

TIMARU DISTRICT
SIGNIFICANT NATURAL AREAS
SURVEY

PEARCE PROPERTY
RAYDON



Report prepared for Timaru District Council by Mike Harding
July 2014

TIMARU DISTRICT SIGNIFICANT NATURAL AREAS SURVEY

PROPERTY REPORT

PROPERTY DETAILS:

Owner: William Pearce
Valuation Reference: ...24810/031.00
Address: Three Mile Bush Road
Location: Northwest slopes of Brothers Range
Ecological District: Geraldine
TDC Land Type:..... 'Soft Rock Hills and Downs'
Land Environments: N3.1a and Q2.1c

ECOLOGICAL CONTEXT:

The property lies on the northwest slopes of the Brothers Range, west of Totara Valley. It lies on the boundary of Geraldine and Fairlie ecological districts (McEwen, 1987). Lower-altitude parts of the property lie in the N3.1a Level IV Land Environment as defined by Leathwick *et al* (2003). Indigenous vegetation within the N3.1a land environment is regarded as acutely-threatened (Walker *et al*, 2005).

It is likely that the original vegetation of this area was predominantly podocarp-hardwood forest, dominated by matai, totara, kowhai, broadleaf and other hardwood trees. Shrubland, treeland and tussockland may have occupied steeper slopes and disturbed sites.

Today the original forest cover in this part of the Geraldine and Fairlie ecological districts is largely confined to remnants in gullies or on steep slopes. 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 forest, shrubland and sparsely vegetated rockland associated with bluffs. The property lies near to areas of indigenous forest, shrubland and rockland vegetation on other properties, contributing to the network of fauna habitat in the wider area.

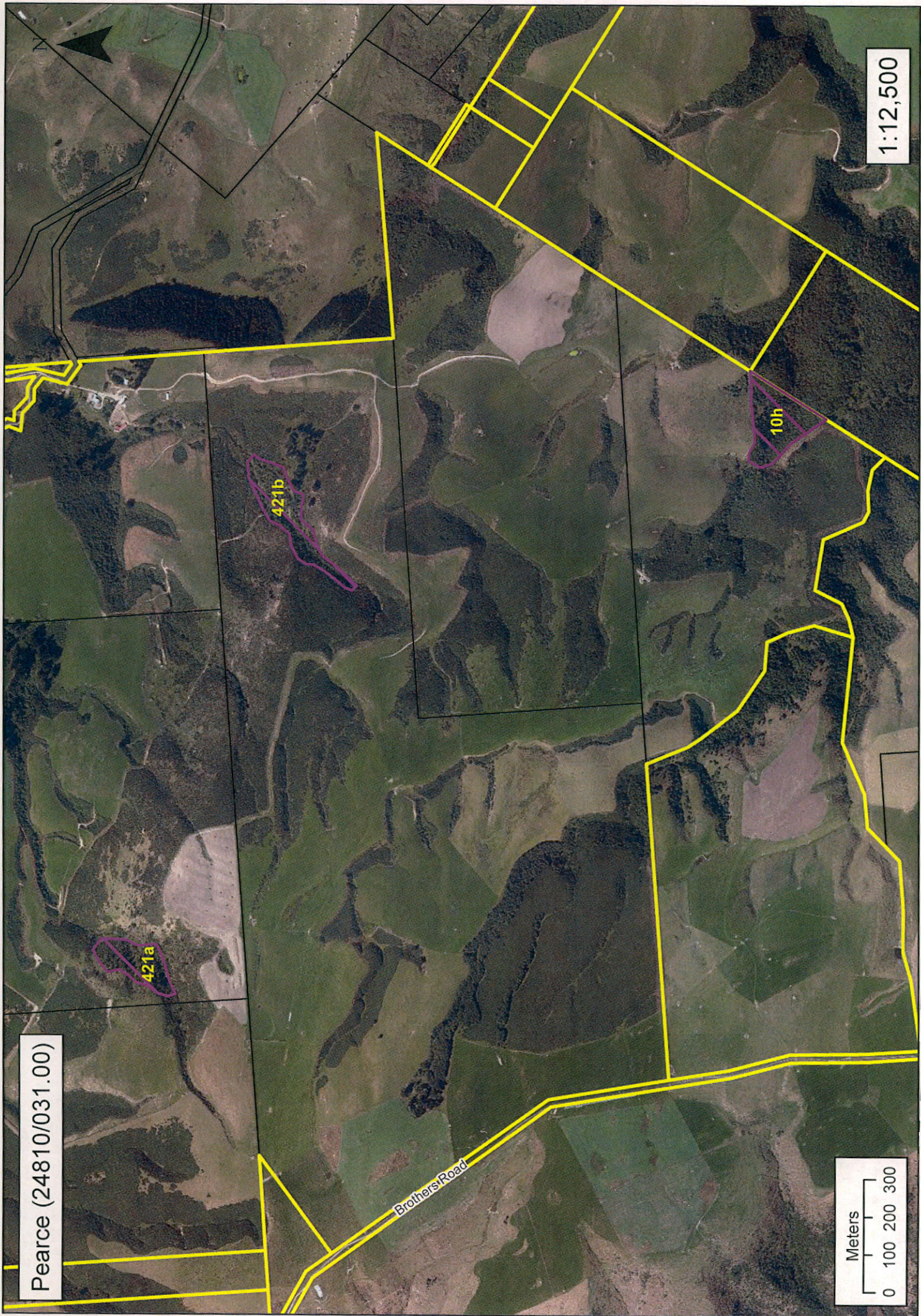
The property was surveyed as part of the District-wide survey of Significant Natural Areas during May 2014. Four areas, comprising approximately 12 hectares, are regarded as Significant Natural Areas (SNAs) when assessed against the District Plan criteria. These SNAs are listed in the table below. One SNA (434a) straddles the northern property boundary.

