

**TIMARU DISTRICT**

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

**GERALDINE FOREST**  
**PORT BLAKELY**



**Report prepared for the Timaru District Council by Mike Harding**  
**December 2012**  
**(Maps and data added April 2020)**

# TIMARU DISTRICT SIGNIFICANT NATURAL AREAS SURVEY

## PROPERTY REPORT

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### PROPERTY DETAILS:

**Owner:** .....Port Blakely Ltd.  
**Valuation Reference:** .....24670/017.00 and 24670/032.00.  
**Address:** .....PO Box 139, Timaru.  
**Location:**.....Waitohi Hill, Te Moana valley and Kakahu Hill, South Canterbury.  
**Ecological Districts:**.....Orari and Geraldine ecological districts.  
**TDC Land Types:**.....Hard Rock Hills and Downs.  
**Land Environments:** .....Q2 (south-eastern hill country) and E3 (rolling foothills).

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### ECOLOGICAL CONTEXT:

This large property comprises Blakely Pacific's Geraldine Forest. Within these extensive plantation forests are areas of young (regenerating) indigenous forest and smaller, but still substantial, areas of old growth indigenous forest. Most parts of the property, in the Hae Hae Te Moana River valley and on Waitohi Hill, lie within the Orari Ecological District. Kakahu Hill lies within Geraldine Ecological District and lower-altitude sites on Waitohi Hill lie at the edge of that ecological district. The main landforms on the property are moderately-steep to steep hill slopes, gentler toe slopes, incised stream valleys and small river terraces.

The original vegetation of this area would have been predominantly podocarp-hardwood forest. Denser podocarp-hardwood (matai-totara-kahikatea-lowland ribbonwood) forest would have occupied older terraces and flats, and tall kanuka-kowhai forest would have been present on recently disturbed surfaces. 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.

Indigenous vegetation on the property forms some of the most extensive and least disturbed indigenous forest in Timaru District. Notable are remnant stands of podocarp-hardwood forest in the main valleys, especially in the valleys on the north and east side of Waitohi Hill (SNAs 42, 54, 71a and 72c). Also notable is the diverse forest remnant on the southeast side of Kakahu Hill (SNA 291b).

A population of one at-risk (naturally uncommon) plant species is present: fierce lancewood (*Pseudopanax ferox*). In addition, populations of at least 25 locally-uncommon plant species are present on the property, including a fern species not recorded previously during SNA surveys in Timaru District (*Blechnum membranaceum*).

Rifleman, an at-risk (declining) species, was observed in most SNAs on the property. Eastern falcon/karearea, a threatened (nationally vulnerable) species, was observed on Kakahu Hill and is likely to be present elsewhere. The property lies close to the existing range of the South Canterbury population of long-tailed bat. This species is regarded as nationally-endangered.

Forests within the SNAs are generally in good condition. The main management issues identified during this survey are the effects of cattle grazing on SNAs in the Te Moana valley, the effect of feral pigs throughout, the presence of feral goats at the Kakahu Hill SNA and the presence of wallaby on Waitohi Hill. A deer fence appears to bisect SNA 72c (Parish covenant) and intensive deer grazing is affecting the upper part of that area. Continued possum control is likely to be necessary for protection of ecological values at the SNAs. A number of invasive weed species are present though none are having a significant effect on the larger SNAs.

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**SIGNIFICANT NATURAL AREAS ON THE PROPERTY:**

The property was surveyed as part of the District-wide survey of Significant Natural Areas between September and December 2012. Nearly all parts of the property were visited and assessed. Twenty separate areas are regarded as significant when assessed against the District Plan criteria.

Area No.	Area Name	Central grid reference	Aprox. size(ha)	Vegetation/habitat type
42a	Maori Gully	J38: 593-795	73.9	Hardwood forest; podocarp forest
42b	Pylon Line	J38: 590-787	13.2	Hardwood forest; manuka scrub
42c	Pylon Line	J38: 592-786	16.3	Hardwood forest; manuka scrub
47a		J37: 590-813	3.7	Hardwood forest
48a		J37: 566-825	5.9	Hardwood forest
48b		J37: 563-825	1.9	Hardwood forest; scrub
48c		J37: 561-824	1.6	Hardwood forest; scrub
48d		J37: 555-822	4.7	Hardwood forest
48e		J37: 545-818	7.9	Hardwood forest
48f		J37: 522-821	1.5	Hardwood forest
49a		J37: 582-811	29.1	Hardwood forest
53a		J37: 581-829	4.4	Hardwood forest
53b		J37: 576-824	9.1	Hardwood forest
54a		J37: 577-820	11.4	Hardwood forest; podocarp forest
54b		J37: 575-814	14.1	Hardwood forest; podocarp forest
62b	Parish Road	J38: 599-779	6.1	Hardwood forest
71a	Bush Road Gully	J38: 595-773	31.3	Hardwood forest; podocarp forest
72c	Trig Road Forest	J38: 595-768	33.2	Hardwood forest; podocarp forest
84	Maslin Covenant	J38: 551-762	17.9	Hardwood forest; podocarp forest
291b	Kakahu Hill Gully	J38: 546-721	16.0	Hardwood forest, with podocarps

These SNAs are illustrated on the aerial photographs below and described in greater detail on the SNA Survey 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 with appropriate management (criterion vii, page B19). SNAs are subject to confirmation by Council after regarding the matters listed in the District Plan (pages B19-B20). It is expected that SNAs will eventually be listed in the District Plan by way of a notified plan change.

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

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

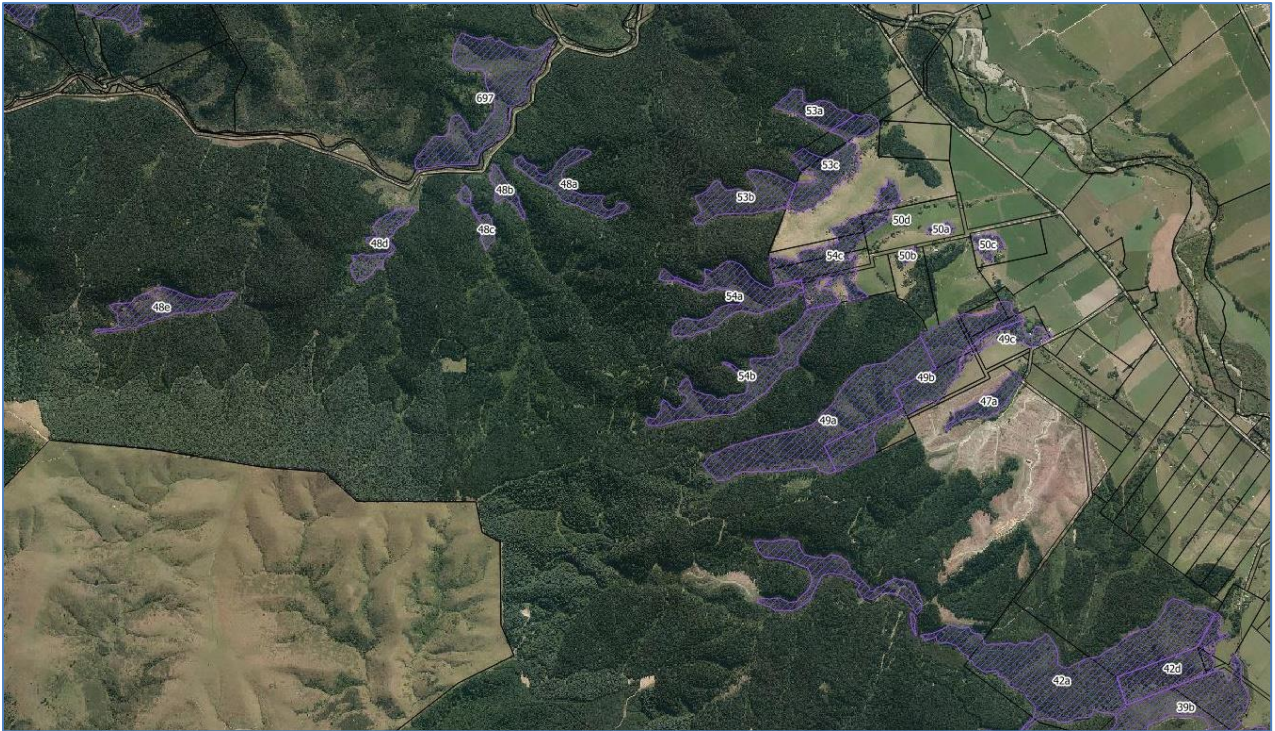
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**OTHER AREAS INSPECTED ON THE PROPERTY:**

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. These are generally smaller or more modified areas of indigenous vegetation.

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.





Port Blakely, Geraldine Forest, northern SNAs.



Port Blakely, Geraldine Forest, southern SNAs.



# TIMARU DISTRICT SNA SURVEY

SNA 42a

**Area Name:** Maori Gully

**Location (central map reference):** J38: 593-795

**Ecological District:** Orari

**Surveyors:** Mike Harding

**Property:** Port Blakely

**Nearest Locality:** Pleasant Valley

**Area Size (ha):** 73.93

**Altitude (m):** 250-500

**Survey Time:** 5 hours

**Survey Date:** 13-12-12

## General Description:

This SNA lies in a large valley on the eastern flank of Waitohi Hill. It occupies the lower slopes and floors of two main tributaries of an east-draining valley. It is surrounded by plantation pine forest on all boundaries except at its lower eastern margin where it adjoins indigenous forest on an adjoining property.

## Plant Communities:

Two main plant communities are present: low-stature hardwood forest on valley sides; and podocarp-hardwood forest on the lower slopes and valley bottoms. These plant communities are described separately below. Naturalized (exotic) species are indicated with an asterisk\*.

### Hardwood forest on valley sides:

The forest canopy is dominated by broadleaf, five-finger, lemonwood, lancewood, marbleleaf, mapou, matipo, mahoe, kanuka, kowhai, bush lawyer, clematis and native jasmine. Other canopy species are cabbage tree and pohuehue.

The forest understorey is variously dominated by *Coprosma rhamnoides*, mapou and mahoe. Other understorey species are *Coprosma rotundifolia*, marbleleaf, matipo, five-finger, broadleaf, lancewood, lemonwood, poataniwha, pate, wineberry, native convolvulus, bush lawyer and clematis. Occasionally present are *Coprosma crassifolia*, *Coprosma rigida*, horopito, kahikatea saplings, totara saplings soft tree fern, silver fern, supplejack and, on tree trunks, climbing rata and hound's tongue fern.

The forest floor is dominated in most places by crown fern or hen and chickens fern. Other ground-cover species are prickly shield fern, common shield fern, *Blechnum procerum*, *Blechnum fluviatile*, *Blechnum chambersii*, *Blechnum vulcanicum*, mountain kiokio, hound's tongue fern, necklace fern, hanging spleenwort, *Asplenium hookerianum*, *Asplenium richardii*, *Asplenium appendiculatum*, button fern, *Hypolepis ambigua*, *Leptopteris hymenophylloides*, *Lycopodium volubile*, bush lily, *Libertia ixioides*, hookgrass, hairy pennywort, nettle and seedlings of mahoe, lemonwood, pate, mapou, cabbage tree, fuchsia, native jasmine, clematis, pohuehue and *Coprosma* species.

Species commonly present at the forest margin are pate, koromiko, mountain akeake, *Olearia arborescens*, *Coprosma tayloriae*, *Coprosma rhamnoides*, *Coprosma rotundifolia*, *Coprosma propinqua*, manuka, bush snowberry, gorse\*, Himalayan honeysuckle\*, Spanish heath\*, tutu, *Carex geminata*, water fern, *Hypolepis ambigua*, *Hypolepis rufobarbata*, thousand-leaved fern, *Blechnum penna-marina*, mountain kiokio, bracken, *Lycopodium volubile*, foxglove\*, *Hydrocotyle heteromeria* and hairy pennywort. Grey willow\* is present at the forest margin near the stream.

### Podocarp-hardwood forest:

Additional species in the forest canopy on the valley floor are wineberry, fuchsia and narrow-leaved lacebark. Emergent from the forest canopy are tall trees of kahikatea, totara, matai and lowland ribbonwood.

Forest understorey species are *Coprosma rotundifolia*, horopito, lemonwood, mahoe, five-finger, pate, weeping mapou, narrow-leaved lacebark, poataniwha, saplings of kahikatea, clematis and, on tree trunks, hound's tongue fern.

Ground-cover species are prickly shield fern, hen and chickens fern, hanging spleenwort, button fern, *Blechnum chambersii*, *Blechnum fluviatile*, *Leptopteris hymenophylloides*, bush lily and *Australina pusilla*. Additional species present at forest openings are manuka, mountain flax, *Luzula congesta*\*, bush lawyer, *Uncinia clavata*, green-hooded orchid (*Pterostylis* sp.), cardamine, bidibid, tutu and kiokio.

An unusual plant community is present on a river terrace at the main fork in the valley. The forest canopy is dominated by broadleaf with emergent young totara and the understorey by *Coprosma rhamnoides* and kahikatea saplings. Kahikatea seedlings and *Lycopodium volubile* are common on the forest floor. Other species present are clematis, native jasmine, lancewood, weeping mapou, poataniwha, yellowwood, bush snowberry, *Blechnum penna-marina*, *Cystopteris tasmanica* and bush rice grass.

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

Native birds observed during this survey were bellbird, rifleman, grey warbler, brown creeper, fantail, shining cuckoo and welcome swallow. Also likely to be present are kereru and silvereye.

