

**TIMARU DISTRICT
SIGNIFICANT NATURAL AREAS
SURVEY**

ROSS AND LESLEY MILLAR



**Report prepared for Timaru District Council by Mike Harding
October 2010**

TIMARU DISTRICT SIGNIFICANT NATURAL AREAS SURVEY

PROPERTY REPORT

PROPERTY DETAILS:

Owners: Ross and Lesley Millar
Valuation Reference: 24640/054.00
Address: Horsfall Road, Peel Forest
Location: On hill slopes and terraces adjacent to Scotsburn Stream.
Ecological District: Boundary of High Plains and Orari ecological districts.
TDC Land Types: Plains and Hard Rock Hills and Downs.
Land Environments: N2 (eastern South Island plains) and Q2 (south-eastern hill country).

ECOLOGICAL CONTEXT:

The property lies on a recent terrace and lower hill slopes adjacent to Scotsburn Stream, below where the stream flows from its lower gorge. It lies on the boundary of the High Plains and Orari ecological districts, though is also close to the Geraldine Ecological District. Terraces and flats on the property have characteristics typical of the High Plains and Geraldine ecological districts, whereas hill slopes are characteristic of Orari Ecological District.

The original vegetation of this area would have been predominantly podocarp-hardwood forest, with localized areas of kowhai-kanuka forest and shrubland alongside active stream channels, and wetlands at poorly drained sites. 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 comprises a spectacular area of terrace podocarp-hardwood forest and areas of podocarp-hardwood forest on lower hill slopes and gullies. Some parts of these forests appear to be largely unmodified and are highly representative of the original vegetation of the area.

Forest on the property provides habitat for an 'at-risk' species (rifleman) and possibly a 'nationally vulnerable' species (karearea/eastern falcon). The property lies close to the known distribution of the South Canterbury population of long-tailed bat (a nationally endangered species) and provides good potential habitat for bats. Several locally-uncommon plant species are present, including an unusual occurrence of tree nettle.

One of the two blocks of forest on the property is protected by a QEII Open Space Covenant. The property lies near to other indigenous vegetation on adjacent properties and to forest protected within the regionally-important Peel Forest Park Scenic Reserve.

SIGNIFICANT AREAS ON THE PROPERTY:

The property was surveyed as part of the District-wide survey of Significant Natural Areas during September 2010. Two areas, totalling approximately 14 hectares, are regarded as a Significant Natural Areas (SNAs) when assessed against the District Plan criteria. These SNAs are listed in the table below.

Area No.	Area Name	Central grid reference	Aprox. size (ha)	Vegetation/habitat type
656b	Millar kahikatea forest	J37: 678-965	7.72	Podocarp-hardwood forest
655a	Millar forest	J37: 675-961	6.36	Podocarp-hardwood forest

These SNAs are illustrated on the attached aerial photograph 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.

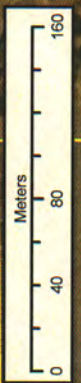
Hanging spleenwort in the terrace forest (SNA 656b)



Millar Property
24640/054.00

656b

655a



1:3,500



Area Name: Millar Forest

Location (central map reference): J37: 675-961

Ecological District: Orari

Surveyors: Mike Harding

Property: Ross and Lesley Millar

Nearest Locality: Peel Forest

Area Size (ha): 6.36

Altitude (m): 320-420

Survey Time: 1½ hours

Survey Date: 22-09-10

General Description:

This SNA lies on moderately-steep south-facing slopes at the southwest corner of the property. It is contiguous with forest on adjacent properties.

Plant Communities:

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

The forest canopy over most parts of the forest is dominated by mahoe with emergent trees of totara, matai, kahikatea, kowhai and narrow-leaved lacebark. Other canopy species are broadleaf, mapou, lemonwood, marbleleaf, fuchsia, wineberry, cabbage tree, kanuka, pohuehue, bush lawyer, native convolvulus and native jasmine. One large matai tree on the upper slopes has a trunk diameter (at breast height) of 150cm.

The forest understorey is dominated by mahoe and/or *Coprosma rotundifolia*. Other understorey species are broadleaf, wineberry, kowhai, pate, *Coprosma propinqua*, *Coprosma crassifolia*, mapou, lemonwood, lancewood, turepo, poataniwha, marbleleaf, five-finger, *Clematis marata*, pohuehue, bush lawyer and, on tree trunks, hound's tongue fern and white climbing rata.

