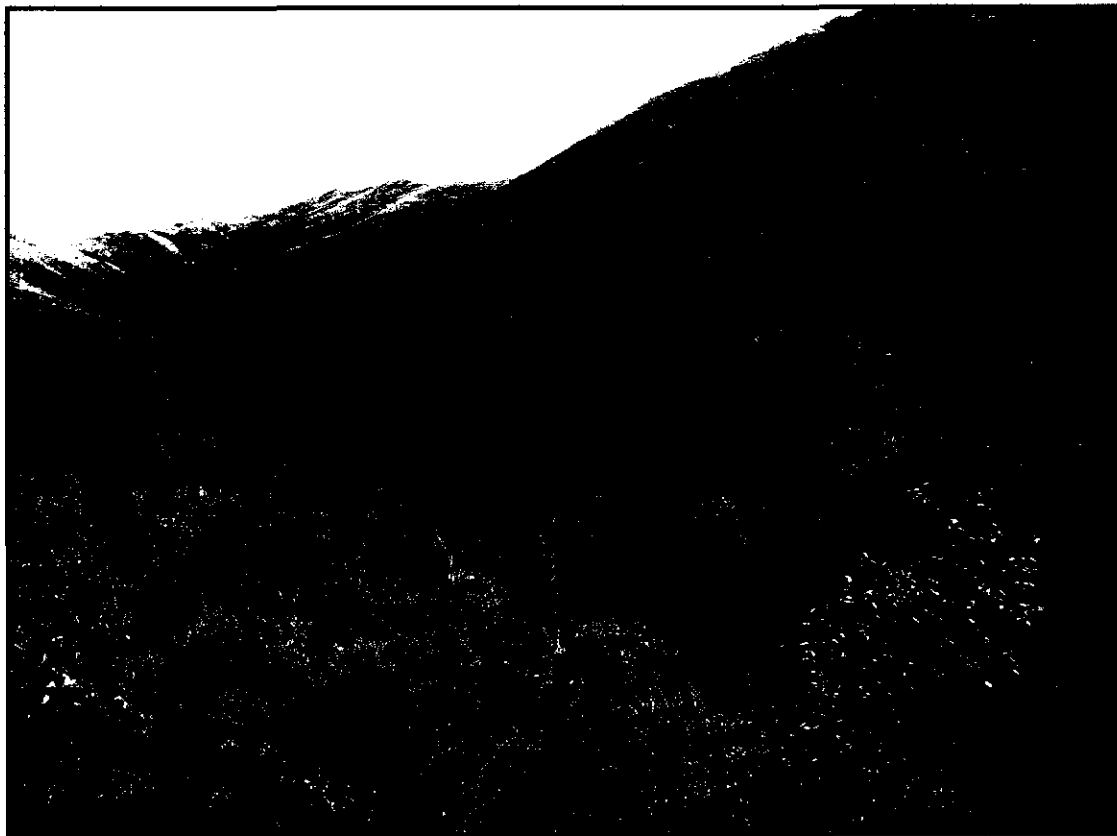


**TIMARU DISTRICT**

**SIGNIFICANT NATURAL AREAS**  
**SURVEY**

**O'CARROLL PROPERTY**



**Report prepared for the Timaru District Council by Mike Harding**  
**November 2008**

# TIMARU DISTRICT SIGNIFICANT NATURAL AREAS SURVEY

## PROPERTY REPORT

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### PROPERTY DETAILS:

**Owner:** ..... O'Carroll  
**Valuation Reference:** ..... 24640/100.00 and 24640/098.00  
**Address:** ..... Scotsburn, Peel Forest  
**Location:** ..... On the southwest edge of the Mt Peel Range foothills  
**Ecological District:** ..... Orari Ecological District  
**TDC Land Type:** ..... Hard Rock Hills and Downs  
**Land Environment:** ..... Q2 (Southeastern Hill Country)

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### ECOLOGICAL CONTEXT:

The property lies on the southwest edge of the foothills of the Mt Peel Range, on the north side of the Orari River gorge. The original vegetation of this area would have been predominantly podocarp-hardwood forest, possibly with areas of mountain beech forest, at lower altitudes. The podocarp-hardwood forest would have been dominated by totara, matai and occasionally kahikatea emergent over a hardwood canopy. Important canopy hardwood species would probably have been kowhai, lemonwood, five-finger, broadleaf, lancewood, fuchsia, mapou, marbleleaf and mahoe. At higher altitudes the forest would have been dominated by broadleaf, mountain ribbonwood, fuchsia, three-finger, matipo and mountain totara. Above approximately 900m altitude, the forest would have graded to shrubland, fernland and tussockland plant communities. The indigenous fauna would have been significantly more numerous and diverse, with a greater range of birds, lizards and invertebrates than is presently found in the area.

Several areas of remnant or regenerating mixed forest and shrubland, and one wetland, are present on the property. These are part of a more extensive area of scattered patches of forest and shrubland on the foothills and slopes of the Mount Peel Range. The most important of these is Peel Forest Scenic Reserve, which lies approximately 3 km to the north. Other indigenous forest remnants are present nearby. Lower altitude areas of forest may provide roost sites (though maybe only occasionally used) for long-tailed bat (a 'nationally endangered' species). Long-tailed bat have been recorded nearby in Peel Forest. Larger streams, such as Shag Stream, provide potential habitat for blue duck (nationally endangered), which is present elsewhere in the Orari catchment.

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### SIGNIFICANT AREAS ON THE PROPERTY:

The property was surveyed as part of the District-wide survey of Significant Natural Areas in June 2007 and March 2008. Nine areas of forest, one area of shrubland and one wetland are regarded as Significant Natural Areas (SNAs) when assessed against the District Plan criteria.

Area No.	Area Name	Central grid reference	Aprox. size(ha)	Vegetation/habitat type
30a	Scotsburn Gullies (a)	J37: 662-977	6.53	Hardwood forest
30b	Scotsburn Gullies (b)	J37: 663-974	6.15	Hardwood forest
30c	Scotsburn Gullies (c)	J37: 666-969	2.88	Hardwood forest
636a	The Gorge Wetland	J37: 631-995	2.96	Palustrine swamp (wetland)
636b	Lower Coopers Spur	J37: 631-990	2.4	Scrub and shrubland

636c	Waterfall Stream	J37: 638-988	3.52	Hardwood forest and scrub
638	Orari Gorge Gully	J37: 653-963	5.35	Hardwood forest and scrub
639	Shag Stream	J37: 650-981	35.36	Hardwood forest and scrub
641b		J37: 662-956	23.18	Hardwood forest
641c		J37: 667-958	7.86	Hardwood forest
641d		J37: 660-952	3.52	Hardwood forest

These SNAs are illustrated on the attached aerial photographs and described in greater detail on the Area Inspection Forms in this report. Note that the boundaries of the SNAs are indicative, rather than precise. These SNAs 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 (criterion vii, page B19). SNAs are subject to confirmation by Council after regarding the matters listed under Final Considerations (pages B19-B20).

The implication of an area being listed as an SNA is that consent is required from Council for clearance of indigenous vegetation by any means (including burning and spraying with herbicides) or over-planting. This does not normally prevent clearance to prevent shading of buildings, the maintenance of tracks and fences, restoration plantings or grazing. 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. It is expected that SNAs will eventually be listed in the District Plan by way of a notified plan change.

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**OTHER AREAS INSPECTED ON THE PROPERTY:**

Other areas of indigenous vegetation and habitat on the property were inspected but are not regarded as significant when assessed against the criteria on pages B18-B20 of the Timaru District Plan. Failure of an area to meet the significance criteria does not necessarily mean that it is not important for nature conservation or the protection of indigenous biodiversity; it simply means that the area (as assessed at this time) does not meet the criteria in the Timaru District Plan. Some of these areas have considerable potential value and, if left alone, may eventually become significant.