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

Important features of this area are the presence of old podocarp trees (kahikatea, matai and totara), the diversity of plant species (90 indigenous vascular species), locally uncommon plant species (*Australina pusilla*, *Blechnum vulcanicum*, *Hypolepis rufobarbata*, silver fern, *Cystopteris tasmanica* and bush rice grass), the habitat the area provides for forest birds including an at-risk (declining) species (rifleman) and the extent of the area.

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

The forest is largely free of plant pests. Himalayan honeysuckle and gorse are present at margins and in some forest openings. Important plant pests present at the forest margin are Spanish heath and grey willow. Animal pests were not surveyed. Sign of pigs and possums was observed.

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

This large area is well buffered by its position on relatively steep valley sides. It is not fenced but is largely surrounded by plantation forest. The area is linked to a long corridor or regenerating forest along the route of power lines and lies close to other areas of indigenous forest in nearby gullies.

### **Condition and Management Issues:**

The forest appears in good condition apart from localized pig rooting. The most important management issues are control of Spanish heath and grey willow and continued control of animals pests.

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## **ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:**

<b>Primary Criteria</b>	<b>Rank</b>	<b>Notes</b>
Representativeness	<b>H</b>	Central parts of the area in the valley bottoms are representative of the forest originally present in the ecological district.
Rarity	<b>M/H</b>	Provides good habitat for an at-risk bird species (rifleman) and supports several locally-uncommon plant species.
Diversity and pattern	<b>H</b>	Indigenous vascular plant species diversity (90) is one of the highest recorded in the ecological district.
Distinctiveness/special features	<b>M/H</b>	The presence of an unusual terrace plant community is notable.
<b>Other Criteria</b>		
Size/shape	<b>H</b>	A large area for this part of the ecological district.
Connectivity	<b>M/H</b>	Linked to other regenerating indigenous forest and lies close to other forest remnants.
Long-term Sustainability	<b>M/H</b>	Some animal pest control is probably required 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 large area has been set aside from plantation forestry by Blakely Pacific. It is one of the larger more valuable forest remnants in this part of the ecological district.

**Discussion:**

This area meets the District Plan criteria for a Significant Natural Area. Important features of the area are the presence of old podocarp trees (kahikatea, matai and totara), the diversity of plant species (90 indigenous vascular species), six locally uncommon plant species, the habitat the area provides for forest birds including an at-risk (declining) species (rifleman) and the extent of the area.

## TIMARU DISTRICT SNA SURVEY

## SNAs 42b and 42c

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<b>Area Name:</b> Pylon line	<b>Property:</b> Port Blakely
<b>Ecological District:</b> Orari	<b>Nearest Locality:</b> Pleasant Valley
<b>AREA 42b: Location</b> (central map ref.): J38: 590-787	<b>Area Size (ha):</b> 13.2 <b>Altitude (m):</b>
<b>AREA 42c: Location</b> (central map ref.): J38: 592-786	<b>Area Size (ha):</b> 16.3 <b>Altitude (m):</b>
<b>Surveyors:</b> Mike Harding	<b>Survey Time:</b> 1 hour <b>Survey Date:</b> 28-12-12

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### General Description:

These two SNAs comprises the corridors of regenerating and/or modified indigenous vegetation that are present beneath the two electricity pylon lines that traverse Geraldine Forest on the northeast side of Waitohi Hill.

### Plant Communities:

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

#### Hardwood forest:

This plant community occupies the deeper gullies, mostly beneath the northern pylon line. It adjoins SNA 42a at the main gullies.

Species present in the forest canopy are mahoe, marbleleaf, kowhai, cabbage tree, lancewood, matipo, mapou, lemonwood, broadleaf and Himalayan honeysuckle\*.

The forest understorey was not surveyed, though it is likely to support similar species to those present in nearby SNAs, such as SNA 42a.

#### Manuka scrub:

This low-stature community occupies the higher slopes, mostly beneath the southern pylon line. It is a young community, resulting from more recent clearance. The scrub canopy is dominated by manuka. Other canopy species present at varying densities are broadleaf, lemonwood, matipo, lancewood, mapou and occasionally emergent trees of radiata pine\* and Douglas fir\*.

Species commonly present at the scrub margins are Spanish heath\*, Himalayan honeysuckle\*, gorse\*, *Coprosma propinqua*, *Coprosma tayloriae*, tauhinu, bush snowberry, mountain akeake, mountain kiokio, *Blechnum vulcanicum*, *Lycopodium volubile* and a number of indigenous herbs.

Understorey or ground-cover species observed were five-finger, broadleaf, lancewood, *Coprosma rhamnoides*, *Coprosma rigida*, mapou, Spanish heath\*, clematis and *Lycopodium volubile*.

### Birds/Fauna Observed:

Native birds observed during this survey were bellbird, kereru, rifleman, brown creeper, grey warbler, fantail, silvereye, shining cuckoo and welcome swallow.

### Notable Flora, Fauna and Habitats:

Important features of these areas are the habitat they provide for forest birds and that they link other more significant areas of indigenous vegetation.



**Notable Plant and Animal Pests:**

Himalayan honeysuckle, Spanish heath and gorse are notable plant pests. However, these species are unlikely to hinder regeneration of indigenous woody species. Scattered emergent radiata pine and Douglas fir trees pose a greater threat. Animal pests were not surveyed.

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

These areas are defined by former clearance, or by areas excluded from plantation forest, to maintain an open corridor for the power lines. They are well buffered in places and less so in others. They adjoin and link other indigenous vegetation (mostly SNAs) at several locations.

**Condition and Management Issues:**

These areas have been managed to provide an open corridor for the electricity pylon lines. At some locations, notably on higher spurs, vegetation control or removal will be necessary to maintain the pylon corridor. At other locations, notably in deeper gullies, the regenerating indigenous forest is unlikely to reach a height that would affect the electricity transmission lines. However, removal of emergent pine and Douglas fir trees may be necessary.

**ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:**

Primary Criteria	Rank	Notes
Representativeness	<b>M</b>	Indigenous vegetation typical of regenerating forest in this part of the ecological district.
Rarity	<b>M</b>	Provides habitat for an at-risk bird species (rifleman).
Diversity and pattern	<b>M</b>	Plant species diversity is moderate, as expected for regenerating forest, though a diverse range of indigenous herbs are present at the forest and scrub margins.
Distinctiveness/special features	<b>L</b>	No distinctive or special features present.
<b>Other Criteria</b>		
Size/shape	<b>M</b>	Relatively large areas, though long and narrow.
Connectivity	<b>M/H</b>	Provide very effective links between other areas of indigenous vegetation.
Long-term Sustainability	<b>?</b>	Depends on management required for maintenance of the electricity transmission line.

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

If these areas are included as SNAs, the requirement to maintain an open corridor for the electricity transmission lines will need to be acknowledged.

**Discussion:**

These areas meet the District Plan criteria for a Significant Natural Area. Important features of these areas are the habitat they provide for forest birds and that they link other more significant areas of indigenous vegetation.

# TIMARU DISTRICT SNA SURVEY

SNA 47a

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<b>Area Name:</b>	<b>Property:</b> Port Blakely
<b>Location (central map reference):</b> J37: 590-813	<b>Nearest Locality:</b> Te Moana
<b>Ecological District:</b> Orari/Geraldine	<b>Area Size (ha):</b> 3.7 <b>Altitude (m):</b> 250-280
<b>Surveyors:</b> Mike Harding	<b>Survey Time:</b> 1 hour <b>Survey Date:</b> 08-11-12

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## General Description:

This SNA lies on the southeast-facing slopes of a small spur at the eastern edge of Blakely Pacific's Geraldine Forest, alongside Quantock Road near Te Moana.

## Plant Communities:

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

The forest canopy is dominated by kanuka and mahoe. Trunk diameters (at breast height) of the larger kanuka trees are up to 50cm. Other canopy species are lemonwood, fuchsia, cabbage tree, pohuehue and occasional large emergent pine\* trees.

At the southern part of the SNA, forest understorey is dominated by soft tree fern and mahoe. Elsewhere, mahoe is dominant. Other understorey species are silver fern, five-finger, mapou, pate, wineberry, fuchsia, lemonwood, matipo, horopito, *Coprosma rhamnoides*, *Coprosma rotundifolia*, native jasmine, Himalayan honeysuckle\*, laurel\* (uncommon), elderberry\*, bush lawyer and pohuehue.

Ground-cover species are prickly shield fern, *Blechnum chambersii*, *Blechnum fluviatile*, *Blechnum procerum*, mountain kiokio, hen and chickens fern, water fern, *Leptopteris hymenophylloides*, *Hypolepis ambigua*, hookgrass, sedge (*Carex* sp.) and seedlings of marbleleaf, wineberry, mahoe, five-finger, fuchsia and *Coprosma* species.

Additional species present on the forest margin are bracken, blackberry\*, gorse\* and crack willow\* (along stream).

## Birds/Fauna Observed:

Native birds observed during this brief survey were rifleman, bellbird, fantail, grey warbler, brown creeper and kingfisher.

## Notable Flora, Fauna and Habitats:

Important features of this area are the habitat the area provides for forest birds including rifleman (an at-risk species), the dominance of soft tree fern in parts of the area, and its proximity to other areas of indigenous forest.

## Notable Plant and Animal Pests:

Himalayan honeysuckle, elderberry and laurel were observed in the forest. Of these, laurel is the only species that poses a significant threat. Animal pests were not surveyed. Little animal sign was observed and the forest understorey is dense and healthy, especially at the southern part of the area. No cattle damage was observed. Tall pine trees are present.

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

This area lies at the property boundary and adjoins recently-felled plantation forest along most boundaries and Quantock Road along its southeast boundary. It is more isolated than most forest remnants in this area, though appears to have had less browsing/grazing pressure than other remnants. It lies close to other areas of indigenous forest, including SNAs.

**Condition and Management Issues:**

Removal of laurel and continued protection of the forest from animal browse are the most important management issues. The presence of several tall pine trees detracts from the ecological value of the area, though removal of the trees may damage those values.

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**ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:**

Primary Criteria	Rank	Notes
Representativeness	<b>M</b>	An example of young (regenerating) indigenous forest typical of this part of the ecological district.
Rarity	<b>M</b>	Provides habitat for an at-risk (declining) bird species (rifleman) and supports a healthy population of a locally uncommon plant species (silver fern: <i>Cyathea dealbata</i> ).
Diversity and pattern	<b>L</b>	Species diversity is relatively low.
Distinctiveness/special features	<b>M</b>	The dominance of tree ferns in the forest understorey at parts of the area is a special feature.
<b>Other Criteria</b>		
Size/shape	<b>M</b>	A small area, but a good shape and buffered by its location.
Connectivity	<b>M</b>	Lies close to other areas of indigenous vegetation.
Long-term Sustainability	<b>M</b>	Some plant and animal pest control will probably be required to maintain ecological values in the long term.

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

This area has been set aside from plantation forestry by Blakely Pacific. Parts of the area are potentially suitable for farming or forestry development.

**Discussion:**

This area just meets the District Plan criteria for a Significant Natural Area. Important features of the area are the habitat the area provides for forest birds including rifleman (an at-risk species), the dominance of soft tree fern in parts of the area, and its proximity to other areas of indigenous forest.

# TIMARU DISTRICT SNA SURVEY

SNA 48a

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<b>Area Name:</b>	<b>Property:</b> Port Blakely
<b>Location (central map reference):</b> J37: 566-825	<b>Nearest Locality:</b> Te Moana
<b>Ecological District:</b> Orari	<b>Area Size (ha):</b> 5.9 <b>Altitude (m):</b> 320-500
<b>Surveyors:</b> Mike Harding	<b>Survey Time:</b> 2½ hours <b>Survey Date:</b> 25-10-12

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## General Description:

This SNA lies on moderately steep slopes in a large gully of the Hae Hae Te Moana South Branch valley. It extends from just above the road in the valley floor to approximately 500m altitude on the upper slopes. It is surrounded by plantation pine forest.

## Plant Communities:

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

The forest canopy is dominated by broadleaf, kowhai and lancewood. Other canopy species are fuchsia, cabbage tree, mapou, matipo, five-finger, marbleleaf, wineberry, Himalayan honeysuckle\*, mountain akeake, mountain ribbonwood (uncommon), bush lawyer, clematis, native jasmine and pohuehue. One large emergent kahikatea tree is present near the stream forks at the centre of the area. It has a trunk diameter (at breast height) of 92cm. One other young kahikatea tree is present in the forest canopy here. One laurel\* tree was observed beside the stream.

Forest understorey species are weeping mapou, mapou, marbleleaf, broadleaf, five-finger, wineberry, narrow-leaved mahoe, mahoe, pate, horopito, koromiko, korokio, kowhai, *Coprosma rigida*, *Coprosma crassifolia*, mountain wineberry hybrids, poataniwha (uncommon), Himalayan honeysuckle\*, *Clematis marata*, native convolvulus and, on tree trunks, hound's tongue fern.

