

TIMARU DISTRICT
SIGNIFICANT NATURAL AREAS
SURVEY

CONE PROPERTY
SUPPLEMENTARY REPORT



Report prepared for Timaru District Council by Mike Harding
July 2020

TIMARU DISTRICT SIGNIFICANT NATURAL AREAS SURVEY

SUPPLEMENTARY PROPERTY REPORT

PROPERTY DETAILS:

Owner: Alan Cone
Valuation References: 24670-24100
Address: 2219 Winchester Hanging Rock Road, Kakahu 7982
Location:..... On north side of Opihi River, between Hanging Rock and Kakahu
Ecological Districts:..... Geraldine
TDC Land Type:..... Soft Rock Hills and Downs
Land Environments Q4.3b

ADDITIONAL SIGNIFICANT AREAS ON THE PROPERTY:

The property was first surveyed in August 2017. Six areas of indigenous vegetation/habitat were identified at that time (SNAs 814 to 819). Since that time, the rarity of eastern South Island limestone flora has been more clearly documented, and the conservation (threat) status of species revised. Council has also been alerted to the presence of lizards on the property. Therefore, parts of the property were re-surveyed in July 2020. One additional SNA was identified (SNA 850) and the boundaries of an existing SNA (817) revised to include areas of limestone vegetation/habitat. These two SNAs are listed in the table below and described in this report. Please refer to the earlier (August 2017) report for a description of the property and the ecological context.

Area No.	Area Name	Central map ref. (NZTM)	Aprox. size (ha)	Vegetation/habitat type
817	Cone scarp forest	1445420E-5107370N	3.56	hardwood (podocarp) forest
850	Cone limestone	1445000E-5107170N	3.84	limestone rockland/herbfield



SNA850 (left-hand hatched area) and revised SNA817 (right-hand hatched area).

TIMARU DISTRICT SNA SURVEY

SNA 850

Area Name: Cone limestone
Ecological District: Geraldine
Map ref.: 1445000E-5107170N
Assessor: Mike Harding

Property: Alan Cone
Nearest Locality: Kakahu
Area Size (ha): 3.84 **Altitude (m):** 260
Survey Time: 3 hours **Survey Date:** 30-07-20

General Description:

This SNA is located on the summit of a small hill above (east of) the homestead on Winchester Hanging Rock Road. The site comprises limestone tors/outcrops on the crest and upper slopes of the hill. The outcropping limestone is separated by rough pasture.

Plant Communities:

The main plant communities at this site are treeland, rockland and grassland-herbfield (as defined by Atkinson 1985). These plant communities are described below. Naturalized species are indicated with an asterisk*.

Treeland:

This plant community comprises scattered trees or small patches of trees, nearly all confined to the limestone outcrops, except ti/cabbage tree (*Cordyline australis*) which is present as isolated trees in open pasture. Woody species present on the limestone are broadleaf (*Griselinia littoralis*), mahoe (*Melicytus ramiflorus*), mingimingi (*Coprosma propinqua*), matagouri (*Discaria toumatou*) and less commonly five-finger (*Pseudopanax arboreus*), lemonwood (*Pittosporum eugenoides*), and koromiko (*Hebe salicifolia*). The native climber pohuehue (*Muehlenbeckia australis*) is common in places.

Present (but rare) on the top of the larger outcrops are silver tussock (*Poa cita*), mountain akeake (*Olearia avicennifolia*) and one sapling of kanuka (*Kunzea ericoides* agg.). At the south part of the site shrubs of mingimingi, matagouri and occasionally native broom (*Carmichaelia australis*) are present between the boulders.



Broadleaf and ti/cabbage tree are common at SNA 850.

Rockland:

This plant community comprises the sparsely-vegetated limestone. Vascular plants are confined to ledges, pockets and occasionally the flat-topped surface of the outcrops or boulders. Other parts of the exposed limestone support non-vascular plants (lichens); a cryptic and poorly-known flora, which was not surveyed.

Rockland vegetation is dominated by naturalised (exotic) species, notably Chewings fescue* (*Festuca rubra*), mouse-ear hawkweed* (*Pilosella officinarum*), suckling clover* (*Trifolium dubium*), narrow-leaved plantain* (*Plantago lanceolata*) and a number of other species. Indigenous species present on or associated with the limestone are *Asplenium byallii*, *Blechnum chambersii*, *Epilobium nummularifolium* and *Colobanthus apetalus*.



Dichondra repens and *Geranium microphyllum* at the base of a limestone outcrop at SNA 850.

