

TIMARU DISTRICT

SIGNIFICANT NATURAL AREAS
SURVEY

CHAMBERLAIN PROPERTY



Report prepared for Timaru District Council by Mike Harding
April 2014

TIMARU DISTRICT SIGNIFICANT NATURAL AREAS SURVEY

PROPERTY REPORT

PROPERTY DETAILS:

Owner: Mark and Jenny Chamberlain
Valuation Reference: ... 24810/037.00
Address: Henriksen Road
Location: Southeast slopes of Brothers Range
Ecological District: Geraldine
TDC Land Type:..... 'Soft Rock Hills and Downs'
Land Environments:..... N3.1a

ECOLOGICAL CONTEXT:

The property lies on the lower southeast slopes of the Brothers Range, west of Totara Valley. 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.

SIGNIFICANT AREAS ON THE PROPERTY:

Indigenous vegetation on the property comprises forest, shrubland and sparsely vegetated rockland associated with limestone bluffs, and areas of wetland vegetation. 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 38 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	Map reference (NZTM)	Aprox. size (ha)	Vegetation/habitat type
437	Chamberlain Wetland	E1436850-N5096010	0.6	rushland; sedgeland; reedland
439a	Chamberlain Limestone	E1437150-N5096400	37.8	forest; shrubland; 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.



Senecio glaucophyllus on limestone at SNA 439a



1:7,500

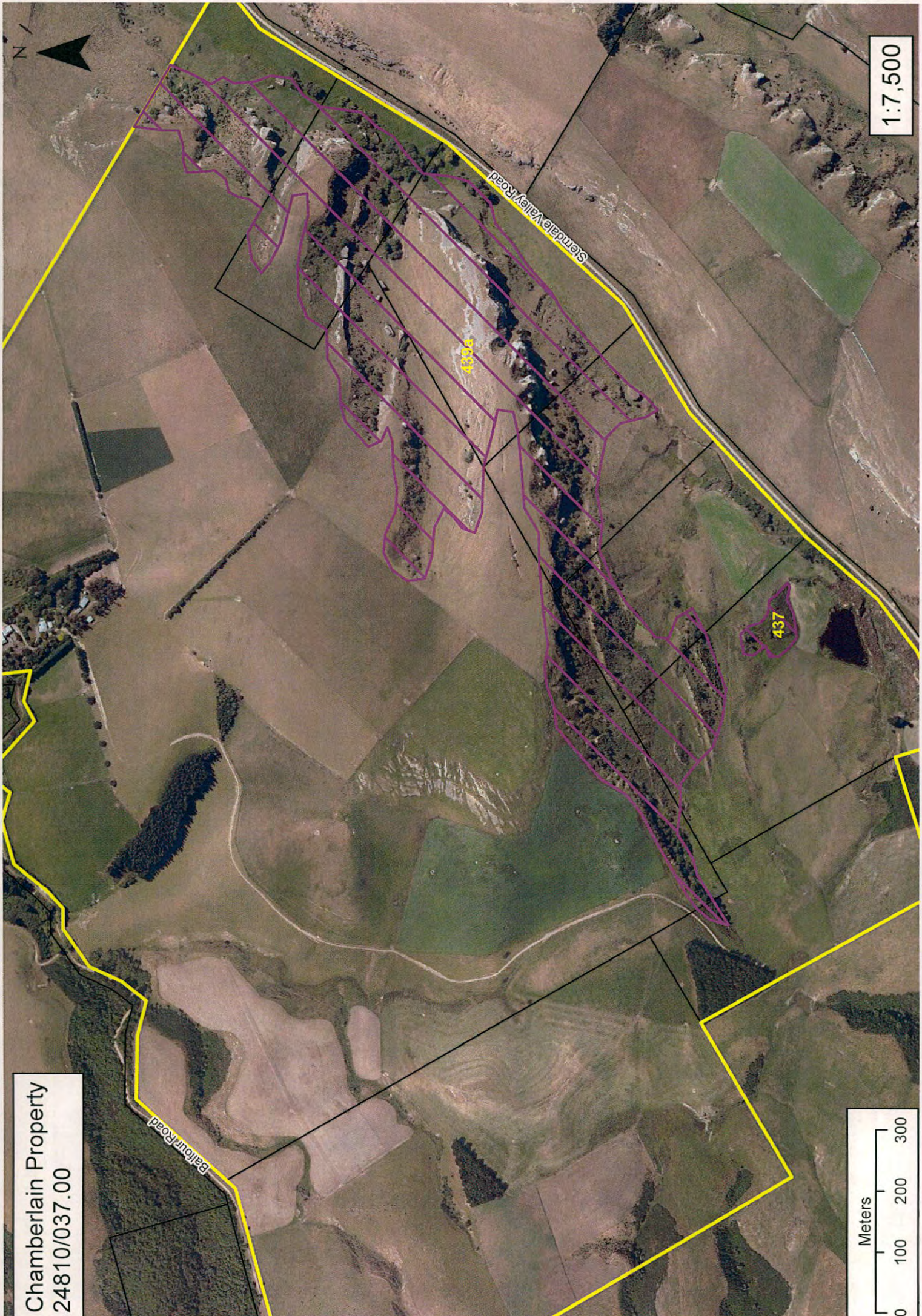
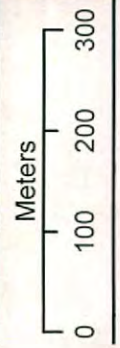
Chamberlain Property
24810/037.00