Important ground-cover species over most parts of the area are prickly shield fern and bush lily. Hound's tongue fern is dominant at bouldery sites. Other species present are common shield fern, necklace fern, hen and chickens fern, *Asplenium appendiculatum*, *Asplenium hookerianum*, *Asplenium richardii*, *Blechnum penna-marina*, *Blechnum fluviatile*, mountain kiokio, kiokio, button fern, male fern\*, *Libertia ixioides* (uncommon), bidibid, sedge (*Carex* sp.), hookgrass, hairy pennywort, cardamine and *Schizeilema trifoliolatum* (uncommon) and seedlings of mapou, kowhai, broadleaf, lancewood, narrow-leaved mahoe, wineberry, matipo, five-finger, mountain ribbonwood, pohuehue, clematis and native jasmine. Species present at damper sites are *Blechnum chambersii*, thousand-leaved fern and giant buttercup\*.

Species commonly present at the forest margin are *Coprosma propinqua*, *Coprosma rigida*, *Coprosma tayloriae*, *Coprosma rugosa*, weeping mapou, korokio, matagouri, porcupine shrub, scrub pohuehue, lawyer, Himalayan honeysuckle\*, broom\*, tutu, *Hypolepis ambigua*, bracken, foxglove\*, *Dichondra repens*, selfheal\*, hawksbeard\*, lotus\* and columbine\*.

## Birds/Fauna Observed:

Native birds observed during this brief survey were bellbird, rifleman, fantail, grey warbler, tomtit and brown creeper.

## Notable Flora, Fauna and Habitats:

Important features of this area are the presence of an old kahikatea tree, the diversity of plant species, the habitat the area provides for forest birds including an at-risk (declining) bird species (rifleman) and the size of the area.

## Notable Plant and Animal Pests:

Himalayan honeysuckle and laurel are the only woody plant pests observed within the forest. Himalayan honeysuckle is ubiquitous whereas laurel is uncommon. A wide range of naturalized plants are present at the



forest margin. Animal pests were not surveyed, but the area is noticeably affected by pig rooting and cattle trampling. Possum sign was observed.

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

The area is completely surrounded by plantation pine forest. It is also protected and buffered by its location on steeper slopes in an incised gully. It lies near to other similar native forest remnants in nearby gullies.

**Condition and Management Issues:**

The forest canopy appears in good condition. The forest understorey is affected by cattle trampling and browsing and in places by pig rooting (including very fresh rooting). The most important management actions are removal of laurel (as its bird-dispersed fruits threaten other parts of the area) and removal or control of cattle and pigs.

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**ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:**

Primary Criteria	Rank	Notes
Representativeness	M/H	A good example of regenerating forest with remnant kahikatea, typical of the ecological district.
Rarity	M	Provides good habitat for an at-risk (declining) bird species (rifleman).
Diversity and pattern	M/H	A relatively diverse range of plant species is present (65 indigenous vascular species).
Distinctiveness/special features	M	The large kahikatea tree is a notable feature.
<b>Other Criteria</b>		
Size/shape	H	A moderate-sized area that is well buffered.
Connectivity	M	Lies close to other areas of indigenous forest.
Long-term Sustainability	M/H	Some plant and animal pest control is probably required to maintain ecological values in the long term.

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

This area has been set aside from commercial use by the landowner. The steepness of the site limit its suitability for other uses.

**Discussion:**

This area easily meets the District Plan criteria for a Significant Natural Area. Important features of the area are the presence of an old kahikatea tree, the diversity of plant species, the habitat the area provides for forest birds including an at-risk (declining) bird species (rifleman) and the size of the area.

# TIMARU DISTRICT SNA SURVEY

# SNAs 48b and 48c

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<b>Area Name:</b>	<b>Property:</b> Port Blakely		
<b>Ecological District:</b> Orari	<b>Nearest Locality:</b> Te Moana		
<b>SNA 48b : Location</b> (central map ref.): J37: 563-825	<b>Area Size (ha):</b> 1.9	<b>Altitude (m):</b> 320-400	
<b>SNA 48c : Location</b> (central map ref.): J37: 561-824	<b>Area Size (ha):</b> 1.6	<b>Altitude (m):</b> 320-400	
<b>Surveyors:</b> Mike Harding	<b>Survey Time:</b> 3 hours	<b>Survey Date:</b> 25-10-12	

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## General Description:

These two SNAs lie in adjacent gullies in the Hae Hae Te Moana South Branch valley. They are connected across lower slopes by patches of regenerating native forest. Only the lower parts of these areas were surveyed and they are described together here as they support similar plant communities.

## Plant Communities:

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

### Hardwood forest:

The main areas of forest are dominated by broadleaf, matipo, five-finger, lancewood and bush lawyer. Other canopy species are cabbage tree, fuchsia, marbleleaf, mountain akeake, weeping mapou, kowhai, Himalayan honeysuckle\*, native broom, clematis and pohuehue.

Other species present are koromiko, mountain wineberry, wineberry hybrids, *Coprosma rigida*, tutsan\*, Khasia berry\* (uncommon), *Blechnum fluviatile*, *Blechnum vulcanicum*, *Blechnum penna-marina*, kiokio, swamp kiokio, prickly shield fern, common shield fern, necklace fern, hen and chickens fern, *Asplenium appendiculatum*, *Asplenium richardii*, hound's tongue fern, thousand-leaved fern, button fern, male fern\*, bush lily, *Carex secta*, bidibid, hookgrass, pennywort, wall lettuce\* and hawksbeard\*.

### Regenerating scrub/low forest:

This community is present at the forest margins and along lower slopes that connect the two areas of forest.

Canopy species are *Coprosma propinqua*, *Coprosma crassifolia*, *Coprosma tayloriae*, *Coprosma rigida*, korokio, matipo, lancewood, broadleaf, weeping mapou, mountain akeake, native broom and Himalayan honeysuckle\*.

Other species present are matagouri, broom\*, gorse\*, bittersweet\*, bracken, hound's tongue fern, button fern, necklace fern, *Asplenium appendiculatum*, prickly shield fern, hard fern, *Blechnum penna-marina*, scrub pohuehue, lawyer, native convolvulus, Chilean flame creeper\*, vetch\*, woolly mullein\*, foxglove\*, patotara, toatoa, *Pterostylis* orchid, *Geranium microphyllum* and tutu.

## Birds/Fauna Observed:

Native birds observed during this brief survey were fantail, bellbird, brown creeper, grey warbler, rifleman, and tomtit.

## Notable Flora, Fauna and Habitats:

Important features of these areas are the habitat they provide for an at-risk bird species (rifleman), the presence of several locally uncommon plant species (*Blechnum vulcanicum*, native broom and *Carex secta*) and their proximity to other areas of indigenous forest.

## Notable Plant and Animal Pests:

Himalayan honeysuckle is the most dominant plant pest present. Other notable weeds are Khasia berry, gorse, broom and tutsan. Animal pests were not surveyed, though pig and possum sign was observed.

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

Both areas are well buffered by their locations on steeper slopes in narrow gullies. They are surrounded by plantation pine forest.

**Condition and Management Issues:**

Most parts of these areas appear to be in good condition, though upper parts weren't inspected closely. The main management issues are removal of invasive plant pests (notably Khasia berry) and control of animal pests.

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**ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:**

Primary Criteria	Rank	Notes
Representativeness	<b>M</b>	Good examples of regenerating indigenous forest typical of this part of the ecological district.
Rarity	<b>M</b>	Provides good habitat for an at risk bird species (rifleman).
Diversity and pattern	<b>L/M</b>	Plant species diversity is moderate and reduced from that originally present.
Distinctiveness/special features	<b>L</b>	No distinctive or special features present.
Other Criteria		
Size/shape	<b>M</b>	Small to moderate-sized areas that are well buffered.
Connectivity	<b>M</b>	These areas are linked by regenerating scrub/forest and lie close to other areas of indigenous vegetation.
Long-term Sustainability	<b>M/H</b>	Some plant and animal pest control may be required to maintain ecological values in the long term.

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

These two gullies have been set aside from commercial use (plantation forestry). They have limited potential for development.

**Discussion:**

These areas only just meet the District Plan criteria for a Significant Natural Area. Important features of the area are the habitat they provide for an at-risk bird species (rifleman), the presence of several locally uncommon plant species (*Blechnum vulcanicum*, native broom and *Carex secta*) and their proximity to other areas of indigenous forest.

# TIMARU DISTRICT SNA SURVEY

SNA 48d

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**Area Name:**

**Location (central map reference):** J37: 555-822

**Ecological District:** Orari

**Surveyors:** Mike Harding

**Property:** Port Blakely

**Nearest Locality:** Te Moana

**Area Size (ha):** 4.7

**Altitude (m):** 320-460

**Survey Time:** 1½ hours

**Survey Date:** 31-10-12

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## General Description:

This SNA lies on steep southeast-facing slopes in a small gully in the Hae Hae Te Moana South Branch valley. It extends from the valley floor to upper slopes and is surrounded on three sides by plantation pine forest. It adjoins an area of indigenous shrubland/low forest at its lower end, alongside Te Moana Road. That area of shrubland does not meet the District Plan's significance criteria.

## Plant Communities:

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

The forest canopy is dominated by lancewood, matipo and broadleaf. Other canopy species are mountain akeake, cabbage tree, kowhai, mountain ribbonwood, fuchsia, marbleleaf, wineberry, five-finger, weeping mapou, native jasmine, scrub pohuehue, pohuehue, lawyer and bush lawyer.

Understorey species are fuchsia, broadleaf, wineberry, five-finger, lancewood, narrow-leaved mahoe, matipo, weeping mapou, hybrid wineberry, marbleleaf, mountain ribbonwood, korokio, *Coprosma crassifolia*, bush snowberry and bittersweet\*.

Prickly shield fern is the dominant ground-cover species over most of the area, with hound's tongue fern dominant at rocky sites. Other ground cover species are common shield fern, necklace fern, hen and chickens fern, *Asplenium richardii*, *Asplenium hookerianum*, *Blechnum penna-marina*, *Blechnum fluviatile*, *Blechnum procerum*, mountain kiokio, male fern\*, bush lily, *Libertia ixioides*, bidibid, *Schizeilema trifoliolatum*, buttercup, hookgrass, cardamine, wall lettuce\*, pennywort, nettle, toatoa, *Geranium microphyllum*, native groundsel and sedge (*Carex* sp.).

Species present on the forest margin or in forest openings are *Coprosma rigida*, *Coprosma propinqua*, *Coprosma tayloriae*, *Coprosma rugosa*, mountain wineberry, scrambling fuchsia, Himalayan honeysuckle\*, tutu, bracken, water fern, thousand-leaved fern, foxglove\*, burdock\* and native convolvulus.

## Birds/Fauna Observed:

Native birds observed during this brief survey were bellbird, grey warbler, fantail, rifleman, tomtit and brown creeper.

## Notable Flora, Fauna and Habitats:

Important features of this area are the diversity of plant species present (61 indigenous vascular species), the habitat the area provides for forest birds including rifleman (an at risk species), the presence of a locally uncommon species (*Libertia ixioides*) and the extent of the area.

## Notable Plant and Animal Pests:

Himalayan honeysuckle was the only significant plant pest observed. Other plant pests, such as broom, are present nearby. These species do not pose a significant threat to the intact forest. Animal pests were not surveyed, though pig and possum sign was observed.

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

The area is surrounded on three sides by plantation pine forest and adjoins indigenous shrubland at its lower boundary. It is well buffered by its location on steep rocky slopes within an enclosed side valley. It lies close to other areas of indigenous forest.



**Condition and Management Issues:**

Control of wild animals, notably pigs and possums, is the most important management issue.

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**ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:**

<b>Primary Criteria</b>	<b>Rank</b>	<b>Notes</b>
Representativeness	<b>M</b>	A good example of young indigenous forest, typical of that in this part of Orari Ecological District.
Rarity	<b>M</b>	Provides habitat for an at risk (declining) bird species (rifleman) and supports a locally uncommon plant species.
Diversity and pattern	<b>M</b>	Plant species diversity is relatively high, though probably reduced from that originally present.
Distinctiveness/special features	<b>L/M</b>	The large rock bluff at the stream confluence at the up-valley end of the area is a notable feature.
<b>Other Criteria</b>		
Size/shape	<b>M</b>	A small to moderate-sized area that is well buffered.
Connectivity	<b>M</b>	Lies close to other areas of indigenous vegetation, including shrubland at its lower margin.
Long-term Sustainability	<b>M/H</b>	Some animal pest control may be required to maintain ecological values in the long term.

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

This area has been excluded from the plantation forest. The steep rocky slopes limit the potential for further use of this area.

**Discussion:**

This area just meets the District Plan criteria for a Significant Natural Area. Important features of the area are the diversity of plant species present (61 indigenous vascular species), the habitat the area provides for forest birds including rifleman (an at risk species), the presence of a locally uncommon species and the extent of the area.

# TIMARU DISTRICT SNA SURVEY

SNA 48e

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<b>Area Name:</b>	<b>Property:</b> Port Blakely
<b>Location (central map reference):</b> J37: 545-818	<b>Nearest Locality:</b> Te Moana
<b>Ecological District:</b> Orari	<b>Area Size (ha):</b> 7.9 <b>Altitude (m):</b> 400-500
<b>Surveyors:</b> Mike Harding	<b>Survey Time:</b> 1½ hours <b>Survey Date:</b> 30-10-12

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## General Description:

This SNA lies on moderately steep south-facing slopes of a small tributary of the Hae Hae Te Moana valley. It is surrounded by plantation pine forest, but lies close to other areas of indigenous vegetation in nearby gullies.

## Plant Communities:

The main plant community present is young low-stature hardwood forest, described below, with small areas of indigenous shrubland at its upper margin. Naturalized (exotic) species are indicated with an asterisk\*.

