

**TIMARU DISTRICT**  
**SIGNIFICANT NATURAL AREAS**  
**SURVEY**

**TOWNLEY PROPERTY**



Report prepared for Timaru District Council by Mike Harding  
July 2014



# TIMARU DISTRICT SIGNIFICANT NATURAL AREAS SURVEY

## PROPERTY REPORT

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### PROPERTY DETAILS:

**Owner:** ..... EG & MJ Townley  
**Valuation Reference:** ... 24670/030.00  
**Address:** ..... Te Moana Road  
**Location:** ..... Lower northwest slopes of Waitohi Hill  
**Ecological Districts:** ..... Boundary of Orari and Geraldine  
**TDC Land Type:**..... 'Soft Rock Hills and Downs'  
**Land Environments:** ..... N2.1d and Q2.1a

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### ECOLOGICAL CONTEXT:

The property lies on the lower northwest slopes of the Waitohi Hill in Pleasant Valley, Te Moana. It lies on the boundary of Geraldine and Orari ecological districts (McEwen, 1987). Lower-altitude parts of the property lie in the N2.1d and upper slopes within the Q2.1a Level IV Land Environments as defined by Leathwick *et al* (2003). Indigenous vegetation within the N2.1d land environment is regarded as acutely-threatened (Walker *et al*, 2005), as less than 10% of this vegetation remains nationally.

It is likely that the original vegetation of this area was predominantly podocarp-hardwood forest, dominated by kahikatea, matai, totara, kowhai, broadleaf, lowland ribbonwood and other hardwood trees. Kanuka and manuka low-forest/shrubland may have occupied disturbed sites. Sedgeland and rushland (wetland) vegetation would have been present at poorly drained valley-floor sites.

Today the original forest cover in this part of the Geraldine and Orari 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. The property lies within the known range of long-tailed bat (at nationally threatened species), though it is possible that bats are no longer present in the area.

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### SIGNIFICANT AREAS ON THE PROPERTY:

Indigenous vegetation on the property comprises remnant podocarp forest, regenerating podocarp-hardwood forest and kanuka forest. Indigenous vegetation on the property adjoins other areas of indigenous forest in Geraldine Forest (Blakely Pacific) and contributes 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 July 2014. Two areas, comprising approximately 23 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	Map reference (NZTM)	Aprox. size (ha)	Vegetation/habitat type
49b		1448665E-5119740N	19.58	Podocarp-hardwood forest
49c		1449200E-5120050N	3.6	Podocarp forest remnant

The boundaries of these SNAs are illustrated on the aerial photograph 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.



