

**TIMARU DISTRICT**  
**SIGNIFICANT NATURAL AREAS**  
**SURVEY**

**ESLER PROPERTY**  
**DARVEL**



Report prepared for Timaru District Council by Mike Harding  
April 2014



# TIMARU DISTRICT SIGNIFICANT NATURAL AREAS SURVEY

## PROPERTY REPORT

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### PROPERTY DETAILS:

**Owner:** ..... Neil Esler  
**Valuation References:** .24810/042.03  
**Address:** ..... Darvel, Cleland Road.  
**Location:** ..... Lower southern slopes of Brothers Range, near Cave.  
**Ecological District:** ..... Geraldine Ecological District  
**TDC Land Type:**..... 'Soft Rock Hills and Downs'  
**Land Environments:**..... N3.1a

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### ECOLOGICAL CONTEXT:

The property lies on the lower southern slopes of the Brothers Range, just north of Cave. It lies in Geraldine Ecological District, though close to the boundary of Fairlie Ecological District (McEwen, 1987). It also lies in the N3.1a Level IV Land Environment as defined by Leathwick *et al* (2003). Indigenous vegetation within the N3.1a land environment is regarded as acutely-threatened (Walker *et al*, 2005).

It is likely that the original vegetation of this area was predominantly podocarp-hardwood forest, dominated by matai, totara, kowhai, broadleaf and other hardwood trees. Shrubland, treeland and tussockland may have occupied steeper slopes and disturbed sites. Limestone bluffs supported specialised flora, and valley floors would have supported areas of wetland vegetation.

Today the original forest cover in this part of Geraldine Ecological District is largely confined to remnants in gullies or on steep slopes associated with limestone scarps. Otherwise, the indigenous vegetation of the ecological district is substantially depleted or 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.

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### SIGNIFICANT AREAS ON THE PROPERTY:

Indigenous vegetation on the property comprises hardwood forest, shrubland and sparsely vegetated rockland associated with limestone bluffs, and small areas of sedgeland (wetland) vegetation on valley floors. The property lies near to areas of indigenous forest, shrubland and rockland vegetation on other properties, contributing to the network of fauna habitat in the wider area. This part of the ecological district is within the range of a remnant South Canterbury population of long-tailed bat; a threatened (nationally critical) species.

The property was surveyed as part of the District-wide survey of Significant Natural Areas during March 2014. Two areas, comprising approximately 6.6 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 map reference	Aprox. size (ha)	Vegetation/habitat type
453	Darvel south bluff	1437100-5094250	1.4	sparsely-vegetated rockland
446	Darvel limestone	1437260-5094420	5.2	forest; shrubland; herbfield; rockland

The boundaries of these SNAs are illustrated on the aerial photograph and the values described 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, track construction, spraying with herbicides and over-planting.

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.



