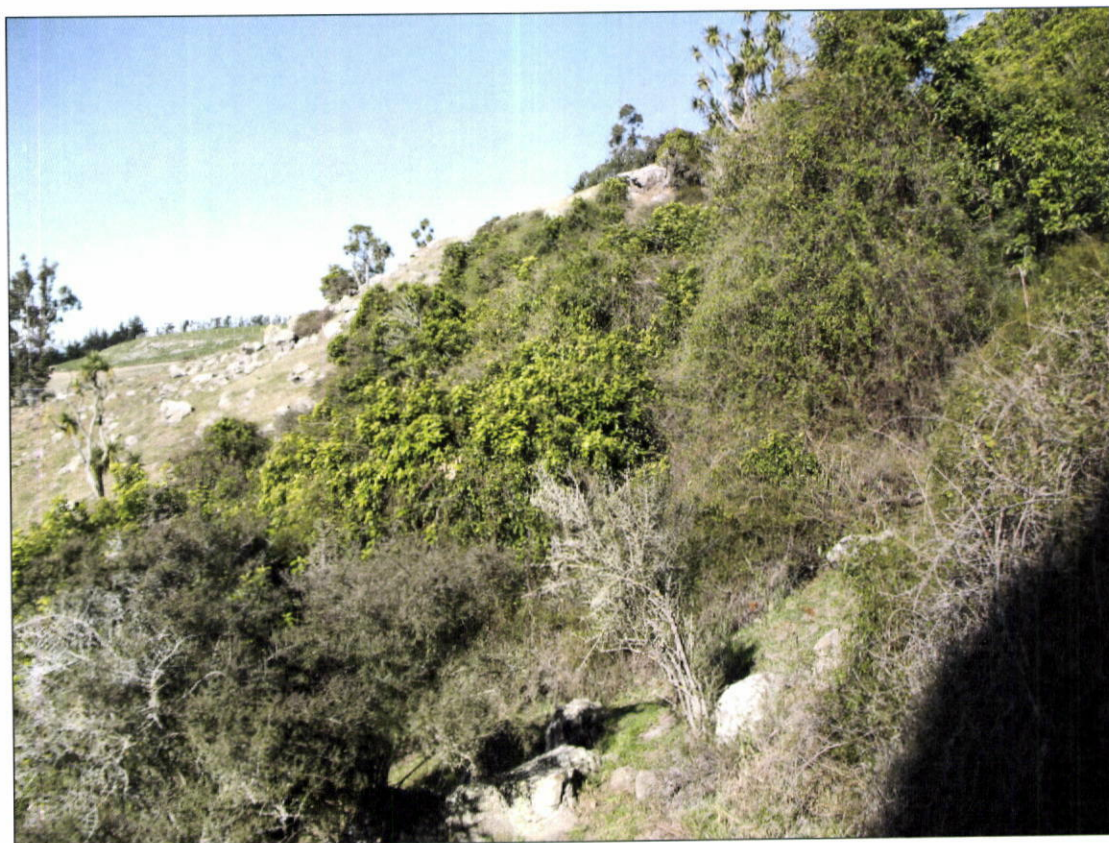


TIMARU DISTRICT
SIGNIFICANT NATURAL AREAS
SURVEY

JOHNSON PROPERTY
WOOLSHED CLIFFS LTD



Report prepared for Timaru District Council by Mike Harding
November 2011

TIMARU DISTRICT SIGNIFICANT NATURAL AREAS SURVEY

PROPERTY REPORT

PROPERTY DETAILS:

Owner: Johnson (Woolshed Cliffs Ltd)
Valuation References: 24840/060.00
Address: Wallace Road, Rangitata.
Location: Spur 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 moderately steep slopes between 80 and 120m in the headwater tributaries of Rosewill Stream, on the Timaru Downs. The property lies in 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 small patches of hardwood forest, areas of shrubland, and sparse rockland vegetation on steeper slopes and basalt scarps. Most indigenous vegetation remnants on the property are substantially depleted. However, the rarity of indigenous vegetation in this part of Timaru District contributes to their significance.

The property was surveyed as part of the District-wide survey of Significant Natural Areas during September 2011. Five areas, comprising approximately 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
531a		J39: 622-491	3.60	shrubland; rockland
531b		J39: 624-489	0.33	shrubland; rockland
531c		J39: 622-490	0.85	shrubland; rockland
531d		J39: 618-493	0.44	hardwood forest; rockland
531e		J39: 616-495	0.32	hardwood forest; shrubland

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.

