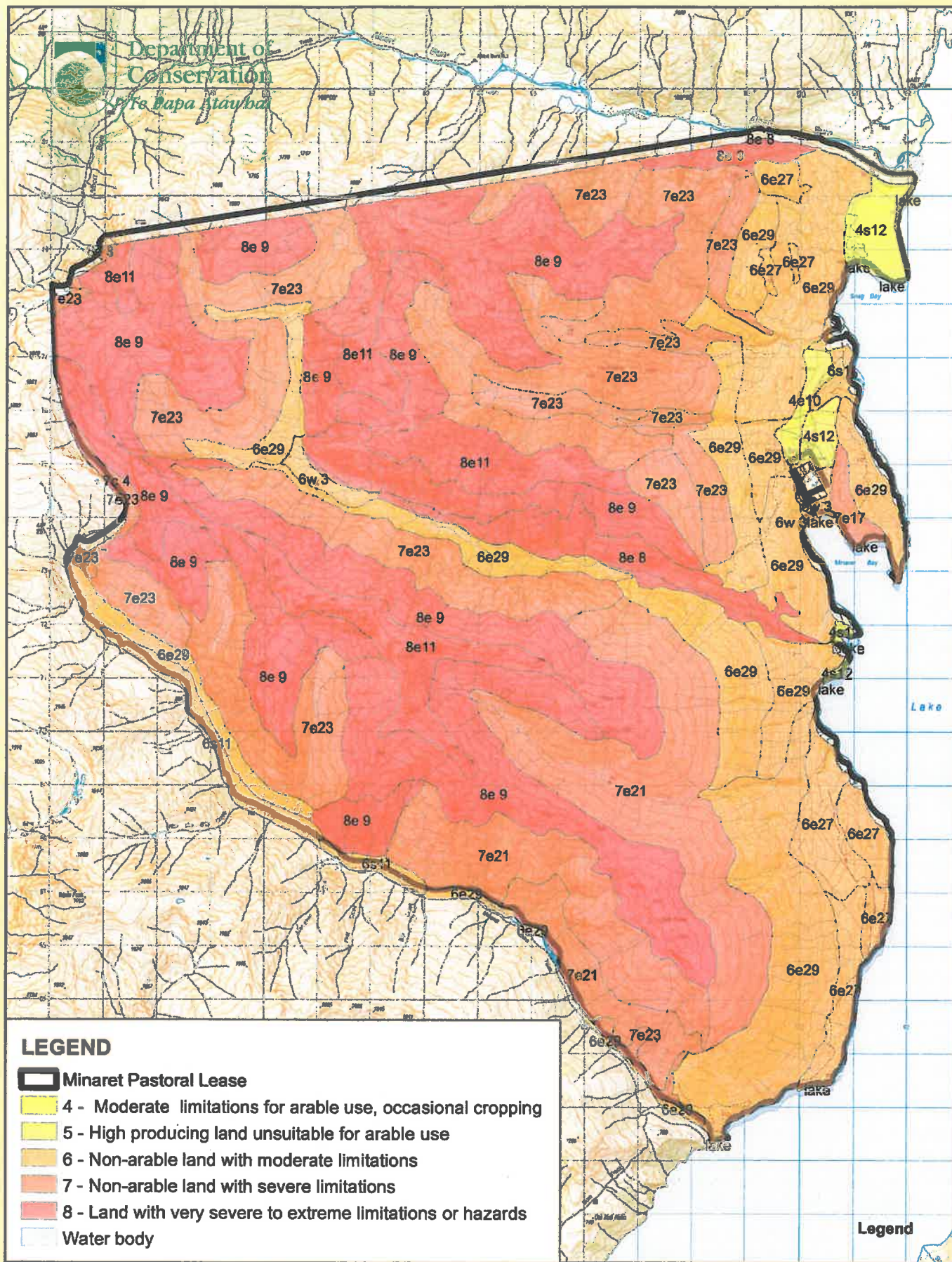




#### 4.2.6

#### MINARET LENZ THREAT PLAN





## 4.2.7 MINARET LAND RESOURCE INVENTORY PLAN



## **4.3            Photographs**

4.3.1    Landscape Unit Photos

4.3.2    Historic Photos



### **4.3.1 Landscape Unit Photos**

#### **Landscape Unit 1 (Minaret Burn to Estuary Burn)**



Photo 1: Lake faces immediately north of Minaret Burn.



Photo 2: Faces below Twin Peaks. Easy slopes have been cleared. Extensive shrubland in gullies and steeper faces.





Photo 3: Faces below Twin Peaks. Tussock at higher altitudes. Bracken and emerging shrubland in hollows and damper sites with cleared areas between.



Photo 4: Bell Creek and adjacent faces.





Photo 5: View north from Estuary Burn to Minaret Bay. Kanuka on river delta and terrace faces is a significant feature.



Photo 6: View of entrance to Estuary Burn with extensive gully shrubland and forest.





Photo 7: Typical snow tussock and scrub on upper zone of the lake faces.



Photo 8: View south east across prominent fan between Bells Creek and Minaret Burn.





**Photo 9: Lake faces between Minaret Burn and Bells Creek. Patchwork of developed pasture on easier slopes and shrubland on steeper faces and gullies.**



**Photo 10: View south from Estuary Burn delta across southern lake faces. Kanuka shrubland is a feature on the lakeshore and on the delta and adjoining terraces.**



## **Landscape Unit 1 (Estuary Burn to Albert Burn)**



Photo 11: Remnant shrubland on faces above Minaret Bay.



Photo 12: Lake face south of Rough Burn. Homestead in foreground.





Photo 13: Riparian shrubland and beech forest emphasise natural patterns in vicinity of the Rough Burn.



Photo 14: Remnant shrubland on lakeshore and steep rocky areas on eastern side of Minaret Bay.





**Photo 15: Typical mid slope vegetation grading from cleared, mainly bracken/pasture to tussock and scrub and gully and riparian vegetation.**



**Photo 16: Bay Burn and adjacent lake faces to the north.**





**Photo 17: Glacial bench between Bay Burn and Albert Burn.**



**Photo 18: View south west across Bay Burn Delta. Kanuka shrubland is important landscape feature associated with delta flats, the lakeshore and river margins.**





Photo 19: View north to Snag Bay with Rough Burn in foreground.



Photo 20: Rough Burn and adjacent faces. Pasture development occurring on right.



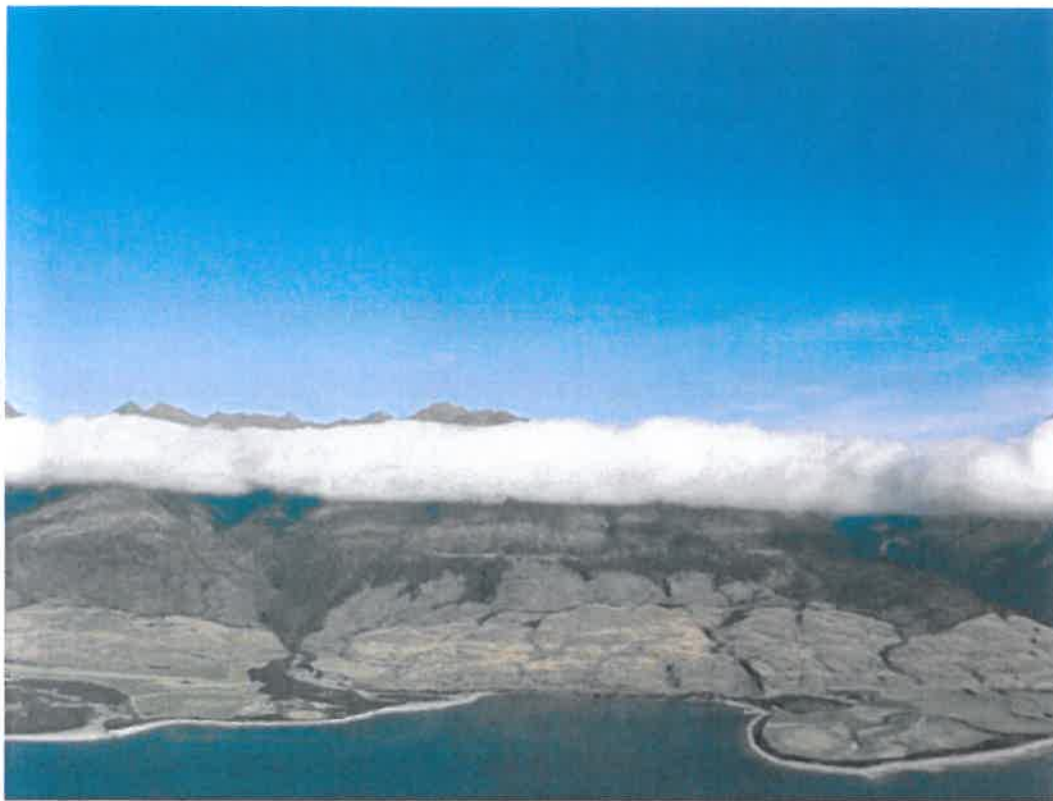


Photo 21: Northern lake faces. Minaret Burn on left extending to just beyond the Bay Burn.



Photo 22: Estuary Burn and Minaret Bay.





**Photo 23: Lake faces between Bay Burn and Albert Burn. High track or dozed fenceline is visible in mid slope area. Significant farm development has recently occurred below the line.**



## **Landscape Unit 2 (Albert Burn)**



Photo 24: View west from entrance to Albert Burn. Extremely rugged and steep slopes.



Photo 25: Mid Albert Burn faces in advanced stage of regeneration.