Area No.	Area Name	Map reference (NZTM)	Aprox. size (ha)	Vegetation/habitat type
10h	Pearce southern gully	1434530E-5099330N	2.69	hardwood forest
421a	Pearce upper gullies	1433230E-5199850N	1.86	hardwood forest
421b	Pearce upper gullies	1434300E-5100490N	2.79	hardwood forest
434a	Three Mile Bush gully	1434110E-5101925N	c.5	podocarp-hardwood forest

The boundaries of these SNAs are illustrated on the aerial photographs and the values described 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.

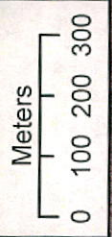
At present, consent is required from Council for clearance of areas of indigenous vegetation or habitat which meet the Interim Definitions in the District Plan. Clearance includes burning, track construction, spraying with herbicides and over-planting.

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.



Pearce (24810/031.00)

1:12,500



Brothers Road

TIMARU DISTRICT SNA SURVEY

SNA 10h

Area Name: Pearce southern gully
Map ref. (NZTM): 1434530E-5099330N
Ecological District: Fairlie
Surveyors: Mike Harding

Property: Raydon (Pearce)
Nearest Locality: Totara Valley
Area Size (ha): 2.69 **Altitude (m):** 340-360
Survey Time: 1 hour **Survey Date:** 12-05-14

General Description:

This SNA lies on the steep slopes of a small valley at the southern part of the property. This is part of a much larger area of forest on the adjacent property, most of which is protected by a QEII covenant.

Plant Communities:

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

Matipo is the dominant canopy species over much of the area. Other canopy species are mapou, kowhai, broadleaf, five-finger, lemonwood, lancewood, marbleleaf, mahoe, kanuka (at the forest margin), bush lawyer, native jasmine and one large radiata pine* tree.

Understorey and groundcover species are *Coprosma rhamnoides*, *Coprosma crassifolia*, mapou, poataniwha, elderberry*, bush lawyer, prickly shield fern, hound's tongue fern, hen and chickens fern, *Asplenium richardii*, necklace fern, *Hypolepis ambigua*, mountain kiokio, pennywort and seedlings of mahoe, mapou, clematis, native jasmine and *Coprosma* species.

Additional species present near the stream are fuchsia, pate, *Carex secta*, bush lily and *Blechnum fluviatile*. Gorse scrub is present at the forest margin. Other plant species here are Himalayan honeysuckle*, *Hypolepis ambigua*, water fern, foxglove* and velvety nightshade*.