Examples of such vegetation and habitat are the areas of low scrub and scattered shrubland (including patches of manuka) on lower slopes, small patches of trees and shrubland in small gullies and the relatively extensive areas of tussockland at higher altitudes in the northeast corner of the property.

Note that areas of low forest, scrub, shrubland and rockland on the steep sides of the Orari River gorge are not included in this assessment. These areas lie outside the property boundary as marked on aerial photographs. These riparian plant communities are very likely to be significant when assessed against the District Plan criteria.

O'Carroll  
24640/098.00



636a

636b

636c

639

30a

30b

30c

638

641c

641b

641d

Boundary Road

Orari River Road

Boundary Road

Blandwood Road



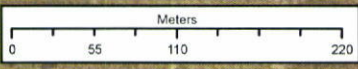
1:20,000



O'Carroll  
24640/098.00

636a

636b



1:5,000

# TIMARU DISTRICT SNA SURVEY

# AREA 30a, b and c

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<b>Area Name:</b> Scotsburn Gullies	<b>Property:</b> O'Carroll
<b>Ecological District:</b> Orari	<b>Nearest Locality:</b> Peel Forest
<b>AREA 30a: Location</b> (central map ref.): J37: 662-977	<b>Area Size (ha):</b> 6.53 <b>Altitude (m):</b> 450-550
<b>AREA 30b: Location</b> (central map ref.): J37: 663-973	<b>Area Size (ha):</b> 6.15 <b>Altitude (m):</b> 450-550
<b>AREA 30c: Location</b> (central map ref.): J37: 666-970	<b>Area Size (ha):</b> 2.88 <b>Altitude (m):</b> 450-550
<b>Surveyors:</b> Mike Harding	<b>Survey Time:</b> 2 hours <b>Survey Date:</b> 18-03-08

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## General Description:

This SNA comprises forest remnants in three small tributary gullies of the Scotsburn, at the eastern boundary of the property. The forest remnants lie on moderately steep slopes in the headwaters of the gullies. All three remnants are contiguous with areas of forest that have been recently fenced and protected as public conservation land through tenure review.

## Plant Communities:

These three gullies support mixed hardwood forest grading at the heads of the gullies to scrub, shrubland, fernland and then pasture. The vegetation of each gully is similar. These plant communities are described below. Naturalized (exotic) species are indicated with an asterisk\*.

The canopy of the hardwood forest is dominated by broadleaf, lemonwood and occasionally kowhai and fuchsia. Other canopy species present are matipo, mapou, lancewood, three-finger, wineberry, mahoe, cabbage tree and mountain akeake.

Understorey species present are mahoe, fuchsia, marbleleaf, *Coprosma rhamnoides*, *Coprosma crassifolia*, *Coprosma rotundifolia*, horopito and bush lawyer.

Important groundcover species are prickly shield fern, bush lily, sedge (*Carex* sp.), hound's tongue fern, *Asplenium appendiculatum*, thousand-leaved fern, *Hypolepis ambigua*, *Blechnum fluviatile*, mountain tree fern, pennywort, hairy pennywort, black nightshade\* and nettle.

Additional species present on the forest margins are lawyer, kanuka, tauhinu, koromiko, *Coprosma propinqua*, Himalayan honeysuckle\* and foxglove\*.

Additional species present near the streams are pate and *Blechnum chambersii*.

These communities grade upslope to shrubland, fernland and pasture, which mostly lie outside the SNA boundaries. Species in these communities are *Coprosma propinqua*, *Coprosma rigida*, *Coprosma* sp. 't', turpentine shrub, manuka, koromiko, bush lawyer, mountain kiokio, tutu, bracken, cotton daisy, mountain flax and fescue tussock.

## Birds/Fauna Observed:

Native birds observed during this brief inspection were silvereye, grey warbler, bellbird, rifleman and kereru.

## Notable Flora, Fauna and Habitats:

Notable features of these three gullies are the size of some of the canopy trees (especially broadleaf) which suggests the forest is relatively old, the diversity of the forest canopy, the habitat the area provides for forest birds (notably kereru and rifleman), the extent of the forest present and that each area of forest is connected to a more extensive area of forest in the Scotsburn valley.

## Notable Plant and Animal Pests:

These areas of forest are relatively free of weeds. Himalayan honeysuckle, foxglove, thistles and rarely burdock are present, but these are mostly confined to the forest margins and do not pose a significant threat to the forest. Animal pests were not surveyed.

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

These areas of forest are unfenced and are accessible to grazing animals. They are well buffered by their locations on steep slopes within the gullies and are connected to more extensive areas of forest down-valley.

## Condition and Management Issues:

The forest canopies are intact and healthy. The forest understorey is in places quite open.

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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>M/H</b>	Good examples of forest typical of the ecological district and containing most components of the original forest.
Rarity	<b>M</b>	No rare plant species were recorded. Two threatened bird species: kereru and rifleman (both 'gradual decline') are present.
Diversity and pattern	<b>M</b>	Species diversity is relatively high, though diversity is reduced from that originally present.
Distinctiveness/special features	<b>M</b>	The size (and apparent age) of the canopy trees and the protection the forest provides to tributaries of the Scotsburn are special features.
<b>Other Criteria</b>		
Size/shape	<b>M</b>	Each area of forest is small to moderate in size, but each is well buffered.
Connectivity	<b>M</b>	Each area of forest adjoins protected forest at its down-valley boundary.
Long-term Sustainability	<b>M/H</b>	These areas are resilient and should maintain their ecological values in the long term provided they are not grazed intensively and provided significant plant and animal pests are controlled.

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

These areas have been informally protected by their locations in sheltered gullies. They appear to have been excluded from the areas of forest recently protected through tenure review because of the practicality of fencing the long forest boundary. Parts of the areas identified here as SNAs may in fact be public conservation land, as the precise locations of the boundary fences were difficult to determine. The areas do not provide useful grazing and would be difficult to develop for grazing.

**Discussion:**

These three gully forest remnants meet the District Plan criteria for Significant Natural Areas. Important features of the remnants are the size of some of the canopy trees (especially broadleaf), the apparent age of the forest, the diversity of the forest canopy, the habitat the area provides for forest birds (notably kereru and rifleman), the extent of the forest present and that each area of forest is connected to a more extensive area of forest in the Scotsburn valley

# TIMARU DISTRICT SNA SURVEY

AREA 636a

**Area Name:** The Gorge Wetland

**Location (central map reference):** J37: 631-995

**Ecological District:** Orari

**Surveyors:** Mike Harding

**Property:** The Gorge (O'Carroll)

**Nearest Locality:** Peel Forest

**Area Size (ha):** 2.96

**Altitude (m):** 330

**Survey Time:** 1 hour

**Survey Date:** 18-03-08

## **General Description:**

This SNA lies on a terrace alongside the Orari River at the northwest corner of the property, at the foot of Coopers Spur.

## **Plant Communities:**

The main plant communities present are sedgeland and rushland which form a relatively large wetland (technically, a palustrine swamp). Areas of shrubland and scrub are present at the wetland margins. These plant communities are described separately below. Naturalized (exotic) species are indicated with an asterisk\*.

### Wetland:

Drier parts of the wetland, especially those areas at the wetland margin, are dominated by bog rush, rautahi, *Microseris scapigera* and pasture species, especially Yorkshire fog\* and white clover\*.

Damper areas are dominated by *Juncus gregiflorus*, jointed rush\* and bog rush. Other species present in these areas are lotus\*, musk\*, *Blechnum minus*, willowherb (*Epilobium* sp.), buttercup\* (*Ranunculus* sp.), Maori onion, scattered clumps of toetoe and occasional bushes of *Olearia bullata*.

Wet parts of the wetland, where there is standing water, are dominated by pukio (*Carex secta*). Other species present here are mountain kiokio, *Blechnum minus*, *Blechnum penna-marina*, water cress\*, *Azolla filiculoides* and lotus\*.