**Photo 26: Hanging  
valley, Albert Burn**



**Photo 27: View south east from upper Albert Burn across upper range.**



## **Landscape Unit 2 (Estuary Burn)**



**Photo 28: Tarn in headwaters of the Estuary Burn.**



**Photo 29: Ice shorn rock, scree and tussock on upper slopes. Mt Aspiring in the background.**





**Photo 30: Mid Estuary Burn . View down valley. Note mainly tussock on true right faces with extensive shrubland,scrub and beech on steep true left faces.**



**Photo 31: Minaret Lodge.**





Photo 32: Opposite Minaret Lodge. Modified toe slopes. Extensive beech forest on steep south faces.



Photo 33: Minaret Lodge.





Photo 34: Modified fans and lower slopes downstream of Minaret Lodge.



Photo 35: Very steep, near vertical faces and extensive shrubland





Photo 36: Tussock and schist dominate upper slopes of the Estuary Burn (and the other tributaries).

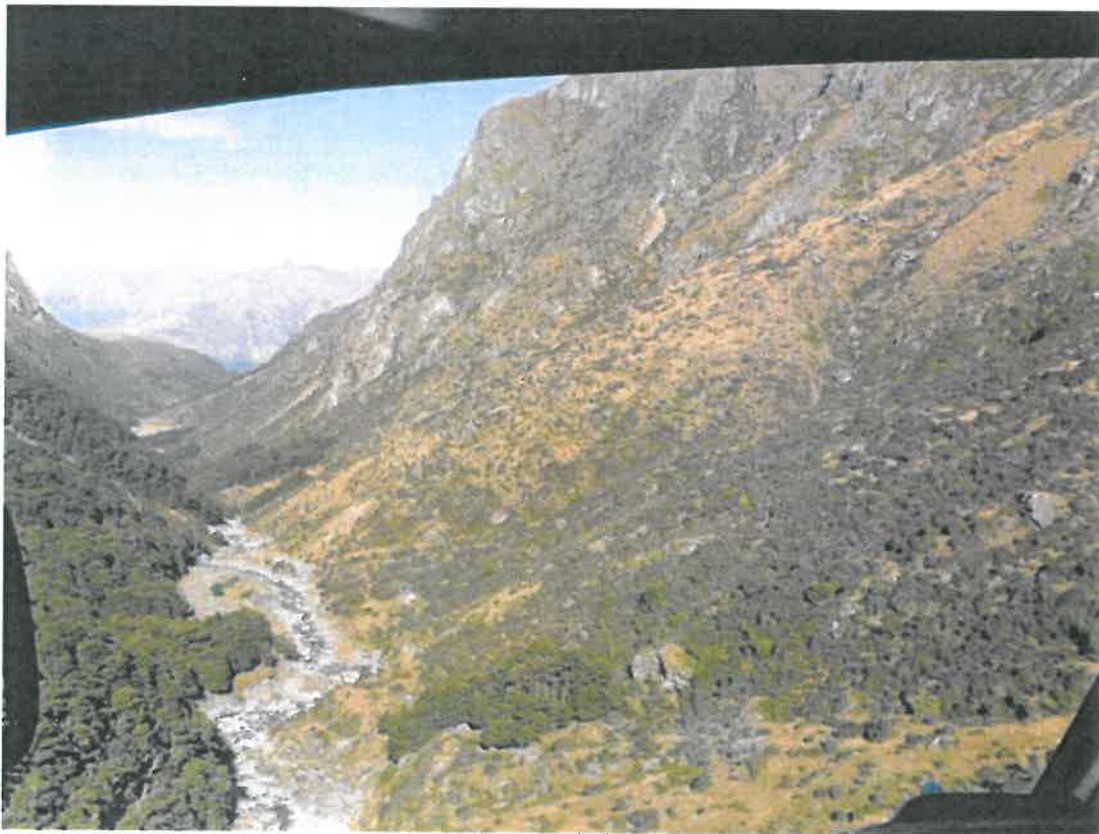


Photo 37: Lower Estuary Burn. Sunny face more modified by pastoral use compared to south faces.





Photo 38: View down valley lower Estuary Burn



Photo 39: Steep sunny faces below Pykes Hill.





Photo 40: Modified south faces near entrance to Estuary Burn.



Photo 41: Lower Estuary Burn. Grassy toe slopes enclosed by extensive scrub and shrubland.



## **Landscape Unit 2 (Bells Creek)**



**Photo 42: Mid Bells Creek.**



**Photo 43: Upper Bells Creek.**





Photo 44: Herbfield upper Bells Creek.



Photo 45: Upper Bells Creek with Minaret Peaks at the head of the valley



## **Landscape Unit 2 (Minaret Burn)**



**Photo 46: Upper Minaret Burn faces.**



**Photo 47: Upper Minaret Burn. Sheer rocky faces and very steep bluffs are common**





**Photo 48: Mid Minaret Burn.**



**Photo 49: Lower Minaret Burn. Craggy tops, tussock and scrub are the main features.**





**Photo 50: Lower Minaret Burn.**



**Photo 51: Lower Minaret faces. Mainly bracken and emerging shrubland on true right (outside lease boundary) with remnant vegetation on true left.**





Photo 52: Lower Minaret Burn. Dense mid slope shrubland and gully beech forest. Modified areas above the scrub zone



Photo 53: Lower Minaret Burn. Mixed pasture and shrubland on mid to lower slopes.





Photo 54: Lower Minaret Burn. Modified lower slopes and fans.



Photo 55: Mid Minaret Burn.





Photo 56: Mid Minaret Burn toe slopes and fan

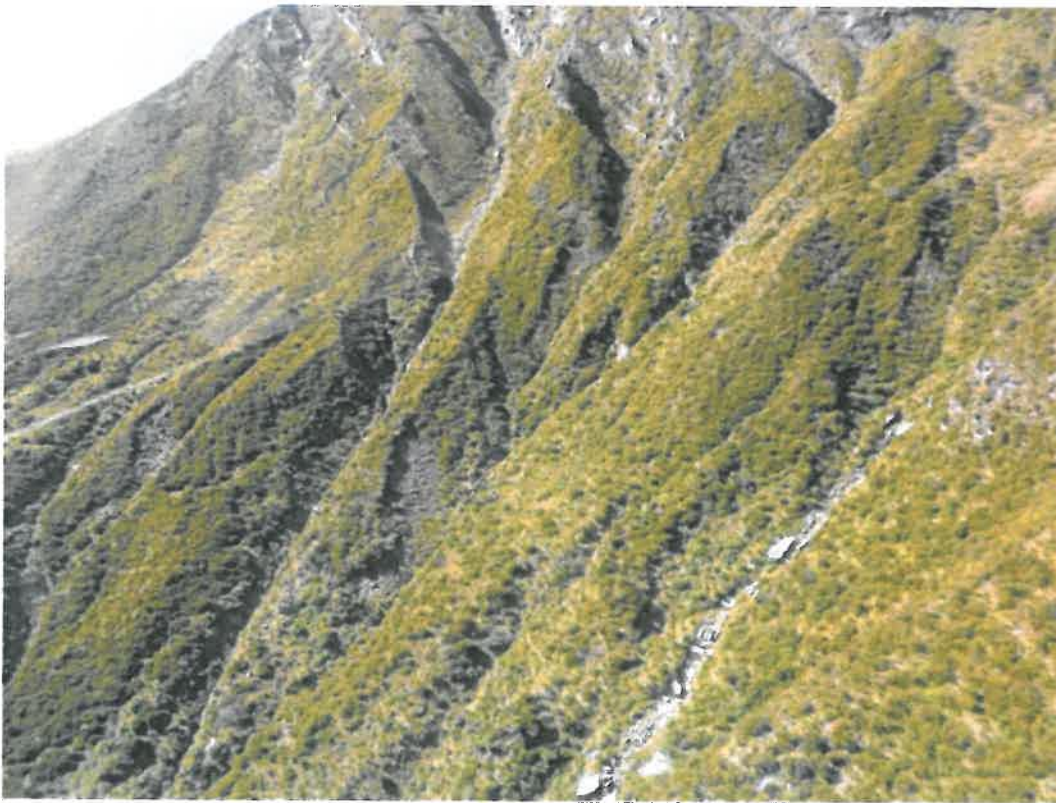


Photo 57: Sub-alpine scrub on very steep faces in mid Estuary Burn



### 4.3.2. Historic Photos



Stacked stone musterer's hut in Estuary Burn. View east. (GPS 048)

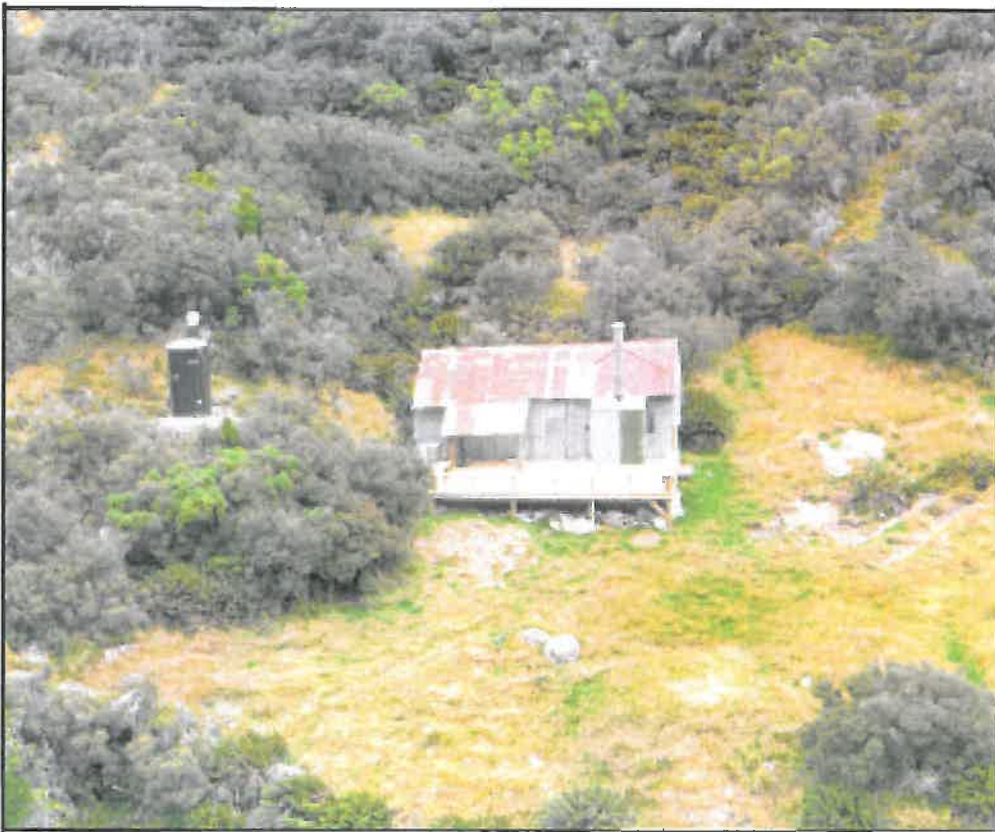


Tin hut with kanuka pole framing and external metal chimney, Bell's Creek (GPS 032)





Hut at Bells Creek (GPS 046)



Hut at Estuary Burn (GPS 047)





Hut at Bay Burn (GPS 051)



Shelter shed above derelict jetty, Minaret Bay (GPS 052). View north east.