The forest floor is dominated in most parts of the forest by prickly shield fern. Other ground-cover species are common shield fern, hen and chickens fern, *Asplenium hookerianum*, *Asplenium richardii*, necklace fern, hanging spleenwort, hound's tongue fern, *Pellaea rotundifolia*, male fern* and seedlings of mapou, wineberry, marbleleaf, broadleaf, cabbage tree, kowhai, lancewood, native jasmine, elderberry* and *Coprosma* species.

Species present at damper sites are supplejack, soft tree fern (rare), *Blechnum fluviatile*, *Blechnum chambersii*, *Lastreopsis glabella*, *Leptopteris hymenophylloides* and pennywort.

Species commonly present on the forest margin or in forest openings are *Hypolepis ambigua*, Himalayan honeysuckle*, fuchsia, poroporo, wineberry, koromiko, mountain akeake, *Coprosma propinqua*, *Coprosma propinqua* X *robusta*, gorse*, tree nettle, black nightshade*, velvety nightshade*, elderberry*, hemlock*, bidibid and old man's beard* (rare).

Birds/Fauna Observed:

Native birds observed during this brief survey were grey warbler, bellbird, rifleman, fantail, silvereve and kereru/NZ pigeon.

Notable Flora, Fauna and Habitats:

Important features of this area are the presence of large podocarp trees, the diversity of plant species present (52 species), the presence of locally uncommon plant species (soft tree fern, tree nettle and *Lastreopsis glabella*), the habitat the area provides for forest birds including an 'at-risk' species (rifleman) and the contribution the area makes to fauna habitat in the wider area.

Notable Plant and Animal Pests:

The only significant plant pest observed was old man's beard. This appears confined to areas adjacent to the track through the forest. Sycamore is present near the lower boundary of the forest. Other plant pests observed do not pose a significant threat to the forest. Animal pests were not surveyed, though possum sign (droppings and scratching) and pig sign (rooting) were observed.

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

This area adjoins indigenous forest on its western and southern boundaries. It adjoins pasture at other boundaries but is securely fenced from grazing. The forest lies close to other areas of indigenous forest including the regionally important Peel Forest Park Scenic Reserve.

Condition and Management Issues:

The forest is in relatively good condition. A road divides part of the forest, though vegetation is regenerating on unused parts of that road. The main management issues are control of old man's beard, monitoring to prevent the establishment of new plant pests (notably sycamore) and continued animal pest control.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	M/H	A good example of indigenous forest typical of this part of the ecological district and representative of the vegetation originally present.
Rarity	M	Provides habitat for an 'at-risk' bird species (rifleman) and three locally uncommon plant species.
Diversity and pattern	M	A relatively diverse area of forest, though diversity is probably reduced from that originally present.
Distinctiveness/special features	M	The large old podocarp trees (especially the large matai tree) are special features.
Other Criteria		
Size/shape	M	A relatively small area (for this ecological district), though has a good shape and is well buffered.
Connectivity	M	Adjoins other indigenous forest on two boundaries and lies close to other important indigenous forest remnants.
Long-term Sustainability	M/H	Some plant and animal pest control will probably be required to maintain ecological values of the area in the long term.

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

This area has been informally protected by the landowner and is securely fenced from grazing. The steepness of the slope limits the potential of most of the area for farm development.

Discussion:

This area meets the District Plan criteria for a Significant Natural Area. Important features of the area are the presence of large podocarp trees, the diversity of plant species present (52 species), the presence of three locally uncommon plant species, the habitat the area provides for forest birds including at 'at-risk' species (rifleman) and the contribution the area makes to fauna habitat in the wider area.

Area Name: Millar kahikatea forest

Location (central map reference): J37: 678-965

Ecological District: High Plains/Orari

Surveyors: Mike Harding

Property: Ross and Lesley Millar

Nearest Locality: Peel Forest

Area Size (ha): 7.72 **Altitude (m):** 290-400

Survey Time: 3½ hours **Survey Date:** 16-09-10

General Description:

This SNA lies on a gently sloping terrace beside Scotsburn Stream and on adjacent hill slopes at the northern boundary of the property. The SNA lies on the boundary of the Orari and High Plains ecological districts. The lower part of the SNA on the terrace has characteristics most typical of High Plains Ecological District, whereas the part of the SNA on the hill slopes and gully has characteristics typical of the Orari Ecological District. The SNA is contiguous with forest on an adjoining property. This area of forest (and that on the adjacent property) is protected by a QEII Open Space covenant.