*Gingidia enysii* at SNA 453

## References

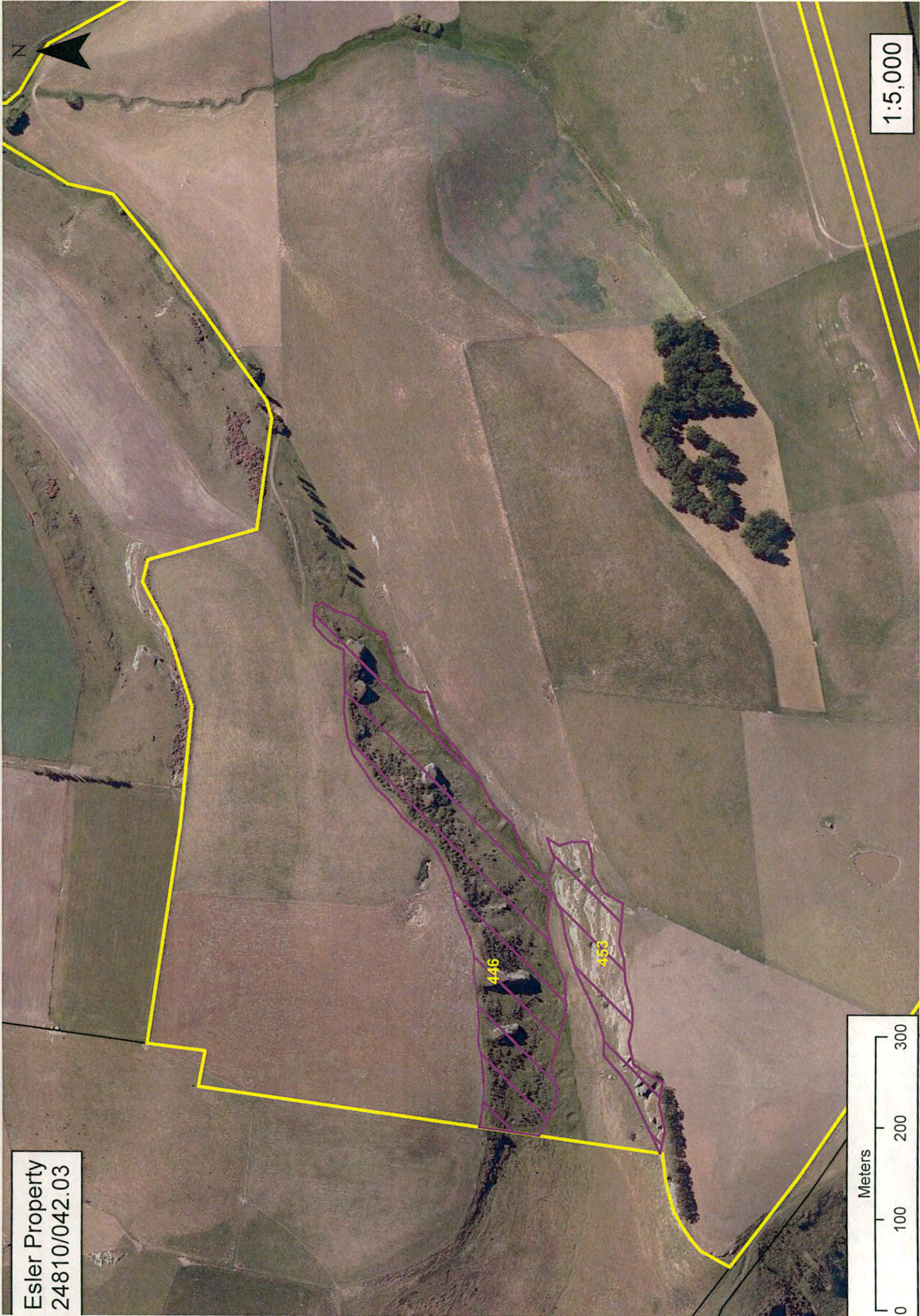
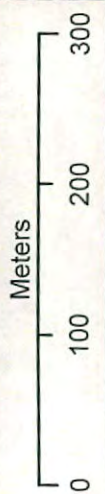
- Leathwick, J.; Wilson, G.; Rutledge, D.; Wardle, P.; Morgan, F.; Johnston, K.; McLeod, M.; Kirkpatrick, R. 2003. *Land Environments of New Zealand*. David Bateman, Auckland. 184p.
- McEwen, W.M. (editor) 1987. Ecological regions and districts of New Zealand, third revised edition (Sheet 4). *New Zealand Biological Resources Centre Publication No.5*. Department of Conservation, Wellington, 1987.
- Walker, S.; Price, R.; Rutledge, D. 2005. New Zealand's remaining indigenous vegetation cover: recent changes and biodiversity protection needs. *Landcare Research Contract Report LC0405/038*.



Esler Property  
24810/042.03



1:5,000





**Area Name:** Darvel limestone scarp  
**Location (NZTM):** E1437260-N5094420  
**Ecological District:** Geraldine  
**Surveyors:** Mike Harding

**Property:** Esler (Darvel)  
**Nearest Locality:** Cave  
**Area Size (ha):** 5.2      **Altitude (m):** 200-280  
**Survey Time:** 4 hours      **Survey Date:** 07-03-14

### General Description:

This SNA lies on a steep south-facing slope at the northwest part of the property. It includes large limestone bluffs and the steep slopes between these bluffs. The site lies across the valley from another limestone scarp (SNA 453).

### Plant Communities:

Three main plant communities are present: shrubland/forest on slopes below and between the bluffs; herbfield on the exposed limestone and associated limestone soils; and sparsely-vegetated rockland. These plant communities are described below. Naturalized (exotic) species are indicated with an asterisk\*.