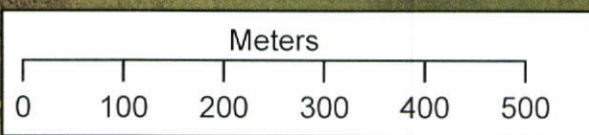
At present, consent is required from Council for clearance of areas of indigenous vegetation or habitat which meet the Interim Definitions in the District Plan. Clearance includes burning, spraying with herbicides and over-planting. SNAs encompass most, but not necessarily all, areas of vegetation and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



Pellaea calidrupium in SNA 531b

Woolshed Cliffs Ltd
24840/060.00



1:7,500

Area Name:

Location (central map reference): J39: 622-491

Ecological District: Makikihi

Surveyors: Mike Harding

Property: Johnson (Woolshed Cliffs)

Nearest Locality: Hadlow

Area Size (ha): 3.6

Altitude (m): 80-120

Survey Time: 2½ hours

Survey Date: 09-09-11

General Description:

This SNA lies on steep to moderately-steep south-facing slopes of a small valley in a headwater tributary of Rosewill Stream on the Timaru Downs. It lies close to two smaller SNAs (531b and 531c) on the opposite side of the valley.

Plant Communities:

Two main plant communities are present: rockland vegetation on the exposed basalt scarp; and shrubland with scattered emergent trees on slopes below the scarp. These plant communities are described separately below. Naturalized (exotic) species are indicated with an asterisk*.

Shrubland:

This plant community is dominated by *Coprosma propinqua* and matagouri, over pasture grasses, with emergent trees of cabbage tree and mahoe. Other canopy species present are native broom, gorse* (mostly dead), Darwin's barberry*, lawyer, pohuehue and occasionally leafless lawyer, plum* and broom* (at eastern edge; dead).

Groundcover species present are white clover*, yarrow*, creeping buttercup*, dandelion*, Californian thistle*, Scotch thistle*, nodding thistle*, black nightshade*, bracken, vetch*, hemlock*, shepherd's purse* and pasture grasses.



Looking west across the slopes below the scarp of SNA 531a

Rockland:

Plant species commonly present on or associated with the exposed basalt scarp are scrambling fuchsia, matagouri, *Coprosma propinqua*, mahoe, lawyer, pohuehue, *Cardamine debilis*, buttercup, *Crassula sieberiana*, hairy pennywort, *Wahlenbergia gracilis*, *Geranium microphyllum*, *Oxalis exilis*, *Senecio* sp., *Senecio quadridentatus*, catsear*, mouse-ear chickweed*, chickweed*, cleavers*, field speedwell*, hawksbeard*, pearlwort*, suckling clover*, broad-leaved plantain*, necklace fern, *Asplenium appendiculatum*, common shield fern, *Blechnum fluviatile*, star lily, plume grass, cocksfoot* and seedlings of mahoe, *Coprosma propinqua* and matipo.

Occasionally present are elderberry*, plum*, gorse*, Khasia berry*, banana passionfruit* (one clump), poroporo, leafless lawyer, hound's tongue fern, *Asplenium hookerianum*, leather-leaf fern (one patch), *Einadia allanii*, *Dichondra repens* and orachne*.

Parts of the scarp crest that are less accessible to browsing animals are dominated by blue tussock, cocksfoot*, *Libertia ixioides* and shrubs, including scrambling fuchsia, matagouri, *Coprosma propinqua* and koromiko.



Upper parts of the basalt scarp appear inaccessible to grazing animals

Birds/Fauna Observed:

Native birds observed during this survey were grey warbler, bellbird, fantail, paradise shelduck and harrier.

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, populations of an at-risk (naturally uncommon) species (*Einadia allanii*) and a locally-uncommon plant species (leather-leaf fern), the habitat the area provides for birds and the size (extent) of the area. The area lies within a threatened Land Environment.



The large patch of leather-leaf fern at the western end of the scarp at SNA 531a

Notable Plant and Animal Pests:

Gorse is the most dominant woody plant pest present, though most of the gorse is dead (sprayed). Several other invasive plant pests are present, mostly in low numbers, notably plum, Khasia berry, elderberry and banana passionfruit. Non-woody species present that pose the greatest threat to the rockland plant community are cocksfoot, broad-leaved plantain and cleavers. Animal pests were not surveyed.

