TIMARU DISTRICT

SIGNIFICANT NATURAL AREAS SURVEY

IRVINE PROPERTY

Report prepared for Timaru District Council by Mike Harding
November 2011

TIMARU DISTRICT SIGNIFICANT NATURAL AREAS SURVEY

PROPERTY REPORT

PROPERTY DETAILS:

Owner: ..... Peter and Susan Irvine
Valuation References: 24820/026.04
Address: ..... Rolling Ridges Road, Timaru 7975.
Location:..... Rolling Ridges Road, Timaru Downs.
Ecological District:..... Makikihi Ecological District.
TDC Land Type:..... 'Soft Rock Hills and Downs'
Land Environment: ..... N3 (eastern South Island undulating plains and hills).

ECOLOGICAL CONTEXT:

This part of the property covers steep to moderately steep slopes between 140 and 220m in a headwater tributary of Papaka Stream, Levels valley, on the northern part of Timaru Downs. The property lies on the boundary of Makikihi and Waimate ecological districts, though has characteristics more representative of Makikihi Ecological District.

It is likely that the original vegetation of this area was predominantly podocarp-hardwood forest, dominated by matai and totara. Shrubland, treeland and tussockland may have occupied steeper slopes and disturbed sites. Rock bluffs supported specialised flora and mixed hardwood forest including kowhai.

Today the original forest cover of Makikihi Ecological District, within Timaru District, is substantially depleted. Few areas of indigenous vegetation remain and most of those are small and modified. The indigenous fauna would have originally been significantly more numerous and diverse, with a greater range of birds, lizards and invertebrates than is presently found in the area.

SIGNIFICANT AREAS ON THE PROPERTY:

Indigenous vegetation on the property comprises one large patch and one smaller patch of hardwood forest, areas of scattered shrubland, and sparse rockland vegetation on steeper slopes and basalt scarps. The smaller patch of indigenous vegetation on the property is substantially depleted. However, the rarity of indigenous vegetation in this part of Timaru District contributes to its significance.

The property was surveyed as part of the District-wide survey of Significant Natural Areas during October 2011. Two areas, comprising almost five hectares, are regarded as Significant Natural Areas (SNAs) when assessed against the District Plan criteria. These SNAs are listed in the table below.

Area No.	Area Name	Central grid reference	Aprox. size (ha)	Vegetation/habitat type
515a	Irvine Forest	J38: 581-511	4.13	hardwood forest, scrub; rockland
515b	Irvine shrubland	J38: 583-511	0.65	hardwood forest; shrubland; rockland

These SNAs are illustrated on the attached aerial photograph and described in greater detail on the SNA Forms in this report. Note that the boundaries of the SNAs are indicative, rather than precise. These areas meet the ecological criteria in the Timaru District Plan (criteria i-vi, pages B18-B19) and are considered to be sustainable in the long term, or sustainable with appropriate management (criterion vii, page B19). SNAs are subject to confirmation by Council after regarding the matters listed in the District Plan (pages B19-B20). It is expected that SNAs will eventually be listed in the District Plan by way of a notified plan change.

At present, consent is required from Council for clearance of areas of indigenous vegetation or habitat which meet the Interim Definitions in the District Plan. Clearance includes burning, 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.

OTHER AREAS INSPECTED ON THE PROPERTY:

Other areas on the property were inspected but are not significant when assessed against the District Plan criteria. Shrubland and small areas of rockland vegetation are present along the crest of the low basalt scarp northeast of SNA 515b. These areas of vegetation and habitat are too small, narrow and modified to presently meet the significance criteria. A relatively large area of dense scrub is present at the up-valley end of SNA 515a. This area is presently dominated by naturalized species, notably gorse.

The relatively healthy forest-floor vegetation (and large basalt boulders) within SNA 515a


N
Irvine Property
24820/026.04
515a
515b
Meters
0
100
200
300
1:5,000

TIMARU DISTRICT SNA SURVEY

SNA 515a

Area Name: Irvine Forest
Location (central map reference): J38: 581-511
Ecological District: Makikihi
Surveyors: Mike Harding

Property: Peter and Susan Irvine
Nearest Locality: Rosewill
Area Size (ha): 4.13 **Altitude (m):** 140-220
Survey Time: 3 hours **Survey Date:** 28-10-11

General Description:

This SNA lies on steep slopes beneath low basalt scarps on both sides of a small valley in a headwater tributary of Papaka Stream at the northern edge of Timaru Downs. It grades at its up-valley end to scrub dominated by gorse, pohuehue and bracken, and at its down-valley end to pasture and plantation pine trees.