Balfour Road

Stendale Valley Road

435

437



Area Name: Chamberlain wetland
Central map ref. (NZTM): 1436850-5096010
Ecological District: Geraldine
Surveyors: Mike Harding

Property: Chamberlain
Nearest Locality: Totara Valley
Area Size (ha): 0.6 **Altitude (m):** 200
Survey Time: 1 hour **Survey Date:** 20-03-14

General Description:

This SNA comprises a relatively large wetland on slopes below a small spring. It lies on the lower slopes of the limestone bluff system described as SNA 439a.

Plant Communities:

Two main plant communities are present: rushland/sedgeland on the seepage slope and raupo reedland in the pond below the seepage. These plant communities are described below. Naturalized (exotic) species are indicated with an asterisk*.

The rushland/sedgeland community occupies a seepage slope below the water source (a spring beneath a sandstone bank). Dominant plant species present are *Juncus edgariae*, *Juncus distegis*, jointed rush* and rautahi. Pukio (*Carex secta*) is dominant at the edge of the pond and raupo is dominant in the open water. Other plant species present are *Carex geminata*, soft rush*, toetoe, creeping buttercup*, *Ranunculus foliosus*, water forget-me-not*, *Celmisia gracilentia*, white clover*, cocksfoot*, Yorkshire fog*, selfheal*, arrow-grass, pennywort, *Blechnum penna-marina*, *Azolla filiculoides* and water cress*.

A few crack willow* trees are present at the pond edge. Other woody species in the wetland are mingimingi, mistletoe (on mingimingi), lawyer and a single tree daisy (*Olearia lineata*). Species present at the wetland margin are cabbage tree, broadleaf, lancewood, flax, tutu and gorse*.



The seepage slope at SNA 437, with the single tree daisy shrub at centre.

Birds/Fauna Observed:

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

Notable Flora, Fauna and Habitats:

Important features of this area are the presence of a naturally uncommon ecosystem (wetland), the size of the area, relatively high plant species diversity for a wetland (at least 17 indigenous plant species), the presence of a plant species (*Olearia lineata*) listed as 'at risk' (declining) by de Lange *et al* (2012) and the habitat it provides for water birds.

Notable Plant and Animal Pests:

Crack willow and gorse are the most important plant pests present. Naturalized rushes (soft rush and jointed rush) are present, but do not pose a significant threat. Animal pests were not surveyed. They are unlikely to be having a significant effect on the wetland plant communities, though may be affecting the quality of habitat for birds.

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

The main areas of sedgeland/rushland are defined by the extent of the seepage. The seepage slope directly below the spring is mostly fenced and appears relatively unaffected by grazing. The rushland community at the western end of the pond is affected by grazing. The open water community is well buffered by its size and water depth.

Condition and Management Issues:

The main area of sedgeland/rushland below the spring is in very good condition for a lowland wetland. This is the most ecologically significant part of the site. The pond has been created by a small dam, though is now dominated by raupo and provides very good habitat for water birds. The main management issue is control of woody weeds, notably gorse and crack willow.