The forest canopy is dominated by broadleaf, fuchsia and wineberry. Other canopy species are matipo, lancewood, mountain akeake, mountain ribbonwood, marbleleaf, five-finger, cabbage tree, bush lawyer and pohuehue.

Forest understorey species are *Coprosma rigida*, *Coprosma propinqua*, *Coprosma tayloriae*, marbleleaf, five-finger, wineberry, matipo, broadleaf, mountain akeake, narrow-leaved mahoe, lancewood, mapou, fuchsia and mountain ribbonwood.

The ground-cover is dominated by prickly shield fern. Other species present are *Blechnum penna-marina*, *Blechnum fluviatile*, *Blechnum chambersii*, *Blechnum procerum*, swamp kiokio, hen and chickens fern, bush lily, pennywort, hairy pennywort, green-hooded orchid, buttercup, nettle, cardamine, *Dichondra repens*, bidibid, hookgrass, sedge (*Carex* sp.) and seedlings of broadleaf, marbleleaf and *Coprosma* species.

Species present on the forest margin or in forest openings are matagouri, *Coprosma rigida*, *Coprosma propinqua*, *Coprosma tayloriae*, *Coprosma rugosa*, koromiko, Himalayan honeysuckle\*, thousand-leaved fern, *Hypolepis ambigua*, bracken, burdock\*, foxglove\* and lawyer.

## Birds/Fauna Observed:

Native birds observed during this brief survey were rifleman, bellbird, brown creeper, grey warbler, tomtit, and fantail.

## Notable Flora, Fauna and Habitats:

Important features of this area are the habitat it provides for forest birds including an at risk (declining) species (rifleman), the extent of the area and its proximity to other areas of indigenous vegetation.

## Notable Plant and Animal Pests:

Himalayan honeysuckle is the only significant plant pest present. This species does not pose a significant threat to the forest. Animal pests were not surveyed, though sign of deer, pigs and possums was observed. Cattle are present at the forest margin.

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

This area is surrounded by plantation pine forest and is well buffered by its location on a steep damp (south-facing) slope.

## Condition and Management Issues:

The most important management issue is wild animal control. If protected from animal browse, the area will continue to regenerate to taller indigenous 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>M</b>	A good example of young regenerating indigenous forest, typical of that remaining in the ecological district.
Rarity	<b>M</b>	Provides habitat for an at risk (declining) bird species (rifleman).
Diversity and pattern	<b>L/H</b>	Plant species diversity is relatively low.
Distinctiveness/special features	<b>L</b>	No distinctive or special features present.
<hr/> <b>Other Criteria</b> <hr/>		
Size/shape	<b>M</b>	A small to moderate-sized area that is well buffered by its location on steep south-facing slopes.
Connectivity	<b>M</b>	Lies close to other areas of indigenous forest in nearby gullies.
Long-term Sustainability	<b>M</b>	Animal pest control will 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 set aside from forestry plantings. The steepness of the site limits its potential for farming or forestry.

**Discussion:**

This area only just meets the District Plan criteria for a Significant Natural Area. Important features of the area are the habitat it provides for forest birds including an at risk (declining) species (rifleman), the extent of the area and its proximity to other areas of indigenous vegetation.

# TIMARU DISTRICT SNA SURVEY

SNA 48f

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**Area Name:**

**Location (central map reference):** J37: 522-821

**Ecological District:** Orari

**Surveyors:** Mike Harding

**Property:** Port Blakely

**Nearest Locality:** Te Moana

**Area Size (ha):** 1.5

**Altitude (m):** 370-500

**Survey Time:** 1½ hours

**Survey Date:** 30-10-12

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**General Description:**

This SNA lies in a steep-sided tributary valley of the Hae Hae Te Moana South Branch valley, near the western edge of Blakely Pacific's Geraldine Forest. It is surrounded by plantation pine forest, though extends to Te Moana Road at its lower (northern) end.

**Plant Communities:**

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

The forest canopy is dominated by five-finger, broadleaf and matipo. Other canopy species are lancewood, kowhai, cabbage tree, marbleleaf, mountain akeake, fuchsia, yellowwood, pate and bush lawyer. A single young tree of mountain totara is present alongside the stream at the lower end of the area.

Forest understorey species are five-finger, broadleaf, yellowwood, weeping mapou, korokio, *Coprosma rigida*, poataniwha and bush lawyer.

Ground-cover species are necklace fern, *Asplenium appendiculatum*, common shield fern, prickly shield fern, button fern, hound's tongue fern, *Blechnum fluviatile*, *Blechnum chambersii*, *Blechnum penna-marina*, kiokio, swamp kiokio, male fern\*, bush lily, *Dichondra repens*, pennywort, hairy pennywort, cardamine, toatoa, nettle, bidibid, wall lettuce\*, hookgrass, sedge (*Carex* sp.) and seedlings of broadleaf, lancewood, korokio and *Coprosma* species.

Additional species present on the forest margin or in forest openings (notably along the stream) are matagouri, *Helichrysum lanceolatum*, native broom, *Coprosma propinqua*, *Coprosma crassifolia*, *Coprosma rigida*, koromiko, Himalayan honeysuckle\*, lawyer, leafless lawyer, scrub pohuehue, scrambling fuchsia, native convolvulus, bittersweet\*, bracken, thousand-leaved fern, *Hypolepis ambigua*, burdock\*, foxglove\*, Californian thistle\*, musk\* and *Carex geminata*.

**Birds/Fauna Observed:**

Native birds observed during this brief survey were bellbird, tomtit, fantail, brown creeper, grey warbler and rifleman.

**Notable Flora, Fauna and Habitats:**

Important features of this area are the diversity of plant species present, the presence of locally uncommon plant species (mountain totara, native broom and leafless lawyer), the habitat the area provides for forest birds including rifleman (an at risk species) and its proximity to other areas of indigenous vegetation.

**Notable Plant and Animal Pests:**

No significant plant pests were observed. Himalayan honeysuckle is present and grey willow present nearby. Animal pests were not surveyed but pig and possum sign was observed. Cattle are grazing and trampling areas along the stream.

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

This area is surrounded by plantation pine forest and is well buffered by its location on the steep slopes of an incised gully.



**Condition and Management Issues:**

Control of animal pests, notably pigs and possums, and removal of cattle are the most important management issues.

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**ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:**

<b>Primary Criteria</b>	<b>Rank</b>	<b>Notes</b>
Representativeness	<b>M/H</b>	A good example of young indigenous forest, typical of the ecological district and containing a podocarp tree (mountain totara).
Rarity	<b>M</b>	Provides habitat for an at risk (declining) bird species (rifleman) and supports three locally uncommon plant species.
Diversity and pattern	<b>M</b>	Plant species diversity is typical of similar areas in the vicinity.
Distinctiveness/special features	<b>L/M</b>	The forest provides some protection for the small stream in this gully.
<b>Other Criteria</b>		
Size/shape	<b>L/M</b>	A small area but well buffered.
Connectivity	<b>M</b>	Lies close to other areas of indigenous vegetation.
Long-term Sustainability	<b>M</b>	Animal pest control will be necessary to maintain ecological values in the long term.

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

This area has been set aside from plantation forestry. Its steep slopes limit its potential for farming or forestry.

**Discussion:**

This area just meets the District Plan criteria for a Significant Natural Area. Important features of the area are the diversity of plant species present, the presence of locally uncommon plant species (mountain totara, native broom and leafless lawyer), the habitat the area provides for forest birds including rifleman (an at risk species) and its proximity to other areas of indigenous vegetation.

# TIMARU DISTRICT SNA SURVEY

SNA 53a

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**Area Name:**

**Location (central map reference):** J37:581-829

**Ecological District:** Orari

**Surveyors:** Mike Harding

**Property:** Port Blakely

**Nearest Locality:** Te Moana

**Area Size (ha):** 4.4

**Altitude (m):** 400-500

**Survey Time:** 1 hour

**Survey Date:** 08-11-12

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**General Description:**

This SNA lies on south-facing slopes in a small gully just south of Trig B at the northern edge of Blakely Pacific's Geraldine Forest. It is linked to SNA 53b in a nearby valley by indigenous vegetation on adjacent land.

**Plant Communities:**

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

The forest canopy is dominated by broadleaf, mahoe, fuchsia and pohuehue. Other canopy species are marbleleaf, kowhai, five-finger, lemonwood, wineberry, mapou, narrow-leaved lacebark, bush lawyer, clematis and native jasmine.

The forest understorey is dominated by mahoe. Other understorey species are narrow-leaved lacebark, *Coprosma rotundifolia*, *Coprosma propinqua*, *Coprosma crassifolia* (uncommon), *Coprosma rhamnoides*, mapou, marbleleaf, fuchsia, pate, wineberry, lemonwood, kowhai, poataniwha, horopito, *Clematis marata*, native convolvulus, native jasmine and, on tree trunks, hound's tongue fern.

The forest floor is dominated by prickly shield fern in most areas. Other ground-cover species are *Blechnum chambersii*, *Blechnum fluviatile*, mountain kiokio, common shield fern, hen and chickens fern, *Asplenium hookerianum*, hound's tongue fern, button fern, hookgrass, nettle and seedlings of wineberry, lemonwood, clematis, pohuehue and *Coprosma* species.

Species present on the forest margin or in forest openings are thousand-leaved fern, *Hypolepis rufobarbata*, *Hypolepis ambigua*, male fern\*, bracken, necklace fern, koromiko, Himalayan honeysuckle\*, foxglove\*, bittersweet\*, burdock\*, blackberry\*, cardamine, pennywort and bidibid. Gorse\* and kanuka are present at the margin of the site adjacent to pine trees on the north-facing slope.

**Birds/Fauna Observed:**

Native birds observed during this brief survey were bellbird, fantail, kereru (NZ pigeon), grey warbler, shining cuckoo and rifleman. Brown creeper, silvereye and tomtit are also likely to be present.

**Notable Flora, Fauna and Habitats:**

Important features of this area are the habitat the area provides for forest birds including an at-risk (declining) species (rifleman), the presence of plant species for young indigenous forest, and its proximity to other areas of indigenous forest.

**Notable Plant and Animal Pests:**

The only tall-stature naturalised plant species present is Himalayan honeysuckle, as is typical for forest in this area. Other naturalised plants, such as burdock and gorse, are confined to the forest margin or forest openings. Animal pests were not surveyed although sign of possum, pig and cattle was observed.

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

This area is surrounded by plantation pine forest on three sides and indigenous forest at its lower boundary. It lies close to other areas of indigenous forest in nearby gullies. It is relatively well buffered by its location on moderately-steep south-facing slopes.

**Condition and Management Issues:**

The forest canopy is in good condition. The forest understorey is, in most places, in good condition. Trampling and grazing by cattle has caused damage to some parts of the forest understorey. important management issues are prevention of damage by cattle and continued animal pest control.

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**ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:**

<b>Primary Criteria</b>	<b>Rank</b>	<b>Notes</b>
Representativeness	<b>M</b>	Indigenous forest typical of young forest in this part of the ecological district.
Rarity	<b>M</b>	Provides good habitat for an at-risk (declining) bird species (rifleman).
Diversity and pattern	<b>M</b>	Plant species diversity is moderate and typical of indigenous forest in this part of the ecological district.
Distinctiveness/special features	<b>L</b>	No distinctive or special features present.
<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 indigenous forest at its lower boundary and lies close to other similar areas of indigenous forest.
Long-term Sustainability	<b>M/H</b>	Some animal pest control may be necessary to maintain ecological values in the long term.

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

This area of forest has been set aside from plantation forestry. It will continue to regenerate and mature if protected from disturbance. It occupies relatively steep slopes that have limited potential for development.

**Discussion:**

This area meets the District Plan criteria for a Significant Natural Area. Important features of the area are the habitat it provides for forest birds including an at-risk (declining) species (rifleman), the presence of plant species for young indigenous forest, and its proximity to other areas of indigenous forest.

# TIMARU DISTRICT SNA SURVEY

SNA 53b

<b>Area Name:</b>	<b>Property:</b> Port Blakely	
<b>Location (central map reference):</b> J37: 576-824	<b>Nearest Locality:</b> Te Moana	
<b>Ecological District:</b> Orari	<b>Area Size (ha):</b> 9.1	<b>Altitude (m):</b> 360-500
<b>Surveyors:</b> Mike Harding	<b>Survey Time:</b> 1 hour	<b>Survey Date:</b> 08-11-12

## General Description:

This SNA lies on the southeast faces slopes of a small gully near SNA 53a and connected to that SNA by areas of indigenous forest on adjoining land.

## Plant Communities:

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

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

The forest understorey is dominated in most places by mahoe. Other understorey species are fuchsia, wineberry, marbleleaf, mapou, *Coprosma rotundifolia*, *Coprosma rigida*, *Coprosma rhamnoides*, horopito, bush lawyer, native jasmine, clematis and, on tree trunks, hound's tongue fern. One young sapling of kahikatea was observed in the SNA.

Dominant ground-cover species are prickly shield fern and *Blechnum chambersii*. Other species are common shield fern, hen and chickens fern, *Asplenium hookerianum*, *Asplenium richardii*, *Hypolepis ambigua*, *Blechnum fluviatile*, *Blechnum penna-marina*, male fern\*, green-hooded orchid, hookgrass and seedlings of mahoe, wineberry, mapou, five-finger, broadleaf, clematis, native jasmine, pohuehue and *Coprosma* species.