Plant Communities:

Two main plant communities are present: hardwood forest on the south-facing valley side; and hardwood forest-shrubland on the north-facing valley side. Sparse rockland vegetation is present on the low basalt scarps. These plant communities are described separately below. Naturalized (exotic) species are indicated with an asterisk*.

Hardwood forest on the south-facing slope:

The low forest canopy on these slopes is dominated by mahoe, broadleaf and pohuehue with emergent cabbage trees. Other canopy species are mountain akeake, *Coprosma crassifolia*, leafless lawyer, lawyer, native convolvulus, native jasmine and occasionally Darwin's barberry* and elderberry*. One tall narrow-leaved lacebark tree is emergent from the forest canopy at the up-valley edge of the forest.

The forest understorey is relatively open. Plant species present are *Coprosma propinqua* and *Coprosma crassifolia*. The forest floor comprises a boulderfield of large blocks of basalt. Ground-cover species are hound's tongue fern, necklace fern, *Asplenium appendiculatum*, hen and chickens fern, *Asplenium hookerianum*, button fern, *Libertia ixioides* and seedlings of broadleaf, *Coprosma* species, Darwin's barberry* and elderberry*.

Plants present at rocky sites are matagouri, button fern, necklace fern, *Asplenium appendiculatum*, common shield fern, leafless lawyer, horehound*, woolly mullein*, gorse* and the at-risk (naturally uncommon) herb, *Einadia allanii*.

Hardwood forest on south-facing slopes of SNA 515a

The forest grades to dense scrub dominated by gorse*, Darwin's barberry*, pohuehue and lawyer. Other species present on the forest margin or in forest openings are koromiko, *Coprosma propinqua*, *Coprosma crassifolia*, mountain akeake, poroporo, native broom, elderberry*, black nightshade*, toatoa, *Clematis foetida*, cocksfoot* and vetch*.

Additional species present alongside the stream are scrambling fuchsia, creeping buttercup*, broad-leaved plantain*, mouse-ear chickweed*, cleavers*, *Cardamine debilis* and male fern*.

Hardwood forest-shrubland on the north-facing slope:

The sparse forest canopy on these slopes is dominated by mahoe, broadleaf, pohuehue and cabbage tree. Other canopy species are *Coprosma propinqua*, *Coprosma crassifolia*, matipo, native convolvulus, leafless lawyer and lawyer. Understorey and ground-cover species are poataniwha, black nightshade*, common shield fern and *Libertia ixioides*.

Plant species at open rocky sites are necklace fern, common shield fern, button fern, toatoa, *Einadia allanii*, *Wahlenbergia gracilis*, poroporo, cleavers*, velvety nightshade*, horehound*, broad-leaved plantain*, shepherd's purse*, cocksfoot*, Chewings fescue*, danthonia, scrambling fumitory*, mallow*, peppercress*, hawksbeard* and yarrow.

Shrubland is dominated by *Coprosma propinqua*, gorse* and pohuehue. Other important species are *Coprosma crassifolia*, native broom, matagouri, gorse*, bracken and occasionally sweet brier*.

One small patch, comprising four or five bushes, of the at-risk (declining) shrub, *Teucridium parvifolium*, is present below the scarp on north-facing slopes.

Shrubland below the basalt scarp on north-facing slopes of SNA 515a

Birds/Fauna Observed:
The only native birds observed during this survey were grey warbler, Australasian harrier and paradise shelduck.

Notable Flora, Fauna and Habitats:
Important features of this area are the presence of indigenous vegetation on basalt (a naturally uncommon ecosystem type), the diversity of plant species present (38 indigenous species), the presence of at-risk species (*Teucridium parvifolium* and *Einadia allanii*), locally uncommon plant species (narrow-leaved lacebark and poataniwha) and the extent (size) of the area.

The at-risk (declining) shrub, Teucridium parvifolium, in SNA 515a

Notable Plant and Animal Pests:
Darwin's barberry is the most important plant pest present. It occurs throughout the site, including the forest understorey. Its bird-dispersed fruits enable easy re-infestation and infestation of other sites. Gorse is dominant in places, though provides suitable habitat for regeneration of indigenous woody species at all except the rockiest sites. Elderberry is sparsely scattered throughout the site. Animal pests were not surveyed, though possum sign was common and wild kittens were observed.