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

The boundaries of this area include the basalt scarp and the main area of shrubland below the scarp. The area is not fenced, but lies within a larger paddock (that includes SNAs 531b and 531c). It is linked to other areas of basalt scarp by scattered shrubs.

Condition and Management Issues:

Vegetation on or associated with the basalt scarp is in good condition, and represents a relatively intact rockland plant community. Shrubland on slopes below the scarp is more modified, and represents a regenerating indigenous plant community. Important management issues are control of invasive plant pests and protection from intensive grazing.

Property Owner Comment:

The landowners do not intend to clear, or fence, the vegetation.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	M/H	Rockland plant communities are representative of vegetation of the ecological district; shrubland is typical of regenerating vegetation in the district.
Rarity	M/H	Indigenous vegetation on basalt is a naturally-uncommon ecosystem type. The scarp supports at-risk and locally uncommon plant species. The area lies within a threatened Land Environment.
Diversity and pattern	M	Rockland species diversity is moderate, though probably depleted from that originally present.
Distinctiveness/special features	L/M	The length and height of the scarp is a notable feature.
Other Criteria		
Size/shape	H	A large area for Makikihi Ecological District. Relatively well buffered by its position on steep slopes.
Connectivity	M	Lies close to other areas of exposed basalt and indigenous vegetation on the opposite side of the valley.
Long-term Sustainability	M	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 is buffered and protected by its location on steep rocky slopes. It has been protected from clearance by the landowner and appears to have benefitted from relatively low grazing pressure. The steepness of the slope limits its potential 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 indigenous vegetation on basalt (a naturally uncommon ecosystem type), the diversity of plant species, populations of an at-risk (naturally uncommon) species (*Einadia allanii*) and a locally-uncommon plant species (leather-leaf fern), the habitat the area provides for birds and the size (extent) of the area. The area lies within a threatened Land Environment. It represents one of very few areas of indigenous vegetation remaining in this part of Makikihi Ecological District.



Wahlenbergia gracilis on the basalt scarp at SNA 531a

TIMARU DISTRICT SNA SURVEY

SNA 531b

Area Name:

Location (central map reference): J39: 624-489

Ecological District: Makikihi

Surveyors: Mike Harding

Property: Johnson (Woolshed Cliffs)

Nearest Locality: Hadlow

Area Size (ha): 0.33

Altitude (m): 90-115

Survey Time: ½ hour

Survey Date: 09-09-11

General Description:

This SNA occupies a low basalt scarp and the steep north-facing slope below the scarp, in a small tributary valley of Rosewill Stream on the Timaru Downs. It lies across the valley from a larger area of basalt scarp and indigenous vegetation (SNA 531a).

Plant Communities:

Two main plant communities are present: rockland vegetation on and associated with the basalt scarp; and shrubland on the steep boulder slope below the scarp. These plant communities are described separately below. Naturalized (exotic) species are indicated with an asterisk*.

Shrubland:

This plant community is dominated by matagouri and *Coprosma propinqua*, over pasture, with emergent cabbage trees. Other canopy species are pohuehue, lawyer, leafless lawyer and occasionally mahoe, poroporo, boxthorn* and sweet brier*. Other plant species commonly present are *Juncus distegus* (on lower slopes), nodding thistle*, horehound*, yarrow*, vetch* and danthonia.

Rockland:

Plant species on or associated with the basalt scarp are *Coprosma propinqua*, *Crassula sieberiana*, *Oxalis exilis*, toatoa, *Dichondra repens*, *Wahlenbergia gracilis*, yarrow*, sheep's sorrel*, hawksbeard*, storksbill*, maddock*, sow thistle*, dandelion*, black nightshade*, catsear*, woolly mullein*, broad-leaved plantain*, peppergrass*, necklace fern, button fern, *Pellaea calidrupium*, common shield fern, danthonia, cocksfoot* and browntop*.



SNA 531b viewed from across the valley

Birds/Fauna Observed:

Native birds observed during this brief survey were grey warbler and harrier. The area appears to provide good habitat for lizards.

Notable Flora, Fauna and Habitats:

Important features of this area are the presence of indigenous vegetation on basalt (a naturally uncommon ecosystem type), the habitat the area is likely to provide for lizards and its proximity to other areas of basalt scarp and indigenous vegetation (SNAs 531a and 531c).

