

TIMARU DISTRICT
SIGNIFICANT NATURAL AREAS
SURVEY

MOYNIHAN PROPERTY
BRAEVAL



Report prepared for Timaru District Council by Mike Harding
June 2011

TIMARU DISTRICT SIGNIFICANT NATURAL AREAS SURVEY

PROPERTY REPORT

PROPERTY DETAILS:

Owner: Moynihan
Valuation References: 24850/006.00
Address: McPherson Road, RD 14, Cave.
Location: On the western and southern slopes of Cave Hill.
Ecological District: Waimate Ecological District.
TDC Land Type: 'Hard Rock Hills and Downs'
Land Environment: N3 (eastern South Island undulating plains and hills).

ECOLOGICAL CONTEXT:

The property covers moderately-steep to steep slopes between 200 and 500m on Cave Hill, east of the lower Pareora River. The property lies in Waimate Ecological District.

It is likely that the original vegetation of this area was predominantly podocarp-hardwood forest, dominated by matai and totara. Shrubland, treeland and tussockland may have occupied areas that were prone to infrequent natural fires. Rock bluffs supported specialised flora, and riparian areas supported wetland vegetation and mixed hardwood forest dominated by kowhai.

Today the original forest cover of Waimate Ecological District, within Timaru District, is largely confined to remnants in gullies on Cave Hill and Mt Horrible (including Claremont Scenic Reserve), and on basalt and limestone slopes in the Taiko and Limestone valleys. Otherwise, the indigenous vegetation of the ecological district is substantially depleted or modified.

The indigenous fauna would have originally been significantly more numerous and diverse, with a greater range of birds, lizards and invertebrates than is presently found in the area.

SIGNIFICANT AREAS ON THE PROPERTY:

Indigenous vegetation on the property comprises hardwood forest, shrubland/scrub, sparse rockland vegetation on steep slopes and an area of sedgeland/rushland (wetland) on a lower terrace. The property lies adjacent to areas of forest and shrubland on adjoining properties, contributing to the network of fauna habitat in the wider area.

The property was surveyed as part of the District-wide survey of Significant Natural Areas during May 2011. Most parts of the property were surveyed. Ten areas, comprising approximately 85 hectares, are regarded as Significant Natural Areas (SNAs) when assessed against the District Plan criteria. These SNAs are listed in the table below.

Area No.	Area Name	Central grid reference	Aprox. size (ha)	Vegetation/habitat type
553c		J39: 522-458	34.86	Hardwood forest; scrub
553d		J39: 519-467	8.72	Hardwood forest; scrub
553e		J39: 519-469	4.46	Hardwood forest; scrub
556		J39: 502-459	2.23	Hardwood forest; scrub
557a		J39: 509-448	0.64	Sedgeland (wetland)
558		J39: 501-474	10.72	Hardwood forest; scrub
559		J39: 504-468	17.56	Hardwood forest; scrub
560		J39: 500-476	2	Hardwood forest; scrub
561		J39: 500-482	1.82	Hardwood forest; scrub
562		J39: 497-484	1.67	Hardwood forest; scrub

These SNAs are illustrated on the attached aerial photograph and described in greater detail on the SNA Forms in this report. Note that the boundaries of the SNAs are indicative, rather than precise. These areas meet the ecological criteria in the Timaru District Plan (criteria i-vi, pages B18-B19) and are considered to be sustainable in the long term, or sustainable with appropriate management (criterion vii, page B19). SNAs are subject to confirmation by Council after regarding the matters listed in the District Plan (pages B19-B20). It is expected that SNAs will eventually be listed in the District Plan by way of a notified plan change.

At present, consent is required from Council for clearance of areas of indigenous vegetation or habitat which meet the Interim Definitions in the District Plan. Clearance includes burning, spraying with herbicides and over-planting. SNAs encompass most, but not necessarily all, areas of vegetation and habitat which meet the Interim Definitions.

To assist with the protection and management of any SNA, landowners can apply to Council for financial assistance. Any questions regarding the protection, management and use of SNAs should be directed to the District Planner.

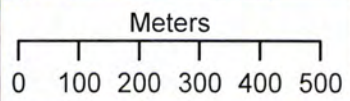
OTHER AREAS INSPECTED ON THE PROPERTY:

Other areas on the property were inspected but are not significant when assessed against the District Plan criteria. Areas worth noting are the relatively extensive areas of indigenous scrub and shrubland, often with scattered emergent hardwood trees, on the steeper slopes adjacent to many of the SNAs. These areas will eventually regenerate, and perhaps become more important for nature conservation and biodiversity protection, if protected from clearance and other disturbance.

Moynihan Property
24850/006.00



Summit Road



1:12,500

Moynihan Property
24850/006.00



562

561

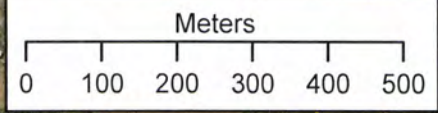
560

558

559

Summit Road

McPhersons Road



1:10,000

Area Name:	Property: Braeval (Moynihan)
Location (central map reference): J39: 522-458	Nearest Locality: Cannington
Ecological District: Waimate	Area Size (ha): 34.86 Altitude (m): 300-450
Surveyors: Mike Harding	Survey Time: 4 hours Survey Date: 18-05-11

General Description:

This SNA lies on moderately steep to steep slopes in the main upper tributary gullies of the large valley that drains the southern slopes of Cave Hill. It adjoins an extensive area of indigenous forest (SNA 553b) in the lower valley and lies close to other areas of indigenous forest (SNA 553d and SNA 553e) in the upper valley.

Plant Communities:

Three main plant communities are present: hardwood forest on shaded (south-facing) slopes; hardwood forest on dry north-facing slopes; and, scrub on dry rocky north-facing slopes. These plant communities are described separately below. Naturalized (exotic) species are indicated with an asterisk*.

Hardwood forest on shaded slopes:

This plant community occupies the south- and west-facing slopes of both main gullies. The forest canopy is dominated by five-finger, broadleaf, lancewood, lemonwood and, in some places, kowhai. Other canopy species are matipo, mahoe, mapou, cabbage tree, mountain akeake and pohuehue. Species commonly present in the gully bottoms are fuchsia, hybrid fuchsia, pate, marbleleaf, wineberry, thousand-leaved fern, *Hypolepis ambigua*, water fern, *Carex coriacea*, *Juncus gregiflorus* and a single soft tree fern. Two radiata pine* trees are emergent from the forest canopy at the head of the southern gully. A large patch of radiata pine* trees, including young trees, is present at the edge of the forest in the northern gully.