Stacked shelter or hut at the mouth of Minaret Burn, true left above beach berm (GPS 055)





Partial base of three legged cooking pot in stacked shelter, Minaret Burn (GPS 055)



Derelict jetty at Minaret Bay (GPS 052). View South-east.



## **4.5 Appendices**

**APPENDIX 1: Summary of Land Environments of New Zealand Units present on Minaret Pastoral Lease**

**APPENDIX 2: Plant Species List**

**APPENDIX 3: Invertebrate Species List**

**APPENDIX 4: Location Map of Freshwater Fish Historic Records (NZFF database) and Survey Sites during Tenure Review Inspection**



## APPENDIX 1: Summary of Land Environments of New Zealand Units present on Minaret Pastoral Lease

From Leathwick, J., F. Morgan, G. Wilson, D. Rutledge, M. McLeod and K. Johnston. 2002: Land Environments of New Zealand. Technical Guide. Ministry for the Environment.

Level IV Environment	Description
E1.4c	Central Dry Foothills; well-drained moderate fertility soils of steep foothills, from greywacke. Cool temperatures. High solar radiation, low annual water deficits. 755 m asl.
E3.2b	Central Dry Foothills; imperfectly-drained soils of undulating foothills; moderate fertility from loess from greywacke and schist. Steep foothills. Mild temperatures, moderate solar radiation, high vapour pressure deficits, low annual water deficits. 380 m asl.
K4.1b	Central Upland Recent Soils of Central Otago. Recent, poorly-drained soils of high fertility from fine greywacke alluvium with some loess; on gently undulating inland basins. Warmer winter temperatures, lower annual water deficits, high solar radiation. 600 m asl.
M2.2b	Western South Island Recent Soils; of gently undulating flood plains. Moderately fertile soils with imperfect drainage, derived from greywacke gravels with some loess, schist alluvium. 360 m asl.
M2.3a	Western South Island Recent Soils; of easy rolling flood plains. Moderately fertile imperfectly-drained soils derived from greywacke gravels with some loess, schist alluvium. 545 m asl.
M3.2a	Western South Island Recent Soils; of easy rolling flood plains. Poorly-drained soils of moderate fertility derived from fine schist and greywacke alluvium with some loess. Cool temperatures, moderate solar radiation, moderate vapour pressure deficits, low monthly water balance ratios, slight annual water deficits. 700 m asl.
N2.1a	Eastern South Island Plains south of Timaru. Well-drained soils of high fertility from greywacke gravels with some loess; mild temperatures, moderate solar radiation, high vapour pressure deficits, higher annual water deficits. 250 m asl.
O1.4a	Western South Island Foothills and Stewart Island; of steep hills. Well-drained soils of low fertility from Tertiary sandstones, gravels and granite; 540 m asl.
O2.3b	Western South Island Foothills and Stewart Island; of very steep mountainous terrain. Imperfectly-drained soils of moderate fertility from schist with greywacke west of the Alpine Fault; 575 m asl.
P5.1b	Central Mountains including western Otago; of steep mountains. Well drained soils of moderately natural fertility from granite and greywacke alluvium, schist and mixed alluvium, Tertiary mudstones and andesite. Cooler winter temperatures, moderate solar radiation, lower monthly water balance ratios. 610 m asl.
P5.1d	Central Mountains including western Otago; of steep mountains. Well drained soils of moderately natural fertility from granite and greywacke alluvium, schist and mixed alluvium, Tertiary mudstones and andesite. 610 m asl.
P5.1e	Central Mountains including western Otago; of steep mountains. Well drained soils of moderately natural fertility from granite and greywacke alluvium, schist and mixed alluvium, Tertiary mudstones and andesite. 610 m asl.
P5.2a	Central Mountains including western Otago; of steep mountains. Well drained soils of moderate natural fertility from Moutere gravels, Tertiary mudstones, sandstones and greywacke alluvium. 525 m asl.



Q1.1a	South-eastern Hill Country and Mountains including Harris Mountains; of strongly rolling mountainous terrain. Well drained soils of moderate fertility from greywacke, schist; 1095 m asl.
Q1.1c	South-eastern Hill Country and Mountains – very steep mountainous terrain of inland Otago. Well drained soils of moderate fertility from greywacke, schist. Cold temperatures, moderate solar radiation, low vapour pressure deficits, low monthly water balance ratios, and slight annual water deficits. 1095 m asl.
Q1.2a	South-eastern Hill Country and Mountains including Harris Mountains; of very steep mountains. Well drained soils of moderate fertility from greywacke rock, colluvium and basalt. 1305m asl.
Q2.1a	South-eastern Hill Country and Mountains, of steep mountain ranges in inland Otago. Well-drained soils of moderate fertility from greywacke. Cool climate with moderate solar radiation, moderate vapour pressure deficits, very low monthly water balance ratios, low annual water deficits. 640m asl.
Q2.2b	South-eastern Hill Country and Mountains; of strongly rolling mountainous terrain, moderately indurated. Imperfectly drained soils of moderate fertility from schist. 730 m asl.
Q3.3c	South-eastern Hill Country and Mountains; of undulating mountains, with imperfectly drained soils of moderate natural fertility from schist. Cold temperatures, moderate solar radiation, very low annual water deficits, low monthly water balance ratios. 990m asl.
R1.1a	Southern Alps; of steep mountains. Cold climate. Well drained soils of moderate fertility from schist and greywacke. 1320 m asl.
R1.1b	As for R.1.1a but much cooler temperatures and higher monthly water balance ratios.
R1.1e	As for R.1.1a but much warmer temperatures and higher monthly water balance ratios.



**APPENDIX 2: Plant Species List –Minaret Pastoral Lease**

<b>Current name</b>	<b>Family (Tribe)</b>	<b>Threat ranking (2009)</b>	<b>Common name</b>
<i>Abrotanella inconspicua</i>	Asteraceae	Not threatened	
<i>Acaena agnapila</i> var. <i>aequispina</i>	Rosaceae	Exotic	
<i>Acaena anserinifolia</i>	Rosaceae	Not threatened	bidibid
<i>Acaena caesiiglauca</i>	Rosaceae	Not threatened	bidibid
<i>Acaena dumicola</i>	Rosaceae	Not threatened	bidibid
<i>Acaena fissistipula</i>	Rosaceae	Not threatened	bidibid
<i>Acaena inermis</i>	Rosaceae	Not threatened	bidibid
<i>Acaena juvenca</i>	Rosaceae	Not threatened	bidibid
<i>Acaena saccaticupula</i>	Rosaceae	Not threatened	bidibid
<i>Achillea millefolium</i>	Asteraceae	Exotic	yarrow
<i>Aciphylla crenulata</i>	Apiaceae	Not threatened	
<i>Aciphylla horrida</i>	Apiaceae	Not threatened	
<i>Aciphylla kirkii</i>	Apiaceae	Not threatened	
<i>Aciphylla montana</i> var. <i>montana</i>	Apiaceae	Not threatened	
<i>Aciphylla scott-thomsonii</i>	Apiaceae	Not threatened	spaniard
<i>Adiantum cunninghamii</i>	Pteridaceae	Not threatened	
<i>Agrostis capillaris</i>	Poaceae	Exotic	browntop
<i>Agrostis muelleriana</i>	Poaceae	Not threatened	
<i>Aira caryophyllea</i> subsp. <i>caryophyllea</i>	Poaceae	Exotic	silvery hair grass
<i>Anaphalioides bellidioides</i>	Asteraceae	Not threatened	
<i>Anemone tenuicaulis</i>	Ranunculaceae	Naturally Uncommon	
<i>Anisotome aromatica</i>	Apiaceae	Not threatened	
<i>Anisotome capillifolia</i>	Apiaceae	Not threatened	
<i>Anisotome flexuosa</i>	Apiaceae	Not threatened	
<i>Anisotome imbricata</i> var. <i>prostrata</i>	Apiaceae	Not threatened	
<i>Anisotome pilifera</i>	Apiaceae	Not threatened	
<i>Anthosachne solandri</i> (ex <i>Elymus solandri</i> )	Poaceae	Not threatened	blue wheat grass
<i>Anthoxanthum odoratum</i>	Phalaridinae	Exotic	sweet vernal
<i>Argyrotegium mackayi</i>	Asteraceae	Not threatened	
<i>Aristotelia fruticosa</i>	Elaeocarpaceae	Not threatened	small-leaved wineberry
<i>Aristotelia serrata</i>	Elaeocarpaceae	Not threatened	wineberry
<i>Arrhenatherum elatius</i> subsp. <i>elatius</i>	Aveninae	Exotic	
<i>Arthropodium candidum</i>	Liliaceae	Not threatened	
<i>Asplenium appendiculatum</i> subsp. <i>appendiculatum</i>	Aspleniaceae	Not threatened	