Notable Plant and Animal Pests:

Boxthorn is the most important plant pest present. This species thrives at dry sites and could displace indigenous vegetation at the SNA. Herbaceous plants, notably cocksfoot and broad-leaved plantain, pose a threat to rockland vegetation. Animal pests were not surveyed.

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

This area includes the exposed basalt scarp and the boulder slopes below the scarp. It lies within a large paddock which includes SNAs 531a and 531c.

Condition and Management Issues:

The indigenous vegetation within this SNA is in moderate condition. It is buffered by its location on rock or amongst boulders. The most important management issues are removal of invasive plant pests, notably boxthorn, and protection of the rockland plants from competition (especially cocksfoot).

Property Owner Comment:

The landowners do not intend to clear, or fence, the vegetation.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	L/M	Vegetation at the site is depleted. Rockland vegetation is representative, though only covers a small area; other vegetation is typical of regenerating vegetation in the ecological district.
Rarity	M/H	Indigenous vegetation on basalt is a naturally-uncommon ecosystem type. The area is within a threatened Land Environment.
Diversity and pattern	L/M	Plant species diversity is low and probably much reduced from that originally present.
Distinctiveness/special features	M	The area appears to provide good lizard habitat.
Other Criteria		
Size/shape	M/H	A moderate-sized area for the Makikihi Ecological District; and relatively well buffered.
Connectivity	M	Lies close to other areas of indigenous vegetation on basalt.
Long-term Sustainability	L/M	Plant pest control and protection of rockland vegetation 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 protected from clearance or substantial disturbance by its location on steep boulder slopes. The sunny aspect makes the area dry and vulnerable to plant pests and fire. The steepness and rockiness of the site limits its potential for further farm development.

Discussion:

This area just meets the District Plan criteria for a Significant Natural Area. Indigenous vegetation on basalt is a naturally uncommon ecosystem type and the area lies within a threatened Land Environment. The area is likely to provide good habitat for lizards.

TIMARU DISTRICT SNA SURVEY

SNA 531c

Area Name:

Location (central map reference): J39: 622-490

Ecological District: Makikihi

Surveyors: Mike Harding

Property: Johnson (Woolshed Cliffs)

Nearest Locality: Hadlow

Area Size (ha): 0.85

Altitude (m): 95-120

Survey Time: ¾ hour

Survey Date: 09-09-11

General Description:

This SNA occupies a low basalt scarp and the north- and southwest-facing slopes below the scarp, in a small tributary valley of Rosewill Stream on the Timaru Downs. It lies across the valley from a larger area of basalt scarp and indigenous vegetation (SNA 531a).

Plant Communities:

Two main plant communities are present: rockland vegetation on and associated with the basalt scarp; and shrubland on the steep boulder slopes below the scarp. These plant communities are described separately below. Naturalized (exotic) species are indicated with an asterisk*.

Shrubland:

This plant community occupies only a narrow strip below the scarp; shrubs on lower slopes appear to have been affected by gorse-spraying. The shrubland is dominated by matagouri, with emergent cabbage trees. Other canopy species are *Coprosma propinqua*, sweet brier*, pohuehue, and occasionally lawyer, Darwin's barberry*, Khasia berry*, elderberry*, plum*, native broom and mahoe. Other plant species commonly present are nodding thistle*, Californian thistle*, Scotch thistle*, cranesbill*, chickweed*, creeping buttercup*, white clover*, cleavers*, cocksfoot* and browntop*.

Rockland:

Plant species on or associated with the basalt scarp are *Coprosma propinqua*, native broom, scrambling fuchsia, lawyer, toatoa, *Cardamine debilis*, *Senecio quadridentatus*, *Wahlenbergia gracilis*, *Dichondra repens*, *Oxalis exilis*, *Geranium sessiliflorum*, field speedwell*, sheep's sorrel*, storksbill*, soldier's button*, broad-leaved plantain*, horehound*, sand spurrey*, sow thistle*, hawksbeard*, yarrow*, woolly mullein*, necklace fern, common shield fern, button fern, bracken, blue wheatgrass and danthonia.



SNA 531c viewed from across the valley

Birds/Fauna Observed:

Native birds observed during this brief survey were grey warbler, bellbird, fantail, harrier and black-backed gull (overhead). The area appears to provide good habitat for lizards.