*Clumps of white mistletoe (left) and green mistletoe (right) at SNA 49c*

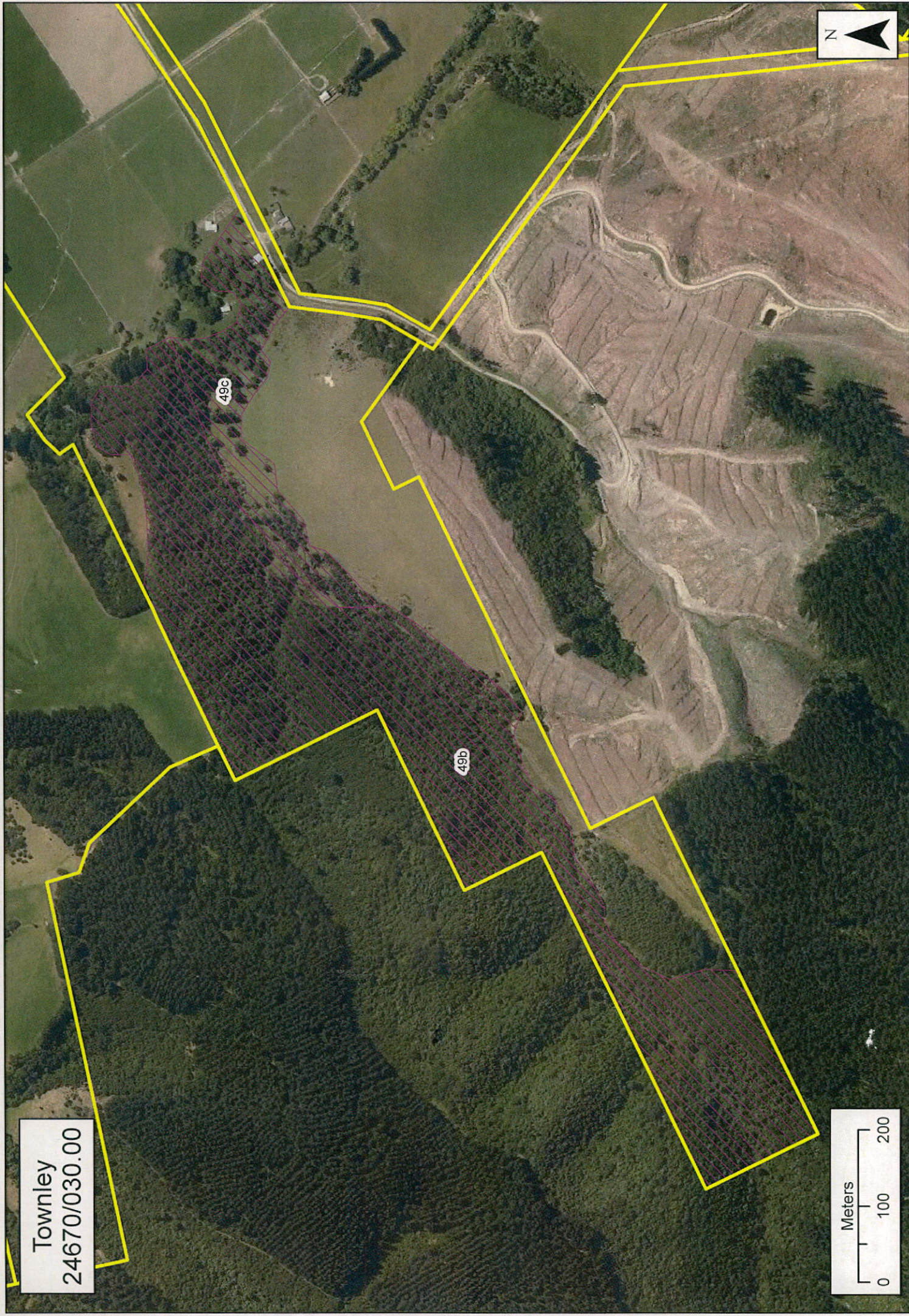
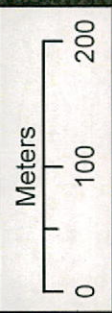




Townley  
24670/030.00

49c

49b





<b>Area Name:</b>	<b>Property:</b> EG & MJ Townley
<b>Central map ref (NZTM):</b> 1448665E5119740N	<b>Nearest Locality:</b> Te Moana
<b>Ecological District:</b> Orari	<b>Area Size (ha):</b> 19.58 <b>Altitude (m):</b> 250-360
<b>Surveyors:</b> Mike Harding	<b>Survey Time:</b> 4 hours <b>Survey Date:</b> 18-07-14

**General Description:**

This SNA lies on moderately steep southeast-facing slopes at the northwest part of the property. It is part of a larger area of indigenous forest that extends onto the adjacent property: Blakely Pacific's Geraldine Forest. It also adjoins grazed indigenous forest remnants on the valley floor, which are described separately as SNA 49c.

**Plant Communities:**

Two main plant communities are present: podocarp-hardwood forest and kanuka forest. The main central part of the forest is regenerating hardwood forest with young podocarps. Older forest is present in the upper valley at the western part of the site. Here older podocarp trees (kahikatea, matai and totara) are emergent over a hardwood canopy. Kanuka is the dominant canopy species on part of the northwest-facing slope in the upper valley and at other locations at the down-valley (east) part of the site. These forest communities are described below. Naturalized (exotic) species are indicated with an asterisk\*.