The forest understorey is, in most places, relatively open. Understorey species are mapou, marbleleaf, cabbage tree, five-finger, matipo, *Coprosma crassifolia*, *Coprosma propinqua*, *Coprosma rigida*, *Coprosma rhamnoides*, pate, poataniwha (rare), bush lawyer, lawyer, native jasmine, native convolvulus, *Clematis marata* and, on tree trunks, hound's tongue fern. Species present in forest openings are koromiko, mountain flax, elderberry*, foxglove*, Californian thistle*, Scotch thistle*, velvety nightshade*, poroporo and horehound* (rare).

Ground-cover species are prickly shield fern, common shield fern, mountain kiokio, *Blechnum procerum*, *Blechnum fluviatile*, necklace fern, *Asplenium appendiculatum*, *Asplenium hookerianum*, *Asplenium richardii*, hen and chickens fern, *Pellaea rotundifolia*, *Parietaria debilis*, pennywort, hairy pennywort, buttercup, bidibid, *Schizeilema trifoliolatum*, *Dichondra repens*, sedge (*Carex* sp.), hookgrass, black nightshade*, toatoa (rare), *Libertia ixioides* (rare) and bush lily. Also present are seedlings of broadleaf, five-finger, marbleleaf, mahoe, mapou, clematis and *Coprosma* species. Present in damper areas are *Blechnum chambersii*, *Blechnum penna-marina*, swamp kiokio, kiokio, *Hydrocotyle heteromeria*, *Gonocarpus micranthus* (rare) and the uncommon fern, *Botrychium biforme*.

Species commonly present on the forest margin are *Coprosma propinqua*, *Coprosma crassifolia*, *Coprosma tayloriae*, *Gaultheria antipoda*, native broom, bush lawyer, lawyer, pohuehue, native convolvulus, mountain flax, narrow-leaved snow-tussock, silver tussock, blue wheat grass, bracken, mountain kiokio, *Blechnum penna-marina* and foxglove*.

Hardwood forest on dry slopes:

The forest canopy here is dominated by mapou. Other canopy species are cabbage tree, matipo, broadleaf, mahoe, five-finger, kowhai, lemonwood, lancewood and leafless lawyer.

The forest understorey is open and rocky. Plant species are *Coprosma crassifolia*, *Coprosma rhamnoides*, mapou and bush lawyer.

Ground-cover species are toatoa, *Parietaria debilis*, *Asplenium richardii*, *Pellaea rotundifolia*, common shield fern, hound's tongue fern, necklace fern, *Asplenium appendiculatum*, *Asplenium hookerianum*, hen and chickens fern, hairy pennywort, foxglove*, bush lily, hookgrass and *Libertia ixioides*.

Species present in forest openings are *Coprosma robusta*, koromiko, lancewood, poroporo, black nightshade*, *Hypolepis rufobarbata*, *Hypolepis ambigua*, Californian thistle*, Scotch thistle* and foxglove*.

Species present on the forest margin are *Helichrysum lanceolatum*, *Gaultheria antipoda*, mountain flax, *Coprosma propinqua*, *Coprosma crassifolia*, *Coprosma tayloriae*, rohutu, matagouri, native broom, gorse*, native convolvulus, leafless lawyer, scrub pohuehue, mistletoe (on *Coprosma crassifolia*), silver tussock, fescue tussock, blue tussock, woolly mullein*, bracken and wire moss. One plant of Spanish heath* was observed (and removed).



Hardwood forest in SNA 553c.

Scrub on dry rocky slopes:

This low-stature community is dominated by *Coprosma crassifolia* and *Coprosma propinqua*. Other canopy species are matagouri, native broom, *Clematis forsteri*, lawyer, native convolvulus, native jasmine and rarely broom*. Emergent from this canopy are young trees of lancewood, five-finger, cabbage tree, matipo, lemonwood, kowhai and broadleaf.

Rough pasture is present beneath the scrub canopy. Important species are pasture grasses*, blue wheat grass, danthonia (*Rytidosperma* sp.), prickly shield fern, silver tussock, fescue tussock, hawkbit*, *Carex breviculmis*, white clover, woolly mullein* and mountain flax.

Rocky sites support a specialized flora. Species commonly present at are necklace fern, *Pellaea rotundifolia*, mouse-ear hawkweed*, sand spurrey*, oxalis, *Geranium microphyllum*, toatoa, patotara, white fuzzweed, sheep's sorrel* and blue tussock. Occasionally present are *Einadia allanii*, *Coprosma brunnea* and *Dichondra repens*.

Birds/Fauna Observed:

Native birds observed during this survey were bellbird, silvereye, fantail, kereru (NZ pigeon), rifleman, tomtit, brown creeper and grey warbler.

Notable Flora, Fauna and Habitats:

Important features of this area are: the diversity of indigenous plant species present (94 species); the presence of an at-risk (declining) plant species (*Coprosma brunnea*); the presence of an at-risk (declining) bird species (rifleman); the habitat the area provides for forest birds, notably tomtit (rare in this part of South Canterbury); the presence of a large number (14) of locally-uncommon species; and, the size of the area. Some of the plant species in the area have not been recorded previously in this part of Timaru District during SNA surveys, notably soft tree fern (*Cyathea smithii*), *Coprosma brunnea* and the ferns, *Blechnum novae-zelandiae*, *Hypolepis rufobarbata* and *Botrychium bifforme*.

Notable Plant and Animal Pests:

The main forested area is relatively free of invasive plant pests. Pine trees are present, and slowly spreading, at one location and elderberry is present in low numbers throughout. Gorse and (at one location) broom and Spanish heath are present at the forest margins, though these species do not pose a significant threat to the forest. Animal pests were not surveyed but the effects of wallabies are obvious. Several wallabies were seen or heard and the forest understorey is very open.

Boundaries (buffering, fencing, adjoining plant communities and habitats):

This SNA is well buffered by the steep slopes it occupies. It adjoins an extensive area of indigenous forest in the lower valley and grades to scattered indigenous shrubland on many upper slopes. It is not fenced but is not affected by intensive grazing. This SNA forms part of the largest remaining area of indigenous forest in this part of Timaru District.

Condition and Management Issues:

The forest and shrubland canopies are in relatively good condition. However, the forest understorey is, in most places, quite open. Control of wallabies, and probably possums, is the most important management issue.