Notable Flora, Fauna and Habitats:

Important features of this area are the presence of indigenous vegetation on basalt (a naturally uncommon ecosystem type), a diverse range of dry rockland plant species, a population of a locally-uncommon plant (*Geranium sessiliflorum*), the habitat the area is likely to provide for lizards and its proximity to other areas of basalt scarp and indigenous vegetation (SNAs 531a and 531b).

Notable Plant and Animal Pests:

Important woody weeds present are Darwin's barberry, plum and Khasia berry. Herbaceous plants, notably cocksfoot, yarrow and broad-leaved plantain, pose a threat to rockland vegetation. Animal pests were not surveyed.

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

This area includes the exposed basalt scarp and the boulder slopes below the scarp. It lies within a large paddock which includes SNAs 531a and 531b.

Condition and Management Issues:

The indigenous vegetation within this SNA is in moderate to poor condition. It is buffered by its location on rock or amongst boulders. The most important management issues are control of invasive plant pests.

Property Owner Comment:

The landowners do not intend to clear, or fence, the vegetation.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	L/M	Vegetation at the site is depleted. Rockland vegetation is representative; other vegetation is typical of that remaining in the ecological district.
Rarity	M/H	Indigenous vegetation on basalt is a naturally-uncommon ecosystem type. The area is within a threatened Land Environment.
Diversity and pattern	L/M	Plant species diversity is low and probably much reduced from that originally present.
Distinctiveness/special features	M	The area appears to provide good lizard habitat.
Other Criteria		
Size/shape	M/H	A moderate-sized area for the Makikihi Ecological District; and relatively well buffered.
Connectivity	M	Lies close to other areas of indigenous vegetation on basalt.
Long-term Sustainability	L/M	Plant pest control and protection of rockland plants 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 is buffered by its location on steep boulder slopes, though appears to have been affected by gorse spraying. The steepness and rockiness of the site limit its potential for further farm development.

Discussion:

This area just meets the District Plan criteria for a Significant Natural Area. Indigenous vegetation on basalt is a naturally uncommon ecosystem type and the area lies within a threatened Land Environment. The area is likely to provide good habitat for lizards.

Area Name:	Property: Johnson (Woolshed Cliffs)		
Location (central map reference): J39: 618-493	Nearest Locality: Hadlow		
Ecological District: Makikihi	Area Size (ha): 0.44	Altitude (m): 100-120	
Surveyors: Mike Harding	Survey Time: ½ hour	Survey Date: 09-09-11	

General Description:

This SNA lies on a basalt scarp and steep rocky north-facing slopes below the scarp in a tributary valley of Rosewill Stream on the Timaru Downs.

Plant Communities:

The main plant community present is forest, with rockland vegetation on the basalt scarp. These plant communities are described separately below. Naturalized (exotic) species are indicated with an asterisk*.

The canopy of this small patch of forest is dominated by mahoe. Other canopy species are cabbage tree, pohuehue, lawyer, leafless lawyer, occasional trees of plum*, elderberry* and boxthorn*, one kowhai tree and one cotoneaster* tree.

Plant species commonly present at the forest margin or in forest openings are *Coprosma propinqua*, matagouri, native broom, gorse* (sprayed), bracken, cleavers*, black nightshade*, woolly mullein*, nodding thistle*, vetch*, cocksfoot*, white clover*, horehound* and yarrow*.

Plant species on or associated with the exposed basalt scarp and boulders are toatoa, *Dichondra repens*, *Wahlenbergia gracilis*, sand spurrey*, yarrow*, woolly mullein*, storksbill*, broad-leaved plantain*, sow thistle*, button fern, necklace fern, danthonia and *Carex breviculmis*.



SNA 531d

Birds/Fauna Observed:

Native birds observed during this brief survey were grey warbler, fantail, harrier and spur-winged plover. The area is likely to provide good habitat for lizards.

Notable Flora, Fauna and Habitats:

Important features of this area are the presence of indigenous vegetation on basalt (a naturally uncommon ecosystem type), including dry rockland plant species, the habitat the area is likely to provide for lizards and its proximity to other areas of basalt scarp and indigenous vegetation (SNAs 531a and 531e).