Additional species present near the stream are pate, *Leptopteris hymenophylloides*, thousand-leaved fern, buttercup, *Hydrocotyle heteromeria* and nettle.

Species present in forest openings or at the forest margin are *Coprosma propinqua*, Himalayan honeysuckle\*, bidibid, foxglove\* and velvety nightshade\*. Additional species present only at the forest margin are matagouri, *Coprosma tayloriae*, bracken, toatoa, *Dichondra repens* and hairy pennywort.

## Birds/Fauna Observed:

Native birds observed during this brief survey were bellbird, fantail, grey warbler, rifleman and kereru (NZ pigeon). Also likely to be present are silvereye, shining cuckoo and tomtit.

## Notable Flora, Fauna and Habitats:

Important features of this area are the habitat it provides for an at-risk (declining) bird species (rifleman), the presence of a sapling podocarp (kahikatea) and a typical range of hardwood forest species, and its proximity to other areas of indigenous forest.

## Notable Plant and Animal Pests:

Himalayan honeysuckle is the only notable plant pest present. Other naturalised species are confined to the forest margin. Animal pests were not surveyed, though possum, pig and cattle sign was observed.

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

This SNA adjoins plantation pine forest on three boundaries and indigenous forest on an adjoining property on its fourth boundary. It is connected to SNA 53a by indigenous forest on adjacent land.

**Condition and Management Issues:**

The forest canopy is in good condition. The forest understorey is quite open in places, possibly due to the effects of animals including cattle. Cattle tracks are present through the forest. The main management issue is removal of cattle on continued animal pest control.

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**ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:**

<b>Primary Criteria</b>	<b>Rank</b>	<b>Notes</b>
Representativeness	<b>M</b>	Indigenous forest typical of that remaining in this part of the ecological district.
Rarity	<b>M</b>	Provides habitat for an at-risk (declining) bird species (rifleman).
Diversity and pattern	<b>M</b>	Plant species diversity is typical for this part of the ecological district.
Distinctiveness/special features	<b>M</b>	The presence of young kahikatea is notable.
<b>Other Criteria</b>		
Size/shape	<b>M</b>	A small to moderate-sized area that has a good shape and is relatively well buffered.
Connectivity	<b>M</b>	Adjoins other indigenous forest on one boundary and lies close to other SNAs.
Long-term Sustainability	<b>M/H</b>	Some animal pest control may be necessary to maintain ecological values in the long term.

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

This area has been set aside from plantation forestry by Blakely Pacific. It occupies relatively steep slopes that are unsuitable for development.

**Discussion:**

This area meets the District Plan criteria for a Significant Natural Area. Important features of the area are the habitat it provides for an at-risk (declining) bird species (rifleman), the presence of a sapling podocarp (kahikatea) and a typical range of hardwood forest species, and its proximity to other areas of indigenous forest.

# TIMARU DISTRICT SNA SURVEY

SNA 54a

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<b>Area Name:</b>	<b>Property:</b> Port Blakely
<b>Location (central map reference):</b> J37: 577-820	<b>Nearest Locality:</b> Te Moana
<b>Ecological District:</b> Orari	<b>Area Size (ha):</b> 11.4 <b>Altitude (m):</b> 350-500
<b>Surveyors:</b> Mike Harding	<b>Survey Time:</b> 1 hour <b>Survey Date:</b> 08-11-12

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## General Description:

This SNA lies on moderately steep slopes of a small valley west of the end of Lynn Road at the northeast edge of Blakely Pacific's Geraldine Forest.

## Plant Communities:

Two main plant communities are present: hardwood forest on the main slopes and a small area of podocarp forest on the valley floor at the confluence of the two streams in the SNA. These plant communities are described separately below. Naturalized (exotic) species are indicated with an asterisk\*.

The canopy of the main area of hardwood forest is dominated by mahoe. Other canopy species are broadleaf, mapou, kowhai, lemonwood, lancewood, five-finger, marbleleaf, cabbage tree, matipo, clematis and bush lawyer. Several young totara trees are present on lower slopes. Trunk diameters (at breast height) of these trees are between 20 and 30cm. Larger podocarp trees are present on the narrow valley floor terraces. Trunk diameters of these trees are: matai, 60cm; and totara, 73cm. Emergent narrow-leaved lacebark trees are also present here.

Forest understorey species are *Coprosma rotundifolia*, *Coprosma rhamnoides*, *Coprosma crassifolia* (uncommon), mahoe, mapou, pate, lancewood, horopito, narrow-leaved lacebark, mountain ribbonwood, kowhai, supplejack (uncommon), native jasmine, native convolvulus, bush lawyer and, on tree trunks, hound's tongue fern and hanging spleenwort. Additional understorey species on the lower terraces (podocarp forest) are turepo, and kahikatea and matai saplings.

Ground-cover species are prickly shield fern, hen and chickens fern, *Asplenium hookerianum*, *Blechnum fluviatile*, *Blechnum chambersii*, *Blechnum procerum*, *Leptopteris hymenophylloides*, button fern, hookgrass and seedlings of lancewood, mahoe, pate, broadleaf and *Coprosma* species. Additional species on the lower terraces are bush lily, common shield fern, hound's tongue fern, *Australina pusilla* and hairy pennywort.

Species present on the forest margin or in forest openings are *Coprosma tayloriae*, bush lawyer, thousand-leaved fern, *Hypolepis ambigua*, *Hypolepis rufobarbata*, bracken, nettle, sedge (*Carex* sp.), *Hydrocotyle heteromeria*, tutu, bittersweet\*, burdock\*, Himalayan honeysuckle\*, foxglove\* and at one location a single young ash\* tree.

## Birds/Fauna Observed:

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

## Notable Flora, Fauna and Habitats:

Important features of this area are the habitat the area provides for forest birds including an at-risk (declining) species (rifleman), the presence of large old podocarp trees, locally uncommon plant species (*Australina pusilla* and *Hypolepis rufobarbata*) and its location near to other areas of indigenous forest.

## Notable Plant and Animal Pests:

Himalayan honeysuckle and ash (a single young tree) are the only significant plant pests present. Animal pests were not surveyed though the forest understorey and floor is damaged in places by cattle and pig and possum sign was observed.

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

Most of the area is quite well buffered by its location on moderately steep south-facing slopes. It is almost completely surrounded by plantation pine forest except for a short boundary on the valley floor with indigenous forest on the adjoining property. It lies near to other areas of indigenous forest in adjacent gullies.

**Condition and Management Issues:**

Most of the forest is in good condition. The small valley floor terraces (which support good populations of *Australina pusilla*) are trampled in places by cattle. Important management issues are removal of the single ash tree, removal of cattle and continued control of animal pests.

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**ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:**

Primary Criteria	Rank	Notes
Representativeness	M/H	A good example of forest that is representative of this part of the ecological district and includes old-growth trees (podocarps).
Rarity	M	Provides good habitat for an at-risk bird species (rifleman) and supports two locally uncommon plant species.
Diversity and pattern	M	Plant species diversity is typical for this type of indigenous forest in the ecological district.
Distinctiveness/special features	M/H	The presence of large old podocarps is a special feature.
Other Criteria		
Size/shape	M/H	A moderate sized area that is well buffered by its location.
Connectivity	M	Adjoins other indigenous forest downstream and lies close to other areas of forest in nearby gullies.
Long-term Sustainability	M/H	Some animal pest control may be required to maintain ecological values in the long term.

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

This area has been set aside from plantation forestry by Blakely Pacific. All except small areas of valley floor are generally unsuitable for development.

**Discussion:**

This area easily meets the District Plan criteria for a Significant Natural Area. Important features of the area are the habitat the area provides for forest birds including an at-risk species (rifleman), the presence of large old podocarp trees, two locally uncommon plant species and its location near to other areas of indigenous forest.

# TIMARU DISTRICT SNA SURVEY

SNA 54b

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<b>Area Name:</b>	<b>Property:</b> Port Blakely
<b>Location (central map reference):</b> J37: 575-814	<b>Nearest Locality:</b> Te Moana
<b>Ecological District:</b> Orari	<b>Area Size (ha):</b> 14.1 <b>Altitude (m):</b> 360-500
<b>Surveyors:</b> Mike Harding	<b>Survey Time:</b> 1½ hours <b>Survey Date:</b> 08-11-12

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## General Description:

This SNA lies on the south-facing slopes and adjacent valley-floor terraces of a small gully west from the end of Lynn Road. It is a relatively long narrow area and is linked to SNA 54a at its lower end by indigenous forest on adjoining land.

## Plant Communities:

Two main plant communities are present: hardwood forest on the steeper slopes and podocarp-hardwood forest on the lower slopes and valley floor. These plant communities are described separately below. Naturalized (exotic) species are indicated with an asterisk\*.

### Hardwood forest on slopes:

The forest canopy on the valley side comprises broadleaf, mahoe, lemonwood, matipo, marbleleaf, lancewood, mapou, bush lawyer, native jasmine and pohuehue.

Understorey plant species are mahoe, *Coprosma crassifolia*, *Coprosma rhamnoides*, *Coprosma rotundifolia*, mapou, matipo, pohuehue, native jasmine and bush lawyer.

Common shield fern is the dominant ground-cover species. Other species are necklace fern, hen and chickens fern, *Asplenium richardii*, *Asplenium hookerianum*, hound's tongue fern, button fern and seedlings of mahoe, matipo, mapou, lemonwood, native jasmine and *Coprosma* species.

Additional species present on the forest margin are *Coprosma propinqua*, bracken and velvety nightshade\*.

### Podocarp-hardwood forest on lower slopes and valley floor:

The forest canopy on lower slopes and valley floor comprises marbleleaf, wineberry, broadleaf, kowhai, mapou, lemonwood, mahoe, five-finger, fuchsia, pate, native convolvulus, native jasmine, clematis and pohuehue. Emergent from this canopy are tall trees of kahikatea, totara, kanuka, narrow-leaved lacebark and lowland ribbonwood. Trunk diameters (at breast height) of the larger trees are: kahikatea, 80cm; narrow-leaved lacebark, 55cm; and kanuka, 30-50cm.

The forest understorey is dominated in most places by *Coprosma rhamnoides*. Other understorey species are pate, wineberry, mahoe, lemonwood, *Coprosma rotundifolia*, poataniwha, turepo, rohutu, horopito, kowhai, mapou, marbleleaf, narrow-leaved lacebark, *Clematis marata*, bush lawyer, and saplings of kahikatea, totara and matai. Hound's tongue fern is present on tree trunks. One small grove of wheki-ponga and a single soft tree fern were observed mid-valley.

Crown fern is the dominant ground-cover species in the upper valley. Other species present are hen and chickens fern, *Asplenium hookerianum*, prickly shield fern, common shield fern, mountain kiokio, *Blechnum chambersii*, *Blechnum fluviatile*, button fern, *Leptopteris hymenophylloides*, bush lily, nettle, hookgrass, *Australina pusilla*, *Pratia angulata*, *Hydrocotyle heteromeria*, buttercup, sedge (*Carex* sp.) and seedlings of kahikatea, totara, broadleaf, cabbage tree, kowhai, matipo, lancewood and clematis.

Species present on the forest margin or in forest openings are *Coprosma tayloriae*, thousand-leaved fern, *Hypolepis ambigua*, *Hypolepis rufobarbata*, *Blechnum procerum*, *Lycopodium volubile*, *Carex coriacea*, bidibid, velvety nightshade\*, burdock\*, bittersweet\* and Himalayan honeysuckle\*.



**Birds/Fauna Observed:**

Native birds observed during this brief survey were bellbird, rifleman, grey warbler, brown creeper, tomtit, fantail and kereru (NZ pigeon). Silvereye and shining cuckoo are also likely to be present.

**Notable Flora, Fauna and Habitats:**

Important features of this area are the presence of old podocarp (kahikatea and totara) trees, the habitat it provides for forest birds including rifleman (an at-risk) species, the diversity of plant species present (64 indigenous vascular species), the presence of terrace forest, four locally uncommon plant species (*Australina pusilla*, *Hypolepis rufobarbata*, *Lycopodium volubile* and *Pratia angulata*), and its proximity to other areas of indigenous forest.

**Notable Plant and Animal Pests:**

Himalayan honeysuckle is the only significant plant pest present. Animal pests were not surveyed though possum and pig sign was observed and parts of the area are affected by cattle trampling and browsing.

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

The area is well buffered by its position on steep south-facing slopes. It is almost completely surrounded by plantation pine forest. It is connected to SNA 54a at its down-valley boundary by indigenous forest on adjoining land.

**Condition and Management Issues:**

The forest is in good condition except for some cattle damage in the valley floor. Important management issues are removal of cattle and continued control of animal pests.

**ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:**

Primary Criteria	Rank	Notes
Representativeness	M/H	A good example of indigenous forest representative of this part of the ecological district and contains old growth trees.
Rarity	M/H	Provides habitat for an at-risk (declining) bird species (rifleman) and several locally uncommon plant species.
Diversity and pattern	M/H	A diverse range of plant species is present: the forest is more diverse than most other remnants in this area.
Distinctiveness/special features	M/H	The number and size of the old podocarp trees is notable.
<b>Other Criteria</b>		
Size/shape	M	A moderate sized area that is well buffered, but long and narrow.
Connectivity	M	Adjoins other indigenous forest at its down-valley boundary and lies close to other SNAs.
Long-term Sustainability	M/H	Some animal pest control may be necessary to maintain ecological values in the long term.

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

This area has been set aside from plantation forestry by Blakely Pacific. The steep slopes limit the potential of most of the area for development.