Grassland-herbfield:

This plant community is dominated by exotic pasture species. However, at steeper sites and on the thin soils adjacent to the exposed limestone, a number of indigenous plant species are present, including *Geranium microphyllum*, *Geranium brevicaule*, *Carex breviculmis*, *Dichondra repens*, *Cardamine grandiscapa*, *Lagenifera petiolata*, necklace fern (*Asplenium flabellifolium*), pennywort (*Hydrocotyle novae-zelandiae*), hairy pennywort (*Hydrocotyle moschata*), scrub pohuheue (*Muehlenbeckia complexa*) and the moss *Hypnum cupressiforme*.

Additional naturalised species that are commonly present are daisy* (*Bellis perennis*), dove's foot* (*Geranium molle*), cocksfoot* (*Dactylis glomeratus*), dandelion* (*Taraxacum officinale*), purging flax* (*Linum catharticum*), hawkbit* (*Leontodon taraxacoides*), mouse-ear chickweed* (*Cerastium fontanum*), Californian thistle* (*Cirsium arvense*), nodding thistle* (*Carduus nutans*), black nightshade* (*Solanum nigrum*), horehound* (*Marrubium vulgare*), selfheal* (*Prunella vulgaris*), chickweed* (*Stellaria media*) and yarrow* (*Achillea millefolium*).

An additional indigenous plant species recorded at the site is *Geranium socolateum* (Hermann Frank, pers.comm.)

Fauna:

Native birds observed during this survey were paradise shelduck (*Tadorna variegata*), harrier (*Circus approximans*), spur-winged plover (*Vanellus miles*), grey warbler (*Gerygone igata*) and fantail (*Rhipidura fuliginosa*). Other native bird species likely to utilise habitat at the site are bellbird (*Anthornis melanura*) and silvereve (*Zosterops lateralis*).

The site provides habitat for southern grass skink (*Oligosoma* aff. *polychroma* Clade 5) (Hermann Frank, *pers.comm.*).

Notable Flora, Fauna and Habitats:

The site lies in a Land Environment (Q4.3b) within which indigenous vegetation is depleted to between 10 and 20% of its former extent nationally (Cieraad *et al*, 2015). Limestone scarps are a 'naturally uncommon' ecosystem (Williams *et al*, 2007) that is listed as 'nationally vulnerable by Holdaway *et al* (2012).

Limestone substrates at the site support populations of five indigenous plant species listed as 'at risk' or 'threatened' nationally by de Lange *et al* (2018) or Heenan and Molloy (2019):

- *Cardamine grandiscapa*at risk; naturally uncommon
- *Discaria toumatou*.....at risk; declining
- *Geranium microphyllum*.....at risk; naturally uncommon
- *Geranium socolateum*threatened; nationally critical
- *Kunzea ericoides* agg.....threatened; nationally vulnerable

The site provides habitat for a lizard species listed as 'at risk' by Hitchmough *et al* (2016):

- *Oligosoma* aff. *polychroma* Clade 5.....at risk; declining

Notable features of this SNA are the presence of indigenous vegetation within a 'chronically threatened' land environment and within an ecological district where lowland indigenous vegetation is substantially depleted.



The fern, *Asplenium hyalii*, is common at SNA 850.

Notable Plant and Animal Pests:

Exotic grasses and herbs are the most important plant pests at this SNA, notably Chewings fescue, mouse-ear hawkweed, suckling clover, doves' foot, daisy and black nightshade. This is typical of lowland limestone substrates, where the main threat to indigenous species is competition from the dense sward of exotic grasses. The native climber pohuehue is dominant at some parts of the site, smothering taller woody vegetation. Animal pests were not surveyed.



The native climber, pohuehue, is smothering indigenous woody vegetation at parts of SNA 850.

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

The boundaries of this SNA have been drawn to include the main areas of outcropping limestone. This includes areas of rough pasture between the outcrops. While this pasture does not comprise significant indigenous vegetation it is undeveloped (uncultivated) land that links the areas of outcropping limestone. The rough pasture may also provide favourable habitat for the movement of smaller animals (notably lizards) between areas of otherwise isolated habitat (the outcropping limestone). The site lies close to other areas of indigenous vegetation, notably an area of forest on the nearby scarp (SNA 817), which also includes a small area of outcropping limestone.

Condition and Management

The site is not fenced and is grazed. Ideally grazing should be restricted to sheep, as cattle (and deer) damage the vulnerable limestone soils. The main weed threats at the site are from exotic grasses and other herbaceous plants. Control of these species is difficult. The climber, pohuehue, is smothering vegetation at parts of the site. This species should be controlled. Control of possums, and any other feral animals, would benefit the site.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	M	Indigenous vegetation that is representative of limestone substrates but substantially depleted, though typical of that remaining in the ecological district.
Rarity	H	Indigenous vegetation within a 'chronically threatened' land environment. Supports vegetation within a naturally uncommon ecosystem (limestone).
Diversity and pattern	M/L	Plant species diversity is low, though typical for depleted limestone substrates.
Distinctiveness/special features	M	The extent of the exposed limestone and the dominance of woody species at some parts of the site are notable features.
Other Criteria		
Size/shape	M	A moderate-sized area for the Geraldine Ecological District.
Connectivity	M	Lies close to other areas of indigenous vegetation and contributes to a network of fauna habitat in the area.
Long-term Sustainability	M	Vegetation and habitat at the site is modified. Most indigenous species will persist, though the long-term viability of the woody vegetation is uncertain.