Notable Plant and Animal Pests:

Woody plant pests observed at the site were cotoneaster, plum, elderberry and boxthorn. Although none of these species are common, they all have potential to spread. Animal pests were not surveyed.

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

This SNA is buffered by its location on a steep rocky slope. It lies within a larger paddock that is grazed. It lies reasonably close to other small remnants of indigenous vegetation on basalt (SNAs 531a and 531e).

Condition and Management Issues:

The forest canopy is in relatively good condition, though the forest understorey is depleted. Important management issues are control of invasive woody weeds and protection of the forest understorey from intensive grazing.

Property Owner Comment:

The landowners do not intend to clear, or fence, this vegetation.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	M	Vegetation at the site is typical of that remaining in the ecological district; rockland vegetation is representative of the vegetation originally present.
Rarity	M/H	Indigenous vegetation on basalt is a naturally-uncommon ecosystem type. The area is within a threatened Land Environment.
Diversity and pattern	M	Plant species diversity is moderate, though probably reduced from that originally present.
Distinctiveness/special features	M	The area appears to provide good lizard habitat.
Other Criteria		
Size/shape	M/H	A moderate to large-sized area for the Makikihi Ecological District that is well buffered.
Connectivity	M	Lies close to other areas of indigenous vegetation on basalt.
Long-term Sustainability	L/M	Plant pest control and protection of rockland plants 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 SNA occupies steep rocky slopes that have very limited potential 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 indigenous vegetation on basalt (a naturally uncommon ecosystem type), including dry rockland plant species, the habitat the area is likely to provide for lizards and its proximity to other areas of basalt scarp and indigenous vegetation. The SNA lies within a threatened Land Environment.

TIMARU DISTRICT SNA SURVEY

SNA 531e

Area Name:

Location (central map reference): J39: 616-495

Ecological District: Makikihi

Surveyors: Mike Harding

Property: Johnson (Woolshed Cliffs)

Nearest Locality: Hadlow

Area Size (ha): 0.32

Altitude (m): 100-120

Survey Time: ½ hour

Survey Date: 09-09-11

General Description:

This SNA lies on a low basalt scarp and a moderately-steep rocky south-facing slope below the scarp at the head of a tributary valley of Rosewill Stream on the Timaru Downs.

Plant Communities:

The main plant community present is forest, with shrubland at the forest margin. These plant communities are described separately below. Naturalized (exotic) species are indicated with an asterisk*.

The canopy of this small patch of forest is dominated by mahoe and pohuehue. Other canopy species are cabbage tree and native convolvulus.

Other plant species present at the site are matagouri, *Coprosma propinqua*, native broom, scrambling fuchsia, koromiko, gorse* (mostly sprayed), necklace fern, common shield fern, *Asplenium appendiculatum*, hound's tongue fern, *Cardamine debilis*, star lily, hairy pennywort, cleavers*, black nightshade*, yarrow* and nodding thistle*.



SNA 531e

Birds/Fauna Observed:

Native birds observed during this brief survey were grey warbler, fantail and harrier.

Notable Flora, Fauna and Habitats:

Important features of this area are the presence of indigenous vegetation on basalt (a naturally uncommon ecosystem type), including dry rockland plant species, the habitat the area may provide for lizards and its proximity to other areas of basalt scarp and indigenous vegetation (SNA 531d).

Notable Plant and Animal Pests:

No significant woody plant pests were observed at the site. Gorse is present though does not pose a significant threat. Animal pests were not surveyed.

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

This SNA is buffered by its location on a steep rocky slope. It lies within a larger paddock that is grazed. It lies reasonably close to other small remnants of indigenous vegetation on basalt (SNA 531d).

Condition and Management Issues:

Indigenous vegetation at the site is in relatively good condition, though the remnant is small. Important management issues are protection of the forest understorey and rockland vegetation from intensive grazing.

Property Owner Comment:

The landowners do not intend to clear, or fence, this vegetation.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	M	Vegetation at the site is typical of that remaining in the ecological district.
Rarity	M/H	Indigenous vegetation on basalt is a naturally-uncommon ecosystem type. The area is within a threatened Land Environment.
Diversity and pattern	L/M	Plant species diversity is low, and probably substantially reduced from that originally present.
Distinctiveness/special features	L/M	The area may provide useful lizard habitat.
Other Criteria		
Size/shape	M/H	A moderate-sized area for the Makikihi Ecological District that is well buffered.
Connectivity	M	Lies close to other areas of indigenous vegetation on basalt.
Long-term Sustainability	L/M	Plant pest control is likely to 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 SNA occupies steep rocky slopes that have very limited potential 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 indigenous vegetation on basalt (a naturally uncommon ecosystem type), including dry rockland plant species, the habitat the area is likely to provide for lizards and its proximity to other areas of basalt scarp and indigenous vegetation (SNA 531d). The SNA lies within a threatened Land Environment.