Podocarp-hardwood forest:

This is the most extensive forest community. The forest canopy is dominated by mahoe. Other canopy species are mapou, broadleaf, lemonwood, fuchsia, five-finger, narrow-leaved lacebark, pokaka, rohutu, marbleleaf, cabbage tree, lancewood, wineberry, kanuka (especially at forest margins), kowhai, kahikatea, totara, supplejack, pohuehue, bush lawyer and native jasmine. A few isolated radiata pine\* trees are present at the central part of the forest.

The most common forest understorey species is *Coprosma rotundifolia*. Other understorey species are *Coprosma rhamnoides*, *Coprosma crassifolia*, mahoe, poataniwha, rohutu, turepo, soft tree fern, white climbing rata, supplejack, *Neomyrtus pedunculata* (uncommon), *Clematis marata*, bush lawyer and saplings of totara and kahikatea. Additional understorey species present in the un-grazed central part of the forest are mapou, marbleleaf, *Coprosma propinqua*, five-finger, matipo, lemonwood, horopito, pate, silver fern, lancewood, wineberry, matai, clematis and tutsan\*.

Ground-cover species are *Asplenium bookerianum*, *Asplenium richardii*, hen and chickens fern, prickly shield fern, common shield fern, button fern, *Blechnum fluviatile*, *Blechnum chambersii*, *Blechnum procerum* and seedlings of wineberry, soft tree fern, clematis, fuchsia, marbleleaf, kahikatea, totara, supplejack and *Coprosma* species. Additional forest-floor species present in the un-grazed central part of the forest are hound's tongue fern, *Leptopteris hymenophylloides*, mountain





kiokio, swamp kiokio, crown fern, hanging spleenwort, *Carex forsteri*, *Libertia ixioides*, bush lily, hookgrass and seedlings of mapou, cabbage tree, five-finger, matipo and native jasmine.

Species present on the forest margin and in forest openings are *Coprosma propinqua*, *Coprosma rigida*, pate, *Hypolepis ambigua*, *Hypolepis rufobarbata*, water fern, mountain kiokio, *Blechnum penna-marina*, necklace fern, *Hymenophyllum demissum*, hard fern, bracken, bidibid, cardamine, foxglove\*, velvety nightshade\*, poroporo, Himalayan honeysuckle\*, *Clematis foetida*, native bindweed, lawyer, gorse\*, blackberry\*, hairy pennywort and pennywort.

#### Tall upper-valley kanuka forest:

This area of forest lies on northwest-facing slopes just up-valley from a mixed species exotic plantation on the property. It merges with the older podocarp-hardwood forest in the upper valley. It is dominated by tall old kanuka trees. Trunk diameters (at breast height) of the larger kanuka trees are between 25 and 40cm. Other canopy species are matipo, lemonwood, five-finger, lancewood, marbleleaf, matai, bush lawyer and pohuehue.

The forest understorey is dominated in most places by *Coprosma rhamnoides*. Other understorey species are *Coprosma rotundifolia*, *Coprosma crassifolia*, mahoe, mapou, lemonwood, horopito, five-finger, pokaka, broadleaf and lancewood.

Species present on the forest floor are *Blechnum fluviatile*, swamp kiokio, *Blechnum procerum*, crown fern, prickly shield fern, hen and chickens fern, *Leptopteris hymenophylloides*, water fern, bush rice grass, hookgrass and seedlings of pate, lemonwood, soft tree fern, marbleleaf, mahoe, horopito, totara, matai, supplejack, native jasmine and *Coprosma* species.



*kanuka forest understorey vegetation*

#### Upper-valley podocarp-hardwood forest:

Only a small part of this forest was inspected, on the valley floor adjacent to the tall kanuka forest. It has a similar species composition to the podocarp-hardwood forest down-valley except for the following important differences.

The forest canopy is broken by tall emergent trees of kahikatea, totara, matai, pokaka and narrow-leaved lacebark. There is abundant podocarp regeneration in the forest understorey, especially kahikatea. A number of understorey species that are generally uncommon in the area are present and locally abundant, including *Coprosma rubra*, *Neomyrtus pedunculata*, supplejack, soft tree fern, crown fern, bush rice grass and bush lily. There is also a rich moss and lichen flora, including the drooping *Weymouthia mollis* moss hanging from tree branches, the loose forest-floor *Thuidium* sp. moss and the fleshy lichen *Pseudocyphellaria rufovirescens* on tree trunks.