### Shrubland/scrub:

Patches of scrub and areas of scattered shrubland are present at the wetland margins, especially on the upslope margin. These plant communities are dominated by *Coprosma propinqua*, matagouri, mountain wineberry and lawyer. Other species present are matipo, porcupine shrub, pohuehue, scrub pohuehue, native jasmine, *Coprosma* sp. 't', *Olearia bullata*, native broom, thousand-leaved fern and small clumps of gorse\*. In other areas the wetland plant communities grade to rough pasture.

## **Birds/Fauna Observed:**

Native birds observed during this brief inspection were grey warbler in the adjoining shrubland and karearea (NZ falcon) calling from across the valley.

## **Notable Flora, Fauna and Habitats:**

Wetlands are an uncommon plant community in this part of the Orari Ecological District. This palustrine swamp is the largest wetland on the property and probably one of the larger remaining wetlands in the ecological district. Other notable features of the wetland are the dominance of native species, the presence of a healthy population of pukio (*Carex secta*), karearea (threat status: gradual decline), the locally uncommon toetoe and the shrubland and scrub communities which buffer the wetland.

## **Notable Plant and Animal Pests:**

Typical introduced species are present within the wetland, notably lotus, jointed rush and musk, though these species do not pose a significant threat to the wetland character. The presence of gorse on pasture adjacent to the wetland poses a threat.

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

The wetland is unfenced and only protected from grazing or vehicles by its soft substrate. It is buffered on the inland (upslope) side by scattered to dense shrubland and scrub. It is not so well buffered on the terrace edge side, though is separated by only a narrow strip of rough pasture from scrub and low forest on the steeper slopes of the river gorge. There are relatively extensive areas of low forest and scrub nearby along the Orari River and a large area of scrub on the lower slopes of Coopers Spur, above the wetland.



### Condition and Management Issues:

The main wetland is in good condition. The wetland hydrology appears intact. It does not appear to have ever been drained. It is fed by small streams on the adjacent hill slopes and its water level maintained by its position in a natural depression on the river terrace. Small outlet streams, flowing over bedrock, drain the wetland. It has been affected by grazing animals, though the area does not appear to be intensively grazed.

### Property Owner Comment:

Mr O'Carroll would like to construct a fence across the lower slopes above the wetland. He is sympathetic to further protection of the wetland.

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### ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	M/H	A good example of wetland vegetation and habitat originally present in the ecological district.
Rarity	M	Wetlands are an uncommon community in the ecological district.
Diversity and pattern	M	A relatively diverse community, with species diversity similar to or slightly reduced from that originally present.
Distinctiveness/special features	M/H	The apparently intact hydrology of the wetland is a special feature.
<b>Other Criteria</b>		
Size/shape	M/H	A relatively large wetland for the Orari Ecological District.
Connectivity	M/H	The wetland is hydrologically intact. It adjoins areas of indigenous shrubland and scrub. It lies close to low forest along the Orari River.
Long-term Sustainability	M	Some plant pest control (gorse) may be required to maintain the wetland values in the long term.

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

This area has been informally protected by its location at a remote corner of the property and the difficulties associated with developing the land. It has been grazed, probably for many years, but does not provide an extensive area of grazing. It is probably useful for stock water, though the stream flowing from the outlet of the wetland probably provides a more reliable source of water than the wetland itself.

### Discussion:

This palustrine swamp easily meets the District Plan criteria for a Significant Natural Area. It is one of the few wetlands in this part of the ecological district and the largest wetland observed on the property. Other notable features of the wetland are the dominance of native species and the presence of a healthy population of pukio (*Carex secta*), karearea (threat status: gradual decline), the locally uncommon toetoe and the shrubland and scrub communities which buffer the wetland vegetation.



# TIMARU DISTRICT SNA SURVEY

## Wetland Record Form

### Wetland 636a

<b>Wetland name:</b> The Gorge Wetland	<b>Date:</b> 18 March 2008
<b>Property:</b> The Gorge (O'Carroll)	<b>GPS/Grid Ref:</b> J37: 631-995
<b>Altitude:</b> 330 m	<b>No. of plots sampled:</b>
<b>Location:</b> North side Orari Gorge	<b>Approximate size (ha):</b> 3

<b>Classification: I System</b>	<b>IA Subsystem</b>	<b>II Wetland Class</b>	<b>IIA Wetland Form</b>
Palustrine	Permanent	Swamp	Basin

**Surveyors:** Mike Harding

Indicator	Indicator components	Specify and Comment	Score 0-5 <sup>1</sup>	Mean score
Change in hydrological integrity	Impact of manmade structures	no structures present	5	5
	Water table depth	appears unchanged	5	
	Dryland plant invasion	none, except at margin	5	
Change in physico-chemical parameters	Fire damage	no evidence of recent fire	5	4.67
	Degree of sedimentation/erosion	none evident	5	
	Nutrient levels	animal dung present	4	
	von Post index		n/a	
Change in ecosystem intactness	Loss in area of original wetland	no loss evident	5	5
	Connectivity barriers	no barriers present	5	
Change in browsing, predation and harvesting regimes	Damage by domestic or feral animals	accessible to cattle and sheep; grazing evident	3	3.33
	Introduced predator impacts on wildlife	no control occurring	2	
	Harvesting levels	no known harvesting	5	
Change in dominance of native plants	Introduced plant canopy cover	jointed rush present	4	4
	Introduced plant understorey cover	exotic grasses and herbs	4	
<b>Total wetland condition index /25</b>				<b>22</b>

**Main vegetation types:** *Carex secta* sedgeland with herbs; *Schoenus pauciflorus*-*Juncus gregiflorus*-*Juncus articulatus* rushland with grasses; scattered *Cortaderia richardii* and *Olearia bullata*. Indigenous shrubs at margins.

**Native fauna:** grey warbler in adjacent shrubland; NZ falcon nearby.

**Other comments:** A hydrologically-intact wetland with long history of grazing by sheep and probably cattle.

Pressure	Rating <sup>2</sup>	Specify and Comment
Modifications to catchment hydrology	3	large parts deforested (hundreds of years ago)
Water quality within the catchment	1	well vegetated but with extensive grazing
Animal access	2	unrestricted but very low animal numbers
Key undesirable species	1	jointed rush in wetland; gorse nearby
% catchment in introduced vegetation	2	pasture species within indigenous treeland, shrubland and tussockland
Other pressures	0	A remote wetland
<b>Total wetland pressure index /30</b>		<b>9</b>

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

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

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

# TIMARU DISTRICT SNA SURVEY

AREA 636b

**Area Name:** Lower Coopers Spur Shrubland  
**Location (central map reference):** J37: 631-990  
**Ecological District:** Orari  
**Surveyors:** Mike Harding, Tom O'Carroll and Jo Thompson

**Property:** The Gorge (O'Carroll)  
**Nearest Locality:** Peel Forest  
**Area Size (ha):** 2.4      **Altitude (m):** 330  
**Survey Time:** 1 hour      **Survey Date:** 18-03-08

## General Description:

This SNA covers a narrow terrace and the adjacent steep rocky slopes at the base of Coopers Spur, in the northwest corner of the property.

## Plant Communities:

The main plant community present is scrub. This community grades to shrubland and rough pasture on gentler slopes and rockland on steeper slopes. These plant communities are described separately below. Naturalized (exotic) species are indicated with an asterisk\*.

### Scrub:

This plant community is dominated by *Coprosma propinqua*, mountain wineberry, matagouri, lawyer and scrub pohuehue. Other canopy or emergent species present are matipo, broadleaf, three-finger, native broom, *Olearia bullata*, korokio, *Calystegia tuguriorum* and native jasmine. Species present on the scrub margin, or in open areas within the scrub, are porcupine shrub, bracken, foxglove\*, thousand-leaved fern, prickly shield fern, silver tussock and *Aciphylla subflabellata*.