Property Owner Comment:

Mr Moynihan appreciates the value of this forested area and has no intention of clearing this vegetation. He wishes to be able to continue to maintain farm tracks and fence lines in this and other SNAs.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	M/H	Indigenous forest of this SNA is typical of that remaining in the ecological district and representative of that originally present in the area.
Rarity	M/H	Supports an at risk (declining) plant species (<i>Coprosma brunnea</i>) and provides good habitat for an at risk (declining) bird species (rifleman). Supports a large number (14) of locally-uncommon species, including species not previously recorded in this part of Timaru District.
Diversity and pattern	H	A very diverse range of indigenous plant species is present (94); the largest number of any forest area in this part of the ecological district.
Distinctiveness/special features	M	The presence of tomtit is notable. This bird species was not recorded in this part of Timaru District during the Ornithological Society's 1999-2004 national survey of bird distribution. The dominance of kowhai in parts of the area is notable.
Other Criteria		
Size/shape	H	A large area for this ecological district.
Connectivity	M/H	Adjoins other areas of indigenous forest on its lower boundaries.
Long-term Sustainability	M/H	Some animal pest control, notably wallabies and possums, will probably be required to maintain ecological values in the long term.

Final Consideration (of other matters: Section D, page B-19 of Timaru District Plan):

This SNA probably represents parts of the property which were originally too steep or difficult to clear. These steep slopes have very limited potential for farm development.

Discussion:

This area meets the District Plan criteria for a Significant Natural Area. Important features of the area are: the diversity of indigenous plant species present (94 species); the presence of an at-risk (declining) plant species (*Coprosma brunnea*); the presence of an at-risk (declining) bird species (rifleman); the habitat the area provides for forest birds, notably tomtit (rare in this part of South Canterbury); the presence of a large number (14) of locally-uncommon species; and, the size of the area.

TIMARU DISTRICT SNA SURVEY

SNA 553d

Area Name:

Location (central map reference): J39: 519-467

Ecological District: Waimate

Surveyors: Mike Harding

Property: Braeval (Moynihan)

Nearest Locality: Cannington

Area Size (ha): 8.72 **Altitude (m):** 350-400

Survey Time: 1½ hours **Survey Date:** 18-05-11

General Description:

This SNA lies on steep, mostly south-facing, slopes in the upper gully of the large valley that drains Cave Hill. It is just up-valley from a very extensive area of indigenous forest in the lower valley (SNAs 553a, b and c).

Plant Communities:

The main plant community present is hardwood forest. This plant community is described below.

Naturalized (exotic) species are indicated with an asterisk*.

The forest canopy is dominated by broadleaf. Other canopy species are kowhai, marbleleaf, lancewood, fuchsia, mahoe, cabbage tree, matipo, five-finger and pate. Additional canopy or emergent trees in the narrow gorge are lowland ribbonwood, narrow-leaved lacebark and one large matai tree. The matai has two trunks, with diameters (at breast height) of 56cm and approximately 60cm.

Understorey species are *Coprosma crassifolia*, *Coprosma rotundifolia*, mapou, marbleleaf, pate, elderberry*, *Clematis marata*, hybrid fuchsia, *Raukaua anomalus* (rare), poataniwha (rare) and, on tree trunks, hound's tongue fern.

The dominant ground-cover species over most of the area is prickly shield fern. Other forest-floor species are *Parietaria debilis*, bush lily, *Blechnum penna-marina*, *Blechnum fluviatile*, *Blechnum chambersii*, mountain kiokio, thousand-leaved fern, common shield fern, *Asplenium hookerianum*, *Asplenium richardii*, hen and chickens fern, necklace fern, hound's tongue fern, *Pellaea rotundifolia*, hairy pennywort, *Hydrocotyle heteromeria*, *Cardamine* sp., black nightshade*, wall lettuce* and seedlings of mahoe, broadleaf, marbleleaf, native jasmine and *Coprosma* species. Additional species present in forest openings are poroporo and bittersweet*.

Species present on the forest margin are *Coprosma propinqua*, *Coprosma tayloriae*, matagouri, *Olearia bullata*, horopito, koromiko, gorse*, silver tussock, fescue tussock, prickly shield fern, bracken, thousand-leaved fern, foxglove*, native convolvulus, bush lawyer, *Clematis forsteri*, Scotch thistle*, bidibid and mistletoe (on *Coprosma propinqua*). Streamside forest edge communities support pasture*, *Carex coriacea*, *Juncus gregiflorus*, *Carex secta* and creeping buttercup*.

Birds/Fauna Observed:

Native birds observed during this brief survey were bellbird, fantail, silvereye, grey warbler, kereru (NZ pigeon) and harrier.

Notable Flora, Fauna and Habitats:

Important features of this area are the presence of original canopy trees (notably matai, lowland ribbonwood and narrow-leaved lacebark), the presence of five locally-uncommon plant species, including two species that are rare in this part of Timaru District (*Raukaua anomalus* and horopito/*Pseudowintera colorata*), the habitat the area provides for forest birds and its location adjacent to a much larger area of indigenous forest.

Notable Plant and Animal Pests:

The area is relatively free of invasive plant pests. Gorse is present at the forest margins, though does not pose a significant threat to the forest. Animal pests were not surveyed but wallabies and possums are present.

Boundaries (buffering, fencing, adjoining plant communities and habitats):

This SNA is well buffered by the steep slopes and gully it occupies. It lies close to an extensive area of indigenous forest in the lower valley and grades to scattered indigenous shrubland on many upper slopes. It is not fenced but is not grazed intensively.

Condition and Management Issues:

The forest canopy is in relatively good condition. However, the forest understorey is, in most places, quite open. Control of wallabies, and probably possums, is the most important management issue.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	M/H	A good example of indigenous vegetation typical of that remaining in the ecological district and containing species representative of the original forest vegetation, notably matai, lowland ribbonwood and narrow-leaved lacebark.
Rarity	M	Supports several locally-uncommon plant species and provides habitat for an at-risk (declining) bird species (rifleman), recorded nearby.
Diversity and pattern	M	A moderately diverse area of forest, though diversity is probably reduced from that originally present.
Distinctiveness/special features	M	The presence of a large old matai tree, and other large trees, is notable.
Other Criteria		
Size/shape	M	A moderate-sized area for this part of the ecological district.
Connectivity	M	Lies very close to a large area of indigenous forest.
Long-term Sustainability	M/H	Some animal pest control will probably be required to maintain ecological values in the long term.

Final Consideration (of other matters: Section D, page B-19 of Timaru District Plan):

This SNA probably represents parts of the property which were originally too steep or difficult to clear. These steep slopes have very limited potential for farm development.

Discussion:

This area meets the District Plan criteria for a Significant Natural Area. Important features of the area are the presence of original canopy trees (notably matai, lowland ribbonwood and narrow-leaved lacebark), the presence of five locally-uncommon plant species, including two species that are rare in this part of Timaru District (*Raukawa anomalus* and horopito/*Pseudowintera colorata*), the habitat the area provides for forest birds and its location adjacent to a much larger area of indigenous forest.