#### **Birds/Fauna Observed:**

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



### Notable Flora, Fauna and Habitats:

Important features of this area are the extent of the forested area, the presence of old podocarp trees, six locally-uncommon plant species (*Coprosma rubra*, silver fern, *Hymenophyllum demissum*, *Hypolepis rufobarbata*, rohutu and bush rice grass), the plant species diversity (75 indigenous vascular species), healthy forest regeneration (especially in the upper valley), and the habitat the area provides for forest birds, including an 'at risk' (declining) species (rifleman).

### Notable Plant and Animal Pests:

The forest area is largely free of naturalized plant species and those that are present (radiata pine, Himalayan honeysuckle, gorse, blackberry and tutsan) are very uncommon or confined to the forest margin. Animal pests were not surveyed, though pig rooting was observed on the northern forest boundary, possum sign in the forest and deer sign in the upper valley. The lower-valley (east) part of the forest is grazed by chamois and the forest understorey vegetation is substantially depleted.

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



The upper (northwest) boundary of the area is contiguous with similar indigenous forest on the adjacent property (SNA 49a). The lower (southeast) boundary is generally along the valley floor except in the upper valley where it adjoins recently-felled plantation forest. The lower boundary is fenced, excluding stock from most parts of the area. Another fence separates forest at the eastern end of the site and this part is grazed by chamois. Remnant grazed podocarp-hardwood forest lies adjacent on the valley floor at the eastern (down-valley) part of the site (SNA 49c).

*Open understorey of the grazed forest*



*Understorey vegetation in the adjacent un-grazed area*

### Condition and Management Issues:

Forest at most parts of the site is in very good condition, especially forest in the upper valley. There is a healthy forest understorey and abundant regeneration of canopy species. The exception is the fenced eastern portion of the forest which is grazed by chamois. Here, the forest understorey is depleted, though there is still some regeneration of canopy species. Mr Townley advises that the upper-valley forest has been fenced from grazing for nine years. This appears to have been very beneficial to forest health. The main management issues are continued control of wild animals (especially possums and feral pigs) and removal or careful management of grazing at the eastern part of the forest.



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**ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:**

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<b>Primary Criteria</b>	<b>Rank</b>	<b>Notes</b>
Representativeness	<b>H</b>	Upper-valley parts of the forest are highly representative of the original forest; lower-valley parts are moderately representative, though typical of that remaining in the ecological district.
Rarity	<b>M/H</b>	Supports populations of six locally-uncommon plant species; provides good habitat for an 'at risk' (declining) bird species (rifleman).
Diversity and pattern	<b>H</b>	Plant species diversity is high (75 indigenous vascular species).
Distinctiveness/special features	<b>M/H</b>	The healthy condition of the upper-valley forest is a special feature.
<b>Other Criteria</b>		
Size/shape	<b>H</b>	A relatively large area that is well buffered by its location.
Connectivity	<b>M/H</b>	Adjoins other indigenous forest along half of its boundary.
Long-term Sustainability	<b>M/H</b>	Some animal pest control may be necessary to maintain ecological values in the long term.

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

This area has been deliberately set aside and protected from grazing, except for a small part that is grazed by chamois. It is one of the more intact and diverse forest remnants in this part of the ecological district. Most parts of the area have only limited potential for farm development.

**Discussion:**

This area easily meets the District Plan criteria for a Significant Natural Area. Important features of the area are the presence of old podocarp trees, high plant species diversity (75 indigenous vascular species), six locally-uncommon plant species, the habitat the area provides for forest birds, healthy forest regeneration (especially in the upper valley) and the size of the forested area.



<b>Area Name:</b>	<b>Property:</b> EG & MJ Townley
<b>Map ref. (NZTM):</b> 1449200E-5120050N	<b>Nearest Locality:</b> Te Moana
<b>Ecological District:</b> Geraldine	<b>Area Size (ha):</b> 3.6 <b>Altitude (m):</b> 230-250
<b>Surveyors:</b> Mike Harding	<b>Survey Time:</b> 1½ hours <b>Survey Date:</b> 18-07-14

**General Description:**

This SNA lies on the valley floor on an alluvial terrace. It extends from the farm buildings up valley adjacent to the lower boundary of SNA 49b. It is described separately from SNA 49b because it lies on a different landform, is within a different Land Environment and is more representative of vegetation within the Geraldine Ecological District.