#### Shrubland/forest:

Shrubland is present on the slopes below the limestone bluffs. It is dominated by *Coprosma propinqua* and matagouri. Other plants present are cabbage tree, gorse\*, native broom, porcupine shrub, pohuehue and native jasmine. Pasture grasses\* and thistles\* dominate the ground cover, except on steeper slopes with exposed rock where a range of native herbs is also present.

Above this community, in steeper gullies are small areas of forest. The dominant canopy species are mahoe and pohuehue. Other species present are elderberry\*, broadleaf, kowhai, mountain akeake, koromiko, matipo (uncommon), scrambling fuchsia and bracken. Below the shrubland community, on the valley floor, are small areas of sedgeland dominated by rautahi and pukio.



SNA 446: steep limestone slopes with sedgeland (wetland) on the valley floor.



### Herbfield:

This plant community is present on ledges or in cracks on the exposed limestone and on soils associated with the limestone. It supports a number of indigenous plant species that grow only on limestone soils, including threatened and at-risk species.

Plant species commonly present are *Epilobium nummularifolium*, *Colobanthus* aff. *strictus*, *Craspedia* aff. *uniflora*, *Geranium brevicaule*, *Hypnum cupressiforme*, *Gingidia enysii*, oxalis, *Carex breviculmis*, *Gentianella calcis* subsp. *taiko*, buttercup, pennywort, cocksfoot\*, white clover\*, dandelion\*, mouse-ear hawkweed\*, narrow-leaved plantain\*, mouse-ear chickweed\*, selfheal\*, purging flax\* and hawkbit\*. Less commonly present are *Lagenifera pumila*, *Plantago* sp. (*spathulata*?), *Leptinella squalida*, cardamine, *Dichondra repens*, *Geranium microphyllum*, *Einadia allanii*, necklace fern, yarrow\* and shepherd's purse\*.

Species largely confined to exposed rock (and not on soils) are hard grass\*, *Asplenium lyallii*, maidenhair fern, silver tussock, blue wheat grass, stonecrop\*, sandwort\*, *Senecio glaucophyllus* and *Poa* sp. Plants commonly present below limestone overhangs are horehound\*, dwarf mallow\*, nettle\* and thistles\*.



*Steep slopes with exposed rock provide important habitat for threatened and at-risk plant species.*

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

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

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

Important features of this area are: the extent of the limestone habitat present, especially limestone soils (limestone bluffs are regarded as naturally uncommon ecosystems); the presence of a large healthy population of a threatened (nationally critical) species (*Gentianella calcis* subsp. *taiko*) that is endemic to South Canterbury; a very large population of a data deficient species (*Craspedia* aff. *uniflora*); and good populations of four at risk (naturally uncommon) species (*Einadia allanii*, *Geranium microphyllum*, *Gingidia enysii* and *Senecio glaucophyllus*).



### Notable Plant and Animal Pests:

Elderberry and gorse are the most important woody plant pests present. Important herbaceous plant pests are horehound, dwarf mallow, thistles and the ubiquitous naturalized grasses and herbs that are present on exposed limestone.

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

This large limestone bluff system lies within a larger paddock. It is fenced along the scarp crest and buffered to some extent by the steepness of the slopes. It lies close to another limestone scarp across the valley (SNA 453) and near to other limestone scarps.

*Limestone gentian*



### Condition and Management Issues:

This limestone scarp is in very good condition compared with other similar scarps in South Canterbury. Extensive areas of vegetation on the limestone soils are dominated by indigenous species. This is unusual and presumably due to the absence of cattle and deer grazing and trampling. At the time of survey the vegetation was closely grazed by sheep, but indigenous species were common and in places abundant. The most important management issues are maintaining a suitable grazing regime (extensive grazing by sheep appears most appropriate) and careful control (by ground-based methods) of woody and other weeds.