Property Owner Comment:

Mr Chamberlain advises that the pond was created by construction of a small dam. It is an important water supply for this part of the property. He proposes to investigate options for additional fencing.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	M/H	The main seepage area is typical of lowland wetlands in the ecological district, though supports a greater number of representative plant species than most other wetlands.
Rarity	H	Lies in an 'acutely-threatened' land environment (N3.1a); supports populations of one 'at risk' (naturally uncommon) plant species. Wetlands are a naturally uncommon ecosystem with an 'endangered' threat status.
Diversity and pattern	M/H	Relatively high plant species diversity for a lowland wetland community.
Distinctiveness/special features	M	The area of open water and raupo reedland provides important water bird habitat.
Other Criteria		
Size/shape	M	Relatively large for a wetland.
Connectivity	M	Lies close to other areas of indigenous vegetation (on limestone bluffs) and smaller more-modified areas of sedgeland.
Long-term Sustainability	M	Wetlands are vulnerable to invasion by crack willow. Continued willow control will be necessary to maintain ecological values.

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

This area has been deliberately set aside from development by the landowners and its values enhanced by creation of open water habitat. The dampness of the seepage slope makes it unsuitable for farm development. The pond provides an important farm water supply.

Discussion:

This area meets the District Plan criteria for a Significant Natural Area. Important features of the area are the present of a relatively intact wetland plant community, the diversity of plant species and the presence of tree daisy (an 'at risk' species).

Area Name: Chamberlain Limestone
Central map ref. (NZTM): 1437150-5096400
Ecological District: Geraldine
Surveyors: Mike Harding

Property: Chamberlain
Nearest Locality: Totara Valley
Area Size (ha): 37.8 **Altitude (m):** 180-300
Survey Time: 6 hours **Survey Date:** 20-03-14

General Description:

This SNA comprises an extensive limestone bluff system and associated vegetation. It lies on the northwest side of Sterndale Valley Road and close to other areas of outcropping limestone. It also spans the contact between Kekenodon Group limestone and Eyre Group sandstone on the lower slopes of the Brothers Range (Cox and Barrell, 2007).

Plant Communities:

Two main plant communities are present: sparsely-vegetated rockland and forest/shrubland. These plant communities are described separately below. Naturalized (exotic) species are indicated with an asterisk*.

Limestone:

Woody species present on or associated with the exposed limestone are mingimingi, koromiko, broadleaf, mahoe, five-finger, matipo, mapou, mountain akeake, cabbage tree, lancewood, plum* (one tree), Khasia berry* (one bush), elderberry* and pohuehue. Other species present are *Colobanthus* aff. *strictus*, *Craspedia uniflora* agg.; *Gingidia ensyii*, *Carex breviculmis*, *Geranium brevicaule*, *Geranium microphyllum*, *Lagenifera* sp., cardamine, *Anisotome aromatica*, *Chaerophyllum rigida*, *Epilobium nummulariifolium*, *Gentianella calcis* ssp. *taiko*, *Dichondra repens*, toatoa, *Senecio glaucophyllus*, buttercup, hairy pennywort, *Galium propinquum*, *Parietaria debilis*, *Libertia ixiooides*, *Schizizyza trifoliolatum*, hound's tongue fern, *Asplenium lyallii*, necklace fern, maidenhair fern, *Blechnum chambersii*, stonecrop*, mouse-ear chickweed*, purging flax*, dandelion*, narrow-leaved plantain*, mouse-ear hawkweed*, king devil hawkweed*, black meddick*, white clover*, suckling clover*, yarrow*, sandwort*, hemlock*, *Lamium* sp.*, hawksbeard*, hawkbit*, shepherd's purse*, dove's foot*, Californian thistle*, burdock*, black nightshade*, woolly mullein*, dwarf mallow*, *Chenopodium album**, daisy*, pearlwort*, Chewings fescue*, *Poa* sp., *Echinopogon ovatus*, hard grass* and the moss *Hypnum cupressiforme*.



Central part of SNA 439a, viewed from across the valley.

Forest/shrubland:

Patches of forest and more extensive areas of shrubland are present on slopes below or gullies within the steep bluffs. Species present are cabbage tree, mahoe, narrow-leaved lacebark, broadleaf, kowhai, wineberry, matai (one old tree), mingimingi, native broom, matagouri, weeping mapou, mistletoe (on mingimingi), gorse* (mostly sprayed), pohuehue, native bindweed, native jasmine, *Clematis marata*, horehound*, nettle*, nodding thistle* and silver tussock.

Additional species present on the sandstone scarp are fuchsia, Himalayan honeysuckle*, *Blechnum fluviatile*, *Asplenium bookerianum*, oxalis, bidibid, *Wahlenbergia gracilis* and plume grass.