<i>Asplenium flabellifolium</i> agg.	Aspleniaceae	Not threatened	necklace fern
<i>Asplenium richardii</i>	Aspleniaceae	Not threatened	
<i>Asplenium trichomanes</i> subsp. <i>trichomanes</i>	Aspleniaceae	Not threatened	maidenhair spleenwort
<i>Astelia nervosa</i>	Asteliaceae	Not threatened	
<i>Astelia nivicola</i>	Asteliaceae	Not threatened	
<i>Astelia petriei</i>	Asteliaceae	Not threatened	
<i>Austroderia richardii</i>	Poaceae	Not threatened	
<i>Blechnum chambersii</i>	Blechnaceae	Not threatened	nini
<i>Blechnum fluviatile</i> agg.	Blechnaceae	Not threatened	kiwikiwi
<i>Blechnum minus</i>	Blechnaceae	Not threatened	swamp kiokio
<i>Blechnum montanum</i>	Blechnaceae	Not threatened	mountain kiokio
<i>Blechnum novaezelandiae</i>	Blechnaceae	Not threatened	kiokio
<i>Blechnum penna-marina</i> subsp. <i>alpina</i>	Blechnaceae	Not threatened	
<i>Blechnum procerum</i>	Blechnaceae	Not threatened	small kiokio
<i>Blechnum vulcanicum</i>	Blechnaceae	Not threatened	
<i>Brachyglottis bellidioides</i> var. <i>bellidioides</i>	Asteraceae	Not threatened	
<i>Brachyglottis cassinioides</i>	Asteraceae	Not threatened	
<i>Brachyglottis rotundifolia</i> var. <i>rotundifolia</i>	Asteraceae	Not threatened	
<i>Brachyglottis southlandica</i>	Asteraceae	Not threatened	
<i>Brachyscome sinclairii</i>	Asteraceae	Not threatened	
<i>Callitriche petriei</i>	Callitrichaceae	Not threatened	starwort
<i>Caltha obtusa</i>	Ranunculaceae	Not threatened	white caltha
<i>Calystegia tuguriorum</i>	Convolvulaceae	Not threatened	bindweed
<i>Cardamine</i> (i) (CHR 312950; "scree race")	Brassicaceae	Not threatened	
<i>Cardamine</i> (kk) (CHR 511915 ; aff. <i>C. bilobata</i> ; eastern South Island)	Brassicaceae	Naturally Uncommon	
<i>Carex breviculmis</i>	Cyperaceae	Not threatened	
<i>Carex buechananii</i>	Cyperaceae	Not threatened	
<i>Carex coriacea</i>	Cyperaceae	Not threatened	
<i>Carex echinata</i>	Cyperaceae	Not threatened	star sedge
<i>Carex flaviformis</i>	Cyperaceae	Not threatened	
<i>Carex gaudichaudiana</i>	Cyperaceae	Not threatened	
<i>Carex geminata</i>	Cyperaceae	Not threatened	
<i>Carex lachenalii</i> subsp. <i>parkeri</i>	Cyperaceae	Naturally Uncommon	
<i>Carex lessoniana</i>	Cyperaceae	Not threatened	
<i>Carex maorica</i>	Cyperaceae	Not threatened	
<i>Carex ovalis</i>	Cyperaceae	Exotic	oval sedge
<i>Carex petriei</i>	Cyperaceae	Not threatened	
<i>Carex pyrenaica</i> var. <i>cephalotes</i>	Cyperaceae	Not threatened	
<i>Carex secta</i>	Cyperaceae	Not threatened	niggerhead



<i>Carex sinclairii</i>	Cyperaceae	Not threatened	
<i>Carex virgata</i>	Cyperaceae	Not threatened	
<i>Carex wakatipu</i> agg.	Cyperaceae	Not threatened	
<i>Carmichaelia petriei</i>	Fabaceae	Not threatened	Desert broom
<i>Carpha alpina</i>	Cyperaceae	Not threatened	
<i>Carpodetus serratus</i>	Carpodetaceae	Not threatened	putaputaweta
<i>Celmisia angustifolia</i>	Asteraceae	Not threatened	
<i>Celmisia durietzii</i>	Asteraceae	Not threatened	Durietz Mountain Daisy
<i>Celmisia glandulosa</i> var. <i>glandulosa</i>	Asteraceae	Not threatened	
<i>Celmisia gracilentia</i> agg.	Asteraceae	Not threatened	
<i>Celmisia graminifolia</i>	Asteraceae	Not threatened	
<i>Celmisia haastii</i> var. <i>haastii</i>	Asteraceae	Not threatened	
<i>Celmisia hectorii</i>	Asteraceae	Not threatened	
<i>Celmisia laricifolia</i>	Asteraceae	Not threatened	
<i>Celmisia lyallii</i>	Asteraceae	Not threatened	false spaniard
<i>Celmisia semicordata</i> subsp.	Asteraceae	Not threatened	
<i>Celmisia sessiliflora</i>	Asteraceae	Not threatened	
<i>Celmisia viscosa</i>	Asteraceae	Not threatened	
<i>Celmisia walkeri</i>	Asteraceae	Not threatened	
<i>Centaurium erythraea</i>	Gentianaceae	Exotic	centaury
<i>Centella uniflora</i>	Apiaceae	Not threatened	
<i>Cerastium fontanum</i> subsp. <i>vulgare</i>	Caryophyllaceae	Exotic	mouse-ear chickweed
<i>Chaerophyllum colensoi</i> agg.	Apiaceae	Not threatened	
<i>Chaerophyllum ramosum</i>	Apiaceae	Not threatened	
<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	Pteridaceae	Not threatened	rock fern
<i>Chionochloa conspicua</i> subsp. <i>conspicua</i>	Gramineae (Danthonieae)	Not threatened	
<i>Chionochloa crassiuscula</i> subsp. <i>torta</i>	Gramineae (Danthonieae)	Not threatened	curled snow tussock
<i>Chionochloa macra</i>	Gramineae (Danthonieae)	Not threatened	slim snow tussock
<i>Chionochloa oreophila</i>	Gramineae (Danthonieae)	Not threatened	snow-patch grass
<i>Chionochloa pallens</i> subsp. <i>cadens</i>	Gramineae (Danthonieae)	Not threatened	midribbed snow-tussock
<i>Chionochloa rigida</i> subsp. <i>rigida</i>	Gramineae (Danthonieae)	Not threatened	narrow-leaved snow-tussock
<i>Chionochloa vireta</i>	Poaceae	Naturally Uncommon	snow tussock
<i>Chionohebe thomsonii</i>	Plantaginaceae	Not threatened	
<i>Cirsium arvense</i>	Asteraceae	Exotic	Californian thistle
<i>Cirsium vulgare</i>	Asteraceae	Exotic	Scotch thistle
<i>Clematis marata</i>	Ranunculaceae	Not threatened	
<i>Colobanthus apetalus</i>	Caryophyllaceae	Not threatened	



<i>Colobanthus buechananii</i>	Caryophyllaceae	Not threatened	
<i>Colobanthus strictus</i>	Caryophyllaceae	Not threatened	
<i>Coprosma atropurpurea</i>	Rubiaceae	Not threatened	
<i>Coprosma cheesemanii</i>	Rubiaceae	Not threatened	
<i>Coprosma crassifolia</i>	Rubiaceae	Not threatened	
<i>Coprosma dumosa</i>	Rubiaceae	Not threatened	
<i>Coprosma fowerakeri</i>	Rubiaceae	Not threatened	
<i>Coprosma linariifolia</i>	Rubiaceae	Not threatened	yellow wood
<i>Coprosma lucida</i>	Rubiaceae	Not threatened	shining karamu
<i>Coprosma niphophila</i>	Rubiaceae	Not threatened	
<i>Coprosma perpusilla</i> subsp. <i>perpusilla</i>	Rubiaceae	Not threatened	creeping coprosma
<i>Coprosma propinqua</i> var. <i>propinqua</i>	Rubiaceae	Not threatened	
<i>Coprosma pseudocuneata</i>	Rubiaceae	Not threatened	
<i>Coprosma rhamnoides</i>	Rubiaceae	Not threatened	
<i>Coprosma rigida</i>	Rubiaceae	Not threatened	
<i>Coprosma rugosa</i>	Rubiaceae	Not threatened	
<i>Coprosma serrulata</i>	Rubiaceae	Not threatened	
<i>Coprosma tayloriae</i>	Rubiaceae	Not threatened	
<i>Coprosma virescens</i>	Rubiaceae	Regionally Significant	
<i>Coprosma wallii</i>	Rubiaceae	Declining	
<i>Cordyline australis</i>	Laxmanniaceae	Not threatened	cabbage tree, ti
<i>Coriaria arborea</i> var. <i>arborea</i>	Coriariaceae	Not threatened	Tutu
<i>Coriaria plumosa</i>	Coriariaceae	Not threatened	feathery tutu
<i>Coriaria sarmentosa</i>	Coriariaceae	Not threatened	tutu
<i>Corokia cotoneaster</i>	Escalloniaceae	Not threatened	corokia
<i>Craspedia "Otago"</i>	Asteraceae	Not threatened	
<i>Craspedia incana</i>	Asteraceae	Not threatened	
<i>Crassula sinclairii</i>	Crassulaceae	Not threatened	
<i>Crepis capillaris</i>	Asteraceae	Exotic	hawksbeard
<i>Cystopteris tasmanica</i>	Dryopteridaceae	Not threatened	bladder fern
<i>Cytisus scoparius</i>	Fabaceae	Exotic	broom
<i>Dactylis glomerata</i>	Poeae	Exotic	cocksfoot
<i>Deyeuxia avenoides</i>	Gramineae (Agrostidinae)	Not threatened	
<i>Dichelachne crinita</i>	Gramineae (Agrostidinae)	Not threatened	long-hair grass
<i>Discaria toumatou</i>	Rhamnaceae	Not threatened	matagouri
<i>Dolichoglottis lyallii</i>	Asteraceae	Not threatened	groundsel
<i>Dolichoglottis scorzonoides</i>	Asteraceae	Not threatened	groundsel
<i>Donatia novae-zelandiae</i>	Stylidiaceae	Not threatened	
<i>Dracophyllum longifolium</i>	Ericaceae	Not threatened	inaka
<i>Dracophyllum muscoides</i>	Ericaceae	Not threatened	prostrate inaka
<i>Dracophyllum rosmarinifolium</i>	Ericaceae	Not threatened	