ASSESSMENT AGAINST REGIONAL POLICY STATEMENT CRITERIA:

Criteria	Yes/No	Comments
Representativeness	Yes	Indigenous vegetation that is representative and is typical/characteristic of the natural diversity of the ecological district.
Rarity/Distinctiveness	Yes	Indigenous vegetation that has been reduced to less than 20% of its former extent in the ecological district and land environment. Indigenous vegetation within a naturally uncommon ecosystem (limestone). Provides habitat for 'threatened' and 'at risk' plant and lizard species.
Diversity and Pattern	No	Species and habitat diversity is low.
Ecological Context	Yes	Part of a network of limestone and forest habitats.

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

This part of the property has been informally protected from development (cultivation or tree planting) by the landowner (Alan Cone). The scattered rock outcrops and steep slopes limit its potential for development. There are a large number of low-growing exotic species at the site, though it is largely free from invasive woody species. Mr Cone is interested to undertake planting of totara in the area.

Discussion:

This site meets the Timaru District Plan and Canterbury Regional Policy Statement criteria for a significant natural area. Important values are that it supports indigenous vegetation within a naturally uncommon ecosystem (limestone) and within an ecological district (and land environment) where indigenous vegetation is substantially depleted. It provides habitat for 'threatened' and 'at risk' indigenous species.

TIMARU DISTRICT SNA SURVEY

SNA 817

Area Name: Cone scarp forest	Property: Alan Cone	
Ecological District: Geraldine	Nearest Locality: Kakahu	
Map ref. (NZTM): 1445336E-5107371N	Area Size (ha): 3.56	Altitude (m): 240-260
Assessor: Mike Harding	Survey Time: 1 hour	Survey Date: 17-08-17
Assessor: Mike Harding	Survey Time: 1 hour	Survey Date: 30-07-20

General Description:

This SNA is located on a steep south-facing scarp at the central part of the property. A vehicle track traverses the lower boundary of the forest and a fence is present along the upper (northern) boundary.

Plant Communities:

The main plant community at the site is indigenous hardwood forest with young podocarp trees, as described below. A small area of limestone outcrops is present at the north-east part of the site. Naturalized species are indicated with an asterisk*.

Indigenous hardwood forest:

The forest canopy is dominated by mahoe (*Melicytus ramiflorus*), broadleaf (*Griselinia littoralis*), mapou (*Myrsine australis*), five-finger (*Pseudopanax arboreus*), lemonwood (*Pittosporum eugenioides*), matipo (*Pittosporum tenuifolium*), fuchsia (*Fuchsia excorticata*), pohuehue (*Muehlenbeckia australis*) and, at the east end, kanuka (*Kunzea ericoides*). Other canopy species present are cabbage tree (*Cordyline australis*), wineberry (*Aristotelia serrata*), lancewood (*Pseudopanax crassifolius*), marbleleaf (*Carpodetus serratus*), bush lawyer (*Rubus cissoides*), native jasmine (*Parsonsia heterophylla*) and three young totara (*Podocarpus totara*) trees. A large old kahikatea (*Dacrydium dacrydioides*) tree is present in pasture adjacent to the south side of the forest.

The forest understorey is relatively open at most parts of the SNA, due in part to stock grazing. Understorey species commonly present are *Coprosma rhamnoides*, *Coprosma crassifolia*, mahoe and mapou. Other understorey species are five-finger, bush lawyer, poataniwha (*Melicope simplex*), *Coprosma rotundifolia*, *Coprosma areolata*, lancewood, pate (*Schefflera digitata*), poroporo (*Solanum laciniatum*), velvety nightshade* (*Solanum chenopodioides*) and nightshade* (*Solanum nigrum*).

Common ground-cover species are hen and chicken's fern (*Asplenium bulbiferum*), necklace fern (*Asplenium flabellifolium*), wall lettuce* (*Myrcia muralis*), pennywort (*Hydrocotyle* sp.) and, at the east end, large patches of *Lagenifera petiolata* and *Leptinella squalida*. Less commonly present are *Asplenium richardii*, *Asplenium bookerianum*, hanging spleenwort (*Asplenium flaccidum*), button fern (*Pellaea rotundifolia*), common shield fern (*Polystichum neozelandicum*), *Blechnum fluviatile*, male fern* (*Dryopteris filix-mas*), bidibid (*Acaena* sp.) and occasionally seedlings of mahoe, mapou, *Coprosma crassifolia* and five-finger.