TIMARU DISTRICT SNA SURVEY

SNA 553e

Area Name:	Property: Braeval (Moynihan)		
Location (central map reference): J39: 519-469	Nearest Locality: Cannington		
Ecological District: Waimate	Area Size (ha): 4.46	Altitude (m): 380-420	
Surveyors: Mike Harding	Survey Time: 1 hour	Survey Date: 18-05-11	

General Description:

This SNA lies on moderately steep south-facing slopes at the head of the valley east of Cave Hill summit. It lies just upstream from SNA 553d.

Plant Communities:

The main plant community present is hardwood forest. This plant community is described below. Naturalized (exotic) species are indicated with an asterisk*.

The forest canopy is dominated by broadleaf and five-finger. Other canopy species are lancewood, mountain akeake, pate, marbleleaf, wineberry, matipo, mapou, bush lawyer and native convolvulus.

Understorey species are mapou, lancewood, native convolvulus and bittersweet*.

The most important ground-cover species present is prickly shield fern. Other species present are bush lily, *Pellaea rotundifolia*, *Asplenium appendiculatum*, *Asplenium richardii*, mountain kiokio, swamp kiokio, *Blechnum fluviatile*, *Carex* sp., hairy pennywort, *Hydrocotyle heteromeria*, buttercup, bidibid and seedlings of mahoe, five-finger and *Coprosma* species.

Species commonly present on the forest margin or in forest openings are prickly shield fern, *Coprosma propinqua*, *Coprosma tayloriae*, *Olearia bullata*, kowhai, bush lawyer, koromiko, *Gaultheria antipoda*, hybrid fuchsia, *Fuchsia perscandens*, mapou, gorse*, porcupine shrub, matagouri, bush lawyer, mountain flax, thousand-leaved fern, bracken, hard fern, foxglove*, narrow-leaved snow-tussock, fescue tussock, silver tussock, *Helichrysum filicaule*, *Blechnum penna-marina*, *Blechnum procerum* and, at damper sites, *Carex coriacea*, *Carex secta*, *Juncus gregiflorus* and creeping buttercup*.

Birds/Fauna Observed:

Native birds observed during this brief survey were bellbird, silvereve and harrier.

Notable Flora, Fauna and Habitats:

Important features of this area are the presence of three locally uncommon plant species (hard fern, swamp kiokio and *Gaultheria antipoda*), the abundance of another locally uncommon plant species (*Olearia bullata*), the habitat the area provides for forest birds (including rifleman) and its proximity to larger areas of indigenous forest (SNAs 553d and 553c).

Notable Plant and Animal Pests:

Gorse is the only woody plant pest present, though this species does not pose a significant threat to the indigenous forest. Animal pests were not surveyed, though possum and wallaby sign was observed.

Boundaries (buffering, fencing, adjoining plant communities and habitats):

This area is reasonably well buffered by its location on steeper south-facing slopes. It lies very close to larger areas of indigenous forest down-valley. It makes a useful contribution to fauna habitat in the wider area.

Condition and Management Issues:

The forest canopy is in relatively good condition. The forest understorey is more open and would benefit from wild animal (wallaby and possum) control and exclusion of cattle.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	M	Indigenous forest typical of that remaining in the ecological district and moderately representative of the original forest cover.
Rarity	M	Supports four locally uncommon plant species and provides habitat for an at-risk bird species (rifleman) that was observed nearby.
Diversity and pattern	L/M	Plant species diversity is moderate and reduced from that originally present.
Distinctiveness/special features	M	The abundance of the locally-uncommon plant, <i>Olearia bullata</i> , at the forest margin is notable.
Other Criteria		
Size/shape	M	A small area but well buffered and with a good shape.
Connectivity	M	Lies very close to larger areas of indigenous forest and makes a useful contribution to forest bird habitat in the wider area.
Long-term Sustainability	M/H	Some animal pest control will be required to maintain ecological values in the long term.

Final Consideration (of other matters: Section D, page B-19 of Timaru District Plan):

This area occupies steeper shady slopes that would be difficult to develop; it has limited potential for farm development.

Discussion:

This area meets the District Plan criteria for a Significant Natural Area. Important features of the area are the presence of three locally uncommon plant species (hard fern, swamp kiokio and *Gaultheria antipoda*), the abundance of another locally uncommon plant species (*Olearia bullata*), the habitat the area provides for forest birds (including rifleman) and its proximity to larger areas of indigenous forest (SNA 553d and 553c).

TIMARU DISTRICT SNA SURVEY

SNA 557a

Area Name: Moynihan wetland

Location (central map reference): J39: 509-448

Ecological District: Waimate

Surveyors: Mike Harding

Property: Braeval (Moynihan)

Nearest Locality: Cannington

Area Size (ha): 0.64

Altitude (m): 180

Survey Time: ½ hour

Survey Date: 20-05-11

General Description:

This SNA comprises a wetland, located at the upslope edge of the broad terrace at the base of the steep western slopes of Cave Hill. The wetland extends south onto the neighbouring property.

Plant Communities:

The main plant community present is sedgeland. This plant community is described below. Naturalized (exotic) species are indicated with an asterisk*.

The core part of the wetland is dominated by *Carex secta*. Other important species present are jointed rush*, *Carex coriacea*, musk*, water cress*, Yorkshire fog*, soft rush*, swamp kiokio, *Azolla filiculoides* and scattered emergent bushes of *Coprosma propinqua*. This part of the wetland is very wet, with flowing water.

Adjacent parts of the wetland support lower-stature vegetation dominated by *Carex coriacea*, jointed rush* and musk*. Other species present are *Juncus gregiflorus*, creeping buttercup*, white clover*, Yorkshire fog* and other pasture grasses.

The wetland grades to pasture at its edges. A small man-made pond is present at the downstream end of the wetland.



SNA 557a (foreground).

Notable Flora, Fauna and Habitats:

Important features of this area are the dominance of indigenous plant species over most parts of the wetland, the diversity of plant species and that lowland wetlands are a nationally uncommon ecosystem.

Notable Plant and Animal Pests:

Jointed rush, musk and pasture grasses are present, as is typical for many lowland wetlands. Animal pests were not surveyed, though the wetland is accessible to wild animals and stock.

Boundaries (buffering, fencing, adjoining plant communities and habitats):

The wetland is protected only by the depth of water. Drier areas at the wetland margins are dominated by pasture. It is not fenced or well buffered.

Condition and Management Issues:

The wetland hydrology is largely intact, except for the man-made pond at its downstream end. The wetland vegetation is in reasonable condition. Important management issues are protection of the wetland from grazing animals, especially cattle.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	M/H	Vegetation at this wetland is typical of that remaining in the District and representative of that originally present.
Rarity	M/H	Lowland wetlands are a nationally-uncommon ecosystem.
Diversity and pattern	M	Plants species diversity is moderate and typical.
Distinctiveness/special features	M	The depth of the flowing water in the wetland is a notable feature.
Other Criteria		
Size/shape	M/H	A relatively large area for a wetland plant community.
Connectivity	M	The wetland extends onto the adjoining property. Other smaller areas of wetland vegetation and open water are present nearby.
Long-term Sustainability	M	Protection from grazing (and other) animals will probably be necessary to maintain ecological values in the long term.