### Shrubland and rockland:

Species present as scattered plants on steeper rocky sites are mountain akekake, porcupine shrub, *Coprosma propinqua*, *Coprosma* sp. 't', korokio, *Hebe amplexicaulis*, *Helichrysum intermedium*, silver tussock, golden speargrass, *Aciphylla subflabellata*, mountain flax, tutu, prickly shield fern, Deptford pink\*, woolly mullein\*, *Brachyscome* sp. and necklace fern.

## Birds/Fauna Observed:

The only native bird observed during this brief inspection was grey warbler.

## Notable Flora, Fauna and Habitats:

Notable features of this plant community are the presence of emergent trees (broadleaf, matipo and three-finger), the extent of the community, the presence of 'at risk' species (*Aciphylla subflabellata* and *Hebe amplexicaulis*) and the location of the plant community adjacent to more extensive areas of scrub and low forest along the Orari River. Karearea (NZ falcon) was observed in the area; the steep vegetated lower slopes within this SNA are likely to provide useful habitat for karearea.

## Notable Plant and Animal Pests:

No significant plant pests were observed, though gorse is present in the wider area. Animal pests were not surveyed.

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

The area is unfenced and is traversed along its lower margin by a recently-constructed vehicle track. However, it is relatively well buffered by its location between the steep lower slopes of Coopers Spur and the steep slopes along the Orari River. Other areas of shrubland, scrub and low forest are present in the area.

## Condition and Management Issues:

The main plant communities are in relatively good condition. The construction of the vehicle track has caused some disturbance. Grazing pressure appears relatively light.

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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>M</b>	A relatively good example of vegetation that is typical of such sites in the ecological district.
Rarity	<b>M</b>	Two 'at risk' species are present: <i>Hebe amplexicaulis</i> (range restricted) and <i>Aciphylla subflabellata</i> (sparse). The area may provide habitat for karearea/falcon (gradual decline).
Diversity and pattern	<b>L/M</b>	Scrub, shrubland and rockland plant communities are present, though species diversity is reduced from that formerly present.
Distinctiveness/special features	<b>M</b>	The location of these plant communities adjacent to more extensive vegetation along the Orari River, and their contribution to riparian buffering are notable features.
<b>Other Criteria</b>		
Size/shape	<b>M</b>	A relatively small area but with a good shape and well buffered.
Connectivity	<b>M</b>	Adjoins scrub and low-forest along its lower boundary.
Long-term Sustainability	<b>M</b>	Some weed and pest control may be required to maintain the ecological values of the area in the long term.

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

This area has been informally protected by its location on rocky slopes at the base of a steep spur. It does not provide an extensive area of grazing and has very limited development potential. The recently constructed vehicle track through this area provides important access to the northwest corner of the property.

**Discussion:**

This area meets the District Plan criteria for a Significant Natural Area. Important features of the area are the presence of emergent trees (broadleaf, matipo and three-finger), the extent of the community, the presence of at-risk species (*Aciphylla subflabellata* and *Hebe amplexicaulis*), the location of the plant community adjacent to more extensive areas of scrub and low forest along the Orari River, and the potential habitat it provides for karearea (NZ falcon).

# TIMARU DISTRICT SNA SURVEY

AREA 636c

**Area Name:** Waterfall Stream

**Location (central map reference):** J37: 638-988

**Ecological District:** Orari

**Surveyors:** Mike Harding

**Property:** The Gorge (O'Carroll)

**Nearest Locality:** Peel Forest

**Area Size (ha):** 3.52

**Altitude (m):** 330-420

**Survey Time:** 1 hour

**Survey Date:** 18-03-08

## General Description:

This SNA covers the moderately-steep southeast-facing slopes of lower Coopers Spur, on the western side of lower Waterfall Stream at the northwest corner of the property.

## Plant Communities:

The SNA supports low mixed hardwood forest and associated shrubland and scrub. These plant communities are described below. Naturalized (exotic) species are indicated with an asterisk\*.

The main areas of low forest are dominated by mountain akeake, three-finger, Canterbury tree broom, matipo, mountain ribbonwood, broadleaf, kowhai and *Calystegia tuguriorum*.

Important understorey and groundcover species are bush snowberry, koromiko, fuchsia, porcupine shrub, tutu, bush lily, prickly shield fern, mountain kiokio, *Blechnum penna-marina*, hairy pennywort and seedlings of kowhai.

Other species present in forest openings or on the forest margins are *Coprosma propinqua*, korokio, mountain wineberry, turpentine shrub, bush lawyer, lawyer, foxglove\*, narrow-leaved snow tussock and thousand-leaved fern.

Additional species present along the stream margin are *Blechnum chambersii*, grey willow\*, broom\* and mountain flax.

This low forest community grades upslope to shrubland and fernland dominated by mountain kiokio, tauhinu, mountain flax, mountain akeake, cotton daisy, fescue tussock, blue tussock, and scattered emergent broadleaf and Canterbury tree broom.

## Birds/Fauna Observed:

Native birds observed during this brief inspection were rifleman, silvereve and grey warbler.

## Notable Flora, Fauna and Habitats:

Notable features of this area are the abundance of Canterbury tree broom (threat status: range restricted), the extent and health of the taller woody vegetation and the location of the area adjacent to a more extensive area of protected indigenous forest in upper Waterfall Stream.

## Notable Plant and Animal Pests:

Broom and grey willow are the most important plant pests observed in the area. However, both these species are confined at present to the stream margin. Grey willow is unlikely to spread far beyond the stream margin; broom poses a greater threat. Animal pests were not surveyed.

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

The area is fenced along its lower boundary, by a fence a short way up the slope on the opposite side of Waterfall Stream. It adjoins, and is buffered by, a much larger area of indigenous forest in upper Waterfall Stream. The area has a good shape and is buffered to some extent by its position on a damper southeast-facing slope.

## Condition and Management Issues:

The indigenous vegetation in this area is in good condition. It is a young (regenerating) forest that now supports a good proportion of species that would have dominated the canopy of the original vegetation, such as broadleaf, kowhai and three-finger. The area should logically have been included and fenced within the area of indigenous forest that was retained by the Crown following tenure review to be administered by the Department of Conservation.

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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>M</b>	A good example of indigenous vegetation typical of the ecological district and containing species representative of the original vegetation.
Rarity	<b>M/H</b>	The area supports a large healthy population of an 'at risk' species: Canterbury tree broom (range restricted).
Diversity and pattern	<b>M</b>	A relatively diverse range of species is present, though diversity is probably reduced from that originally present.
Distinctiveness/special features	<b>M</b>	A special feature of the area is the buffer it provides to lower Waterfall Stream.
<b>Other Criteria</b>		
Size/shape	<b>M</b>	A relatively small area, but with a good shape and well buffered.
Connectivity	<b>M</b>	Adjoins a more extensive area of indigenous vegetation.
Long-term Sustainability	<b>M/H</b>	The main ecological values are likely to persist with minimal weed and pest control.

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

This area has been informally protected by its location on moderately-steep slopes alongside an incised stream. It does not provide an extensive area of grazing and has very limited development potential. It is contiguous with a larger area of indigenous forest recently protected through tenure review.

**Discussion:**

The area meets the District Plan criteria for a Significant Natural Area. Important features of the area are the abundance of Canterbury tree broom (threat status: range restricted), the extent and health of the taller woody vegetation and the location of the area adjacent to a more extensive area of indigenous forest in upper Waterfall Stream.