Boundaries (buffering, fencing, adjoining plant communities and habitats):
The site is well buffered by basalt scarps at its north and south boundaries, and by dense scrub at its west (up-valley) boundary. It is fenced from grazed pasture at its east (down-valley) boundary. The boundaries of the area have been drawn to include the main areas of taller woody indigenous vegetation. This vegetation grades to scrub dominated by exotic species. This scrub does not meet the significance criteria of the District Plan, though has potential to become significant if regeneration of indigenous species continues.

Condition and Management Issues:
The dense forest canopy is in relatively good condition. It appears to be forest that has regenerated following earlier disturbance, as older trees are absent. Most of the site comprises steep boulder slopes that are difficult to traverse and largely inaccessible to stock. The site has not been grazed in recent years and appears to be regenerating. The main management issue is control of Darwin's barberry (though this would be very difficult) and continued control of animal pests, especially possums.

Property Owner Comment:
Mr Irvine values this area of indigenous vegetation and has excluded it from grazing. He intends to maintain this area of vegetation but does not wish to be obliged to control plant and animal pests.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	M/H	A good example of indigenous vegetation typical of that remaining in this part of Makikihi Ecological District.
Rarity	M/H	Indigenous vegetation on basalt is a naturally uncommon ecosystem type. The site supports populations of two at-risk species (*Teucridium parvifolium* and *Einadia allanii*) and locally-uncommon species.
Diversity and pattern	M	A relatively diverse site, though plant species diversity is depleted from that formerly present.
Distinctiveness/special features	M	The presence of north- and south-facing slopes within the site is a special feature.
Other Criteria		
Size/shape	H	A large site for this ecological district.
Connectivity	L/M	Other smaller areas of indigenous vegetation are present nearby.
Long-term Sustainability	M	Some plant and animal pest control is probably required to maintain ecological values in the long-term, though regeneration of indigenous woody species is likely to continue with little intervention.

Final Consideration (of other matters: Section D, page B-19 of Timaru District Plan):
This area occupies steep boulder slopes that have little potential for further farm development. The landowner has voluntarily excluded the site from grazing.

Discussion:
This area meets the District Plan criteria for a Significant Natural Area. Important features of the area are the presence of indigenous vegetation on basalt (a naturally uncommon ecosystem type), the diversity of plant species present (38 indigenous species), the presence of at-risk species (*Teucridium parvifolium* and *Einadia allanii*), locally uncommon plant species (narrow-leaved lacebark and poataniwha) and the extent (size) of the area.

TIMARU DISTRICT SNA SURVEY — SNA 515b

Area Name: Irvine Shrubland
Location (central map reference): J38: 583-511
Ecological District: Makikihi
Surveyors: Mike Harding

Property: Peter and Susan Irvine
Nearest Locality: Rosewill
Area Size (ha): 0.65 **Altitude (m):** 180-200
Survey Time: ½ hour **Survey Date:** 28-10-11

General Description:

This SNA lies on moderately steep north-facing slopes beneath a low basalt scarp in a headwater tributary of Papaka Stream. It lies close to a larger area of indigenous vegetation up-valley (SNA 515a).