SNA 10h

Birds/Fauna Observed:

Native birds observed during this brief survey were fantail, rifleman, bellbird and grey warbler. Other species likely to be present are kereru, silvereye and harrier.

Notable Flora, Fauna and Habitats:

Important features of this area are that it is relatively intact hardwood forest providing habitat for birds, including rifleman (at 'at risk' species) and that it is part of a larger area of protected forest.

Notable Plant and Animal Pests:

Gorse and Himalayan honeysuckle are present at the forest margin, though these species do not pose a significant threat to the forest. Animal pests were not surveyed, though a dead wallaby was seen.

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

The boundaries of this area are the upper edges of the steep slopes of the gully. Parts of the boundary are fenced. Forest at the site is well buffered by its location in a sheltered gully.

Condition and Management Issues:

Continued control of wild animals and protection of understorey vegetation from grazing are the most important management issues.

Property Owner Comment:

Mr Pearce understands that this area is protected as part of the QEII covenant, though Council records do not show it as a protected area.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	M	A good example of indigenous forest typical of this part of the ecological district.
Rarity	M	Provides habitat for an 'at risk' (declining) bird species (rifleman).
Diversity and pattern	L/M	Plant species diversity is relatively low.
Distinctiveness/special features	M	Kowhai at the site provides an important seasonal food source for birds.
Other Criteria		
Size/shape	M	A small area but well buffered by its location.
Connectivity	M	Is part of a larger area of forest.
Long-term Sustainability	M	Continued wild animal control will be necessary to protect ecological values.

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

This area has been set aside (and understood to be protected) by the landowner. Steep rocky slopes mean the site has very limited potential for further development.

Discussion:

This area meets the District Plan criteria for a Significant Natural Area. Important features of the area are that it is relatively intact hardwood forest providing habitat for birds, including rifleman (an 'at risk' species) and that it is part of a larger area of forest.

TIMARU DISTRICT SNA SURVEY

SNAs 421a and 421b

Area Name: Pearce Upper Gullies

Ecological District: Fairlie

421a: map ref. (NZTM): 1433230E-5100950N

421b: map ref. (NZTM): 1434300E-5100490N

Surveyors: Mike Harding

Property: Raydon (Pearce)

Nearest Locality: Totara Valley

Area Size (ha): 1.86 **Altitude (m):** 420-500

Area Size (ha): 2.79 **Altitude (m):** 350-400

Survey Time: 2 hours **Survey Date:** 27-05-14

General Description:

These two SNAs lie on steep rocky slopes in small incised gullies on the northwest flank of the Brothers Range. They are linked by an extensive area of gorse scrub, and lie reasonably close to other areas of indigenous vegetation.

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:

Forest patches at these sites are dominated by kowhai or broadleaf. The canopy of kowhai forest is dominated solely by kowhai. Other canopy species in broadleaf-dominated forest are lancewood, cabbage tree, lemonwood, matipo, mahoe, mapou, marbleleaf, bush lawyer and pohuehue. Forest at both sites has an open understorey. Species present are *Coprosma crassifolia*, mingimingi and bush lawyer.

Ground-cover at gentler sites is dominated by pasture. Plant species present at other sites are pennywort, hairy pennywort, button fern, *Asplenium bookerianum*, *Asplenium richardii* and common shield fern. These forest communities grade to shrubland and scrub (described below). Other species present at the forest margins are scrambling fuchsia, horehound*, black nightshade*, toatoa and thousand-leaved fern.



SNA 421b: dense kowhai forest (foreground); broadleaf forest (in gully)

Shrubland/scrub:

Important species in this plant community are mingimingi, *Coprosma crassifolia*, *Coprosma dumosa*, matagouri, gorse*, porcupine shrub, scrub pohuehue and silver tussock. Other species present are pohuehue, foxglove*, *Dichondra repens*, hairy pennywort, *Stellaria gracilentia*, necklace fern, *Blechnum penna-marina*, *Asplenium bookerianum*, common shield fern, *Hypolepis ambigua*, blue tussock, golden speargrass and mistletoe.