Final Consideration (of other matters: Section D, page B-19 of Timaru District Plan):

This wetland has been informally protected by the landowner. Development of the wetland would provide only a small area of farmland.

Discussion:

This area meets the District Plan criteria for a Significant Natural Area. Important features of the area are the dominance of indigenous plant species over most parts of the wetland, the diversity of plant species and that lowland wetlands are a nationally uncommon ecosystem.

TIMARU DISTRICT SNA SURVEY

Wetland Record Form

Wetland 557a

Wetland name: Moynihan wetland	Date: 20-05-2011
Property: Braeval (Moynihan)	GPS/Grid Ref: NZMS 260: J39: 507-448
Altitude: 180m	No. of plots sampled:
Location: base of western slopes of Cave Hill	Approximate size (ha): 0.64

Classification: I System	IA Subsystem	II Wetland Class	IIA Wetland Form
Palustrine		Seepage	Swale

Surveyors: Mike Harding

Indicator	Indicator components	Specify and Comment	Score 0-5 ¹	Mean score
Change in hydrological integrity	Impact of manmade structures	Dam/pond downstream	4	4.33
	Water table depth	No obvious change	5	
	Dryland plant invasion	Some invasion	4	
Change in physico-chemical parameters	Fire damage	No evidence of damage	5	4.67
	Degree of sedimentation/erosion	None visible	5	
	Nutrient levels	Probably increased	4	
	von Post index			
Change in ecosystem intactness	Loss in area of original wetland	Some loss downstream	4	3.5
	Connectivity barriers	Downstream connection lost	3	
Change in browsing, predation and harvesting regimes	Damage by domestic or feral animals	Moderate	3	4
	Introduced predator impacts on wildlife	Unclear		
	Harvesting levels	None apparent	5	
Change in dominance of native plants	Introduced plant canopy cover	Some present	4	3.5
	Introduced plant understorey cover	Common	3	
Total wetland condition index /25				20

Main vegetation types: Sedgeland/rushland/grassland

Native fauna:

Other comments:

Pressure	Rating ²	Specify and Comment
Modifications to catchment hydrology	0	None apparent
Water quality within the catchment	2	Possible mild pollution (grazing animals)
Animal access	3	Low impediment
Key undesirable species	1	Low
% catchment in introduced vegetation	4	High percentage
Other pressures		
Total wetland pressure index /30	10	

Source: Clarkson *et al*, Handbook for monitoring wetland condition, Ministry for the Environment, August 2002.

¹ Assign degree of modification thus: 5=v. low/ none, 4=low, 3=medium, 2=high, 1=v. high, 0=extreme

² Assign pressure scores as follows: 5=very high, 4=high, 3=medium, 2=low, 1=very low, 0=none

Area Name:

Location (central map reference): J39: 501-474

Ecological District: Waimate

Surveyors: Mike Harding

Property: Braeval (Moynihan)**Nearest Locality:** Cannington**Area Size (ha):** 10.72 **Altitude (m):** 220-420**Survey Time:** 1½ hours **Survey Date:** 20-05-11**General Description:**

This SNA lies in a large gully on the western slopes of the Cave Hill range, north of SNA 559 and north of the Braeval homestead. It occupies steep slopes of the lower and mid-gully, including the slopes around a small gorge.

Plant Communities:

Two main plant communities are present: hardwood forest and shrubland/scrub. These plant communities are described separately below. Naturalized (exotic) species are indicated with an asterisk*.

Hardwood forest:

The hardwood forest canopy is dominated by broadleaf, five-finger, matipo, kowhai and, in the upper gorge section, narrow-leaved lacebark. Other canopy species are cabbage tree, lancewood, mahoe, mountain akeake, mapou, pohuehue and, along the stream, fuchsia, wineberry and two totara trees (in the gorged section of the valley). The upper-valley totara tree has a trunk diameter (at breast height) of 45cm. Emergent young pine* trees are present in the upper valley.

Understorey species are matipo, *Coprosma propinqua*, *Coprosma crassifolia*, *Helichrysum lanceolatum*, weeping mapou, mahoe, porcupine shrub, korokio, elderberry*, native convolvulus and narrow-leaved lacebark (in the upper valley).



Ground-cover species are common shield fern, necklace fern, *Asplenium hookerianum*, *Pellaea rotundifolia*, pennywort, *Leptinella* sp., buttercup, hookgrass, foxglove*, black nightshade*, mouse-ear chickweed* and seedlings of mahoe, broadleaf, kowhai and *Coprosma* species. Species present in damper areas are bush lily, hen and chickens fern, *Blechnum fluviatile*, *Blechnum penna-marina*, swamp kiokio, thousand-leaved fern, *Hypolepis ambigua*, male fern* and bidibid.

Shrubland/scrub:

Shrubland/scrub at the forest margin is dominated by *Coprosma propinqua*, *Coprosma crassifolia* and, in the lower valley, korokio. Other canopy species are matagouri, native broom, *Olearia bullata*, porcupine shrub, sweet brier* (rare), gorse*, hybrid fuchsia, koromiko, native convolvulus, pohuehue, scrub pohuehue, lawyer, native jasmine and emergent trees of matipo, cabbage tree, lancewood and kowhai. Additional species present in this shrubland/scrub community are *Carex coriacea*, common shield fern, prickly shield fern, bracken, narrow-leaved snow-tussock, silver tussock and *Anisotome aromatica*.

Birds/Fauna Observed:

Native birds observed during this brief survey were bellbird, silvereve, grey warbler and fantail (including black-morph individuals).

Notable Flora, Fauna and Habitats:

Important features of this area are the presence of podocarp trees (totara) and other representative canopy trees (e.g. narrow-leaved lacebark), three locally-uncommon plant species (swamp kiokio, weeping mapou and *Olearia bullata*), the habitat the area provides for forest birds and the size of the area.

Notable Plant and Animal Pests:

Gorse is present at the lower forest margin, elderberry in the understorey of the lower valley forest and pine trees emergent from the upper valley forest. Of these species, the pine trees pose the greatest threat to ecological values. Animal pests were not surveyed.

Boundaries (buffering, fencing, adjoining plant communities and habitats):

This area is well buffered by its location on steep slopes in an incised gully. The area lies close to other areas of indigenous forest in adjacent gullies (SNA 559 and SNA 560) and has shrubland at its margin.