# TIMARU DISTRICT SNA SURVEY

AREA 638

**Area Name:** Orari Gorge Gully Remnants  
**Location (central map reference):** J37: 653-963  
**Ecological District:** Orari  
**Surveyors:** Mike Harding

**Property:** O'Carroll  
**Nearest Locality:** Peel Forest  
**Area Size (ha):** 5.35      **Altitude (m):** 320-450  
**Survey Time:** ½ hour      **Survey Date:** 18-03-08

## General Description:

This SNA lies on steep southeast-facing slopes in a narrow gully above the lower Orari Gorge at the southwest corner of the property. It was surveyed only by viewing the vegetation from the exterior, rather than traversing through the site.

## Plant Communities:

The main plant communities present are low forest, scattered trees and shrubland. These plant communities are described separately below. Naturalized (exotic) species are indicated with an asterisk\*.

Vegetation in the upper parts of the gully is dominated by mountain ribbonwood, broadleaf and prickly shield fern. Denser lower vegetation is present in the lower valley, with more extensive areas of *Coprosma* shrubland on lower slopes and a narrow strip of tall dense forest along the stream.

This lower-valley forest is dominated by broadleaf, matipo, three-finger and mountain akeake. Other species commonly present are *Coprosma propinqua*, *Coprosma rigida*, kanuka, koromiko and pohuehue. Scattered plants of Canterbury tree broom are present in the lower valley.

The lower-valley shrubland is dominated by *Coprosma propinqua*. Other species present are matipo, mountain akeake, lancewood, broadleaf, *Coprosma* sp. 't', tauhinu, Canterbury tree broom, prickly shield fern and lawyer.

## Birds/Fauna Observed:

Native birds observed during this brief inspection were bellbird and silvereye.

## Notable Flora, Fauna and Habitats:

Notable features of this SNA are the presence of Canterbury tree broom, the riparian protection the forest provides and the contribution the forest and shrubland make to the network of fauna habitat in the wider area.

## Notable Plant and Animal Pests:

No significant plant or animal pests were observed during this brief inspection.

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

This area is mostly unfenced. It is buffered by its position on damper slopes in a narrow gully and lies close to other areas of indigenous forest and shrubland.

## Condition and Management Issues:

The areas of forest and shrubland along the stream are in relatively good condition

## Property Owner Comment:

Mr O'Carroll wishes to retain the option of farm development in this area. Areas of open vegetation have been excluded from this SNA.

## ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

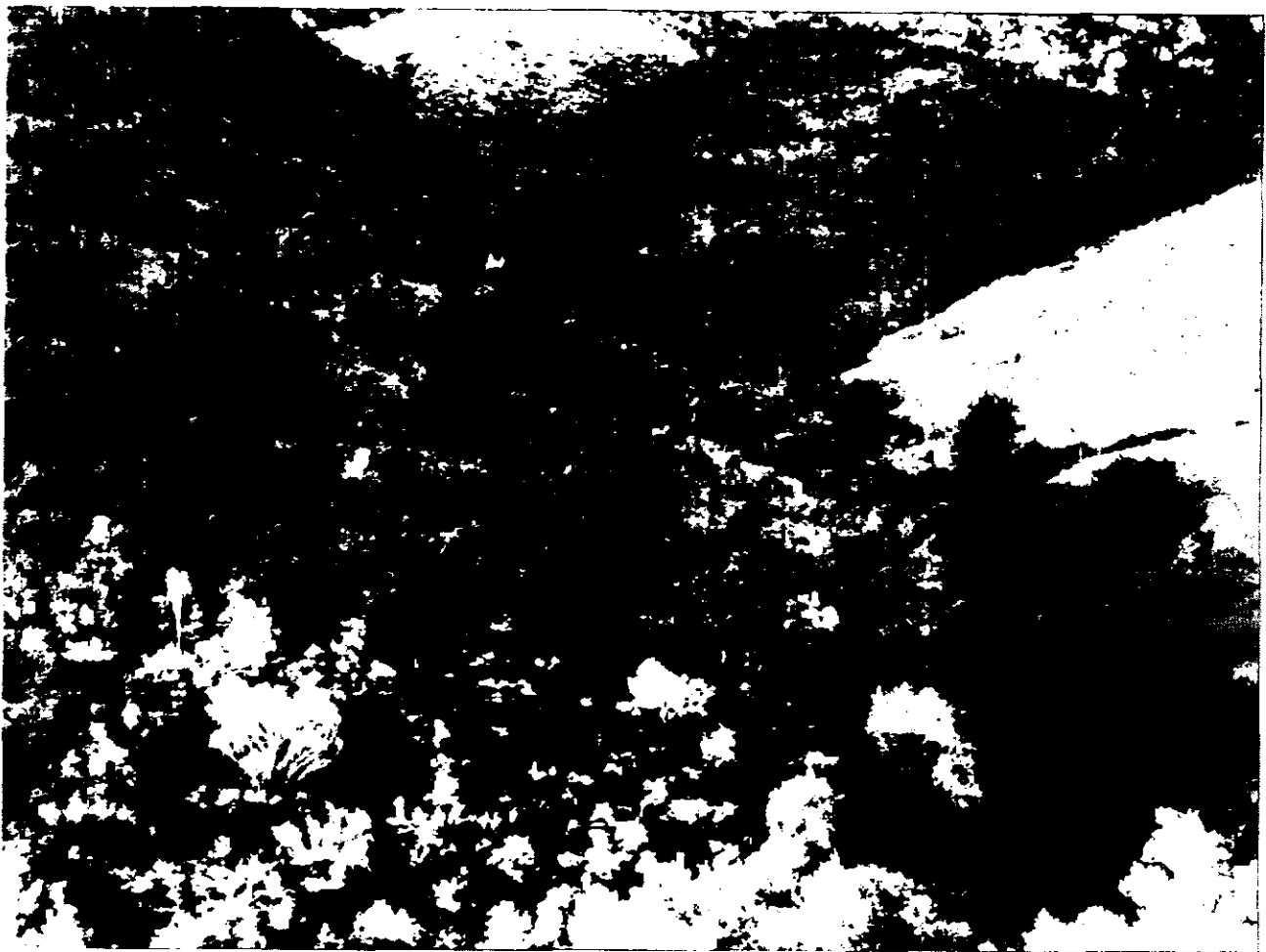
Primary Criteria	Rank	Notes
Representativeness	M	A depleted example of indigenous vegetation typical of the ecological district.
Rarity	M	An 'at risk' species: Canterbury tree broom (range restricted) is present.
Diversity and pattern	L/M	Species diversity is low and reduced from its former extent.
Distinctiveness/special features	L/M	The vegetation in this area provides some limited riparian protection.
<b>Other Criteria</b>		
Size/shape	M	A small to moderate sized area but well buffered.
Connectivity	M	A useful part of the network of fauna habitat in the area.
Long-term Sustainability	M	Some management (primarily weed and pest control) will be required 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):

This area has been informally protected by its location on damper slopes in a relatively steep gully. Most parts of the area have little potential for grazing. Development of the area would be difficult.

### Discussion:

This area meets the District Plan criteria for a Significant Natural Area. Important features of the area are the presence of Canterbury tree broom, the riparian protection the forest provides and the contribution the forest and shrubland make to the network of fauna habitat in the wider area.





# TIMARU DISTRICT SNA SURVEY

AREA 639

**Area Name:** Shag Stream

**Location (central map reference):** J37: 650-981

**Ecological District:** Orari

**Surveyors:** Mike Harding

**Property:** O'Carroll

**Nearest Locality:** Peel Forest

**Area Size (ha):** 35.36

**Altitude (m):** 370-600

**Survey Time:** 3 hours

**Survey Date:** 27-03-08

## General Description:

This SNA covers remnant and regenerating indigenous vegetation in the middle and upper reaches of Shag Stream at the centre of the property. It lies mostly on moderately-steep to steep slopes, predominantly on shady south or southeast-facing slopes. It is bisected by a recently-constructed vehicle track that provides access through the property. The SNA primarily covers forested parts of the catchment, though includes smaller areas of scrub, shrubland, fernland and tussockland where they buffer the forest.