Birds/Fauna Observed:

Native birds observed during this brief survey were bellbird, silvereye, fantail, rifleman and harrier. Other species likely to be present are kereru and grey warbler.

Notable Flora, Fauna and Habitats:

Important features at these two sites are the dominance of kowhai (an important seasonal food source for birds) and the habitat the areas provide for rifleman (an 'at risk' species).

Notable Plant and Animal Pests:

Gorse is present at the margins of these sites. It does not pose a significant threat to the indigenous woody vegetation; in fact, it provides useful buffering and favourable habitat for forest regeneration. Animal pests were not surveyed, though goats, fallow deer and wallabies were observed. Possums are also likely to be present.

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

Both areas are unfenced and grazed as part of large paddocks. However, grazing pressure is relatively low. The areas are surrounded by gorse scrub and/or rough pasture.

Condition and Management Issues:

These areas of indigenous woody vegetation have persisted and/or regenerated due to the steep rocky terrain. The main management issues are encouraging regeneration of understorey vegetation and containment or control of wild animals (notably wallabies and goats). The gorse scrub that surrounds these areas is providing useful buffering.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	M	Typical examples of indigenous vegetation at steep rocky sites in this part of the ecological district.
Rarity	M/H	Indigenous vegetation in an 'acutely-threatened' land environment; provides habitat for an 'at risk' (declining) bird species (rifleman).
Diversity and pattern	M	Plant species diversity is moderate, and reduced from that originally present.
Distinctiveness/special features	M	The dense stands of kowhai are a special feature.
Other Criteria		
Size/shape	M	Relatively small areas that are well buffered.
Connectivity	M	The areas are quite close to other areas of indigenous vegetation.
Long-term Sustainability	M	Containment or control of wild animals and/or stock will be necessary to protect ecological values in the long term.

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

These areas have been informally protected by the landowner. Both are located at sites that are too steep and rocky to be useful for farm development.

Discussion:

These areas meet the District Plan criteria for Significant Natural Areas. Important features of the areas are the dominance of kowhai (an important seasonal food source for birds) and the habitat the areas provide for rifleman (an 'at risk' species).

Allan (24810/022.00) &
Pearce (24810/031.00)