Condition and Management Issues:

The forest canopy and the upper valley (gorge) forest is in relatively good condition. However, the lower valley forest is affected by cattle trampling and browse.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	M/H	A good example of forest typical of the ecological district and containing a representative range of canopy species, notably totara and narrow-leaved lacebark.
Rarity	M	Supports three locally-uncommon plant species and provides suitable habitat for an at-risk (declining) bird species (rifleman), which is present nearby.
Diversity and pattern	M	Moderate plant species diversity (49 species). Species diversity is probably reduced from that originally present.
Distinctiveness/special features	M	The presence of totara in the upper valley is notable.
Other Criteria		
Size/shape	M/H	A moderate sized area that is well buffered.
Connectivity	M	Lies close to other areas of indigenous forest in nearby gullies.
Long-term Sustainability	M/H	Some animal pest control will be required to maintain ecological values in the long term.

Final Consideration (of other matters: Section D, page B-19 of Timaru District Plan):

This area occupies steep rocky slopes in an incised gully. It has little potential for farm development.

Discussion:

This area meets the District Plan criteria for a Significant Natural Area. Important features of the area are the presence of podocarp trees (totara) and other representative canopy trees (e.g. narrow-leaved lacebark), three locally-uncommon plant species (swamp kiokio, weeping mapou and *Olearia bullata*), the habitat the area provides for forest birds and the size of the area.

Area Name:

Location (central map reference): J39: 504-468

Ecological District: Waimate

Surveyors: Mike Harding

Property: Braeval (Moynihan)**Nearest Locality:** Cannington**Area Size (ha):** 17.56 **Altitude (m):** 200-400**Survey Time:** 1½ hours **Survey Date:** 20-05-11**General Description:**

This SNA occupies a large gully northwest of Cave Hill summit and near the Braeval homestead. The gully is traversed by a steep but well-formed road that provides vehicle access to other parts of the property and to communications facilities on Cave Hill.

Plant Communities:

Two main plant communities are present: tall hardwood forest in the main gully; and, younger hardwood forest and scrub on the north-facing valley side. These plant communities are described separately below. Naturalized (exotic) species are indicated with an asterisk*.

Tall hardwood forest in gully:

The forest canopy of this main block of forest is dominated by broadleaf, five-finger and, in places, kowhai. Other canopy species are lancewood, cabbage tree, matipo, mountain akeake, pohuehue, scrub pohuehue, lawyer, native convolvulus and, along the stream, fuchsia, wineberry, marbleleaf, narrow-leaved lacebark, mahoe and one totara tree (beside the road). The totara tree has a trunk diameter (at breast height) of 49cm.

The forest understorey is dominated by *Raukaua anomalus*. Other understorey species are mapou, *Coprosma rotundifolia*, *Coprosma crassifolia*, *Coprosma rhamnoides* (rare), *Coprosma rigida*, *Coprosma propinqua*, five-finger, wineberry, pate, narrow-leaved lacebark, mahoe, lancewood, bush lawyer and, on tree trunks, hound's tongue fern.



Ground-cover species are hen and chickens fern, *Asplenium hookerianum*, necklace fern, pennywort, *Hydrocotyle heteromeria*, buttercup, bidibid, black nightshade* and, beside the stream, bush lily, thousand-leaved fern, *Blechnum fluviatile* and *Blechnum chambersii*. Also present are seedlings of marbleleaf, broadleaf, matipo, wineberry, mahoe and *Coprosma* species.

Species present on the forest margin are *Coprosma propinqua*, *Coprosma crassifolia*, *Coprosma virescens* (rare), hybrid fuchsia, native broom, matagouri, porcupine shrub, mountain flax, pohuehue, scrub pohuehue, lawyer, native jasmine, sweet brier* (rare), gorse*, prickly shield fern, silver tussock, blue tussock and foxglove* with emergent cabbage tree and broadleaf. *Carex secta* and *Juncus gregiflorus* are present at the stream.

Hardwood forest and scrub on valley side:

The canopy of this younger forest is dominated by matipo and kowhai, with areas of cabbage tree. Also present are scattered trees of broadleaf, mapou, lancewood and five-finger.

The forest understorey is dominated by *Coprosma crassifolia*. Other understorey species are *Coprosma propinqua*, *Helichrysum lanceolatum*, *Raukaua anomalus*, mapou, weeping mapou, poataniwha, porcupine shrub and korokio.

Ground-cover species are common shield fern, necklace fern, *Asplenium hookerianum*, *Pellaea rotundifolia*, hairy pennywort, pennywort, *Dichondra repens*, *Cardamine debilis*, foxglove* and seedlings of broadleaf, matipo, kowhai, native jasmine and *Coprosma* species. Several stinkhorn fungi (*Aseroe rubra*) were observed.



Stinkhorn fungi and the native herb, Dichondra repens.

Species present on the forest margin and in patches of lower-stature vegetation, are mapou, *Coprosma propinqua*, *Coprosma crassifolia*, matagouri, koromiko, weeping mapou, native broom, korokio, *Helichrysum lanceolatum*, rohutu, mistletoe (on *Coprosma propinqua*), native convolvulus, lawyer, leafless lawyer, native jasmine, scrub pohuehue, bracken, nodding thistle*, black nightshade*, woolly mullein* and horehound*.

Additional species present at rocky or open sites at the forest/scrub margin are oxalis, hawkbit* suckling clover*, *Crassula* sp., sheep's sorrel*, *Gnaphalium* sp., *Gnaphalium coarctatum**, *Wahlenbergia gracilis*, *Carex breviculmis*, sand spurrey*, catsear*, patotara, *Geranium microphyllum*, blue wheat grass, fescue tussock, blue tussock and silver tussock.



Hardwood forest and scrub on the valley side.

Birds/Fauna Observed:

Native birds observed during this brief survey were bellbird, silvereve, fantail and harrier hawk.

Notable Flora, Fauna and Habitats:

Important features of this area are the single totara tree, the presence of four locally-uncommon plant species (*Coprosma rhamnoides*, *Coprosma virescens*, *Wahlenbergia gracilis* and weeping mapou), the abundance of another locally-uncommon plant species (*Raukaua anomalus*) in the understorey, the diversity of plant species (74), the habitat the area provides for forest birds and the size of the area.

Notable Plant and Animal Pests:

No significant woody plant pests were observed, except for one deciduous suckering plant (currant?) at the lower margin of the area. Animal pests were not surveyed, but wallabies are present.

Boundaries (buffering, fencing, adjoining plant communities and habitats):

This area is very well buffered by its location in a steep-sided gully. It is not fenced. It is surrounded by regenerating shrubland and lies close to other areas of indigenous forest in nearby gullies.

Condition and Management Issues:

The forest canopy and some areas of forest-margin scrub are in good condition. However, the forest understorey is open and affected by wallaby and cattle browse. Wild animal control is the most important management issue.