<i>Elatine gratioloides</i>	Elatinaceae	Regionally Significant	
<i>Eleocharis acuta</i>	Cyperaceae	Not threatened	sharp spike-sedge
<i>Epilobium alsinoides</i>	Onagraceae	Not threatened	
<i>Epilobium atriplicifolium</i>	Onagraceae	Not threatened	
<i>Epilobium brunnescens</i>	Onagraceae	Not threatened	
<i>Epilobium cinereum</i>	Onagraceae	Not threatened	
<i>Epilobium komarovianum</i>	Onagraceae	Not threatened	
<i>Epilobium melanocaulon</i>	Onagraceae	Not threatened	
<i>Epilobium microphyllum</i>	Onagraceae	Not threatened	
<i>Epilobium pubens</i>	Onagraceae	Not threatened	
<i>Epilobium purpuratum</i>	Onagraceae	Naturally Uncommon	
<i>Euchiton polylepis</i>	Asteraceae	Naturally Uncommon	
<i>Euchiton ruahinicus</i>	Asteraceae	Not threatened	
<i>Euphrasia zelandica</i> agg.	Orobanchaceae	Not threatened	
<i>Festuca matthewsii</i> subsp. <i>matthewsii</i>	Gramineae (Poeae)	Not threatened	
<i>Festuca rubra</i> subsp.	Poeae	Exotic	red fescue
<i>Forstera sedifolia</i>	Stylidiaceae	Not threatened	
<i>Fuchsia excorticata</i>	Onagraceae	Not threatened	tree fuchsia
<i>Galium aparine</i>	Rubiaceae	Exotic	cleavers
<i>Galium propinquum</i>	Rubiaceae	Not threatened	mawe
<i>Gaultheria</i> (a) ( <i>G. depressa</i> var. <i>novae-zelandiae</i> )	Ericaceae	Not threatened	snowberry
<i>Gaultheria antipoda</i>	Ericaceae	Not threatened	snowberry
<i>Gaultheria crassa</i>	Ericaceae	Not threatened	snowberry
<i>Gaultheria depressa</i>	Ericaceae	Not threatened	snowberry
<i>Gaultheria macrostigma</i>	Ericaceae	Not threatened	prostrate snowberry
<i>Gaultheria nubicola</i>	Ericaceae	Not threatened	
<i>Gaultheria parvula</i>	Ericaceae	Not threatened	
<i>Gentianella corymbifera</i> subsp. <i>gracilis</i>	Gentianaceae	Not threatened	tall gentian
<i>Gentianella montana</i> subsp. <i>montana</i> var. <i>montana</i>	Gentianaceae	Not threatened	
<i>Geranium</i> (d) (aff. <i>G.</i> <i>microphyllum</i> ; "mainland")	Geraniaceae	Not threatened	
<i>Geranium brevicaule</i>	Geraniaceae	Not threatened	
<i>Geum cockaynei</i>	Rosaceae	Not threatened	
<i>Gingidia decipiens</i>	Apiaceae	Not threatened	
<i>Gingidia montana</i>	Apiaceae	Not threatened	
<i>Glossostigma elatinoides</i>	Phrymaceae	Not threatened	
<i>Gonocarpus aggregatus</i>	Haloragaceae	Not threatened	
<i>Gonocarpus micranthus</i>	Haloragaceae	Not threatened	
<i>Grammitis billardiarei</i>	Grammitidaceae	Not threatened	
<i>Griselinia littoralis</i>	Griselinaceae	Not threatened	broadleaf
<i>Gunnera dentata</i>	Gunneraceae	Not threatened	
<i>Gunnera monoica</i>	Gunneraceae	Not threatened	



<i>Hebe anomala</i>	Plantaginaceae	Not threatened	
<i>Hebe buechananii</i>	Plantaginaceae	Not threatened	
<i>Hebe cockayneana</i>	Plantaginaceae	Not threatened	
<i>Hebe hectorii</i>	Plantaginaceae	Not threatened	
<i>Hebe pauciramosa</i>	Plantaginaceae	Not threatened	
<i>Hebe salicifolia</i>	Plantaginaceae	Not threatened	koromiko
<i>Hebe subalpina</i>	Plantaginaceae	Not threatened	
<i>Hebejeebie densifolia</i>	Plantaginaceae	Not threatened	
<i>Hectorella caespitosa</i>	Montiaceae	Not threatened	
<i>Helichrysum filicaule</i>	Asteraceae	Not threatened	
<i>Helichrysum intermedium</i>	Asteraceae	Not threatened	
<i>Helichrysum lanceolatum</i>	Asteraceae	Not threatened	niniaio
<i>Hieracium lepidulum</i>	Asteraceae	Exotic	tussock hawkweed
<i>Hierochloa novae-zelandiae</i>	Gramineae (Phalaridinae)	Not threatened	
<i>Hoheria lyallii</i>	Malvaceae	Not threatened	mountain ribbonwood
<i>Holcus lanatus</i>	Poaceae	Exotic	Yorkshire fog
<i>Huperzia australiana</i>	Lycopodiaceae	Not threatened	
<i>Huperzia varia</i>	Lycopodiaceae	Not threatened	
<i>Hydrocotyle</i> (a) ( <i>H. novae-zeelandiae</i> var. <i>montana</i> )	Araliaceae	Not threatened	
<i>Hydrocotyle moschata</i>	Araliaceae	Not threatened	hydrocotyle
<i>Hydrocotyle sulcata</i>	Araliaceae	Not threatened	
<i>Hymenophyllum multifidum</i>	Hymenophyllaceae	Not threatened	
<i>Hypochoeris radicata</i>	Asteraceae	Exotic	catsear
<i>Hypolepis millefolium</i>	Dennstaedtiaceae	Not threatened	thousand-leaved fern
<i>Ileostylus micranthus</i>	Loranthaceae	Not threatened	green mistletoe, pirirangi
<i>Isolepis aucklandica</i>	Cyperaceae	Not threatened	
<i>Juncus antarcticus</i>	Juncaceae	Not threatened	
<i>Juncus articulatus</i>	Juncaceae	Exotic	jointed rush
<i>Juncus bufonius</i> var. <i>bufonius</i>	Juncaceae	Exotic	toad rush
<i>Juncus edgariae</i>	Juncaceae	Not threatened	
<i>Juncus effusus</i>	Juncaceae	Exotic	soft rush
<i>Juncus novae-zeelandiae</i>	Juncaceae	Not threatened	
<i>Juncus pusillus</i>	Juncaceae	Naturally Uncommon	
<i>Kelleria croizatii</i>	Thymelaeaceae	Not threatened	
<i>Kelleria dieffenbachii</i>	Thymelaeaceae	Not threatened	
<i>Koeleria cheesemanii</i>	Gramineae (Aveninae)	Not threatened	
<i>Koeleria novozelandica</i>	Gramineae (Aveninae)	Not threatened	
<i>Korthalsella clavata</i>	Viscaceae	Not threatened	dwarf mistletoe
<i>Korthalsella lindsayi</i>	Viscaceae	Not threatened	dwarf mistletoe
<i>Korthalsella salicornioides</i>	Viscaceae	Naturally Uncommon	dwarf mistletoe
<i>Kunzea ericoides</i> s.l.	Myrtaceae	Not threatened	kanuka