Plant Communities:

Four distinct plant communities are present: terrace kahikatea forest; hill-slope kanuka forest; gully podocarp-hardwood forest and treeland. These plant communities are described separately below. Naturalized (exotic) species are indicated with an asterisk*.

Terrace kahikatea forest:

The canopy of this forest is dominated by mahoe with emergent kahikatea. Other canopy species are rohutu, hawthorn*, lancewood, pokaka, mapou, broadleaf, marbleleaf, cabbage tree, pohuehue, bush lawyer, lawyer and native jasmine. Other emergent species are totara, matai, kowhai, narrow-leaved lacebark and lowland ribbonwood. Trunk diameters (at breast height) of the larger canopy trees are: kahikatea, 25-45cm; and narrow-leaved lacebark, 45-55cm.

The forest understorey is dominated by mahoe. Other understorey species are mapou, *Coprosma rotundifolia*, *Coprosma areolata*, *Coprosma rhamnoides*, turepo, weeping mapou, kaikomako, rohutu, poataniwha, lancewood, lowland ribbonwood, horopito, pokaka, matipo (rare), pohuehue, native convolvulus, saplings of totara, kahikatea and matai and, on tree trunks, hound's tongue fern, leather-leaf fern, hanging spleenwort and white climbing rata.

Ground-cover species are prickly shield fern, hound's tongue fern, *Pellaea rotundifolia*, hen and chickens fern, bush lily, hookgrass, moss and seedlings of mahoe, rohutu, totara, kahikatea, kowhai, lowland ribbonwood, lemonwood, *Neomyrtus pedunculata*, clematis, native jasmine and *Coprosma* species.

Additional species present at damper sites are pate, swamp kiokio, *Blechnum fluviatile*, *Blechnum pennamarina* and *Carex solandri*.

Additional species near the terrace edge are sycamore*, holly*, elderberry*, old man's beard*, wineberry, lemonwood, fuchsia, poroporo and shrubby mahoe.

Hill-slope kanuka forest:

The forest canopy in this area is dominated by kanuka. Other canopy species are lancewood, hawthorn*, broadleaf, mahoe, mapou, cabbage tree, kowhai, lemonwood, marbleleaf, matipo, five-finger, bush lawyer and pohuehue.

The forest understorey is dominated by mahoe, turepo and in places *Coprosma rhamnoides*. Other understorey species are *Coprosma areolata*, *Coprosma rotundifolia*, *Coprosma crassifolia*, mapou, matipo, horopito, clematis, bush lawyer, saplings of kahikatea and totara and, on tree trunks, leather-leaf fern.

Ground-cover species are hen and chickens fern, prickly shield fern, *Pellaea rotundifolia*, *Blechnum fluviatile*, hound's tongue fern, *Asplenium richardii*, necklace fern, hanging spleenwort, the herb *Schizeilema*

trifoliolatum and seedlings of kahikatea, totara, mahoe, rohutu, kowhai, mapou, broadleaf, five-finger, cabbage tree, clematis, native jasmine and *Coprosma* species.

Additional species present at damper sites are fuchsia and pate. Species present on the forest margin are hawthorn*, bracken and blackberry*.

Gully podocarp-hardwood forest:

The canopy of this forest is mostly dominated by mahoe on the gully sides and fuchsia in the gully bottom. Emergent from this forest canopy are trees of kahikatea, totara, kowhai and narrow-leaved lacebark. Other canopy species are lancewood, marbleleaf, broadleaf, wineberry, hawthorn*, kanuka, five-finger, mapou, lemonwood, cabbage tree, bush lawyer and pohuehue.

The forest understorey is dominated in most places by mahoe. Other understorey species are *Coprosma rotundifolia*, *Coprosma rhamnoides*, *Coprosma areolata*, horopito, matipo, mapou, lemonwood, lancewood, wineberry, mountain akeake (rare), pate, turepo, lowland ribbonwood, hawthorn* (rare), elderberry* (rare), kowhai, marbleleaf, five-finger, narrow-leaved lacebark, clematis, native convolvulus, pohuehue, bush lawyer, saplings of kahikatea and totara and, on tree trunks, white climbing rata and hound's tongue fern.