A sedgeland (wetland) community is present on the main valley floor. Important species present here are rautahi, pukio and, along the stream, crack willow*.



Large kowhai trees and one large matai tree (centre distance) at SNA 439a

Birds/Fauna Observed:

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

Notable Flora, Fauna and Habitats:

Important features of this area are: the extent of the limestone habitat, a naturally uncommon ecosystem listed as nationally vulnerable (Holdaway *et al*, 2012); the presence of areas of forest (including an old matai tree); a plant species listed as threatened (national critical) by de Lange *et al* (2012), *Gentianella calcis* ssp. *taiko*, three 'at risk' (naturally uncommon) plant species (*Geranium microphyllum*, *Gingidia enysii* and *Senecio glaucophyllus*), and two 'data deficient' species (*Colobanthus* aff. *strictus* and *Craspedia uniflora* agg.); and, the habitat the area provides for birds. A notable feature of the area is the deep chasm at the base of western part of the limestone bluff.

Notable Plant and Animal Pests:

Woody weeds observed are crack willow, gorse, elderberry, plum, Khasia berry and Himalayan honeysuckle, though they are not common. A larger number of invasive herbaceous species are present and pose a greater threat to the limestone habitat, notably Chewings fescue, stonecrop, narrow-leaved plantain and mouse-ear hawkweed. Animal pests were not surveyed, though a several feral goats, two wallabies and possum sign were observed.



Craspedia uniflora agg. on a large limestone boulder on the valley floor, SNA 439a

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

Large parts of this area are well buffered by the size and steepness of the limestone bluffs. The whole site lies within large paddocks that are not intensively grazed. The bluff crest is fenced in places. The site lies close to other areas of limestone bluff and is part of a network of limestone habitat. Modified sedgeland (wetland) is present on the valley floor below the bluff.

Condition and Management Issues:

Most parts of this area are in good condition, partly because large parts are inaccessible to grazing animals and remaining areas appear to be grazed relatively lightly and predominantly by sheep. The main management issues are the removal of wallabies and goats, and control of woody plant pests, notably Khasia berry and plum. Weed control in the vicinity of the limestone bluff should be by ground-based methods. Otherwise, continued light grazing by sheep appears to be an appropriate way of retaining important ecological values.

Property Owner Comment:

Mr Chamberlain advises that this part of the property is only occasionally grazed by cattle and that this grazing is not intensive. He notes that the small group of goats has been there for many years.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	M/H	A very good example of indigenous vegetation on limestone habitats, typical of that remaining in the ecological district and representative of that originally present.
Rarity	H	Lies in an 'acutely-threatened' land environment (N3.1a); supports populations of one threatened (nationally-critical), three 'at risk' (naturally uncommon) and two 'data deficient' plant species. Limestone bluffs are a naturally uncommon ecosystem with a 'nationally vulnerable' threat status.
Diversity and pattern	M/H	Supports three main plant communities (rockland, shrubland and forest) and a large number (more than 60) indigenous plant species.
Distinctiveness/special features	M/H	The presence of a large matai and several large kowhai trees, and the spectacular limestone chasm are notable features.
Other Criteria		
Size/shape	H	A relatively large area that is well buffered.
Connectivity	M	Lies close to other areas of limestone habitat.
Long-term Sustainability	M/H	Some plant and animal pest control will be necessary to maintain ecological values in the long-term. Grazing of deer should be avoided.

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

This area has been informally protected and conservatively managed by the landowners. It is a difficult block for grazing animals and has only very limited potential for further farm development. It is one of the most important areas of limestone habitat in Timaru District.

Discussion:

This area easily meets the District Plan criteria for a Significant Natural Area. Important features of the area are that it is one of the most extensive areas of limestone in this part of the ecological district and that it supports a high number of plant species including a critically threatened limestone gentian which is endemic to South Canterbury and a number of other 'at risk' and 'data deficient' plant species. It is a spectacular bluff system which spans the contact between limestone and sandstone.