**Discussion:**

This area very easily meets the District Plan criteria for a Significant Natural Area. Important features of the area are the presence of old podocarp (kahikatea and totara) trees, the habitat it provides for forest birds including rifleman (an at-risk) species, the diversity of plant species present (64 indigenous vascular species), the presence of terrace forest, four locally uncommon plant species, and its proximity to other areas of indigenous forest.

# TIMARU DISTRICT SNA SURVEY

SNA 62b

**Area Name:** Parish Road

**Location (central map reference):** J38: 599-779

**Ecological District:** Orari

**Surveyors:** Mike Harding

**Property:** Port Blakely

**Nearest Locality:** Pleasant Valley

**Area Size (ha):** 6.1

**Altitude (m):** 300-420

**Survey Time:** 1½ hours

**Survey Date:** 28-12-12

## General Description:

This SNA lies on south-facing slopes of a small valley on the east side of Waitohi Hill, at the edge of Blakely Pacific's Geraldine Forest. It adjoins an area of indigenous forest (SNA 62a) on an adjacent property at its lower (eastern) boundary. Only the upper slopes of the SNA were inspected.

## Plant Communities:

The plant community surveyed is hardwood forest, described below. Naturalized (exotic) species are indicated with an asterisk\*. It appears from aerial photographs that podocarp trees are emergent from the forest canopy in the lower (un-surveyed) part of this area.

The forest canopy comprises marbleleaf, broadleaf, five-finger, mahoe, matipo, lemonwood, lancewood, cabbage tree, fuchsia and pate.

Forest understorey species are mahoe, mapou, marbleleaf, pate, *Coprosma rigida*, *Coprosma rhamnoides*, pohuehue, native convolvulus, bush lawyer and, on tree trunks, hound's tongue fern and hanging spleenwort.

Ground-cover species are prickly shield fern, common shield fern, hen and chickens fern, *Asplenium hookerianum*, *Asplenium appendiculatum*, crown fern, *Blechnum procerum*, *Blechnum fluviatile*, hound's tongue fern, *Carex forsteri*, hookgrass, bidibid and seedlings of mahoe, mapou, five-finger, cabbage tree, pate and *Coprosma* species.

Additional species present nearer the stream are wineberry, soft tree fern, *Blechnum chambersii*, *Leptopteris hymenophylloides*, *Leptolepis novae-zelandiae*, kiokio and cardamine.

Species present at the forest margin or in forest openings are koromiko, Himalayan honeysuckle\*, bracken, thousand-leaved fern, *Hypolepis ambigua*, male fern\* and bittersweet\*.

## Birds/Fauna Observed:

Native birds observed during this brief survey were bellbird, rifleman, shining cuckoo, kereru, grey warbler and fantail.

## Notable Flora, Fauna and Habitats:

Important features of this area are the habitat it provides for forest birds, including an at-risk (declining) species (rifleman), the presence of a locally-uncommon fern (*Leptolepis novae-zelandiae*) and the proximity of the area to other indigenous forest remnants. It also appears that podocarp trees are present at the lower (un-surveyed) part of the area.

## Notable Plant and Animal Pests:

Naturalized plant species observed at the area do not pose a significant threat to the forest. Animal pests were not surveyed, though sign of pigs and possums was observed. A wallaby was seen on a forestry road nearby.

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

This SNA is buffered by its location on steep slopes in an incised valley. It is surrounded on most sides by plantation forest and adjoins another area of indigenous forest at its lower boundary.

**Condition and Management Issues:**

The forest canopy appears in good condition, though it is a young low-stature forest. Cut stumps of large trees are present throughout the area surveyed, indicating felling of the canopy trees some years ago. The main management issue is continued control of animal pests, notably pigs and possums.

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**ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:**

Primary Criteria	Rank	Notes
Representativeness	<b>M</b>	A good example of young indigenous forest typical of this part of the ecological district. (M/H if podocarp trees are present).
Rarity	<b>M</b>	Provides habitat for an at-risk species (rifleman) and supports one locally-uncommon plant species ( <i>Leptolepia novae-zelandiae</i> ).
Diversity and pattern	<b>M</b>	Moderate plant species diversity (though lower valley forest is probably more diverse).
Distinctiveness/special features	<b>L</b>	No distinctive or special features present.
<b>Other Criteria</b>		
Size/shape	<b>M</b>	A small to moderate-sized area that is well buffered.
Connectivity	<b>M</b>	Adjoins other indigenous forest at its lower boundary.
Long-term Sustainability	<b>M/H</b>	Some animal pest control may be necessary to protect ecological values in the long term.

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

This area has been set aside from plantation forestry by Blakely Pacific.

**Discussion:**

This area meets the District Plan criteria for a Significant Natural Area. Important features of the area are the habitat it provides for forest birds, including an at-risk (declining) species (rifleman), the presence of a locally-uncommon fern (*Leptolepia novae-zelandiae*) and the proximity of the area to other indigenous forest remnants. It also appears that podocarp trees are present at the lower (un-surveyed) part of the area.

# TIMARU DISTRICT SNA SURVEY

SNA 71a

**Area Name:** Bush Road Gully, Waitohi Hill  
**Location (central map reference):** J38: 595-773  
**Ecological District:** Orari  
**Surveyors:** Mike Harding

**Property:** Port Blakely  
**Nearest Locality:** Gapes Valley  
**Area Size (ha):** 31.4      **Altitude (m):** 280-450  
**Survey Time:** 6 hours      **Survey Date:** 15-10-12

## General Description:

This SNA lies in a large gully just east of the summit of Waitohi Hill. The lower (east) end of the area is accessible from Bush Road; the area is otherwise surrounded by plantation forest.

## Plant Communities:

Two main plant communities are present: podocarp-hardwood forest on the valley floor and lower slopes; and hardwood forest on upper slopes. These plant communities are described separately below. Naturalized (exotic) species are indicated with an asterisk\*.

### Valley-floor podocarp-hardwood forest:

This plant community is present on valley-floor terraces and lower slopes, extending up-valley to approximately 400m altitude. It has a dense hardwood canopy with large emergent podocarps, predominantly kahikatea. These old kahikatea trees have trunk diameters (at breast height) between 80 and 145cm. Other emergent trees are kanuka, lowland ribbonwood, narrow-leaved lacebark and occasional matai and totara.

Important forest canopy species are mahoe, fuchsia, wineberry, lancewood, kaikomako, kowhai, broadleaf and lemonwood. Other canopy or sub-canopy species are yellowwood, matipo, cabbage tree, five-finger, bush lawyer, native jasmine, clematis and pohuehue. One young matai tree and several larger totara trees were observed.

The forest understorey is dominated by mahoe, *Coprosma rotundifolia*, *Coprosma rhamnoides* and kaikomako. Other understorey species are mapou, pate, marbleleaf, fuchsia, lemonwood, wineberry, turepo, poataniwha, horopito, shrubby mahoe, narrow-leaved lacebark, lowland ribbonwood, kahikatea saplings, five-finger, supplejack, wheki-ponga, soft tree fern, , bush lawyer, native jasmine and, on tree trunks, climbing rata, hanging spleenwort and hound's tongue fern. Less commonly present are *Coprosma crassifolia*, *Neomyrtus pedunculata*, pokaka, lancewood, matai saplings, lawyer and elderberry\*.

Important ground-cover species are hen and chickens fern, prickly shield fern and crown fern. Other species occurring on the forest floor are *Blechnum chambersii*, *Blechnum fluviatile*, *Blechnum procerum*, *Leptopteris hymenophylloides*, hound's tongue fern, sedge (*Carex* sp.), hookgrass (*Uncinia* sp.), bush rice grass and seedlings of kaikomako, pate, mahoe, broadleaf, kahikatea, native jasmine, clematis, and *Coprosma* species. Less commonly present are *Lastreopsis glabella*, *Hypolepis ambigua*, button fern and bush lily.

Additional species present on the forest margin, or in larger forest openings, are koromiko, bracken, water fern, thousand-leaved fern, blackberry\* and Himalayan honeysuckle.\*

### Hill slope forest:

The canopy of the hill slope forest is in most places dominated by mahoe, lemonwood, broadleaf and five-finger, with emergent kanuka on upper slopes. Trunk diameters (at breast height) of the larger kanuka trees are between 40 and 50cm. Other canopy species are lancewood, narrow-leaved lacebark, marbleleaf, kowhai, totara, mapou, cabbage tree, bush lawyer, native jasmine, clematis and pohuehue. Also present on the central spur is a large emergent pokaka tree, with a trunk diameter of 97cm, and groves of large (sub-canopy) wheki-ponga.

The forest understorey is dominated by mahoe, *Coprosma rotundifolia* and *Coprosma rhamnoides*. Other understorey species are mapou, five-finger, horopito, broadleaf, matipo, wineberry, pate, marbleleaf, kowhai, fuchsia, lancewood, narrow-leaved lacebark, kaikomako, poataniwha, kahikatea saplings, matai saplings, *Coprosma crassifolia*, cabbage tree, soft tree fern, silver fern, supplejack, native jasmine, bush lawyer, native convolvulus, *Clematis marata*, clematis and, on tree trunks, hound's tongue fern and hanging spleenwort.

Dominant ground-cover species are crown fern, hen and chickens fern and prickly shield fern. Other ground-cover species are common shield fern, *Hypolepis ambigua*, hound's tongue fern, *Asplenium hookerianum*, hanging spleenwort, mountain kiokio, *Blechnum procerum*, *Blechnum chambersii*, *Leptopteris hymenophylloides*, climbing rata, hookgrass (*Uncinia* sp.), sedge (*Carex* sp.) and seedlings of five-finger, lancewood, lemonwood, pate, marbleleaf, broadleaf, kahikatea, kowhai, yellowwood, kanuka, native jasmine, supplejack and *Coprosma* species. Less commonly present are *Libertia ixioides*, button fern and *Asplenium richardii*.

Additional species present on the forest margin or in forest openings are koromiko, *Olearia arborescens*, *Olearia avicenniaefolia*, manuka, *Coprosma tayloriae*, *Gaultheria antipoda*, toatoa, cardamine, necklace fern, hard fern, water fern, *Blechnum fluviatile*, *Blechnum penna-marina*, thousand-leaved fern, *Lycopodium volubile*, hairy pennywort, Himalayan honeysuckle\*, bracken, gorse\*, broom\* and blackberry\*.

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

Native birds observed during this brief survey were bellbird, shining cuckoo, kereru, rifleman, brown creeper, grey warbler and fantail. Also likely to be present are harrier, NZ falcon, welcome swallow, silvereye and tomtit.

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

Important features of this area are: the presence of old-growth forest, including large old podocarp trees (notably kahikatea); the diversity of the forest (80 indigenous vascular plant species); the presence of five locally-uncommon plant species (silver fern, *Lycopodium volubile*, bush rice grass, shrubby mahoe and *Olearia arborescens*); the habitat the area provides for forest birds, including an at risk (declining) species (rifleman); and, the size of the area.

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

The main area of forest is almost entirely free of plant pests. The only woody species observed within the forest were elderberry and Himalayan honeysuckle, neither of which is common. There are a number of plant pests at the forest margins but none pose a significant threat to the forest. Animal pests were not surveyed, though pig rooting and possum sign were observed.

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

This SNA is almost completely surrounded by plantation forest, or open recently-logged ground that will presumably be replanted. The area is not fenced. The core area of forest in the valley floor and on lower slopes is buffered by younger regenerating forest on upper slopes, though this young forest is vulnerable to disturbance when adjacent plantation forest is felled. There are other significant areas of native forest is nearby gullies.

### **Condition and Management Issues:**

The forest appears to be in very good condition, with the exception of localized pig damage, mostly in the lower valley. There is very good regeneration of kahikatea, with pole stands on the valley floor. The main management issues are control of animal pests (notably pigs and possums) and protection of forest margins from the effects of logging.

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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>	Most parts of this area support forest that is highly representative of the original forest of the ecological district. One of the best examples of podocarp-hardwood forest in the ecological district.
Rarity	<b>M/H</b>	Provides an extensive area of habitat for an at risk (declining) bird species (rifleman); supports five locally uncommon plant species.
Diversity and pattern	<b>H</b>	Plant species diversity is very high (80 vascular species).
Distinctiveness/special features	<b>H</b>	The number and size of old podocarp trees (notably kahikatea) is a special feature. The abundance of tree ferns is also notable.
<b>Other Criteria</b>		
Size/shape	<b>H</b>	A large area that has a good shape and is relatively well buffered.
Connectivity	<b>M</b>	Lies close to other large areas of indigenous forest.
Long-term Sustainability	<b>M/H</b>	Some animal pest control may be required 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 large area of native forest has been deliberately set aside by Blakely Pacific from plantation forestry activities. It is protected by a covenant. Much of the area it occupies is relatively steep and generally unsuitable for farming or forestry.

**Discussion:**

This area very easily meets the District Plan criteria for a Significant Natural Area. Important features of the area are: the presence of old-growth forest, including large old podocarp trees (notably kahikatea); the diversity of the forest (80 indigenous vascular plant species); the presence of five locally-uncommon plant species; the habitat the area provides for forest birds, including an at risk (declining) species (rifleman); and, the size of the area.