Ground-cover species are hen and chickens fern, *Asplenium hookerianum*, *Asplenium richardii*, hound's tongue fern, prickly shield fern, *Pellaea rotundifolia*, *Blechnum fluviatile*, mountain kiokio, *Carex solandri*, *Cardamine* sp., hookgrass, bidibid and seedlings of five-finger, lancewood, koromiko, horopito, wineberry, marbleleaf, totara, kahikatea, kowhai, mapou, cabbage tree, clematis, native jasmine and *Coprosma* species.

Species present at damper sites in the gully bottom are kaikomako, *Blechnum chambersii*, *Leptopteris hymenophylloides*, *Lastreopsis glabella*, swamp kiokio, soft tree fern, wheki-ponga (rare), weeping mapou and pennywort.

Species present on the forest margin or in forest openings are wineberry, broom*, gorse*, hawthorn*, *Coprosma propinqua*, *Coprosma rigida*, bracken, *Hypolepis ambigua*, male fern*, velvety nightshade*, burdock*, cocksfoot*, native convolvulus, pohuehue, sycamore* and holly* (rare).

Treeland:

This area of scattered trees extends along the stream below the main area of gully forest. It comprises individual trees and shrubs in grazed pasture. Species present here are hawthorn*, kanuka, totara, kahikatea, elderberry*, mapou, mahoe, broadleaf, kowhai, *Coprosma crassifolia*, bush lawyer, pohuehue, foxglove, *Hypolepis ambigua* and *Cardamine* sp.

Birds/Fauna Observed:

Native birds observed during this survey were kereru/NZ pigeon, grey warbler, fantail, bellbird, rifleman, brown creeper and harrier. Karearea (NZ falcon) was observed nearby.

Notable Flora, Fauna and Habitats:

Important features of this area are: the presence of intact terrace kahikatea forest; the diversity of plant species present (c. 70); the presence of locally-uncommon plant species (soft tree fern and *Lastreopsis glabella*); the habitat the area provides for an 'at-risk' bird species (rifleman) and possibly a 'nationally-vulnerable' species (karearea); the extent of the area; and, the contribution the area makes to the network of fauna habitat in the wider area.

Notable Plant and Animal Pests:

Sycamore, hawthorn and old man's beard are the most important plant pests present. However, most dense areas of sycamore appear to have been controlled and the distribution of old man's beard is localized. Hawthorn is common at the forest boundary on the hill slope and is scattered throughout the forest. Holly is also present (though uncommon) at the edge of the gully forest. Animal pests were not surveyed, though evidence of possums and pigs was observed.

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

This is a relatively large area of forest with a good shape. It is securely fenced and well buffered by its size and location. It extends onto the adjoining property at its northern boundary and adjoins an area of protected scrub on the adjacent hill slopes. It is protected by an Open Space Covenant and is un-grazed except for the area of treeland at its lower edge. It is part of one of the largest and most valuable areas of indigenous forest on private land in Timaru District.

Condition and Management Issues:

The forest is in relatively good condition. The healthy understorey vegetation indicates an absence of grazing over recent years. The hill slope and gully forest appears to be in advanced state of regeneration after earlier disturbance. Parts of the terrace forest appear to be relatively intact original forest. The main management issue is plant pest control, especially sycamore, old man's beard, hawthorn and holly.

Property Owner Comment:

Do not want to be required to fence the treeland area from grazing now or at later date. Provided fencing is not required, are happy to see the treeland area included.



The terrace forest viewed from the gully side.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	H	A very good example of indigenous forest representative of that originally present in the ecological district.
Rarity	H	Lowland terrace podocarp forest is rare plant community, especially in Canterbury. The area provides habitat for an 'at-risk' bird species (rifleman) and probably provides habitat for a 'nationally-vulnerable' bird species (karearea). May provide habitat for a 'nationally endangered' species (long-tailed bat). Two locally uncommon plant species are present.
Diversity and pattern	H	The area includes hill-slope forest, terrace forest, gully forest and treeland. It has high plant species diversity.
Distinctiveness/special features	M/H	The terrace kahikatea forest is a special feature.
Other Criteria		
Size/shape	H	A large area for a lowland (High Plains) ecological district, with a good shape; a moderate-sized area for Orari Ecological District.
Connectivity	M/H	Adjoins other areas of indigenous forest, is part of a broken corridor of forest and makes an important contribution to the network of fauna habitat in the wider area.
Long-term Sustainability	M/H	Plant pest control and probably regular animal pest control will be required to maintain ecological values in the long term.