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### ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	M/H	Supports plant communities typical of limestone bluffs in South Canterbury (though in better condition than most) and moderately representative of the original vegetation.
Rarity	H	Lies within an acutely-threatened Land Environment (N3.1a); is a naturally uncommon ecosystem (limestone); supports large healthy populations of one threatened (nationally critical) species, four at risk (naturally uncommon) species and one data-deficient species.
Diversity and pattern	M/H	Indigenous plant species diversity is high, especially when compared with other limestone bluffs in South Canterbury.
Distinctiveness/special features	H	Supports the largest known population of a threatened (nationally critical) plant species that is endemic to South Canterbury ( <i>Gentianella calcis</i> subsp. <i>taiko</i> ).
<b>Other Criteria</b>		
Size/shape	M/H	A relatively large site that is quite well buffered.
Connectivity	M	Lies close to other areas of limestone habitat.
Long-term Sustainability	M	Limestone scarp vegetation, and especially vegetation on limestone soils, is very vulnerable.

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

This site has been managed in a way that has allowed the survival of some very important indigenous species. Light (extensive) grazing by sheep appears to be a suitable management method for maintenance of ecological values. The steepness of the site limits its potential for further farm development.



**Discussion:**

This area very easily meets the District Plan criteria for a Significant Natural Area. It is one of the most important limestone scarps in South Canterbury. It supports the best known population of a critically threatened species of gentian that is endemic to South Canterbury.



*Craspedia aff. uniflora*



*Plantago sp. and Gingidia enysii*



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**Area Name:** Darvel south bluff

**Location (NZTM):** E1437100-N5094250

**Ecological District:** Geraldine

**Surveyors:** Mike Harding

**Property:** Esler (Darvel)

**Nearest Locality:** Cave

**Area Size (ha):** 1.4

**Survey Time:** 1 hour

**Altitude (m):** 240-280

**Survey Date:** 07-03-14

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**General Description:**

This SNA comprises a prominent north-facing limestone scarp/bluff at eastern boundary of the property. It lies close to a larger limestone scarp on the opposite site of the valley (SNA 446).

**Plant Communities:**

The main plant community present is sparsely vegetated rockland. Plant species observed are described below.

The site is dominated by a steep limestone scarp. Indigenous plants are present on ledges and in cracks on the scarp, with scattered plants adjacent to the scarp. Vegetation surrounding the exposed limestone is dominated by naturalized (exotic) species as is typical for these sites.

Indigenous plant species on or associated with the limestone are mahoe, *Coprosma propinqua*, matagouri, pohuehue, scrub pohuehue, leafless lawyer, native bindweed, *Gingidia enysii*, *Asplenium hyalii*, *Geranium brevicaule*, *Colobanthus* aff. *strictus*, *Cardamine* sp., oxalis, *Dichondra repens*, blue wheat grass and a native grass (*Poa* sp.). Slopes below the scarp support a few large kowhai trees and a danthonia grass (*Rytidosperma* sp.).

Naturalized plants are present and in places dominant at the site. Important species are cocksfoot, Chewings fescue, stoncrop, sandwort, mouse-ear chickweed, mouse-ear hawkweed, white clover, narrow-leaved plantain, yarrow, horehound, hemlock, dwarf mallow and Californian thistle. Himalayan honeysuckle is present, but uncommon, on the bluff.



SNA 453; kowhai and danthonia grass visible in foreground



**Birds/Fauna Observed:**

Native birds observed during this brief survey were welcome swallow and spur-winged plover. Other native birds observed nearby were grey warbler, fantail, harrier and paradise shelduck.

**Notable Flora, Fauna and Habitats:**

Important features of this area are the presence of intact limestone habitat (a naturally uncommon ecosystem), and the presence of small populations of an at-risk (naturally uncommon) plant species (*Gingidia enysii*) and two data-deficient plant species (*Colobathus* aff. *strictus* and *Cardamine* sp.).

**Notable Plant and Animal Pests:**

Naturalized grasses and herbs are the most important plant pests present, notably cocksfoot, Chewings fescue, stonecrop, mouse-ear hawkweed and narrow-leaved plantain. Slopes below the scarp have infestations of hemlock, horehound, dwarf mallow and thistles. Animal pests were not surveyed, though feral pigeons are present on the scarp.

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

The scarp crest is securely fenced from grazing and most other parts of the scarp are buffered from grazing animals by steep rock. The site lies close to a larger, well-vegetated area of limestone across the valley (SNA 446) and near to other limestone bluffs in the Cave-Totara Valley area.

**Condition and Management Issues:**

Indigenous plants are sparsely distributed on the limestone scarp though are healthy where protected from grazing/browsing. The main threats are invasive naturalized species, notably exotic grasses.