Additional species present at the forest margin or at forest openings are mingimingi (*Coprosma propinqua*), matagouri (*Discaria toumatou*), native broom (*Carmichaelia australis*), Himalayan honeysuckle* (*Leycesteria formosa*), gorse* (mostly sprayed), bracken (*Pteridium esculentum*), foxglove* (*Digitalis purpurea*) and mistletoe (*Ileostylus micranthus*).

Limestone outcrops:

These areas of exposed limestone are sparsely vegetated and dominated by invasive exotic species. They provide similar habitats to those described above for SNA 850. Indigenous species present on or associated with limestone at SNA 817 are broadleaf (*Griselinia littoralis*), mahoe (*Melicytus ramiflorus*), ti/cabbage tree (*Cordyline australis*), mingimingi (*Coprosma propinqua*), pohuehue

(*Muehlenbeckia australis*), silver tussock (*Poa cita*), *Blechnum chambersii*, *Asplenium lyallii*, *Colobanthus apetalus*, *Epilobium nummularifolium*, *Dichondra repens*, hairy pennywort (*Hydrocotyle moschata*) and the moss *Hypnum cupressiforme*. Naturalised (exotic) species are similar to those described for SNA 850. Also present here are trees of elderberry* (*Sambucus nigra*).



Limestone outcrops at the north-east part of SNA 817.

Fauna:

Native birds observed during this brief survey were grey warbler (*Gerygone igata*), fantail (*Rhipidura fuliginosa*), bellbird (*Anthornis melanura*), rifleman (*Acanthisitta chloris*) and, adjacent to the site, paradise shelduck (*Tadorna variegata*), spur-winged plover (*Vanellus miles*) and harrier (*Circus approximans*). The forest lies within the range of the South Canterbury population of long-tailed bat (*Chalinolobus tuberculatus* “South Island”). Comprehensive survey of other indigenous fauna was not practical.

Notable Flora, Fauna and Habitats:

Notable features of this SNA are the presence of indigenous vegetation within an ‘at risk’ land environment and within an ecological district where lowland indigenous vegetation is substantially depleted. The presence of podocarps (young totara trees and the large remnant kahikatea tree) and likely habitat for long-tailed bat is also notable. It includes a small area of a naturally uncommon ecosystem (limestone).

Notable Plant and Animal Pests:

The forest is relatively free of invasive plant pests, except for gorse and Himalayan honeysuckle at forest openings, though neither are common. Elderberry trees are present at the limestone outcrops. These weeds and other exotic species, such as male fern and the nightshades, do not pose a significant threat to the forest community. Animal pests were not surveyed, though possums are most likely present.

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

The boundaries of this SNA have been drawn to include the main area of forest and to include the open kanuka forest at the east part of the site and the tall lone kahikatea tree at the south side of the forest. This (July) review extends the boundary to the north-east to include the area of outcropping limestone. The forest is fenced along its upper (northern) boundary and buffered by its location on a steep slope. It lies near to other small patches of indigenous forest.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	M/H	Indigenous vegetation that is moderately representative of the forest originally present in the ecological district, and typical of that remaining in the ecological district.
Rarity	M/H	Indigenous vegetation within an 'at risk' land environment. Provides suitable roosting habitat for a 'threatened' species: long-tailed bat. Includes a small area of limestone.
Diversity and pattern	M	Plant species diversity is moderate and typical.
Distinctiveness/special features	M	The tall remnant kahikatea tree is a special feature.
Other Criteria		
Size/shape	M/H	A moderate sized area of indigenous vegetation that is well buffered.
Connectivity	M	Isolated from other areas of indigenous forest but part of a network of fauna habitat.
Long-term Sustainability	M/H	Continued control of possums and protection of the forest understorey from grazing will be required to maintain ecological values in the long term.

ASSESSMENT AGAINST REGIONAL POLICY STATEMENT CRITERIA:

Criteria	Yes/No	Comments
Representativeness	Yes	Indigenous vegetation that is representative and is typical/characteristic of the natural diversity of the ecological district.
Rarity/Distinctiveness	Yes	Indigenous vegetation that has been reduced to less than 20% of its former extent in the ecological district; and provides suitable roosting habitat for a threatened species (long-tailed bat).
Diversity and Pattern	No	Plant species and habitat diversity is moderate and typical.
Ecological Context	Likely	Contributes to a network of forest bird and bat habitat.

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

This area has been informally protected by the landowner. The steepness of the site means it has limited potential for further development. The landowner is interested in excluding grazing animals by fencing the lower forest boundary.

Discussion:

This site meets the Timaru District Plan and Canterbury Regional Policy Statement criteria for a significant natural area. Important values are that it supports regenerating podocarp-hardwood forest, provides suitable habitat for long-tailed bat, and contributes to an important network of habitat for forest birds.

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