# TIMARU DISTRICT SNA SURVEY

SNA 72c

**Area Name:** Trig Road Forest

**Location (central map reference):** J38: 595-768

**Ecological District:** Orari

**Surveyors:** Mike Harding

**Property:** Port Blakely

**Nearest Locality:** Gaps Valley

**Area Size (ha):** 33.2

**Altitude (m):** 260-400

**Survey Time:** 6 hours

**Survey Date:** 18-09-12

## General Description:

This SNA lies in a large gully southeast of Waitohi Hill, at the boundary of the Orari and Geraldine ecological districts. It adjoins Trig Road at the ridge on its northern boundary, farmland and areas of plantation forest at its southern boundary, a small area of indigenous forest (SNA 72d) at its lower (east) boundary and a large area of regenerating native forest (including SNAs 72a and 72b) at its upper (west) boundary.

## Plant Communities:

Two main plant communities are present: podocarp-hardwood forest on the valley floor and lower slopes; and, hardwood forest on upper slopes. These plant communities are described separately below. Naturalized (exotic) species are indicated with an asterisk\*.

### Valley-floor podocarp-hardwood forest:

This forest occupies the relatively broad terraces in the lower valley, extending up valley and onto lower slopes to approximately 300m altitude. It has a dense canopy of hardwood trees with emergent large trees of kahikatea. Trunk diameters (at breast height) of the larger kahikatea trees are between 70 and 130cm. Other emergent trees are matai, pokaka, lowland ribbonwood, narrow-leaved lacebark and kanuka.

Forest canopy species are fuchsia, mahoe, wineberry, lancewood, lemonwood, marbleleaf, broadleaf, narrow-leaved lacebark, kowhai, kaikomako, turepo, horopito, pohuehue, native jasmine, bush lawyer, clematis and *Clematis foetida*.

The forest understorey is dominated by *Coprosma rotundifolia*, *Coprosma rhamnoides*, mahoe, kaikomako and saplings of kahikatea. Other understorey species are broadleaf, pate, matipo, horopito, lancewood, pokaka, rohutu, turepo, *Neomyrtus pedunculata*, *Raukawa anomalus*, five-finger, koromiko, soft tree fern, pohuehue, clematis and saplings of matai and lowland ribbonwood. Present on tree trunks are hanging spleenwort, leather-leaf fern, climbing rata, hound's tongue fern and *Lycopodium varium* (one plant). Occasionally present are poataniwha, weeping mapou, wheki-ponga, *Coprosma rigida*, *Coprosma propinqua* and tutsan\*.

Important ground-cover species are prickly shield fern, hen and chickens fern and crown fern. Other forest floor species are climbing rata, *Blechnum procerum*, *Blechnum fluviatile*, *Blechnum chambersii*, *Blechnum penna marina*, kiokio, *Leptopteris hymenophylloides*, bush lily, bush rice grass, *Uncinia uncinata*, sedge (*Carex* sp.), cardamine, *Australina pusilla*, bidibid and seedlings of mahoe, kahikatea, poataniwha, lancewood, native jasmine, supplejack and *Coprosma* species.

Additional species present on the forest margin or in forest openings are Himalayan honeysuckle\*, gorse\*, bracken, blackberry\*, *Juncus gregiflorus*, *Hypolepis ambigua*, male fern\*, foxglove\*, wall lettuce\* and scrub pohuehue.

### Hardwood forest on upper slopes:

Forest on the valley sides is dominated by hardwood species, including emergent kanuka, and occasional emergent kahikatea and matai. Trunk diameters (at breast height) of the larger kanuka trees are between 30 and 45cm. Forest canopy species are mahoe, fuchsia, marbleleaf, kowhai, lancewood, broadleaf, five-finger, matipo, lemonwood, mapou, wineberry, yellowwood, bush lawyer, clematis, pohuehue and occasionally pokaka, cabbage tree and young totara.

The forest understorey is dominated by mahoe, *Coprosma rhamnoides* and, in places, supplejack. Other understorey species are *Coprosma rotundifolia*, *Coprosma crassifolia*, yellowwood, pate, lemonwood, soft tree fern, wheki-ponga, silver fern, wineberry, broadleaf, marbleleaf, five-finger, lancewood, kowhai, mapou, matipo, koromiko, horopito, saplings of kahikatea, bush lawyer and, on tree trunks, hound's tongue fern and climbing rata. Occasionally present are *Coprosma areolata*, tutsan\* and elderberry\*.

Dominant ground-cover species are crown fern, hen and chickens fern and *Blechnum chambersii*. Other ground-cover species are prickly shield fern, common shield fern, *Leptopteris hymenophylloides*, *Lastreopsis glabella*, *Blechnum fluviatile*, *Blechnum procerum*, *Blechnum penna-marina*, mountain kiokio, swamp kiokio, kiokio, *Hypolepis ambigua*, hound's tongue fern, *Asplenium hookerianum*, *Asplenium richardii*, *Asplenium appendiculatum*, necklace fern, button fern, water fern, male fern\*, climbing rata, *Libertia ixioides*, *Lycopodium volubile*, *Uncinia uncinata*, *Carex forsteri*, cardamine and seedlings of mahoe, five-finger, broadleaf, pate, wineberry, fuchsia, narrow-leaved lacebark, kowhai, matipo, cabbage tree, native jasmine, supplejack, clematis and *Coprosma* species.

Additional species present on the forest margin are *Coprosma tayloriae*, *Coprosma propinqua*, tauhinu, bracken, gorse\*, broom\*, blackberry\* and Himalayan honeysuckle\*.

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

Native birds observed during this brief survey were kereru, fantail, bellbird, grey warbler, rifleman, tomtit, brown creeper and harrier. Other birds likely to be present are NZ falcon, silvereye, shining cuckoo and welcome swallow.

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

Important features of this area are: the presence of old-growth forest, including large old podocarp trees (notably kahikatea); the diversity of the forest (83 indigenous vascular plant species); the presence of seven locally-uncommon plant species (*Australina pusilla*, *Coprosma areolata*, silver fern, rohutu, *Lycopodium varium*, bush rice grass, and *Raukaua anomalus*); the habitat the area provides for forest birds, including an at risk (declining) species (rifleman); and, the size of the area.

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

The main area of forest is almost entirely free of plant pests. The only woody species observed within the forest were elderberry and tutsan, neither of which is common. There are a number of plant pests at the forest margins but none pose a significant threat to the forest. Animal pests were not surveyed, though pig rooting and possum sign were observed.

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

This area of forest adjoins plantation forest (across trig Road) at its northern boundary, fenced pasture or plantation forest at its southern boundary, and contiguous native forest at its east and west boundaries. A newly-constructed deer fence bisects the upper part of the area. This fence does not appear to be on the land parcel boundary and the forest upstream of the fence is heavily depleted, presumably by deer browse. Other significant areas of indigenous vegetation are present nearby, notably SNA 71a in the gully to the north.

### **Condition and Management Issues:**

Most parts of the forest are in good condition. Exceptions are localised areas of pig damage (rooting) on the lower valley floor and forest in the upper valley (above the deer fence) which is heavily grazed. Important management issues are wild animal control (especially pigs and possums) and removal of browsing/grazing animals from the upper part of the area.



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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>	Most parts of this area support forest that is highly representative of the original forest of the ecological district. One of the best examples of podocarp-hardwood forest in the ecological district.
Rarity	<b>M/H</b>	Provides an extensive area of habitat for an at risk (declining) bird species (rifleman); supports seven locally uncommon plant species.
Diversity and pattern	<b>H</b>	Plant species diversity is very high (83 vascular species).
Distinctiveness/special features	<b>H</b>	The number and size of old podocarp trees (notably kahikatea) is a special feature.
<b>Other Criteria</b>		
Size/shape	<b>H</b>	A large area that has a good shape and is relatively well buffered.
Connectivity	<b>M/H</b>	Lies close to and links other areas of indigenous forest.
Long-term Sustainability	<b>M</b>	Removal of browsing animals from the upper part of the area, and some animal pest control throughout may be required 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 large area of native forest has been deliberately set aside by Blakely Pacific from plantation forestry activities. It is protected by a covenant. Much of the area it occupies is relatively steep and generally unsuitable for farming or forestry. The upper part of the SNA is affected by heavy animal browse.

**Discussion:**

This area very easily meets the District Plan criteria for a Significant Natural Area. Important features of the area are the presence of old-growth forest, including large old podocarp trees (notably kahikatea); the diversity of the forest (83 indigenous vascular plant species); the presence of seven locally-uncommon plant species; the habitat the area provides for forest birds, including an at risk (declining) species (rifleman); and, the size of the area.

# TIMARU DISTRICT SNA SURVEY

SNA 84

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**Area Name:** Maslin Covenant

**Location (central map reference):** J38: 551-762

**Ecological District:** Orari

**Surveyors:** Mike Harding

**Property:** Port Blakely

**Nearest Locality:** Beautiful Valley

**Area Size (ha):** 17.6

**Altitude (m):** 250-350

**Survey Time:** 2 hours

**Survey Date:** 19-12-12

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## General Description:

This SNA lies in a steeply-incised valley alongside the upper reaches of the Kakahu River. It is surrounded by plantation forest on most boundaries. It extends in its upper eastern tributary to a strip of regenerating forest beneath power lines.

## Plant Communities:

The main plant community is hardwood forest, with podocarp trees on the valley floor, described below. Naturalized (exotic) species are indicated with an asterisk\*.

The forest canopy over most parts of the area comprises kanuka, matipo, five-finger, broadleaf, yellowwood, mahoe, marbleleaf, lemonwood, lancewood, totara, cabbage tree, kowhai, wineberry, fuchsia, clematis and bush lawyer. Totara is emergent from the forest on the valley floor.

Understorey species are *Coprosma rhamnoides*, *Coprosma crassifolia*, *Coprosma propinqua*, matipo, mahoe, mapou, wineberry, fuchsia, five-finger, lemonwood, marbleleaf, pate, weeping mapou, poataniwha, kowhai, totara saplings, *Olearia arborescens* (rare), *Helichrysum lanceolatum* (rare), spindle tree\*, pohuehue, native jasmine and bush lawyer.

Ground-cover species are common shield fern, necklace fern, hen and chickens fern, hound's tongue fern, prickly shield fern, hanging spleenwort, bush lily, cardamine, pennywort, sedge (*Carex* sp.), star lily and seedlings of mahoe, broadleaf, lancewood, clematis, native jasmine and *Coprosma* species.

Additional species present on the forest margin or in forest openings are *Coprosma tayloriae*, koromiko, Himalayan honeysuckle\*, gorse\*, bracken, *Blechnum penna-marina*, *Hypolepis ambigua*, thousand-leaved fern, water fern, elderberry\* and native convolvulus.

Additional species alongside the stream and at other damp sites are mountain akeake, tutu, native broom, *Blechnum fluviatile*, *Blechnum minus* and *Blechnum chambersii*.

Additional species present on the valley-floor terrace are *Raukaua anomalus*, *Coprosma rigida*, korokio, *Libertia ixioides*, mountain ribbonwood, *Blechnum montanum*, leafless lawyer, *Clematis marata* and hookgrass.

## Birds/Fauna Observed:

Native birds observed during this brief survey were bellbird, rifleman, brown creeper, grey warbler and fantail.

## Notable Flora, Fauna and Habitats:

Important features of this area are the presence of totara-rich podocarp-hardwood forest, locally uncommon plant species (star lily, native broom, *Raukaua anomalus* and leafless lawyer), the habitat the area provides for forest birds including an at-risk species (rifleman) and the extent of the area.

## Notable Plant and Animal Pests:

Plant pests present within the forest are spindle tree and elderberry. These do not pose a significant threat to the forest. Animal pests were not surveyed, however pig-rooting was observed and a possum seen.

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

This area is mostly well buffered by its location in a steep-sided valley. It is linked to more extensive areas of regenerating forest along the power line route.

**Condition and Management Issues:**

The forest in this area is in relatively good condition. The area is narrow in places and would benefit from future set-backs when plantation forest is harvested, especially on the valley floor terraces.

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**ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:**

<b>Primary Criteria</b>	<b>Rank</b>	<b>Notes</b>
Representativeness	<b>M/H</b>	A good example of indigenous forest typical of valley-floor remnants in this part of the ecological district.
Rarity	<b>M/H</b>	Provides habitat for an at-risk bird species (rifleman) and supports four locally-uncommon plant species.
Diversity and pattern	<b>M</b>	A moderately diverse forest remnant.
Distinctiveness/special features	<b>M</b>	A high waterfall and relatively extensive valley-floor terraces are notable features.
<b>Other Criteria</b>		
Size/shape	<b>M/H</b>	A relatively large area for this part of the ecological district.
Connectivity	<b>M/H</b>	Linked to other areas of indigenous forest by a corridor of regenerating indigenous forest beneath the power lines.
Long-term Sustainability	<b>M/H</b>	Some plant and animal pest control may be necessary to maintain ecological values in the long term.

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

This area is protected by covenant. It lies in a steep-sided valley that 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 the presence of totara-rich podocarp-hardwood forest, four locally uncommon plant species, the habitat the area provides for forest birds including an at-risk species (rifleman) and the extent of the area.

# TIMARU DISTRICT SNA SURVEY

SNA 291b

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**Area Name:** Kakahu Hill Gully

**Location (central map reference):** J38: 546-721

**Ecological District:** Geraldine

**Surveyors:** Mike Harding

**Property:** Port Blakely

**Nearest Locality:** Kakahu

**Area Size (ha):** 16

**Altitude (m):** 220-300

**Survey Time:** 3 hours

**Survey Date:** 19-12-12

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## General Description:

This SNA lies in a small steep-sided valley on the southeast flank of Kakahu Hill, at the southeast boundary of Blakely Pacific's forest. It extends down-valley onto an adjacent property.