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**ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:**

Primary Criteria	Rank	Notes
Representativeness	M/H	Though sparse, the indigenous vegetation on the scarp is typical of that remaining in the area and partly representative of the original vegetation.
Rarity	M/H	The site lies within an acutely-threatened Land Environment (N3.1a), is a naturally uncommon ecosystem (limestone bluff) and supports one at-risk and two data-deficient plant species.
Diversity and pattern	L/M	Plant species diversity is relatively low.
Distinctiveness/special features	L/M	The large kowhai trees are notable.
<b>Other Criteria</b>		
Size/shape	M	A small area that is relatively well buffered.
Connectivity	M	Lies close to another limestone scarp (SNA 446).
Long-term Sustainability	M	Control of naturalized plant species 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 SNA is naturally protected by the steepness of the limestone scarp. The scarp crest has been fenced from grazing. It has little potential for further farm development.

**Discussion:**

This area meets the District Plan criteria for a Significant Natural Area. Though small and partly modified, it supports distinct limestone plant species including an at-risk species (*Gingidia enysii*).



## 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)	
blue wheat grass .....	<i>Elymus solandri</i>
bracken .....	<i>Pteridium esculentum</i>
broadleaf .....	<i>Griselinia littoralis</i>
buttercup .....	<i>Ranunculus hirtus</i> (?)
cabbage tree/ti rakau .....	<i>Cordyline australis</i>
Californian thistle* .....	<i>Cirsium arvense</i>
cardamine .....	<i>Cardamine debilis</i> agg.
cocksfoot* .....	<i>Dactylis glomerata</i>
dandelion* .....	<i>Taraxacum officinale</i>
dwarf mallow* .....	<i>Malva neglecta</i>
elderberry* .....	<i>Sambucus nigra</i>
gorse* .....	<i>Ulex europaeus</i>
hard grass* .....	<i>Catapodium rigidum</i>
hawkbit* .....	<i>Leontodon taraxacoides</i>
hemlock* .....	<i>Conium maculatum</i>
Himalayan honeysuckle* .....	<i>Leycesteria formosa</i>
horehound* .....	<i>Marrubium vulgare</i>
koromiko .....	<i>Hebe salicifolia</i>
kowhai .....	<i>Sophora microphylla</i>
leafless lawyer .....	<i>Rubus squarrosus</i>
mahoe/whiteywood .....	<i>Meliccytus ramiflorus</i>
maidenhair fern .....	<i>Adiantum cunninghamii</i>
matagouri .....	<i>Discaria toumatou</i>
matipo/kohuhu .....	<i>Pittosporum tenuifolium</i>
mountain akeake .....	<i>Olearia avicenniifolia</i>
mouse-ear chickweed* .....	<i>Cerastium fontanum</i>
mouse-ear hawk weed* .....	<i>Pilosella officinarum</i>
narrow-leaved plantain* .....	<i>Plantago lanceolata</i>
native bindweed .....	<i>Calystegia tuguriorum</i>
native broom .....	<i>Carmichaelia</i> aff. <i>australis</i>
native jasmine .....	<i>Parsonsia heterophylla</i>
necklace fern .....	<i>Asplenium flabellifolium</i>
nettle* .....	<i>Urtica urens</i>
oxalis .....	<i>Oxalis exilis</i>
pennywort .....	<i>Hydrocotyle</i> spp.
pohuehue .....	<i>Muehlenbeckia australis</i>
porcupine shrub .....	<i>Meliccytus alpinus</i>
pukio .....	<i>Carex secta</i>
purging flax* .....	<i>Linum catharticum</i>
rautahi .....	<i>Carex coriacea</i>
sand wort* .....	<i>Arenaria serpyllifolia</i>
scrambling fuchsia .....	<i>Fuchsia perscandens</i>
scrub pohuehue .....	<i>Muehlenbeckia complexa</i>
selfheal* .....	<i>Prunella vulgaris</i>
shepherd's purse* .....	<i>Capsella bursa-pastoris</i>
silver tussock .....	<i>Poa cita</i>
stonecrop* .....	<i>Sedum acre</i>
white clover* .....	<i>Trifolium repens</i>
yarrow* .....	<i>Achillea millefolium</i>