<i>Lachnagrostis filiformis</i>	Gramineae (Agrostidinae)	Not threatened	New Zealand wind grass
<i>Lagenifera barkeri</i>	Asteraceae	Naturally Uncommon	
<i>Lagenifera cuneata</i>	Asteraceae	Not threatened	
<i>Lagenifera strangulata</i>	Asteraceae	Not threatened	
<i>Lepidosperma australe</i>	Cyperaceae	Not threatened	square sedge
<i>Leptecophylla juniperina</i> s.l.	Ericaceae	Not threatened	prickly mingimingi
<i>Leptinella</i> (b) ( <i>L. squalida</i> subsp. <i>mediana</i> )	Asteraceae	Not threatened	
<i>Leptinella</i> (f) (; "seep")	Asteraceae	Not threatened	
<i>Leptinella maniototo</i>	Asteraceae	Data Deficient	
<i>Leptinella pectinata</i> subsp. <i>willcoxii</i>	Asteraceae	Not threatened	
<i>Leptinella pusilla</i>	Asteraceae	Not threatened	
<i>Leptinella squalida</i>	Asteraceae	Not threatened	
<i>Leptospermum scoparium</i> agg.	Myrtaceae	Not threatened	manuka
<i>Leucogenes grandiceps</i>	Asteraceae	Not threatened	edelweiss
<i>Leucopogon fraseri</i> complex (mountain ecotype)	Ericaceae	Not threatened	
<i>Lilaeopsis novae-zelandiae</i>	Apiaceae	Not threatened	
<i>Lilaeopsis ruthiana</i>	Apiaceae	Not threatened	
<i>Limosella lineata</i> agg.	Plantaginaceae	Not threatened	mudwort
<i>Lobelia angulata</i>	Lobeliaceae	Not threatened	
<i>Lobelia glaberrima</i>	Lobeliaceae	Not Threatened	
<i>Lobelia ionantha</i>	Lobeliaceae	Declining	
<i>Lobelia linnaeoides</i>	Lobeliaceae	Not threatened	
<i>Lobelia perpusilla</i>	Lobeliaceae	Not threatened	
<i>Lophomyrtus obcordata</i>	Myrtaceae	Not threatened	
<i>Lotus pedunculatus</i>	Fabaceae	Exotic	lotus
<i>Luzula pumila</i>	Juncaceae	Not threatened	woodrush
<i>Luzula rufa</i>	Juncaceae	Not threatened	woodrush
<i>Luzula traversii</i>	Juncaceae	Not threatened	
<i>Lycopodium fastigiatum</i>	Lycopodiaceae	Not threatened	mountain clubmoss
<i>Lycopodium scariosum</i>	Lycopodiaceae	Not threatened	
<i>Lycopodium volubile</i>	Lycopodiaceae	Not threatened	waewaekoukou, climbing clubmoss
<i>Machaerina rubiginosa</i>	Cyperaceae	Not threatened	
<i>Marsippospermum gracile</i>	Juncaceae	Not threatened	
<i>Melicytus alpinus</i> agg.	Violaceae	Not threatened	porcupine shrub
<i>Melicytus ramiflorus</i> subsp. <i>ramiflorus</i>	Violaceae	Not threatened	mahoe
<i>Metrosideros umbellata</i>	Myrtaceae	Not threatened	southern rata
<i>Microsorium pustulatum</i>	Polypodiaceae	Not threatened	hound's tongue fern
<i>Microtis oligantha</i>	Orchidaceae	Not threatened	small onion orchid
<i>Mimulus moschatus</i>	Scrophulariaceae	Exotic	musk
<i>Montia angustifolia</i>	Montiaceae	Naturally Uncommon	
<i>Montia fontana</i> subsp.	Montiaceae	Not threatened	blinks



*montana*

<i>Montia sessiliflora</i>	Montiaceae	Not threatened	
<i>Muehlenbeckia australis</i>	Polygonaceae	Not threatened	large-leaved pohuehue
<i>Muehlenbeckia axillaris</i>	Polygonaceae	Not threatened	
<i>Muehlenbeckia complexa</i> agg.	Polygonaceae	Not threatened	small-leaved pohuehue
<i>Mycelis muralis</i>	Orchidaceae	Not threatened	
<i>Myosotis drucei</i>	Boraginaceae	Not threatened	Druce's forget-me-not
<i>Myosotis elderi</i>	Boraginaceae	Not Threatened	
<i>Myosotis forsteri</i> agg.	Boraginaceae	Not threatened	
<i>Myosotis laxa</i>	Boraginaceae	Exotic	water forget-me-not
<i>Myosotis macrantha</i>	Boraginaceae	Not threatened	
<i>Myosotis pulvinaris</i>	Boraginaceae	Not threatened	
<i>Myriophyllum</i>	Haloragaceae	Not threatened	
<i>pedunculatum</i> subsp.			
<i>novaezelandiae</i>			
<i>Myriophyllum propinquum</i>	Haloragaceae	Not threatened	
<i>Myriophyllum triphyllum</i>	Haloragaceae	Not threatened	
<i>Myrsine australis</i>	Myrsinaceae	Not threatened	red matipo
<i>Myrsine divaricata</i>	Myrsinaceae	Not threatened	weeping matipo
<i>Myrsine nummularia</i>	Myrsinaceae	Not threatened	
<i>Nothofagus menziesii</i>	Nothofagaceae	Not threatened	silver beech
<i>Nothofagus solandri</i> var. <i>cliffortioides</i>	Nothofagaceae	Not threatened	mountain beech
<i>Olearia arborescens</i>	Asteraceae	Not threatened	
<i>Olearia avicenniifolia</i>	Asteraceae	Not threatened	
<i>Olearia bullata</i>	Asteraceae	Not threatened	
<i>Olearia cymbifolia</i>	Asteraceae	Not threatened	
<i>Olearia hectorii</i>	Asteraceae	Nationally Endangered	Hector's tree daisy
<i>Olearia lineata</i>	Asteraceae	Declining	
<i>Olearia moschata</i>	Asteraceae	Not threatened	
<i>Olearia nummulariifolia</i>	Asteraceae	Not threatened	
<i>Olearia odorata</i>	Asteraceae	Not threatened	
<i>Orobanche minor</i>	Orobanchaceae	Exotic	broomrape
<i>Ourisia caespitosa</i>	Plantaginaceae	Not threatened	
<i>Ourisia glandulosa</i>	Plantaginaceae	Not threatened	
<i>Ourisia sessilifolia</i> subsp. <i>sessilifolia</i>	Plantaginaceae	Not threatened	
<i>Ozothamnus vauvilliersii</i>	Asteraceae	Not threatened	tauhinu
<i>Pachycladon novae-zelandiae</i>	Brassicaceae	Not threatened	
<i>Parahebe brevistylis</i>	Plantaginaceae	Not threatened	
<i>Parahebe decora</i>	Plantaginaceae	Not threatened	
<i>Parahebe lyallii</i>	Plantaginaceae	Not threatened	
<i>Parahebe planopetiolata</i>	Plantaginaceae	Not threatened	
<i>Parentucellia viscosa</i>	Scrophulariaceae	Exotic	tarweed



<i>Pellaea rotundifolia</i>	Pteridaceae	Not threatened	
<i>Pentachondra pumila</i>	Ericaceae	Not threatened	
<i>Phormium cookianum</i> subsp. <i>cookianum</i>	Hemerocallidaceae	Not threatened	mountain flax
<i>Phormium tenax</i>	Hemerocallidaceae	Not threatened	flax
<i>Phyllachne colensoi</i>	Stylidiaceae	Not threatened	
<i>Phyllachne rubra</i>	Stylidiaceae	Not threatened	
<i>Phyllocladus alpinus</i>	Phyllocladaceae	Not threatened	
<i>Pimelea oreophila</i>	Thymelaeaceae	Not threatened	alpine daphne
<i>Pinus radiata</i>	Pinaceae	Exotic	radiata pine
<i>Pittosporum tenuifolium</i>	Pittosporaceae	Not threatened	black matipo, kohuhu
<i>Plantago lanceolata</i>	Plantaginaceae	Exotic	narrow-leaved plantain
<i>Plantago lanigera</i>	Plantaginaceae	Not threatened	hairy swamp plantain
<i>Plantago triandra</i>	Plantaginaceae	Not threatened	
<i>Poa cita</i> agg.	Gramineae (Poeae)	Not threatened	silver tussock
<i>Poa cockayneana</i>	Gramineae (Poeae)	Not threatened	
<i>Poa colensoi</i> s.l.	Gramineae (Poeae)	Not threatened	blue tussock
<i>Poa imbecilla</i>	Gramineae (Poeae)	Not threatened	
<i>Poa novae-zelandiae</i>	Gramineae (Poeae)	Not threatened	
<i>Podocarpus hallii</i>	Podocarpaceae	Not threatened	Hall's totara
<i>Podocarpus nivalis</i>	Podocarpaceae	Regionally Significant	snow totara
<i>Polystichum cystostegia</i>	Dryopteridaceae	Not threatened	alpine shield fern
<i>Polystichum neozelandicum</i> subsp. <i>zerophyllum</i>	Dryopteridaceae	Not threatened	
<i>Polystichum vestitum</i>	Dryopteridaceae	Not threatened	prickly shield fern
<i>Populus sp</i>	Salicaceae	Exotic	poplar
<i>Potamogeton suboblongus</i>	Potamogetonaceae	Not Threatened	
<i>Potentilla anserinoides</i>	Rosaceae	Not threatened	silverweed
<i>Prunella vulgaris</i>	Lamiaceae	Exotic	selfheal
<i>Pseudognaphalium</i> (d) (CHR 275230; "lowland")	Asteraceae	Not threatened	
<i>Pseudopanax</i> (c) (P. <i>colensoi</i> var. <i>ternatus</i> )	Araliaceae	Not threatened	threefinger
<i>Pseudopanax crassifolius</i>	Araliaceae	Not threatened	lancewood
<i>Pseudowintera colorata</i>	Winteraceae	Not threatened	pepperwood
<i>Pyrrosia eleagnifolia</i>	Polypodiaceae	Not threatened	leather-leaf fern
<i>Ranunculus amphitrichus</i>	Ranunculaceae	Not threatened	waoriki
<i>Ranunculus buechananii</i>	Ranunculaceae	Not threatened	cut-leaved alpine buttercup
<i>Ranunculus foliosus</i>	Ranunculaceae	Not threatened	
<i>Ranunculus gracilipes</i>	Ranunculaceae	Not threatened	
<i>Ranunculus lyallii</i>	Ranunculaceae	Not threatened	Mount Cook lilly
<i>Ranunculus maculatus</i>	Ranunculaceae	Naturally Uncommon	
<i>Ranunculus multiscapus</i>	Ranunculaceae	Not threatened	
<i>Ranunculus reflexus</i>	Ranunculaceae	Not threatened	hairy buttercup