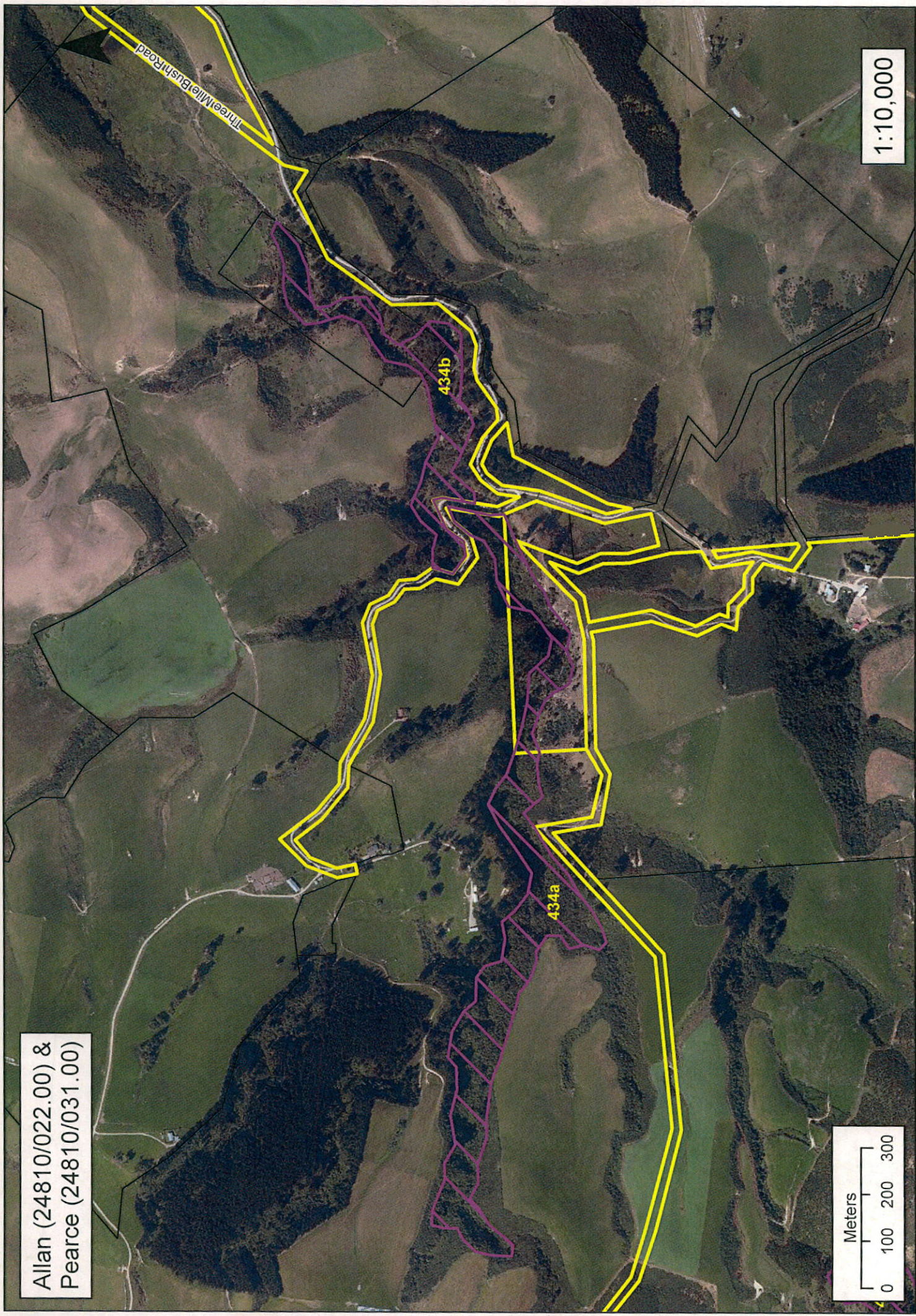
Three Mile Bush Road

434b

434a



1:10,000



TIMARU DISTRICT SNA SURVEY

SNA 434a and 434b

Area Name: Three Mile Bush Gully
Ecological District: Geraldine
434a: map ref. (NZTM): 1434110E-5101720N
434b: map ref. (NZTM): 1435225E-5101925N
Surveyors: Mike Harding

Properties: The Brothers and Raydon
Nearest Locality: Totara Valley
Area Size (ha): 13.46 **Altitude (m):** 220-380
Area Size (ha): 6.06 **Altitude (m):** 180-240
Survey Time: 3 hours **Survey Date:** 23-05-14

General Description:

These SNAs lie on the steep slopes of a deeply incised valley on the property boundary between The Brothers and Raydon. SNA 434a covers the upper valley and SNA 434b covers the lower valley.

Plant Communities:

Two main plant communities are present: scattered podocarp forest/treeland; and younger hardwood forest with scattered podocarps. Also present, especially in the lower valley, are areas of pasture and steep rocky slopes. Gorse scrub is present at some forest margins. These plant communities are described below. Naturalized (exotic) species are indicated with an asterisk*.

Hardwood forest (SNA 434a):

This plant community is most common in the upper valley. Plant species in the forest canopy are totara, kowhai, lemonwood, lancewood, mahoe, matipo, mapou, five-finger, broadleaf, wineberry, fuchsia, pate, Himalayan honeysuckle*, yellowwood, cabbage tree, pohuehue, native jasmine, bush lawyer and one emergent matai tree. Large radiata pine* trees are present, notable along the edges of the valley. Tall kanuka is present at the forest margin.

Common understorey species are *Coprosma rhamnoides*, *Coprosma crassifolia*, mapou, mahoe, marbleleaf, yellowwood and poataniwha. Groundcover species are hound's tongue fern, hen and chickens fern, necklace fern, *Asplenium hookerianum*, *Asplenium richardii*, common shield fern, mountain kiokio, button fern, *Libertia ixioides*, bush lily, *Carex forsteri*, hookgrass, *Lagenifera strangulata*, pennywort, hairy pennywort, *Dichondra repens* and seedlings of kowhai, broadleaf, mahoe, mapou, yellowwood, five-finger, pohuehue, native jasmine and *Coprosma* species.