## Plant Communities:

The main plant community present is hardwood-dominated forest with podocarps. The composition of this forest differs on rocky slope and is described separately below. Naturalized (exotic) species are indicated with an asterisk\*.

### Podocarp-hardwood forest on damper slopes:

The forest canopy comprises lemonwood, mahoe, marbleleaf, broadleaf, five-finger, lancewood, mapou, kanuka, kowhai, matipo, wineberry, fuchsia, narrow-leaved lacebark, cabbage tree, bush lawyer, pohuehue and native jasmine. Emergent from the forest canopy are large trees of totara, matai, pokaka and occasional pine\*. The trunk diameter (at breast height) of one large matai tree is 100cm.

The forest understorey is dominated by *Coprosma rhamnoides*, *Coprosma rotundifolia* and poataniwha. Other understorey species are *Coprosma crassifolia*, *Coprosma propinqua*, yellowwood, mapou, kowhai, five-finger, lancewood, pohuehue and saplings of totara.

Ground-cover species are hen and chickens fern, common shield fern, prickly shield fern, hound's tongue fern, button fern, necklace fern, *Asplenium lyalli* (rare), *Asplenium richardii*, *Blechnum procerum*, hookgrass, velvety nightshade\*, burdock\* and pennywort.

Additional species present at damper sites are kaikomako, pate, *Blechnum chambersii*, *Blechnum membranaceum* (rare), *Hypolepis ambigua* and *Leptopteris hymenophylloides*.

Species present at the forest margin or in forest openings are *Helichrysum lanceolatum*, korokio, gorse\*, broom\*, pomaderris\*, Himalayan honeysuckle\*, bracken, blackberry\*, foxglove\*, gooseberry\*, bittersweet\*, *Carex geminata*, nettle, *Blechnum fluviatile*, hairy pennywort, native chickweed, bidibid and native convolvulus.

### Forest on rocky slopes:

The forest canopy is dominated by kanuka. Other canopy species are totara, lancewood, yellowwood, kowhai, lemonwood, matipo, pohuehue, native jasmine, clematis and mistletoe (on a number of species). One sub-adult tree of the at-risk (declining) fierce lancewood (*Pseudopanax ferox*) was observed.

The forest understorey is dominated by *Coprosma rhamnoides* and *Coprosma crassifolia*. Other understorey species are poataniwha, prickly mingimingi, five-finger, totara saplings, korokio, *Helichrysum lanceolatum*, mahoe, mapou, weeping mapou, porcupine shrub (rare), *Coprosma tayloriae*, gooseberry\*, native convolvulus, *Clematis foetida*, clematis, scrub pohuehue, lawyer and dwarf mistletoe (on *Coprosma crassifolia*).

Ground-cover species are button fern, necklace fern, hanging spleenwort, *Asplenium appendiculatum*, *Asplenium hookerianum*, common shield fern, hound's tongue fern, cardamine, *Dichondra repens*, *Carex*

*breviculmis*, hookgrass, star lily, *Libertia ixioides*, wall lettuce\* and seedlings of broadleaf, mahoe, yellowwood and matipo.

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

Native birds observed during this brief survey were bellbird, brown creeper, fantail, grey warbler, kereru, rifleman and shining cuckoo. One karearea (NZ falcon) was observed nearby at the summit of Kakahu Hill. Also likely to be present are silvereve and welcome swallow.

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

Important features of this area are the presence of large podocarp trees (matai and totara), abundant podocarp (totara) regeneration, an at-risk (declining) plant species (fierce lancewood), several locally-uncommon plant species (star lily, *Asplenium lyallii*, *Blechnum membranaceum*, *Blechnum procerum*, dwarf mistletoe and porcupine shrub), the habitat the area provides for forest birds including an at-risk (declining) species (rifleman) and the proximity of the area to other significant areas of forest on adjacent properties.

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

The only notable plant pests within the forest are gooseberry and Himalayan honeysuckle. Pomaderris is present at the forest margin and large pine trees are emergent from the forest in places. Animal pests were not surveyed, though pig rooting was observed. A flock of approximately 12 goats was observed on the firebreak at the forest margin.

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

This area is quite well buffered by its location in an incised gully. It adjoins plantation forest (across a firebreak) at its west boundary and is securely fenced and buffered by gorse scrub at its east boundary. Important areas of indigenous forest protected by covenants are present on the adjacent property.

### **Condition and Management Issues:**

Removal of goats is the most important management issue. Removal of isolated plants of pomaderris is also important.

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## **ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:**

<b>Primary Criteria</b>	<b>Rank</b>	<b>Notes</b>
Representativeness	<b>M/H</b>	A good example of indigenous forest typical of that remaining in this part of the ecological district and supporting areas of old-growth trees.
Rarity	<b>M/H</b>	Supports populations of two at-risk (declining) species (rifleman and fierce lancewood) and several locally-uncommon plant species.
Diversity and pattern	<b>M/H</b>	Plant species diversity is high for this part of the ecological district.
Distinctiveness/special features	<b>M</b>	The relatively extensive area of distinctive forest on dry rocky slopes is a special feature. <i>Blechnum membranaceum</i> has been observed at only one other location in the ecological district.
<b>Other Criteria</b>		
Size/shape	<b>M/H</b>	A relatively large area for this part of the ecological district.
Connectivity	<b>M/H</b>	Extends onto an adjoining property and lies close to other areas of indigenous forest.
Long-term Sustainability	<b>M/H</b>	Control of plant and animal pests (notably goats) will be required to maintain ecological values in the long term.

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

This area has been set aside from production forestry by Blakely Pacific. The relatively steep rocky slopes make this area unsuitable for further development.

**Discussion:**

This area meets the District Plan criteria for a Significant Natural Area. Important features of the area are the presence of large podocarp trees (matai and totara), abundant podocarp (totara) regeneration, an at-risk (declining) plant species (fierce lancewood), six locally-uncommon plant species, the habitat the area provides for forest birds including an at-risk (declining) species (rifleman) and the proximity of the area to other significant areas of forest on adjacent properties.



Port Blakely, Geraldine Forest, SNA 291b.

## 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)	
ash*	<i>Fraxinus excelsior</i>
bidibid.....	<i>Acaena anseriniifolia</i>
bittersweet*	<i>Solanum dulcamara</i>
blackberry*	<i>Rubus fruticosus</i>
bracken .....	<i>Pteridium esculentum</i>
broadleaf.....	<i>Griselinia littoralis</i>
broom*	<i>Cytisus scoparius</i>
burdock*	<i>Arctium minus</i>
bush lawyer.....	<i>Rubus cissoides</i>
bush lily .....	<i>Astelia fragrans</i>
bush rice grass .....	<i>Microlaena avenacea</i>
bush snowberry.....	<i>Gaultheria antipoda</i>
buttercup.....	<i>Ranunculus</i> sp.
button fern .....	<i>Pellaea rotundifolia</i>
cabbage tree/ti rakau.....	<i>Cordyline australis</i>
Californian thistle* .....	<i>Cirsium arvense</i>
cardamine .....	<i>Cardamine debilis</i>
Chilean flame creeper* .....	<i>Tropaeolum speciosum</i>
clematis.....	<i>Clematis paniculata</i>
climbing rata.....	<i>Metrosideros diffusa</i>
columbine (granny's bonnet)* .....	<i>Aquilegia vulgaris</i>
common shield fern.....	<i>Polystichum richardii</i>
crack willow* .....	<i>Salix fragilis</i>
crown fern.....	<i>Blechnum discolor</i>
Douglas fir/oregon* .....	<i>Pseudotsuga menziesii</i>
dwarf mistletoe .....	<i>Korthalsella lindsayi</i>
elderberry* .....	<i>Sambucus nigra</i>
fierce lancewood.....	<i>Pseudopanax ferox</i>
five-finger.....	<i>Pseudopanax arboreus</i>
foxglove* .....	<i>Digitalis purpurea</i>
fuchsia .....	<i>Fuchsia excorticata</i>
giant buttercup* .....	<i>Ranunculus acris</i>
gooseberry* .....	<i>Ribes uva-crispa</i>
gorse* .....	<i>Ulex europaeus</i>
green-hooded orchid .....	<i>Pterostylis</i> sp.
grey willow* .....	<i>Salix cinerea</i>
hairy pennywort.....	<i>Hydrocotyle moschata</i>
hanging spleenwort.....	<i>Asplenium flaccidum</i>
hard fern .....	<i>Paesia scaberula</i>
hawksbeard* .....	<i>Crepis capillaris</i>
hen and chickens fern .....	<i>Asplenium gracillimum</i>
Himalayan honeysuckle* .....	<i>Leycesteria formosa</i>
hookgrass .....	<i>Uncinia</i> sp.
horopito/pepperwood.....	<i>Pseudowintera colorata</i>
hound's tongue fern.....	<i>Microsorium pustulatum</i>
kahikatea/white pine .....	<i>Dacrycarpus dacrydioides</i>
kaikomako .....	<i>Pennantia corymbosa</i>
kanuka .....	<i>Kunzea ericoides</i>
Khasia berry* .....	<i>Cotoneaster simonsii</i>
kiokio.....	<i>Blechnum novae-zelandiae</i>
korokio .....	<i>Corokia cotoneaster</i>
koromiko .....	<i>Hebe salicifolia</i>
kowhai .....	<i>Sophora microphylla</i>



lancewood.....	<i>Pseudopanax crassifolius</i>
laurel* .....	<i>Prunus laurocerasus</i>
lawyer .....	<i>Rubus schmidelioides</i>
leafless lawyer .....	<i>Rubus squarrosus</i>
leather-leaf fern .....	<i>Pyrrosia eleagnifolia</i>
lemonwood .....	<i>Pittosporum eugenoides</i>
lotus* .....	<i>Lotus pedunculatus</i>
lowland ribbonwood .....	<i>Plagianthus regius</i>
mahoe/whiteywood.....	<i>Melicytus ramiflorus</i>
male fern* .....	<i>Dryopteris filix-mas</i>
manuka .....	<i>Leptospermum scoparium</i>
mapou .....	<i>Myrsine australis</i>
marbleleaf/putaputaweta.....	<i>Carpodetus serratus</i>
matagouri .....	<i>Discaria toumatou</i>
matai/black pine .....	<i>Prumnopitys taxifolia</i>
matipo/kohuhu .....	<i>Pittosporum tenuifolium</i>
mistletoe .....	<i>Ileostylis micranthus</i>
mountain akeake.....	<i>Olearia avicenniifolia</i>
mountain 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 wineberry.....	<i>Aristotelia fruticosa</i>
musk* .....	<i>Mimulus moschatus</i>
narrow-leaved lacebark .....	<i>Hoheria angustifolia</i>
narrow-leaved mahoe .....	<i>Melicytus lanceolatus</i>
native broom.....	<i>Carmichaelia australis</i>
native chickweed .....	<i>Stellaria parviflora</i>
native convolvulus.....	<i>Calystegia tuguriorum</i>
native groundsel .....	<i>Senecio wairauensis</i>
native jasmine.....	<i>Parsonsia heterophylla</i>
necklace fern.....	<i>Asplenium flabellifolium</i>
nettle* .....	<i>Urtica incisa</i>
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>
pokaka .....	<i>Elaeocarpus hookerianus</i>
pomaderris* .....	<i>Pomaderris apetala</i>
porcupine shrub .....	<i>Melicytus alpinus</i>
prickly mingimingi .....	<i>Leptecophylla juniperina</i>
prickly shield fern.....	<i>Polystichum vestitum</i>
radiata pine* .....	<i>Pinus radiata</i>
rohutu .....	<i>Lophomyrtus obcordata</i>
scrambling fuchsia.....	<i>Fuchsia perscandens</i>
scrub pohuehue .....	<i>Muehlenbeckia complexa</i>
selfheal* .....	<i>Prunella vulgaris</i>
shrubby mahoe .....	<i>Melicytus micranthus</i>
silver fern/ponga.....	<i>Cyathea dealbata</i>
soft tree fern.....	<i>Cyathea smithii</i>
Spanish heath* .....	<i>Erica lusitanica</i>
spindle tree* .....	<i>Eonymus europaeus</i>
star lily.....	<i>Arthropodium candidum</i>
supplejack.....	<i>Ripogonum scandens</i>
swamp kiokio .....	<i>Blechnum minus</i>
tauhinu .....	<i>Ozothamnus leptophyllus</i>
thousand-leaved fern .....	<i>Hypolepis millefolium</i>
toatoa .....	<i>Haloragis erecta</i>



totara.....	<i>Podocarpus totara</i>
turepo.....	<i>Streblus heterophyllus</i>
tutsan* .....	<i>Hypericum androsaemum</i>
tutu.....	<i>Coriaria sarmentosa</i>
velvety nightshade* .....	<i>Solanum chenopodioides</i>
vetch* .....	<i>Vicia sativa</i>
wall lettuce* .....	<i>Mycelis muralis</i>
water fern.....	<i>Histiopteris incisa</i>
weeping mapou.....	<i>Myrsine divaricata</i>
wheki-ponga .....	<i>Dicksonia fibrosa</i>
wineberry.....	<i>Aristotelia serrata</i>
woolly mullein* .....	<i>Verbascum thapsus</i>
yellowwood .....	<i>Coprosma linariifolia</i>