## Plant Communities:

The central part of the SNA, in the upper valley and alongside the stream in the lower valley, supports mixed hardwood forest. Lower altitude slopes support shrubland and scrub. Higher altitude slopes support shrubland, fernland and tussockland. These plant communities are described separately below. Naturalized (exotic) species are indicated with an asterisk\*.

### Forest:

The forest canopy is variously dominated by broadleaf, mountain ribbonwood and fuchsia. Other canopy species are kowhai, three-finger, cabbage tree, matipo, wineberry, mountain akeake, bush lawyer, pohuehue and scattered trees of mountain totara.

Important understorey and groundcover species are fuchsia, native jasmine, prickly shield fern, pennywort, and wall lettuce\*. One plant of the locally-uncommon *Lycopodium varium* was observed.

Additional species present at the forest margin are *Coprosma propinqua*, *Coprosma* sp. 't', *Coprosma rigida*, koromiko, Canterbury tree broom, tauhinu, turpentine shrub, Himalayan honeysuckle\*, mountain kiokio, mountain flax, tutu, prickly shield fern, thousand-leaved fern, gorse\*, *Calystegia tuguriorum* and foxglove\*. Additional species present near the stream are *Blechnum fluviatile*, *Blechnum chambersii*, hen and chickens fern and bush lily.

### Lower altitude shrubland:

This plant community is dominated by *Coprosma propinqua*, *Coprosma* sp. 't' and *Coprosma rigida*. Other species present are mountain akeake, porcupine shrub, mountain wineberry, bush lawyer, lawyer, scrub pohuehue, elderberry\* and necklace fern. Present on the margins are horehound\*, thistles\*, and occasionally burdock\* and gorse\*.

This community grades upslope to fernland dominated by tutu, prickly shield fern, mountain flax, bracken, silver tussock, pasture grasses\* and scattered narrow-leaved snow tussock.

### Higher altitude shrubland, fernland and tussockland:

Shrubland-fernland at the bush edge is dominated by mountain flax, tutu, mountain kiokio and bush lawyer. Other species present are mountain akeake, mountain ribbonwood, broadleaf, fuchsia, three-finger, Himalayan honeysuckle\*, *Coprosma propinqua*, koromiko, golden speargrass, scrambling fuchsia, thousand-leaved fern, *Blechnum penna-marina*, prickly shield fern, bracken, wall lettuce\* and foxglove\*.

This community grades upslope to tussockland dominated by narrow-leaved snow-tussock (up to 50% cover), cotton daisy, blue tussock, fescue tussock, browntop\*, sweet vernal\* and mountain kiokio.

Other species present are *Coprosma propinqua*, silver tussock, golden speargrass, mountain flax, snowberry, bush snowberry, tutu, bush lawyer, *Blechnum penna-marina*, *Anisotome aromatica*, mouse-ear hawkweed\*, patotara, *Raoulia subsericea*, wire moss, *Kelleria dieffenbachii*, catsear\*, *Gonocarpus montanus*, *Euphrasia* sp., Maori onion, thousand-leaved fern, harebell, *Brachyglottis bellidioides*, *Helichrysum bellidioides*, *Helichrysum filicaule*, *Asplenium appendiculatum*, *Oxalis* sp. and small patches of gorse\*.

## Birds/Fauna Observed:

Native birds observed during this inspection were fantail, grey warbler, tomtit, rifleman, bellbird, kereru and falcon.

**Notable Flora, Fauna and Habitats:**

Notable features of this SNA are the diversity of plant communities and habitats present, the extent and altitudinal range of the area, the presence of rare and threatened species (Canterbury tree broom, rifleman, kereru and falcon), the locally-uncommon *Lycopodium varium*, the riparian protection it offers to Shag Stream, the habitat the area provides for forest birds and the contribution it makes to fauna habitat in the wider area.

**Notable Plant and Animal Pests:**

Gorse is probably the most important plant pest present. There are scattered clumps of gorse at several locations near the forest margin. Other weeds present, such as Himalayan honeysuckle, burdock and thistles do not pose a significant threat to the indigenous plant communities. Animal pests were not surveyed.

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

This area of indigenous vegetation is not fenced, but is buffered to some extent by its location on steeper slopes. The area lies close to other areas of indigenous vegetation in nearby stream catchments.

**Condition and Management Issues:**

The forest canopy is in most places in reasonably good condition; the understorey is open in places. The area has been bisected by a recently constructed vehicle track, though the main upper valley forest is largely undisturbed. Recent tenure review has apparently placed restrictions on the use of the upper part of this area.

**ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:**

Primary Criteria	Rank	Notes
Representativeness	M/H	A good example of indigenous vegetation typical of the ecological district, including components (such as mountain totara) that are representative of the original vegetation.
Rarity	M/H	Provides habitat for an 'at risk' plant species : Canterbury tree broom (range restricted); and for threatened bird species: rifleman, kereru and falcon (all gradual decline).
Diversity and pattern	M	A relatively diverse range of species and communities, though diversity is reduced from that originally present.
Distinctiveness/special features	M/H	Covers a relatively wide altitudinal range and provides important protection for Shag Stream.
<b>Other Criteria</b>		
Size/shape	M/H	A relatively large area, narrow in shape but well buffered.
Connectivity	M	Not connected to other protected areas but makes an important contribution to the network of fauna habitat in the area.
Long-term Sustainability	M/H	The size and location of this area provide some protection, though some plant and animal pest control will be required to maintain its ecological values in the long term.

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

This area has been informally protected by its location. Upper parts of the area now apparently have some formal protection. The vehicle track has had a significant effect on part of the area but it provides important access to the more remote parts of the property. The area offers only limited potential for the development of grazing land.

**Discussion:**

This area easily meets the District Plan criteria for a Significant Natural Area. It is the largest area of contiguous indigenous vegetation on the property and covers a relatively wide altitudinal range. Other important features are the diversity of plant communities and habitats present, the presence of rare and threatened species (Canterbury tree broom, rifleman, kereru and falcon), the riparian protection it offers to Shag Stream, the habitat the area provides for forest birds and the contribution it makes to fauna habitat in the wider area.

# TIMARU DISTRICT SNA SURVEY

# AREA 641b

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**Area Name:****Location (central map reference):** J37: 662-956**Ecological District:** Orari**Surveyors:** Mike Harding**Property:** O'Carroll**Nearest Locality:** Peel Forest**Area Size (ha):** 23.18**Altitude (m):** 350-500**Survey Time:** 2 hours**Survey Date:** 07-06-07

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**General Description:**

The Area covers two small valleys at the base of the southern foothills of the Mt Peel Range, just east of the lower Orari Gorge.

**Plant Communities:**

The Area supports mixed hardwood forest with a single large matai tree in the main valley and areas of vigorously regenerating hardwood forest on the valley sides. It adjoins an area of mixed hardwood forest to the south on an adjoining property (Area 641a). The main lower valley was surveyed closely during this inspection; other parts of the Area were surveyed from the forest edges. These plant communities are described below. Naturalized (self-introduced) species are indicated with an asterisk\*.

Lower valley forest:

Denser taller forest is present in the lower valley. The forest canopy here is dominated by kowhai, broadleaf and five-finger. Other canopy species are lemonwood, matipo, lancewood, mapou, mahoe, marbleleaf, wineberry, cabbage tree, lowland ribbonwood, narrow-leaved lacebark, kaikomako, fuchsia and bush lawyer. One very large matai tree is present. This impressive specimen has a trunk diameter (at breast height) of approximately 155 cm and is one of the largest matai trees observed so far during this survey of the Timaru District.

Understorey species present are *Coprosma rotundifolia*, poataniwha, bush lawyer, mapou, koromiko, mahoe, horopito, fuchsia, marbleleaf, matai, kowhai, *Coprosma rigida*, *C. crassifolia* and pate.