Upper part of SNA 434a



Plant species present at the forest margin are leafless lawyer, mingimingi, *Coprosma crassifolia*, *Helichrysum lanceolatum*, korokio, dwarf mistletoe, poroporo, gorse*, blackberry*, black nightshade*, selfheal* and Chilean flame creeper*.

Podocarp-hardwood forest/treeland:

This plant community is present at SNA 434b and at the lower parts of SNA 434a. It is a patchy community, ranging from denser stands of forest to open land with scattered trees.

Tall totara, narrow-leaved lacebark, kowhai, kanuka and radiata pine* trees are present throughout. Other canopy species are broadleaf, mapou, matipo, five-finger, cabbage tree, lancewood, fuchsia, pate, Himalayan honeysuckle*, pohuehue, native jasmine, bush lawyer and Chilean flame creeper*. The understorey and groundcover vegetation at denser stands of forest is similar to that described above. Additional species recorded on river terraces were weeping mapou, *Raukawa anomalus*, *Hypolepis ambigua*, bidibid and *Blechnum fluviatile*.

Additional species present near the stream are *Blechnum chambersii*, creeping buttercup* and *Carex secta*. Additional species at open rocky sites are native broom, matagouri, porcupine shrub, cardamine, *Euchiton audax*, *Lagenifera strangulata* and *Crassula sieberiana*.

Forest margins and open sites support regenerating forest and shrubland species. Commonly present are gorse*, broom*, mingimingi, *Coprosma crassifolia*, poroporo, scrub pohuehue, prickly shield fern, common shield fern, bracken, male fern*, blackberry*, foxglove*, woolly mullein* and thistles*. The open area near the cob cottage (on Raydon) is more modified. Additional species here are silver wattle*, periwinkle* and two large walnut* trees.



Tall narrow-leaved lacebark, totara and kowhai at SNA 434b

Birds/Fauna Observed:

Native birds observed during this survey were bellbird, fantail, grey warbler, silvereye, kereru, rifleman and harrier.

Notable Flora, Fauna and Habitats:

Important features of these areas are: the presence and relative abundance of podocarp trees (totara and matai); the diversity of plant species present; the habitat the areas provide for forest birds, including an 'at risk' (declining) species (rifleman); and that the areas lie within an 'acutely threatened' land environment.

Notable Plant and Animal Pests:

A number of naturalized plants are present in these areas, especially at the more modified parts in the lower valley. Tall pine trees are present in all except the upper valley. Gorse, broom and blackberry are common at the forest margins and in forest openings. Other important plant pests are Himalayan honeysuckle, Chilean flame creeper and, at the cob cottage, periwinkle and silver wattle. Animal pests were not surveyed, though wallabies were observed and possums are present. Mr Allan advises that goats were previously common in the upper valley.

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

These SNAs lie within an incised valley and are buffered and protected to some extent by their location. The gorge sides are mostly fenced. Vegetation in the upper valley is further buffered by gorse scrub. Vegetation in the lower valley is more scattered and open, and grazed.

Condition and Management Issues:

Vegetation at upper parts of the area (SNA 434a) is in relatively good condition. Vegetation at lower parts is more modified. Important management issues are continued control of wild animals (especially wallabies, goats and possums), protection of understorey vegetation in the lower valley from intensive grazing, and containment of invasive plant pests such as silver wattle.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	M/H	Indigenous vegetation typical of that remaining at lower-altitude parts of the ecological district, including podocarp trees.
Rarity	M/H	Indigenous vegetation in an 'acutely-threatened' land environment.
Diversity and pattern	M/H	Several distinct plant communities are present; relatively high plant species diversity (c.63 species).
Distinctiveness/special features	M	The number of totara trees is a notable feature. Kowhai and totara provide valuable food for birds.
Other Criteria		
Size/shape	M/H	Moderate-sized areas that are well buffered by their location.
Connectivity	M	Lie reasonably close to other areas of indigenous vegetation.
Long-term Sustainability	M	Continued animal pest control and probably some plant pest control will be required to protect ecological values in the long term.

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

Vegetation in these areas has been informally protected by the landowners. The steep-sides of the valley are unsuitable for farm development. There has been a long history of occupation and use, notably in the vicinity of the cob cottage, and consequently a greater number of naturalized plant species is present.