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

Most of this area of forest has been protected by the landowners as an Open Space Covenant. It is securely fenced and has little potential for farm 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 intact terrace kahikatea forest; the diversity of plant species present (c. 70); the presence of locally-uncommon plant species (soft tree fern and *Lastreopsis glabella*); the habitat the area provides for an 'at-risk' bird species (rifleman) and possibly a 'nationally-vulnerable' species (karearea); the extent of the area; and, the contribution the area makes to the network of fauna habitat in the wider area.

Scientific names of species cited by common name in this report

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

Common Name	Scientific name
(* = naturalised species)	
bidibid	<i>Acaena</i> sp.
blackberry*	<i>Rubus fruticosus</i>
black nightshade*	<i>Solanum nigrum</i>
bracken	<i>Pteridium esculentum</i>
broadleaf	<i>Griselinia littoralis</i>
broom*	<i>Cytisus scoparius</i>
burdock*	<i>Arctium minus</i>
bush lawyer	<i>Rubus cissoides</i>
bush lily	<i>Astelia fragrans</i>
cabbage tree/ti rakau	<i>Cordyline australis</i>
clematis	<i>Clematis paniculata</i>
cocksfoot*	<i>Dactylis glomerata</i>
common shield fern	<i>Polystichum richardii</i>
elderberry*	<i>Sambucus nigra</i>
five-finger	<i>Pseudopanax arboreus</i>
foxglove*	<i>Digitalis purpurea</i>
fuchsia	<i>Fuchsia excorticata</i>
gorse*	<i>Ulex europaeus</i>
hanging spleenwort	<i>Asplenium flaccidum</i>
hawthorn*	<i>Crataegus monogyna</i>
hemlock*	<i>Conium maculatum</i>
hen and chickens fern	<i>Asplenium gracillimum</i>
Himalayan honeysuckle*	<i>Leycesteria formosa</i>
holly*	<i>Ilex aquifolium</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>
koromiko	<i>Hebe salicifolia</i>
kowhai	<i>Sophora microphylla</i>
lancewood	<i>Pseudopanax crassifolius</i>
lawyer	<i>Rubus schmidelioides</i>
leather-leaf fern	<i>Pyrrosia eleagnifolia</i>
lemonwood	<i>Pittosporum eugenioides</i>
lowland ribbonwood	<i>Plagianthus regius</i>
mahoe/whiteywood	<i>Meliclytus ramiflorus</i>
male fern*	<i>Dryopteris filix-mas</i>
mapou	<i>Myrsine australis</i>
marbleleaf/putaputaweta	<i>Carpodetus serratus</i>
matai/black pine	<i>Prumnopitys taxifolia</i>
matipo/kohuhu	<i>Pittosporum tenuifolium</i>
mountain akeake	<i>Olearia avicenniifolia</i>
mountain kiokio	<i>Blechnum montanum</i>
narrow-leaved lacebark	<i>Hoheria angustifolia</i>
native convolvulus	<i>Calystegia tuguriorum</i>
native jasmine	<i>Parsonsia</i> sp.
necklace fern	<i>Asplenium flabellifolium</i>
old man's beard*	<i>Clematis vitalba</i>
pate	<i>Schefflera digitata</i>
pennywort	<i>Hydrocotyle</i> sp.
poataniwha	<i>Melicope simplex</i>

pohuehue.....	<i>Muehlenbeckia australis</i>
pokaka.....	<i>Elaeocarpus hookerianus</i>
poroporo.....	<i>Solanum laciniatum</i>
prickly shield fern.....	<i>Polystichum vestitum</i>
rohutu.....	<i>Lophomyrtus obcordata</i>
shrubby mahoe.....	<i>Melicytus micranthus</i>
soft tree fern.....	<i>Cyathea smithii</i>
supplejack.....	<i>Ripogonum scandens</i>
swamp kiokio.....	<i>Blechnum minus</i>
sycamore*.....	<i>Acer pseudoplatanus</i>
totara.....	<i>Podocarpus totara</i>
tree nettle.....	<i>Urtica ferox</i>
turepo.....	<i>Streblus heterophyllus</i>
velvety nightshade*.....	<i>Solanum chenopodioides</i>
weeping mapou.....	<i>Myrsine divaricata</i>
wheki-ponga.....	<i>Dicksonia fibrosa</i>
white climbing rata.....	<i>Metrosideros diffusa</i>
wineberry.....	<i>Aristotelia serrata</i>