**Plant Communities:**

The main plant community present is podocarp-hardwood forest. It is a remnant of the original forest and comprises large old trees with an open grazed understorey. Many of the trees are likely to be hundreds of years and probably pre-date European settlement of the area.

The most common canopy species are kowhai, kahikatea and totara. Other canopy species are lowland ribbonwood, narrow-leaved lacebark, kanuka, broadleaf, mahoe, mapou, cabbage tree, lemonwood, fuchsia, native jasmine and pohuehue. Trunk diameters (at breast height) of the larger trees are: kowhai, 50-70cm; kahikatea, 75-105cm; totara, 70-90cm, and lowland ribbonwood, 65-75cm.

Two indigenous species of mistletoe are present on the trees: green mistletoe (*Ileostylis micranthus*), which is present on a number of trees; and, white mistletoe (*Tupeia antarctica*), which is present on one narrow-leaved lacebark tree at the eastern edge of the forest. White mistletoe is an 'at risk' (declining) species (de Lange *et al*, 2012). The forest understorey is open. Plant species occasionally present are *Coprosma rotundifolia*, *Coprosma propinqua* and poataniwha. The forest floor is dominated by pasture grasses.

**Birds/Fauna Observed:**

Native birds observed during this brief survey were bellbird and kereru/NZ pigeon. Other species likely to be present are silvereye, fantail and grey warbler. Mr Townley advises that tui occasionally visit the area. The larger trees provide suitable roost sites for long-tailed bat, though it is not known whether bats are still present in the area.

**Notable Flora, Fauna and Habitats:**

Important features of this area are the number and size of the large trees, especially the podocarps (kahikatea and totara) which are likely to be hundreds of years old. The presence of white mistletoe is notable. The only other locations at which this species has been observed during SNA surveys in South Canterbury are at Peel Forest and a single plant near Woodbury. Fruit of the large podocarp trees and flowers and foliage of the kowhai trees are a valuable seasonal food source for birds, notably kereru, bellbird and tui.



**Notable Plant and Animal Pests:**

No important plant pests were observed. Animal pests were not surveyed though possums will be present.

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

The boundary of this area has been drawn to include the larger trees, including isolated trees in the paddocks. This does not affect grazing of the area.

**Condition and Management Issues:**

The canopy trees appear in good condition. However, these trees will eventually senesce and die. The most important management issue is encouragement of forest regeneration so that canopy trees are replaced over time. If parts of the area were fenced to encourage regeneration, the streamside areas would be the best areas to protect. Continued control of wild animals (especially possums) is important, as mistletoe species are very palatable.

**ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:**

Primary Criteria	Rank	Notes
Representativeness	M	A depleted example of forest representative of that originally present in the ecological district.
Rarity	H	Indigenous vegetation in a depleted (acutely-threatened) land environment. Supports an 'at risk' (declining) plant species (white mistletoe).
Diversity and pattern	L	Plant species diversity is low and much reduced from that originally present.
Distinctiveness/special features	M/H	Impressive sized trees that are probably hundreds of years old; provide important seasonal food source for birds.
<b>Other Criteria</b>		
Size/shape	M	A small to moderate-sized area for this part of the ecological district.
Connectivity	M	Adjoins other indigenous vegetation (SNA 49b) along one boundary.
Long-term Sustainability	L/M	Regeneration of canopy species will be needed to maintain the ecological values of this area in the long term.

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

The large trees within this area have been protected by the landowner. These trees are remnants of the original forest on the property. The area is grazed, though the presence of trees restricts further development such as cultivation. The trees provide useful shade and shelter for stock and have high amenity value. The trees will eventually senesce and die, so the SNAs will not persist unless there is regeneration of canopy species.

**Discussion:**

This area meets the District Plan criteria for a Significant Natural Area. Important features of the area are the number and size of the large trees, which are likely to be hundreds of years old, the presence of an 'at risk' (declining) plant species (white mistletoe) and the habitat the trees provide for forest birds and possibly bats.