Property Owner Comment:

Mr Moynihan wishes to maintain track and fence lines through this area.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	M/H	A good example of indigenous forest typical of the ecological district and containing a representative range of plant species, including totara.
Rarity	M	Supports several locally-uncommon species, including species that are rare in the part of Timaru District (weeping mapou, <i>Coprosma virescens</i> and <i>Raukaua anomalus</i>).
Diversity and pattern	M	A diverse range of plant species is present (74).
Distinctiveness/special features	M	The abundance of the locally-uncommon <i>Raukaua anomalus</i> in the forest understorey is notable.
Other Criteria		
Size/shape	M/H	A relatively large area that is well buffered.
Connectivity	M	Lies close to other areas of indigenous forest and shrubland/scrub.
Long-term Sustainability	M/H	Some animal pest control will probably be necessary to maintain ecological values in the long term.

Final Consideration (of other matters: Section D, page B-19 of Timaru District Plan):

The steepness and rockiness of this area limit its potential for farm development. An important vehicle access road traverses the area.

Discussion:

This area meets the District Plan criteria for a Significant Natural Area. Important features of the area are the single totara tree, the presence of four locally-uncommon plant species (*Coprosma rhamnoides*, *Coprosma virescens*, *Wahlenbergia gracilis* and weeping mapou), the abundance of another locally-uncommon plant species (*Raukaua anomalus*) in the understorey, the diversity of plant species (74), the habitat the area provides for forest birds and the size of the area.

Area Name:	Property: Braeval (Moynihan)	
Ecological District: Waimate	Nearest Locality: Cannington	
SNA 556: Location (central map ref.): J39: 502-459	Area Size (ha): 2.23	Altitude (m): 240-400
SNA 560: Location (central map ref.): J39: 500-476	Area Size (ha): 2	Altitude (m): 250-350
SNA 561: Location (central map ref.): J39: 500-482	Area Size (ha): 1.82	Altitude (m): 280-350
SNA 562: Location (central map ref.): J39: 497-484	Area Size (ha): 1.67	Altitude (m): 280-320
Surveyors: Mike Harding	Survey Time: 2 hours	Survey Date: 20-05-11

General Description:

Three of these four SNAs occupy small gullies on the steep west-facing slopes of the Cave Hill range. They comprise relatively small areas of hardwood forest in gully bottoms. The fourth (SNA 556) occupies steep rocky slopes and a broad steep gully on mid-slopes south of Braeval homestead. These four areas are described together here as they have similar ecological values.

Plant Communities:

Two main plant communities are present: hardwood forest and scrub/shrubland. These plant communities are described for each SNA below. Naturalized (exotic) species are indicated with an asterisk*. All areas were assessed from the exterior, so details of understorey and ground cover vegetation are lacking.

SNA 556:

This area comprises a small patch of hardwood forest on a rocky spur and a larger area of scrub with emergent trees on the adjacent steep slopes. The hardwood forest is dominated by broadleaf. The scrub community is dominated by *Coprosma propinqua*, *Coprosma crassifolia*, matagouri, hybrid fuchsia and lawyer, with emergent cabbage trees. Other emergent trees are broadleaf, five-finger, matipo and kowhai. Other scrub species are *Helichrysum lanceolatum*, native broom, porcupine shrub, scrub pohuehue, pohuehue, leafless lawyer, mountain flax, narrow-leaved snow-tussock, silver tussock and bracken.



SNA 556 viewed from the slopes above.

SNA 560:

This SNA comprises a long narrow strip of hardwood forest along the incised gully bottom. It is surrounded on higher slopes by indigenous scrub and shrubland. Forest canopy species are broadleaf, five-finger, matipo, mahoe, cabbage tree, mapou and mountain akeake. The adjacent scrub is dominated by *Coprosma propinqua*, *Coprosma crassifolia*, matagouri and native broom.

SNA 561:

This SNA comprises a small narrow strip of hardwood forest along the central part of a small incised gully. The forest canopy is dominated by broadleaf and cabbage trees.

SNA 562:

This SNA comprises a small to moderate sized area of hardwood forest along the bottom of an incised gully near the northern boundary of the property. The forest canopy is dominated by broadleaf. Other canopy species are five-finger, lancewood, cabbage tree and leafless lawyer. Surrounding scrub is dominated by *Coprosma propinqua*. Other scrub species present are matagouri, native broom, hybrid fuchsia, *Helichrysum lanceolatum*, koromiko, pohuehue, narrow-leaved snow tussock, silver tussock, prickly shield fern and bracken. A single broom* bush was observed (and cut and treated with herbicide gel) at the track edge near the upper boundary of this area.



SNA 562 viewed from above.

Birds/Fauna Observed:

Native birds observed during this brief survey were bellbird, grey warbler, silvereye and fantail.

Notable Flora, Fauna and Habitats:

Important features of these areas are the presence of hardwood forest in a part of the District where indigenous forest is relatively uncommon, the habitat the areas provide for forest birds, the protection these areas provide to the small streams and the extent to which they are naturally buffered by steep slopes and/or dense scrub.

Notable Plant and Animal Pests:

No significant woody plant pests were observed within these SNAs. Gorse is present in the area and one broom plant was observed (and removed) at SNA 562. One troublesome plant pest, Khasia berry (*Cotoneaster simonsii*), is present on lower slopes near the northern property boundary (just north of SNA 262). One Khasia berry bush was removed (cut and treated with herbicide gel) during this survey, but several other bushes are present nearby. Animal pests were not surveyed, but wallabies are present in the area.

Boundaries (buffering, fencing, adjoining plant communities and habitats):

The boundaries of these areas are defined by the extent of the older indigenous forest (dominated by hardwood trees). All areas are well buffered by their locations within incised gullies or on steep rocky slopes and by adjoining scrub and shrubland. These areas form useful parts of a network of forest bird habitat in a part of the District that supports little indigenous forest.

Condition and Management Issues:

The forest canopies of these areas appear to be in relatively good condition. Forest understoreys were not inspected. Indigenous woody vegetation appears to be actively regenerating at the margins of these SNAs. The most important management actions are continued control of wild animals, especially wallabies and possums, and protection from clearance (e.g. spraying).

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	M	Indigenous vegetation that is typical of regenerating forest and supports canopy species representative of the original vegetation in the ecological district.
Rarity	L/M	No rare species or habitats were observed. Indigenous forest is relatively uncommon in this part of Timaru District.
Diversity and pattern	L/M	Species diversity is substantially reduced from that originally present.
Distinctiveness/special features	M	These areas buffer small streams, provide useful habitat for forest birds and are actively regenerating.
Other Criteria		
Size/shape	M	These are small to moderate-sized areas that are very well buffered.
Connectivity	M	These areas lie close to one another and to other more important areas of indigenous forest which, collectively, form an important network of forest bird habitat.
Long-term Sustainability	M/H	Vegetation in these areas is actively regenerating. Some animal pest control will probably be required to maintain ecological values in the long term.