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)	
banana passionfruit*	<i>Passiflora tripartita</i>
black nightshade*	<i>Solanum nigrum</i>
blue tussock	<i>Poa colensoi</i>
blue wheat grass	<i>Elymus solandri</i>
boxthorn*	<i>Lycium ferocissimum</i>
bracken	<i>Pteridium esculentum</i>
broad-leaved plantain*	<i>Plantago major</i>
broom*	<i>Cytisus scoparius</i>
browntop*	<i>Agrostis capillaris</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>
catsear*	<i>Hypochoeris radicata</i>
chickweed*	<i>Stellaria media</i>
cleavers*	<i>Galium aparine</i>
cocksfoot*	<i>Dactylis glomerata</i>
common shield fern	<i>Polystichum richardii</i>
cotoneaster*	<i>Cotoneaster</i> sp.
cranesbill*	<i>Geranium molle</i>
creeping buttercup*	<i>Ranunculus repens</i>
dandelion*	<i>Taraxacum officinale</i>
danthonia	<i>Rytidosperma</i> sp.
Darwin's barberry*	<i>Berberis darwinii</i>
elderberry*	<i>Sambucus nigra</i>
field speedwell*	<i>Veronica arvensis</i>
gorse*	<i>Ulex europaeus</i>
hairy pennywort	<i>Hydrocotyle moschata</i>
hawksbeard*	<i>Crepis capillaris</i>
hemlock*	<i>Conium maculatum</i>
horehound*	<i>Marrubium vulgare</i>
hound's tongue fern	<i>Microsorium pustulatum</i>
Khasia berry*	<i>Cotoneaster simonsii</i>
koromiko	<i>Hebe salicifolia</i>
kowhai	<i>Sophora microphylla</i>
lawyer	<i>Rubus schmidelioides</i>
leafless lawyer	<i>Rubus squarrosus</i>
leather-leaf fern	<i>Pyrrosia eleagnifolia</i>
mahoe/whiteywood	<i>Meliccytus ramiflorus</i>
mallow*	<i>Malva neglecta</i>
matagouri	<i>Discaria toumatou</i>
matai/black pine	<i>Prumnopitys taxifolia</i>
matipo/kohuhu	<i>Pittosporum tenuifolium</i>
mouse-ear chickweed*	<i>Cerastium fontanum</i>
native broom	<i>Carmichaelia</i> aff. <i>australis</i>
native convolvulus	<i>Calystegia tuguriorum</i>
necklace fern	<i>Asplenium flabellifolium</i>
nodding thistle*	<i>Carduus nutans</i>
orachne*	<i>Atriplex patula</i>
pearlwort*	<i>Sagina procumbens</i>
peppercress*	<i>Lepidium africanum</i>
plum*	<i>Prunus</i> sp.
plume grass	<i>Dichelachne crinita</i>

pohuehue	<i>Muehlenbeckia australis</i>
poroporo	<i>Solanum laciniatum</i>
sand spurrey*	<i>Spergularia rubra</i>
Scotch thistle*	<i>Cirsium vulgare</i>
scrambling fuchsia	<i>Fuchsia perscandens</i>
sheep's sorrel*	<i>Rumex acetosella</i>
shepherd's purse*	<i>Capsella bursa-pastoris</i>
soldier's button*	<i>Cotula australis</i>
sow thistle*	<i>Sonchus oleraceus</i>
star lily	<i>Arthropodium candidum</i>
storksbill*	<i>Erodium cicutarium</i>
suckling clover*	<i>Trifolium dubium</i>
sweet brier*	<i>Rosa rubiginosa</i>
toatoa	<i>Haloragis erecta</i>
totara	<i>Podocarpus totara</i>
vetch*	<i>Vicia sativa</i>
white clover*	<i>Trifolium repens</i>
woolly mullein*	<i>Verbascum thapsus</i>
yarrow*	<i>Achillea millefolium</i>