<i>Ranunculus royi</i>	Ranunculaceae	Not threatened	
<i>Ranunculus sericophyllus</i>	Ranunculaceae	Not threatened	
<i>Raoulia australis</i>	Asteraceae	Not threatened	scabweed
<i>Raoulia glabra</i>	Asteraceae	Not threatened	
<i>Raoulia grandiflora</i>	Asteraceae	Not threatened	
<i>Raoulia hectorii</i>	Asteraceae	Not threatened	scabweed
<i>Raoulia hookeri</i> var. <i>hookeri</i>	Asteraceae	Not threatened	mat daisy
<i>Raoulia parkii</i>	Asteraceae	Not threatened	
<i>Raoulia subsericea</i>	Asteraceae	Not threatened	
<i>Raoulia subulata</i>	Asteraceae	Not threatened	
<i>Raoulia tenuicaulis</i>	Asteraceae	Not threatened	scabweed
<i>Raoulia youngii</i>	Asteraceae	Not threatened	
<i>Raukawa simplex</i>	Araliaceae	Not threatened	
<i>Ribes uva-crispa</i>	Grossulariaceae	Exotic	gooseberry
<i>Rosa rubiginosa</i>	Rosaceae	Exotic	sweet briar
<i>Rubus fruticosus</i> agg.	Rosaceae	Exotic	blackberry
<i>Rubus schmidelioides</i> var. <i>schmidelioides</i>	Rosaceae	Not threatened	bush lawyer
<i>Rumex acetosella</i>	Polygonaceae	Exotic	sheep's sorrel
<i>Rytidosperma pumilum</i>	Gramineae (Danthonieae)	Not threatened	
<i>Rytidosperma setifolium</i>	Gramineae (Danthonieae)	Not threatened	
<i>Rytidosperma unarede</i>	Gramineae (Danthonieae)	Not threatened	cliff fairy grass
<i>Salix fragilis</i>	Salicaceae	Exotic	crack willow
<i>Schizeilema</i> (b) ( <i>S. haastii</i> var. <i>cyanopetalum</i> )	Araliaceae	Not threatened	
<i>Schizeilema trifoliolatum</i>	Araliaceae	Not threatened	
<i>Schoenus pauciflorus</i>	Cyperaceae	Not threatened	bog-rush
<i>Scleranthus brockiei</i>	Caryophyllaceae	Not threatened	
<i>Scleranthus uniflorus</i>	Caryophyllaceae	Not threatened	
<i>Sedum acre</i>	Crassulaceae	Exotic	stonecrop
<i>Selliera radicans</i>	Goodeniaceae	Not threatened	remuremu
<i>Senecio jacobea</i>	Asteraceae	Exotic	ragwort
<i>Senecio quadridentatus</i>	Asteraceae	Not threatened	cotton fireweed
<i>Senecio wairauensis</i>	Asteraceae	Not threatened	groundsel
<i>Simpliglottiscornuta</i>	Orchidaceae	Not threatened	
<i>Sophora microphylla</i>	Fabaceae	Not Threatened	kowhai
<i>Taraxacum magellanicum</i>	Asteraceae	Not threatened	native dandelion
<i>Taraxacum officinale</i>	Asteraceae	Exotic	dandelion
<i>Thelymitra longifolia</i> agg.	Orchidaceae	Not threatened	sun orchid
<i>Trifolium arvense</i>	Fabaceae	Exotic	haresfoot trefoil
<i>Trifolium aureum</i>	Fabaceae	Exotic	yellow clover
<i>Trifolium dubium</i>	Fabaceae	Exotic	suckling clover
<i>Trifolium pratense</i>	Fabaceae	Exotic	red clover
<i>Trifolium repens</i>	Fabaceae	Exotic	white clover
<i>Triglochin striata</i>	Juncaginaceae	Not threatened	arrow-grass
<i>Trisetum tenellum</i>	Gramineae (Aveninae)	Not threatened	



<i>Ulex europaeus</i>	Fabaceae	Exotic	gorse
<i>Uncinia affinis</i>	Cyperaceae	Not threatened	
<i>Uncinia divaricata</i>	Cyperaceae	Not threatened	hookgrass, bastard grass
<i>Uncinia filiformis</i>	Cyperaceae	Not threatened	
<i>Uncinia fuscovaginata</i>	Cyperaceae	Not threatened	
<i>Uncinia uncinata</i>	Cyperaceae	Not threatened	hookgrass, bastard grass
<i>Urtica incisa</i>	Urticaceae	Not threatened	
<i>Verbascum thapsus</i>	Scrophulariaceae	Exotic	woolly mullein
<i>Verbascum virgatum</i>	Scrophulariaceae	Exotic	moth mullein
<i>Viola cunninghamii</i>	Violaceae	Not threatened	
<i>Wahlenbergia</i>	Campanulaceae	Not threatened	harebell
<i>albomarginata</i> subsp.			
<i>albomarginata</i>			
<i>Wahlenbergia rupestris</i>	Campanulaceae	Not threatened	



## APPENDIX 3: List of invertebrate Taxa collected from Minaret Pastoral Lease tenure review, March 2012

Class	Order	Family	Genus and species	Location	m ASL	Collection site/habitat	Common name /Conservation status/notes(NT: Not Threatened)
Crustacea	Isopoda	Armadiillidae	<i>Spherillo</i> sp.	Lake shore	264	Stony beach	Native slater. NT
Crustacea	Amphipoda	Talitridae	<i>Talorchestia</i> sp.	Lake shore	264	Stony beach	Native landhopper. NT
Diplopoda	Polydesmida	Dalodesmidae	<i>Icosidesmus</i> sp.	E1277909N5076924		Forest and tussock litter	Millipede/Endemic genus/NT
Diplopoda	Spirostreptida	Cambelidae	<i>Eumastigonus</i> sp.	E1291699N5080404	280	Forest and tussock litter	Millipede/Endemic genus/NT
Chilopoda	Lithobiomorpha	Geophilidae	<i>Zelanton</i> sp.	E1291699N5080404	280	Forest and tussock litter	Centipede/Endemic genus/NT
Arachnida	Araneae	Araneidae	<i>Coloranea</i> sp.	E1278556N5071150	800	Minaret Burn/Tussock	Colourful orb web spider
Arachnida	Araneae	Agelenidae	<i>Neoramia</i> sp	E1284046N5078790	1668	Bay Burn head	Hunting spider. NT
Arachnida	Araneae	Agelenidae	<i>Mamoea montana</i> ?	E1280586N5080757	1688	Albert Burn/ Estuary Burn/ Herb field	Hunting spider. NT
Arachnida	Araneae	Cycloctenidae	<i>Cycloctenus westlandica</i>	E1277346N5077491	1696	Scree/Herb field	Scuttling spider. NT
Arachnida	Araneae	Desidae	<i>Badumna longingua</i>	Lake front	280	Stony ground	Grey house spider. NT
Arachnida	Araneae	Lycosidae	<i>Anoteropsis</i> sp.	Estuary Burn and Shoreline	1688/ 280	Braided river and stony shore	Wolf spider. NT
Arachnida	Araneae	Pisuridae	<i>Dolomedes aquaticus</i>	E1281026N5073037	1611	Minaret Burn	Water spider NT
Arachnida	Araneae	Pisuridae	<i>Dolomedes minor</i>	E1288780N5077090	582	Wetlands/grasslands	Nursery web spider NT
Arachnida	Araneae	Salticidae	<i>Holoplatys</i> sp.	E1278149N5076150	1152	T/R branch Estuary Burn/ Stony ground	Flattened jumping spider NT
Arachnida	Araneae	Stiphidiidae	<i>Cambridgea antipodiana</i>	E1284276N5073364	706	Estuary Burn/ Shrublands	sheet web spider
Arachnida	Araneae	Tetragnathidae	<i>Tetragnatha</i> sp.	E1280923N5074750	820	Wetland grasses	Big jawed spider NT
Arachnida	Araneae	Zoropsidae	<i>Uliodon frenatus</i>	Common in forested areas	>300	Forest floor/litter	Endemic Prowling spider. NT
Opiliones	Palpatores	Phalangidae	<i>Phalangium opilio</i>	Low elevations	>300	Grasslands	Harvestman. Introduced
Insecta	Blattodea	Blattidae	<i>Celatoblatta vulgaris</i>	throughout lease	All	Under rocks, vegetation	Endemic Cockroach. NT
Insecta	Blattodea	Blattidae	<i>Celatoblatta quinquaemaculata</i>	above 1000m	>100	Under rocks	Endemic Cockroach. NT
Insecta	Blattodea	Blattidae	<i>Parellipsidion inaculeatum</i>	E1280636N5077937	1018	Estuary Burn. Shrublands	Endemic Cockroach. NT



Class	Order	Family	Genus and species	Location	m ASL	Collection site/habitat	Common name /Conservation status/notes(NT: Not Threatened)
Insecta	Coleoptera	Carabidae	<i>Carabus</i> sp.	Lake shore	264	Stony ground	Adventive
Insecta	Coleoptera	Carabidae	<i>Mecodema</i> sp. ( <i>M.alternans</i> ?)	E1281915N5079765	1650	Grass / stony ground	Endemic Ground beetle. NT
Insecta	Coleoptera	Carabidae	<i>Megadromussandageri</i>	E1291395N5080552	280	Albert Burn outlet	Endemic Ground beetle NT
Insecta	Coleoptera	Carabidae	<i>Demetriida</i> sp.	E1286475N5069059	1021	Bells creek hut	Endemic ground beetle
Insecta	Coleoptera	Cicindelidae	Indet sp	E1285700N5077564	1000	Bay Burn Hut	Tiger beetle. Probably endemic
Insecta	Coleoptera	Coccinellidae	<i>Coccinella leonina</i>	E1285765N5077483	997	Shrublands	Native Orange spotted ladybird NT
Insecta	Coleoptera	Curculionidae	<i>Anagotus</i> sp.	1283978E 5078693N E1278104	1640	Bay Burn	Large endemic herb-feeding weevil. NT
Insecta	Coleoptera	Curculionidae	<i>Lyperobius hudsoni</i>	N5076157	1148	Estuary Burn, sub alpine	Large endemic weevil. NT
Insecta	Coleoptera	Curculionidae	<i>Eugnomini</i> sp.	throughout high alt.	>300	Tussock country	Small endemic weevils. NT
Insecta	Coleoptera	Lucanidae	<i>Mitophyllus parvianus</i>	E1285700N5077564	1000	Bay Burn. Forest	Native stag beetle. NT
Insecta	Coleoptera	Scarabaeidae	<i>Costelytra zealandica</i>	Common grasslands	<300	Front faces	Native grass grub beetle. NT
Insecta	Coleoptera	Scarabaeidae	<i>Odontria</i> sp	E1290636N5072390	284	Minaret Bay	Native scarab. NT
Insecta	Coleoptera	Scarabaeidae	<i>Pyronota festiva</i>	Throughout low elevation Kanuka	<300	Kanuka. Minaret Bay	Endemic Manuka beetle. NT
Insecta	Coleoptera	Tenebrionidae	<i>Artystona</i> sp.	E1277346N5077491	1696	T/R branch Estuary Burn	Endemic Darkling beetle. NT
Insecta	Diptera	Tipulidae	<i>Leptotarsus</i> sp.	E1280941N5078345	1117	Estuary Burn	Endemic crane fly. NT
Insecta	Diptera	Asilidae	<i>Neotianus melanopogon</i>	Estuary Burn	Below 1500	Grassland	Robber fly. Introduced
Insecta	Diptera	Syrphidae	<i>Melangyna</i> sp.	Estuary Burn	Below 1500	Grassland	Native hoverfly. NT
Insecta	Diptera	Tachinidae	<i>Prothysticia</i> sp.	Throughout lease	<1500	All	Native Tachinid fly. NT