Final Consideration (of other matters: Section D, page B-19 of Timaru District Plan):

These SNAs occupy relatively inaccessible gullies or slopes that provide very little grazing and do not appear to be important for stock access or movement. These areas have little potential for farm development.

Discussion:

These areas meet the District Plan criteria for Significant Natural Areas. Important features of these areas are the presence of hardwood forest in a part of the District where indigenous forest is relatively uncommon, the habitat the areas provide for forest birds, the protection these areas provide to the small streams and the extent to which they are naturally buffered by steep slopes and/or dense scrub.

Scientific names of species cited by common name in this report

(Note: this is not a complete species list; it is a list only of species cited by common name in this report)

Common Name	Scientific name
(* = naturalised species)	
bidibid	<i>Acaena</i> sp.
bittersweet*	<i>Solanum dulcamara</i>
black nightshade*	<i>Solanum nigrum</i>
blue tussock	<i>Poa colensoi</i>
blue wheat grass	<i>Elymus solandri</i>
bracken	<i>Pteridium esculentum</i>
broadleaf	<i>Griselinia littoralis</i>
broom*	<i>Cytisus scoparius</i>
bush lawyer	<i>Rubus cissoides</i>
bush lily	<i>Astelia fragrans</i>
buttercup	<i>Ranunculus</i> sp.
cabbage tree/ti rakau	<i>Cordyline australis</i>
Californian thistle*	<i>Cirsium arvense</i>
catsear*	<i>Hypochoeris radicata</i>
clematis	<i>Clematis paniculata</i>
common shield fern	<i>Polystichum richardii</i>
creeping buttercup*	<i>Ranunculus repens</i>
elderberry*	<i>Sambucus nigra</i>
fescue tussock	<i>Festuca novae-zelandiae</i>
five-finger	<i>Pseudopanax arboreus</i>
foxglove*	<i>Digitalis purpurea</i>
fuchsia	<i>Fuchsia excorticata</i>
gorse*	<i>Ulex europaeus</i>
hairy pennywort	<i>Hydrocotyle moschata</i>
hard fern	<i>Paesia scaberula</i>
hawkbit*	<i>Leontodon taraxacoides</i>
hen and chickens fern	<i>Asplenium gracillimum</i>
hookgrass	<i>Uncinia</i> sp.
horehound*	<i>Marrubium vulgare</i>
horopito/pepperwood	<i>Pseudowintera colorata</i>
hound's tongue fern	<i>Microsorium pustulatum</i>
hybrid fuchsia	<i>Fuchsia perscandens x excorticata</i>
inaka	<i>Dracophyllum longifolium</i>
jointed rush*	<i>Juncus articulatus</i>
Khasia berry*	<i>Cotoneaster simonsii</i>
kiokio	<i>Blechnum novae-zelandiae</i>
korokio	<i>Corokia cotoneaster</i>
koromiko	<i>Hebe salicifolia</i>
kowhai	<i>Sophora microphylla</i>
lancewood	<i>Pseudopanax crassifolius</i>
lawyer	<i>Rubus schmidelioides</i>
leafless lawyer	<i>Rubus squarrosus</i>
lemonwood	<i>Pittosporum eugenioides</i>
lowland ribbonwood	<i>Plagianthus regius</i>
mahoe/whiteywood	<i>Melicytus ramiflorus</i>
male fern*	<i>Dryopteris filix-mas</i>
mapou	<i>Myrsine australis</i>
marbleleaf/putaputaweta	<i>Carpodetus serratus</i>
matagouri	<i>Discaria toumatou</i>
matai/black pine	<i>Prumnopitys taxifolia</i>
matipo/kohuhu	<i>Pittosporum tenuifolium</i>
mistletoe	<i>Ileostylis micranthus</i>
mountain akeake	<i>Olearia avicenniifolia</i>

mountain flax	<i>Phormium cookianum</i>
mountain kiokio	<i>Blechnum montanum</i>
mouse-ear chickweed*	<i>Cerastium fontanum</i>
mouse-ear hawkweed*	<i>Hieracium pilosella</i>
musk*	<i>Mimulus moschatus</i>
narrow-leaved lacebark	<i>Hoheria angustifolia</i>
narrow-leaved snow-tussock	<i>Chionochloa rigida</i>
native broom	<i>Carmichaelia aff. australis</i>
native convolvulus	<i>Calystegia tuguriorum</i>
native jasmine	<i>Parsonsia sp.</i>
necklace fern	<i>Asplenium flabellifolium</i>
oxalis	<i>Oxalis exilis</i>
pate	<i>Schefflera digitata</i>
patotara	<i>Leucopogon fraseri</i>
pennywort	<i>Hydrocotyle sp.</i>
perennial ryegrass*	<i>Lolium perenne</i>
poataniwha	<i>Melicope simplex</i>
pohuehue	<i>Muehlenbeckia australis</i>
porcupine shrub	<i>Melicytus alpinus</i>
poroporo	<i>Solanum laciniatum</i>
prickly shield fern	<i>Polystichum vestitum</i>
radiata pine*	<i>Pinus radiata</i>
rohutu	<i>Lophomyrtus obcordata</i>
sand spurrey*	<i>Spergularia rubra</i>
Scotch thistle*	<i>Cirsium vulgare</i>
scrub pohuehue	<i>Muehlenbeckia complexa</i>
sedge	<i>Carex sp.</i>
sheep's sorrel*	<i>Rumex acetosella</i>
silver tussock	<i>Poa cita</i>
soft rush*	<i>Juncus effusus</i>
soft tree fern	<i>Cyathea smithii</i>
Spanish heath*	<i>Erica lusitanica</i>
suckling clover*	<i>Trifolium dubium</i>
swamp kiokio	<i>Blechnum minus</i>
sweet brier*	<i>Rosa rubiginosa</i>
thousand-leaved fern	<i>Hypolepis millefolium</i>
toatoa	<i>Haloragis erecta</i>
totara	<i>Podocarpus totara</i>
velvety nightshade*	<i>Solanum chenopodioides</i>
wall lettuce*	<i>Mycelis muralis</i>
water cress*	<i>Rorippa microphylla</i>
water fern	<i>Histiopteris incisa</i>
weeping mapou	<i>Myrsine divaricata</i>
white clover*	<i>Trifolium repens</i>
white fuzzweed	<i>Vittadina australis</i>
wineberry	<i>Aristolelia serrata</i>
wire moss	<i>Polytrichum juniperinum</i>
woolly mullein*	<i>Verbascum thapsus</i>
Yorkshire fog*	<i>Holcus lanatus</i>