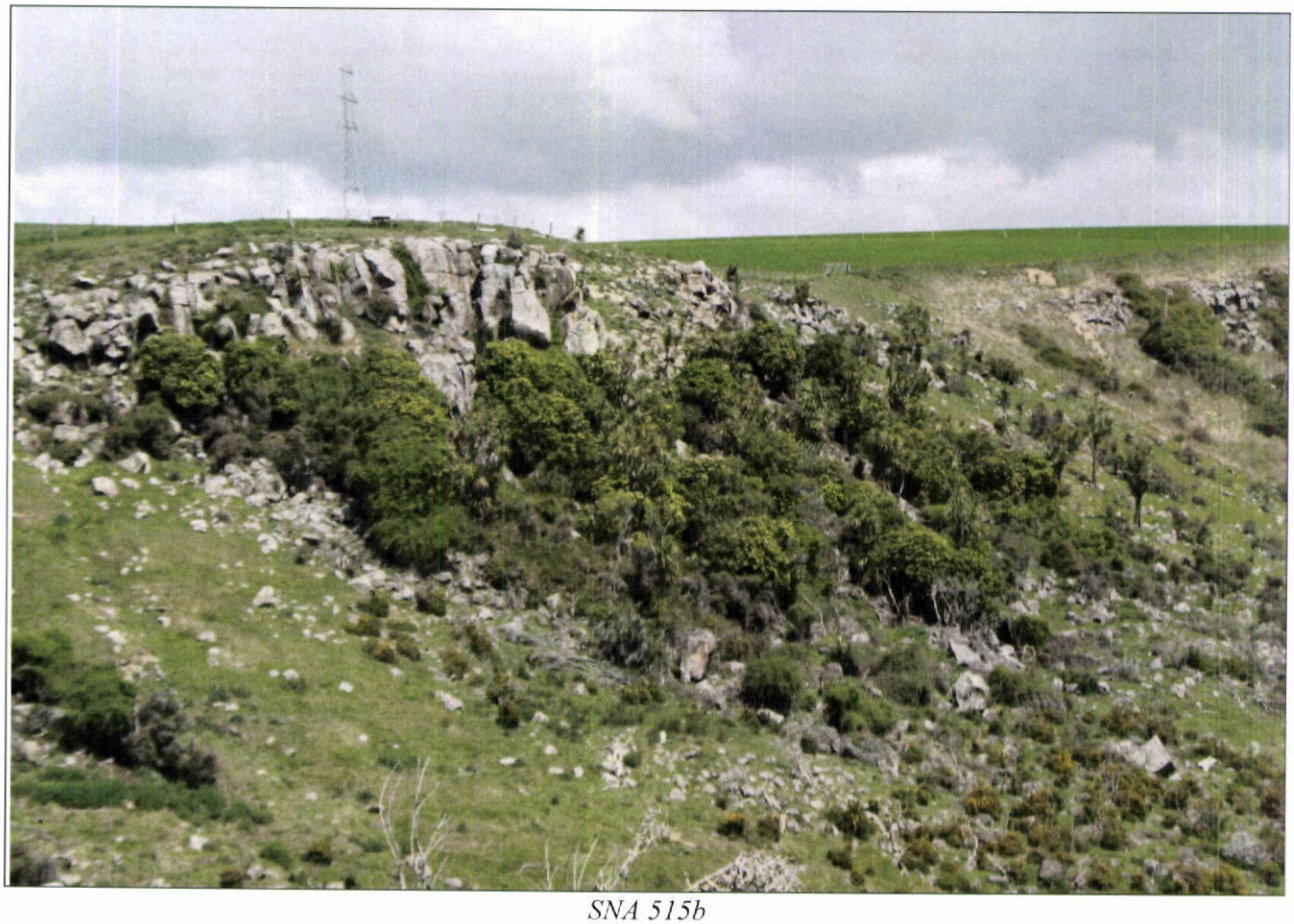
Plant Communities:

The main plant community present is a small area of hardwood forest with shrubland at its margin. Sparse rockland vegetation is present on the low basalt scarp. This plant community is described below. Naturalized (exotic) species are indicated with an asterisk*.

The canopy of this small area of forest is dominated by mahoe, cabbage tree, pohuehue and native convolvulus. Surrounding shrubland is dominated by *Coprosma propinqua*. Other species present are gorse*, native broom, *Coprosma crassifolia*, matagouri, poroporo, leafless lawyer and Darwin's barberry*. Two patches of the locally-uncommon shrub, *Coprosma virescens*, are present at the east and west edges of the area.

Open areas within the forest and shrubland are dominated by pasture grasses. Other species present are nodding thistle*, woolly mullein*, horehound*, black nightshade*, suckling clover*, hemlock*, hedge mustard* and bracken.

Plant species at rocky sites are button fern, common shield fern, necklace fern, *Oxalis exilis*, toatoa, *Crassula* sp., cleavers*, horehound*, cranesbill*, orachne* and sow thistle*.



SNA 515b

Birds/Fauna Observed:
The only native bird observed during this brief survey was grey warbler.

Notable Flora, Fauna and Habitats:
Important features of this area are the presence of indigenous vegetation on basalt (a naturally uncommon ecosystem type) and the presence of a locally uncommon plant species (*Coprosma virescens*).

Notable Plant and Animal Pests:
Darwin's barberry and gorse are present, though neither species is dominant at present. Open areas are dominated by pasture grasses and other naturalized species. Animal pests were not surveyed, though possum sign was observed.