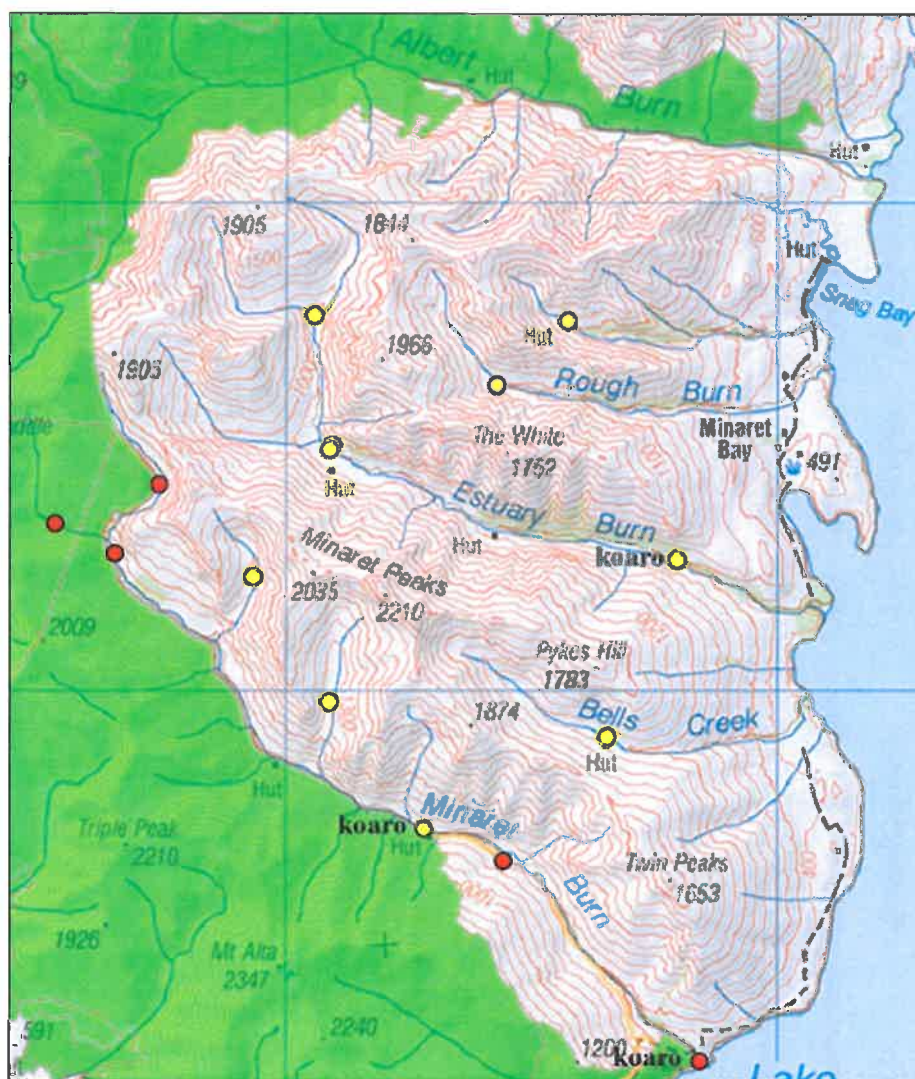
Class	Order	Family	Genus and species	Location	m ASL	Collection site/habitat	Common name /Conservation status/notes(NT: Not Threatened)
Insecta	Hemiptera	Cicadidae	<i>Kikihia</i> sp.	E1282274 N5074477	810	Grasslands	Native cicada. NT
Insecta	Hemiptera	Cicadidae	<i>Maoricicada campbelli</i>	Throughout alpine areas	>900	Sub alpine tussock	Endemic mountain cicada. NT
Insecta	Hemiptera	Lygaeidae	<i>Rhyphodes</i> sp.	Throughout lease	All	River bed vege	Seed bugs. NT
Insecta	Lepidoptera	Crambidae	<i>Orocrambus flexuosellus</i>	Common throughout grasslands	>900	Grasslands	Grass moth. NT
Insecta	Lepidoptera	Geometridae	<i>Dasyuris transaurea</i>	E1281285N5079828	1500	Snow tussock	Endemic Golden spotted looper. NT
Insecta	Lepidoptera	Geometridae	<i>Aponotoreas insignis</i>	E1278392N5075557	1037	Snow tussock	Endemic Alpine grassland orange
Insecta	Lepidoptera	Geometridae	<i>Asaphodes clarata</i>	1281262E, 5079040N	1198	Snow tussock	Endemic Alpine orange day flying moth. NT
Insecta	Lepidoptera	Geometridae	<i>Paranotoreas ferox</i>	E1281374N5079732	1346	Snow tussock	Endemic Striped orange underwing. NT
Insecta	Lepidoptera	Geometridae	<i>Paranotoreas brephisota</i>	E1280946N5074693	824	Snow tussock	Endemic Orange underwing. NT
Insecta	Lepidoptera	Geometridae	<i>Notoreas niphocrana</i>	E1278801N507902	1368	Snow tussock	Endemic Large Kelleria dandy. NT
Insecta	Lepidoptera	Lycaenidae	<i>Zizina labradus oxleyi</i>	Common in low elevation grasslands	900+	River bed/grasses	Endemic. Southern Blue NT
Insecta	Lepidoptera	Lycaenidae	<i>Boldenaria boldenarum</i>	Common in mid-elevation areas	900+	River beds, grassland	Endemic Boulder copper. NT
Insecta	Lepidoptera	Lycaenidae	<i>Lycaena salustius</i>	Common in mid-elevation areas	900+	Grasslands	Endemic Common copper. NT
Insecta	Lepidoptera	Noctuidae	<i>Ichneutica lindseyi</i>	E1279981N5075185	918	Snow grass	Endemic. Lindsay's alpine owl. NT
Insecta	Lepidoptera	Noctuidae	<i>Graphania insignis</i>	E1290038N5074897	300	Grasslands/shrublands	Native Owl. NT
Insecta	Lepidoptera	Noctuidae	<i>Graphania mutans</i>	E1281038N5074623	825	Shrublands	Native Garden Owl. NT
Insecta	Lepidoptera	Nymphalidae	<i>Erebia butleri</i>	E1276793N5077773	1664	Snow tussock	Endemic Butler's ringlet. NT
Insecta	Lepidoptera	Nymphalidae	<i>Percnodamon merula</i>	E1277112N5077112	1718	Scree	Endemic Mountain ringlet. NT
Insecta	Lepidoptera	Pyralidae	<i>Eudonia</i> sp.	E1282007N5074438	820	Grasslands	Endemic Snout moth. NT
Insecta	Lepidoptera	Nymphalidae	<i>Argyrophenga antipodum</i>	Throughout higher elevations	1548	Snowgrass	Endemic tussock ringlet. NT



Class	Order	Family	Genus and species	Location	mASL	Collection site/habitat	Common name /Conservation status/notes (NT: Not Threatened)
Insecta	Odontria	Coenagrionidae	<i>Xanthocnemis zealandica</i>	E1281598N5074263	830	Wetlands	Endemic redcoat damselfly. NT
Insecta	Orthoptera	Anostomatidae	<i>Hemideina maori</i>	E1281005N5071275	1846	Stony ground	Endemic mountain stone weta. NT
Insecta	Orthoptera	Anostomatidae	<i>Deinacrida connectens</i>	E1248432N5073539	>1500	Trib Minaret Burn	Endemic scree weta. NT
Insecta	Orthoptera	Rhaphidophoridae	<i>Isoplectron</i> sp.	E1292067N5080397	280	Beech forest	Endemic cave weta. NT
Insecta	Orthoptera	Acrididae	<i>Alpinacris tumidicaudum</i>	throughout high country	600	Tussock	Endemic alpine grasshopper. NT
Insecta	Orthoptera	Acrididae	<i>Phaulacridium marginale</i>	Throughout lower elevations	300-100	Grasslands	Endemic grasshopper. NT



#### APPENDIX 4: Location Map of Freshwater Fish Historic Records (NZFF database) and Survey Sites during Tenure Review Inspection



Note: Surveyed sites and the presence of koaro (*Galaxias brevipinnis*) within the Minarets Pastoral Lease boundary. Red circles represent NZFFD records and yellow circles represent sites surveyed during tenure review 21 March, 2012.