## 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>
bracken .....	<i>Pteridium esculentum</i>
broadleaf .....	<i>Griselinia littoralis</i>
bush lawyer .....	<i>Rubus cissoides</i>
bush lily .....	<i>Astelia fragrans</i>
bush rice grass .....	<i>Microlaena avenacea</i>
button fern .....	<i>Pellaea rotundifolia</i>
cabbage tree/ti rakau .....	<i>Cordyline australis</i>
cardamine .....	<i>Cardamine debilis</i>
clematis .....	<i>Clematis paniculata</i>
common shield fern .....	<i>Polystichum richardii</i>
crown fern .....	<i>Blechnum discolor</i>
five-finger .....	<i>Pseudopanax arboreus</i>
foxglove* .....	<i>Digitalis purpurea</i>
fuchsia .....	<i>Fuchsia excorticata</i>
gorse* .....	<i>Ulex europaeus</i>
green mistletoe .....	<i>Ileostylis micranthus</i>
hairy pennywort .....	<i>Hydrocotyle moschata</i>
hanging spleenwort .....	<i>Asplenium flaccidum</i>
hard fern .....	<i>Paesia scaberula</i>
hen and chickens fern .....	<i>Asplenium gracillimum</i>
Himalayan honeysuckle* .....	<i>Leycesteria formosa</i>
hookgrass .....	<i>Uncinia uncinata</i>
horopito/pepperwood .....	<i>Pseudowintera colorata</i>
hound's tongue fern .....	<i>Microsorium pustulatum</i>
kahikatea/white pine .....	<i>Dacrycarpus dacrydioides</i>
kanuka .....	<i>Kunzea ericoides</i>
kowhai .....	<i>Sophora microphylla</i>
lancewood .....	<i>Pseudopanax crassifolius</i>
lawyer .....	<i>Rubus schmidelioides</i>
lemonwood .....	<i>Pittosporum eugenioides</i>
lowland ribbonwood .....	<i>Plagianthus regius</i>
mahoe/whiteywood .....	<i>Melicytus ramiflorus</i>
mapou .....	<i>Myrsine australis</i>
marbleleaf/putaputaweta .....	<i>Carpodetus serratus</i>
matai/black pine .....	<i>Prumnopitys taxifolia</i>
matipo/kohuhu .....	<i>Pittosporum tenuifolium</i>
mountain kiokio .....	<i>Blechnum montanum</i>
narrow-leaved lacebark .....	<i>Hoheria angustifolia</i>
native bindweed .....	<i>Calystegia tuguriorum</i>
native jasmine .....	<i>Parsonsia heterophylla</i>
necklace fern .....	<i>Asplenium flabellifolium</i>
pate .....	<i>Schefflera digitata</i>
pennywort .....	<i>Hydrocotyle novae-zelandiae</i>
poataniwha .....	<i>Melicope simplex</i>
pohuehue .....	<i>Muehlenbeckia australis</i>
pokaka .....	<i>Elaeocarpus hookerianus</i>
poroporo .....	<i>Solanum laciniatum</i>
prickly shield fern .....	<i>Polystichum vestitum</i>
radiata pine* .....	<i>Pinus radiata</i>
rohutu .....	<i>Lophomyrtus obcordata</i>



silver fern/ponga .....	<i>Cyathea dealbata</i>
soft tree fern .....	<i>Cyathea smithii</i>
supplejack .....	<i>Ripogonum scandens</i>
swamp kiokio .....	<i>Blechnum minus</i>
totara .....	<i>Podocarpus totara</i>
turepo .....	<i>Streblus heterophyllus</i>
tutsan* .....	<i>Hypericum androsaemum</i>
velvety nightshade* .....	<i>Solanum chenopodioides</i>
water fern .....	<i>Histiopteris incisa</i>
white climbing rata .....	<i>Metrosideros diffusa</i>
white mistletoe/pirita .....	<i>Tupeia antarctica</i>
wineberry .....	<i>Aristotelia serrata</i>

## References Cited

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**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.

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