Boundaries (buffering, fencing, adjoining plant communities and habitats):
The site is buffered by the basalt scarp and boulder slopes. The boundaries of this area have been drawn to include the two patches of *Coprosma virescens*. Vegetation at the site grades to scattered shrubland and pasture. The area lies close to a much larger area of indigenous vegetation (SNA 515a).

Condition and Management Issues:
This area of forest and shrubland is in a modified condition. Forest openings are dominated by naturalized species and indigenous species regeneration is affected by animal browse. The main management issue is control of Darwin's barberry and encouragement of regeneration of indigenous woody species.

Property Owner Comment:
The landowner does not intend to clear this area but does not wish to be obliged to restrict stock access or undertake plant and animal pest control.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	M	A modified example of indigenous vegetation typical of that remaining in this part of Makikihi Ecological District.
Rarity	M/H	Indigenous vegetation on basalt is a naturally uncommon ecosystem type. The site supports two patches of a locally-uncommon species (*Coprosma virescens*).
Diversity and pattern	L/M	A depleted site, though a range of indigenous species is present.
Distinctiveness/special features	L/M	The presence of exposed basalt within the site is a feature.
Other Criteria		
Size/shape	M	A small to moderate-sized site for this ecological district.
Connectivity	M	Lies close to a much larger area of indigenous vegetation.
Long-term Sustainability	L/M	Some plant and animal pest control and encouragement of understorey regeneration are 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 occupies boulder-strewn slopes that have little potential for further farm development.

Discussion:
This area just meets the District Plan criteria for a Significant Natural Area. Important features of the area are the presence of indigenous vegetation on basalt (a naturally uncommon ecosystem type), the presence of locally uncommon plant species (*Coprosma virescens*) and the proximity of the area to other areas of indigenous vegetation..

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 (* = naturalised species)	Scientific name
black nightshade*	*Solanum nigrum*
bracken	*Pteridium esculentum*
broadleaf	*Griselinia littoralis*
broad-leaved plantain*	*Plantago major*
button fern	*Pellaea rotundifolia*
cabbage tree/ti rakau	*Cordyline australis*
Chewings fescue*	*Festuca rubra* ssp. *commutata*
cleavers*	*Galium aparine*
cocksfoot*	*Dactylis glomerata*
common shield fern	*Polystichum richardii*
cranesbill*	*Geranium molle*
creeping buttercup*	*Ranunculus repens*
danthonia	*Rytidosperma* sp.
Darwin's barberry*	*Berberis darwinii*
elderberry*	*Sambucus nigra*
gorse*	*Ulex europaeus*
hawksbeard*	*Crepis capillaris*
hedge mustard*	*Sisymbrium officinale*
hemlock*	*Conium maculatum*
hen and chickens fern	*Asplenium gracillimum*
horehound*	*Marrubium vulgare*
hound's tongue fern	*Microsorum pustulatum*
koromiko	*Hebe salicifolia*
kowhai	*Sophora microphylla*
lawyer	*Rubus schmidelioides*
leafless lawyer	*Rubus squarrosus*
mahoe/whiteywood	*Melicytus ramiflorus*
male fern*	*Dryopteris filix-mas*
mallow*	*Malva neglecta*
matagouri	*Discaria toumatou*
matai/black pine	*Prumnopitys taxifolia*
matipo/kohuhu	*Pittosporum tenuifolium*
mountain akeake	*Olearia avicenniifolia*
mouse-ear chickweed*	*Cerastium fontanum*
narrow-leaved lacebark	*Hoheria angustifolia*
native broom	*Carmichaelia* aff. *australis*
native convolvulus	*Calystegia tuguriorum*
native jasmine	*Parsonsia* sp.
necklace fern	*Asplenium flabellifolium*
nodding thistle*	*Carduus nutans*
orachne*	*Atriplex patula*
peppercress*	*Lepidium africanum*
poataniwha	*Melicope simplex*
pohuehue	*Muehlenbeckia australis*
poroporo	*Solanum laciniatum*
scrambling fuchsia	*Fuchsia perscandens*
scrambling fumitory*	*Fumaria muralis*
shepherd's purse*	*Capsella bursa-pastoris*
sow thistle*	*Sonchus oleraceus*
suckling clover*	*Trifolium dubium*
sweet brier*	*Rosa rubiginosa*
toatoa	*Haloragis erecta*
totara	*Podocarpus totara*

velvety nightshade*	*Solanum chenopodioides*
vetch*	*Vicia sativa*
woolly mullein*	*Verbascum thapsus*
yarrow*	*Achillea millefolium*