Ground cover species present are thousand-leaved fern, *Hypolepis rufobarbata*, prickly shield fern, *Blechnum fluviatile*, *B. minus*, *B. chambersii*, *B. penna-marina*, hen and chickens fern, *Leptopteris hymenophylloides*, mountain tree fern, hound's tongue fern, leather-leaf fern, *Pellaea rotundifolia*, bush lily and pennywort.

Species commonly present on the forest margin are bush lawyer, Himalayan honeysuckle\*, gorse\*, bracken, foxglove\*, *Calystegia tuguriorum* and native jasmine.

Upper valley/hill slope forest:

The forest canopy in the upper valleys and on the valley sides is dominated by broadleaf, fuchsia, matipo, five-finger, cabbage tree, lemonwood, lancewood, kowhai, wineberry, mapou and bush lawyer.

The forest understorey was not surveyed, though is likely to support a similar range of species to those listed above.

Species commonly present on the forest margin are mountain akeake, *Coprosma* sp. 't', *C. propinqua*, Himalayan honeysuckle\*, gorse\*, bush lawyer, bracken, prickly shield fern and mountain kiokio.

This forest grades on upper slopes to a dense fernland dominated by mountain kiokio and/or prickly shield fern.

**Birds Observed:**

Native birds observed during this brief visit were bellbird, warbler, silvereve, fantail, kereru and tomtit.

**Notable Flora, Fauna and Habitats:**

Notable features of this forest remnant are the presence of remnant and regenerating podocarps (matai), the presence of typically lowland species (lowland ribbonwood and kaikomako), the presence of the locally uncommon mountain tree fern, the presence of kereru (threat status: gradual decline), the size of the area and the habitat the area provides for birds and possibly bats (long-tailed bats have been recorded nearby in Peel Forest).

**Notable Plant and Animal Pests:**

No significant plant pests were observed during this inspection. Himalayan honeysuckle and gorse are present on the forest margins, though do not pose a significant threat to the forest. Possum sign was observed. Two goats were observed in an adjoining paddock.

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

This forest remnant is fenced along most of its boundaries, though appears to be grazed. It is well buffered by its location in moderately-incised valleys with south-facing aspects. The Area lies very close to the identified range of long-tailed bat (a nationally endangered species) in South Canterbury and supports older trees that provide suitable roost sites for bats.

**Condition and Management Issues:**

The canopy of this forest remnant is in relatively good condition. The understorey of the part of the forest visited (in the lower valley) is quite open. The most worthwhile management action for the better protection of this forest area would be the removal of grazing.

**ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:**

Primary Criteria	Rank	Notes
Representativeness	M/H	A good example of indigenous forest that is typical of the ecological district.
Rarity	M	The forest provides habitat for kereru (gradual decline) and possibly long-tailed bat.
Diversity and pattern	M	Species diversity is reduced from that originally present.
Distinctiveness/special features	M	A good sequence of vegetation offering riparian protection.
Other Criteria		
Size/shape	M/H	A relatively large area, with a good shape and well buffered.
Connectivity	M	Adjoins other forest along its lower boundary, and is part of a network of fauna habitat in the foothills.
Long-term Sustainability	M/H	The area is resilient and will survive in the long-term without intervention, provided it is not grazed intensively.

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

This area of forest has been retained and informally protected by the landowners. It appears that the area has some formal protection as an outcome of land tenure review. Protection of the area adds character and amenity value to the property, though may limit the potential for farm development. Some management may be required to maintain the ecological values of this area in the long-term.

**Discussion:**

This forest remnant easily meets the District Plan criteria for a Significant Natural Area. Important attributes are the presence of remnant and regenerating podocarps (matai), the presence of typically lowland and locally uncommon species, the habitat the area provides for birds and possibly bats, the size of the area and the role it plays as part of a network of fauna habitat in the wider area.

# TIMARU DISTRICT SNA SURVEY

AREA 641c

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<b>Area Name:</b>	<b>Property:</b> O'Carroll
<b>Location (central map reference):</b> J37: 667-958	<b>Nearest Locality:</b> Peel Forest
<b>Ecological District:</b> Orari	<b>Area Size (ha):</b> 7.86 <b>Altitude (m):</b> 350-450
<b>Surveyors:</b> Mike Harding	<b>Survey Time:</b> 1 hour <b>Survey Date:</b> 07-06-07

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## General Description:

The Area is located on a south-facing slope at the base of the southern foothills of the Mt Peel Range, just east of the lower Orari Gorge.

## Plant Communities:

The Area supports mixed hardwood forest with areas of vigorously regenerating hardwood forest on its margins. This forest was surveyed only from the forest edges. Plant species observed are described below. Naturalized (self-introduced) species are indicated with an asterisk\*.

The forest canopy is dominated by fuchsia, broadleaf and mahoe. Other canopy species are kowhai, cabbage tree, lancewood, wineberry, marbleleaf, mapou, five-finger, lemonwood, bush lawyer and pohuehue. There are some large broadleaf, kowhai and cabbage trees at the northeast corner of the Area.

The forest understorey was not surveyed, though is likely to support a similar range of species to those listed for Area 641b.

Species commonly present on or near the forest margin are gorse\*, prickly shield fern, *Calystegia tuguriorum*, bracken, manuka, Himalayan honeysuckle\*, *Coprosma* sp. 't', *C. rotundifolia*, *C. propinqua*, mapou, pate, mountain akeake, *Olearia bullata* and tauhinu.

The small part of the Area that lies east of the farm track is dominated by manuka. Other species present here are *Olearia bullata*, gorse\*, cabbage tree and *Coprosma* species.

## Birds Observed:

Native birds observed during this brief visit were warbler, fantail, bellbird and harrier.

## Notable Flora, Fauna and Habitats:

Notable features of this forest remnant are the presence of large hardwood trees (especially kowhai and broadleaf), the habitat the Area provides for birds and the location of the Area close to other areas of indigenous vegetation and habitat in the surrounding foothills.

## Notable Plant and Animal Pests:

No significant plant pests were observed during this inspection. Himalayan honeysuckle and gorse are present on the forest margins though do not pose a significant threat to the forest. Possums are likely to be present.

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

This forest remnant is fenced along most of its boundaries, though construction of the fences and associated tracks has caused some unnecessary and significant damage to parts of the forest. The forest is well buffered by its location on a south-facing slope. The Area lies very close to other areas of forest bird habitat.

## Condition and Management Issues:

The core of this forest remnant appears to be in relatively good condition. The most worthwhile management action for this forest area would be its protection from grazing.

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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>M</b>	A modified (regenerating) example of indigenous forest that is typical of the ecological district.
Rarity	<b>M</b>	The forest provides useful habitat for kereru (gradual decline).
Diversity and pattern	<b>M</b>	Species diversity is reduced from that originally present.
Distinctiveness/special features	<b>L/M</b>	
<b>Other Criteria</b>		
Size/shape	<b>M</b>	A relatively small area, but with a good shape and well buffered.
Connectivity	<b>M</b>	Adjoins other forest along its southwest boundary, and is part of a network of fauna habitat in the foothills.
Long-term Sustainability	<b>M/H</b>	The area is resilient and will survive in the long-term without intervention, provided it is not grazed intensively.

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

This area of forest has been retained and informally protected by the landowners. It appears that it has some formal protection as an outcome of land tenure review. Protection of the area adds character and amenity value to the property, though may limit the potential for farm development. Some management may be required to maintain the ecological values of this area in the long-term.

**Discussion:**

This forest remnant meets the District Plan criteria for a Significant Natural Area. Important attributes are the presence of large hardwood trees (especially kowhai and broadleaf), the habitat the Area provides for birds and the location of the Area close to other areas of indigenous vegetation and habitat in the surrounding foothills.