South Canterbury limestone gentian (*Gentianella calcis* ssp. *taiko*)

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)	
arrow-grass.....	<i>Triglochin striata</i>
bidibid.....	<i>Acaena</i> sp.
black meddick*.....	<i>Medicago lupulina</i>
black nightshade*.....	<i>Solanum nigrum</i>
broadleaf.....	<i>Griselinia littoralis</i>
burdock*.....	<i>Arctium minus</i>
buttercup.....	<i>Ranunculus</i> sp.
cabbage tree/ti rakau.....	<i>Cordyline australis</i>
Californian thistle*.....	<i>Cirsium arvense</i>
cardamine.....	<i>Cardamine debilis</i> agg.
Chewings fescue*.....	<i>Festuca rubra</i> ssp. <i>commutata</i>
cocksfoot*.....	<i>Dactylis glomerata</i>
crack willow*.....	<i>Salix fragilis</i>
creeping buttercup*.....	<i>Ranunculus repens</i>
daisy*.....	<i>Bellis perennis</i>
dandelion*.....	<i>Taraxacum officinale</i>
dove's foot*.....	<i>Geranium molle</i>
dwarf mallow*.....	<i>Malva neglecta</i>
elderberry*.....	<i>Sambucus nigra</i>
five-finger.....	<i>Pseudopanax arboreus</i>
fuchsia.....	<i>Fuchsia excorticata</i>
gorse*.....	<i>Ulex europaeus</i>
hairy pennywort.....	<i>Hydrocotyle moschata</i>
hard grass*.....	<i>Catapodium rigidum</i>
hawkbit*.....	<i>Leontodon taraxacoides</i>
hawksbeard*.....	<i>Crepis capillaris</i>
hemlock*.....	<i>Conium maculatum</i>
Himalayan honeysuckle*.....	<i>Leycesteria formosa</i>
horehound*.....	<i>Marrubium vulgare</i>
hound's tongue fern.....	<i>Microsorium pustulatum</i>
jointed rush*.....	<i>Juncus articulatus</i>
Khasia berry*.....	<i>Cotoneaster simonsii</i>
king devil hawkweed*.....	<i>Pilosella piloselloides</i> ssp. <i>praealta</i>
koromiko.....	<i>Hebe salicifolia</i>
kowhai.....	<i>Sophora microphylla</i>
lancewood.....	<i>Pseudopanax crassifolius</i>
mahoe/whiteywood.....	<i>Melicytus ramiflorus</i>
maidenhair fern.....	<i>Adiantum cunninghamii</i>
mapou.....	<i>Myrsine australis</i>
matagouri.....	<i>Discaria toumatou</i>
matai/black pine.....	<i>Prumnopitys taxifolia</i>
matipo/kohuhu.....	<i>Pittosporum tenuifolium</i>
mingimingi.....	<i>Coprosma propinqua</i>
mistletoe.....	<i>Ileostylis micranthus</i>
mountain akeake.....	<i>Olearia avicenniifolia</i>
mouse-ear chickweed*.....	<i>Cerastium fontanum</i>
mouse-ear hawkweed*.....	<i>Pilosella officinarum</i>
narrow-leaved lacebark.....	<i>Hoheria angustifolia</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</i> sp.

necklace fern	<i>Asplenium flabellifolium</i>
nettle*	<i>Urtica urens</i>
nodding thistle*	<i>Carduus nutans</i>
oxalis	<i>Oxalis exilis</i>
pearlwort*	<i>Sagina procumbens</i>
pennywort	<i>Hydrocotyle</i> sp.
plum*	<i>Prunus</i> sp.
plume grass	<i>Dichelachne crinita</i>
pohuehue	<i>Muehlenbeckia australis</i>
pukio	<i>Carex secta</i>
purging flax*	<i>Linum catharticum</i>
raupo	<i>Typha orientalis</i>
rautahi	<i>Carex coriacea</i>
sandwort*	<i>Arenaria serpyllifolia</i>
selfheal*	<i>Prunella vulgaris</i>
shepherd's purse*	<i>Capsella bursa-pastoris</i>
silver tussock	<i>Poa cita</i>
soft rush*	<i>Juncus effusus</i>
stonecrop*	<i>Sedum acre</i>
suckling clover*	<i>Trifolium dubium</i>
toatoa	<i>Haloragis erecta</i>
toetoe	<i>Cortaderia richardii</i>
totara	<i>Podocarpus totara</i>
tutu	<i>Coriaria sarmentosa</i>
watercress*	<i>Rorippa microphylla</i>
water forget-me-not*	<i>Myosotis laxa</i>
weeping mapou	<i>Myrsine divaricata</i>
white clover*	<i>Trifolium repens</i>
wineberry	<i>Aristotelia serrata</i>
woolly mullein*	<i>Verbascum thapsus</i>
yarrow*	<i>Achillea millefolium</i>
Yorkshire fog*	<i>Holcus lanatus</i>

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