Discussion:

These areas meet the District Plan criteria for Significant Natural Areas. Important features are the presence of indigenous vegetation in an 'acutely threatened' land environment, the presence and relative abundance of podocarp trees (especially totara), the diversity of plant species and the habitat the areas provide for forest birds, including rifleman.

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.
blackberry*	<i>Rubus fruticosus</i>
black nightshade*	<i>Solanum nigrum</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>
button fern	<i>Pellaea rotundifolia</i>
cabbage tree/ti rakau	<i>Cordyline australis</i>
cardamine	<i>Cardamine debilis</i>
Chilean flame creeper*	<i>Tropaeolum speciosum</i>
clematis	<i>Clematis paniculata</i>
common shield fern	<i>Polystichum richardii</i>
creeping buttercup*	<i>Ranunculus repens</i>
dwarf mistletoe	<i>Korthalsella lindsayi</i>
elderberry*	<i>Sambucus nigra</i>
five-finger	<i>Pseudopanax arboreus</i>
foxglove*	<i>Digitalis purpurea</i>
fuchsia	<i>Fuchsia excorticata</i>
golden speargrass	<i>Aciphylla aurea</i>
gorse*	<i>Ulex europaeus</i>
hairy pennywort	<i>Hydrocotyle moschata</i>
hen and chickens fern	<i>Asplenium gracillimum</i>
Himalayan honeysuckle*	<i>Leycesteria formosa</i>
hookgrass	<i>Uncinia</i> sp.
horehound*	<i>Marrubium vulgare</i>
hound's tongue fern	<i>Microsorium pustulatum</i>
kanuka	<i>Kunzea ericoides</i>
korokio	<i>Corokia cotoneaster</i>
kowhai	<i>Sophora microphylla</i>
lancewood	<i>Pseudopanax crassifolius</i>
leafless lawyer	<i>Rubus squarrosus</i>
lemonwood	<i>Pittosporum eugenioides</i>
mahoe/whiteywood	<i>Melicactus 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>
mingimingi	<i>Coprosma propinqua</i>
mistletoe	<i>Ileostylis micranthus</i>
mountain kiokio	<i>Blechnum montanum</i>
narrow-leaved lacebark	<i>Hoheria angustifolia</i>
native broom	<i>Carmichaelia aff. australis</i>
native jasmine	<i>Parsonsia</i> sp.
necklace fern	<i>Asplenium flabellifolium</i>
pate	<i>Schefflera digitata</i>
pennywort	<i>Hydrocotyle</i> sp.
periwinkle*	<i>Vinca major</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>
scrambling fuchsia	<i>Fuchsia perscandens</i>
scrub pohuehue	<i>Muehlenbeckia complexa</i>
selfheal*	<i>Prunella vulgaris</i>
silver tussock	<i>Poa cita</i>
silver wattle*	<i>Acacia dealbata</i>
thousand-leaved fern	<i>Hypolepis millefolium</i>
toatoa	<i>Haloragis erecta</i>
totara	<i>Podocarpus totara</i>
velvety nightshade*	<i>Solanum chenopodioides</i>
walnut*	<i>Juglans regia</i>
water fern	<i>Histiopteris incisa</i>
weeping mapou	<i>Myrsine divaricata</i>
wineberry	<i>Aristotelia serrata</i>
woolly mullein*	<i>Verbascum thapsus</i>
yellowwood	<i>Coprosma linariifolia</i>

References Cited

Leathwick, J; Wilson, G; Rutledge, D; Wardle, P; Morgan, F; Johnston, K; McLeod, M; Kirkpatrick, R. 2003. *Land Environments of New Zealand*. David Bateman Ltd.

McEwen, WM (editor). 1987. Ecological regions and districts of New Zealand, third revised edition (Sheet 4). *New Zealand Biological Resources Centre Publication No. 5*. Department of Conservation, Wellington, 1987.

Walker, S.; Price, R.; Rutledge, D. 2005. New Zealand's remaining indigenous vegetation cover: recent changes and biodiversity protection needs. *Landcare Research Contract Report LC0405/038*.