# TIMARU DISTRICT SNA SURVEY

AREA 641d

**Area Name:**

**Location (central map reference):** J37: 660-952

**Ecological District:** Orari

**Surveyors:** Mike Harding

**Property:** O'Carroll

**Nearest Locality:** Peel Forest

**Area Size (ha):** 3.52

**Altitude (m):** 350-450

**Survey Time:** ½ hour

**Survey Date:** 18-03-08

**General Description:**

The Area is located on a south-facing slope at the base of the southern foothills of the Mt Peel Range, just east of the lower Orari Gorge.

**Plant Communities:**

The Area supports mixed hardwood forest with areas of vigorously regenerating hardwood forest on its margins. This forest was surveyed only from the forest edges. Plant species observed are described below. Naturalized (self-introduced) species are indicated with an asterisk\*.

The forest canopy is dominated by fuchsia, broadleaf and mahoe. Other canopy species are lancewood, wineberry, marbleleaf, mapou, five-finger, lemonwood, bush lawyer and pohuehue.

The forest understorey was not surveyed, though is likely to support a similar range of species to those listed for Area 641b.

Species commonly present on or near the forest margin are prickly shield fern, *Calystegia tuguriorum*, bracken, Himalayan honeysuckle\*, *Coprosma* sp. 't', *C. rotundifolia*, *C. propinqua*, mapou, mountain akeake and tauhinu.

**Notable Flora, Fauna and Habitats:**

Notable features of this forest remnant are the habitat the Area provides for birds and the location of the Area close to other areas of indigenous vegetation and habitat in the surrounding foothills.

**Notable Plant and Animal Pests:**

No significant plant pests were observed during this inspection. Himalayan honeysuckle and gorse are present on the forest margins though do not pose a significant threat to the forest. Possums are likely to be present.

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

This area is unfenced. The forest is buffered by its location on a south-facing slope. A vehicle track traverses the lower part of the area. The Area lies very close to other areas of forest bird habitat.

**Condition and Management Issues:**

The core of this forest remnant appears to be in relatively good condition.

**ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:**

Primary Criteria	Rank	Notes
Representativeness	M	A modified (regenerating) example of indigenous forest that is typical of the ecological district.
Rarity	L/M	No rare species were observed, though the forest probably provides some limited habitat for kereru (gradual decline).
Diversity and pattern	M	Species diversity is reduced from that originally present.
Distinctiveness/special features	L/M	
<b>Other Criteria</b>		
Size/shape	M	A relatively small area, with a good shape and well buffered.
Connectivity	M	Adjoins other forest along its southwest boundary, and is part of a network of fauna habitat in the foothills.
Long-term Sustainability	M	The area is reasonably resilient. Its ecological values will survive in the long-term with occasional weed and pest control, provided it is not grazed intensively.

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

This area of forest has been retained and informally protected by the landowners. Protection of the area adds character and amenity value to the property, though may limit the potential for farm development. Some management may be required to maintain the ecological values of this area in the long-term.

**Discussion:**

This forest remnant meets the District Plan criteria for a Significant Natural Area. Important attributes are the habitat the Area provides for birds and the location of the Area close to other areas of indigenous vegetation and habitat in the surrounding foothills.



## 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)	
black nightshade*	<i>Solanum nigrum</i>
blue tussock	<i>Poa colensoi</i>
bog rush	<i>Schoenus pauciflorus</i>
bracken	<i>Pteridium esculentum</i>
broadleaf	<i>Griselinia littoralis</i>
broom*	<i>Cytisus scoparius</i>
browntop*	<i>Agrostis capillaris</i>
burdock*	<i>Arctium minus</i>
bush lawyer	<i>Rubus cissoides</i>
bush lily	<i>Astelia</i> sp.
bush snowberry	<i>Gaultheria antipoda</i>
cabbage tree/ti rakau	<i>Cordyline australis</i>
Canterbury tree broom	<i>Carmichaelia torulosa</i>
catsear*	<i>Hypochoeris radicata</i>
cotton daisy	<i>Celmisia spectabilis</i> var. <i>magnifica</i>
Deptford pink*	<i>Dianthus armeria</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>
grey willow*	<i>Salix cinerea</i>
golden speargrass	<i>Aciphylla aurea</i>
gorse*	<i>Ulex europaeus</i>
hairy pennywort	<i>Hydrocotyle moschata</i>
harebell	<i>Wahlenbergia albomarginata</i>
hen and chickens fern	<i>Asplenium bulbiferum</i>
Himalayan honeysuckle*	<i>Leycesteria formosa</i>
horehound*	<i>Marrubium vulgare</i>
horopito/pepperwood	<i>Pseudowintera colorata</i>
hound's tongue fern	<i>Microsorium pustulatum</i>
jointed rush*	<i>Juncus articulatus</i>
kahikatea/white pine	<i>Dacrycarpus dacrydioides</i>
kaikomako	<i>Pennantia corymbosa</i>
kanuka	<i>Kunzea ericoides</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>
leather-leaf fern	<i>Pyrrosia eleagnifolia</i>
lemonwood	<i>Pittosporum eugenioides</i>
lotus*	<i>Lotus pedunculatus</i>
lowland ribbonwood	<i>Plagianthus regius</i>
mahoe/whiteywood	<i>Melicytus ramiflorus</i>
manuka	<i>Leptospermum scoparium</i>
Maori onion	<i>Bulbinella angustifolia</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>
mountain akeake	<i>Olearia avicenniifolia</i>

mountain beech .....	<i>Nothofagus solandri</i> var. <i>cliffortioides</i>
mountain flax .....	<i>Phormium cookianum</i>
mountain kiokio .....	<i>Blechnum montanum</i>
mountain ribbonwood .....	<i>Hoheria lyallii</i>
mountain totara/Hall's totara .....	<i>Podocarpus hallii</i>
mountain tree fern .....	<i>Cyathea colensoi</i>
mountain wineberry .....	<i>Aristotelia fruticosa</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</i> aff. <i>australis</i>
native jasmine .....	<i>Parsonsia</i> sp.
necklace fern .....	<i>Asplenium flabellifolium</i>
nettle* .....	<i>Urtica</i> sp.
pate .....	<i>Schefflera digitata</i>
patotara .....	<i>Leucopogon fraseri</i>
pennywort .....	<i>Hydrocotyle</i> sp.
poataniwha .....	<i>Melicope simplex</i>
pohuehue .....	<i>Muehlenbeckia australis</i>
porcupine shrub .....	<i>Melicytus alpinus</i>
prickly shield fern .....	<i>Polystichum vestitum</i>
pukio .....	<i>Carex secta</i>
rautahi .....	<i>Carex coriacea</i>
scrambling fuchsia .....	<i>Fuchsia perscandens</i>
scrub pohuehue .....	<i>Muehlenbeckia complexa</i>
sedge .....	<i>Carex</i> sp.
silver tussock .....	<i>Poa cita</i>
snowberry .....	<i>Gaultheria depressa</i>
sweet vernal* .....	<i>Anthoxanthum odoratum</i>
tauhinu .....	<i>Ozothamnus leptophyllus</i>
thousand-leaved fern .....	<i>Hypolepis millefolium</i>
three-finger .....	<i>Pseudopanax colensoi</i>
toetoe .....	<i>Cortaderia richardii</i>
totara .....	<i>Podocarpus totara</i>
turpentine shrub .....	<i>Dracophyllum uniflorum</i>
tutu .....	<i>Coriaria sarmentosa</i>
wall lettuce* .....	<i>Mycelis muralis</i>
water cress* .....	<i>Rorippa</i> sp.
white clover* .....	<i>Trifolium repens</i>
wineberry .....	<i>Aristotelia serrata</i>
wire moss .....	<i>Polytrichum juniperinum</i>
woolly mullein* .....	<i>Verbascum thapsus</i>
Yorkshire fog* .....	<i>Holcus lanatus</i>