

TIMARU DISTRICT
SIGNIFICANT NATURAL AREAS
SURVEY

RAVENSDOWN PROPERTY
KAKAHU



Report prepared for Timaru District Council by Mike Harding
July 2019

TIMARU DISTRICT SIGNIFICANT NATURAL AREAS SURVEY

PROPERTY REPORT

PROPERTY DETAILS:

Owners: Ravensdown Fertiliser Company Ltd
Valuation References: . 24670-17902
Location:..... Winchester Hanging Rock Road, Kakahu
Ecological District:..... Geraldine Ecological District.
TDC Land Type:..... ‘Soft Rock Hills and Downs’
Land Environment: Q2.1c

ECOLOGICAL CONTEXT:

The Ravensdown property lies on a prominent limestone ridge on the north side of Winchester Hanging Rock Road, approximately ten kilometres south-west of Geraldine. It is on the true-left (north) side of Kakahu River, between Hilton and Kakahu Bush. The property lies in Geraldine Ecological District (McEwen, 1987) and in the Q2.1 Level IV Land Environment (Leathwick *et al*, 2003).

It is likely that the original vegetation of this area was predominantly podocarp-broadleaved forest, dominated by matai, totara, kahikatea and a range of hardwood species including kowhai and broadleaf. Areas of exposed limestone supported a distinct plant community with a number of calcicoles (specialised limestone species), similar to that present today.

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 small patches of broadleaved forest or treeland, mostly associated with areas of exposed limestone (bluffs and rock pavement). The property lies close to numerous other areas of remnant and regenerating indigenous vegetation, mostly on other limestone scarps. There is also a relatively extensive area of remnant and regenerating indigenous forest nearby on the slopes of Kakahu Hill. Together, these areas of forest provide a locally significant network of forest bird habitat. This part of the ecological district is a stronghold for a remnant South Canterbury population of long-tailed bat; a threatened species.

Adjacent properties were surveyed as part of the District-wide survey of Significant Natural Areas (SNAs) in 2009. At that time, access to the Ravensdown property for SNA surveys was declined. Areas on the Ravensdown property that were clearly significant (forest on limestone) were identified as potential SNAs by desk-top analysis. These three areas (SNAs 164e, 184e and 184h) and part of a fourth area (SNA 163e) were mapped and a copy of the map provided to Ravensdown.

Following recent correspondence with Ravensdown Fertiliser Company Ltd (Roger Buckingham), the property was surveyed in June 2019. The previously identified SNAs were checked, and two additional SNAs (826 and 827) were identified and surveyed. Five of these SNAs (all except the small part of SNA 163e) are listed below and described on the Site Assessment Forms in this report.

SNA No.	Central map reference (NZTM)	Size (ha.)
163e (part)	1449590E-5112075N	c. 0.3
164e	1449125E-5112220N	0.73
184e	1449670E-5111270N	1.23
184h	1450030E-5110620N	1.34
826	1449330E-5112150N	0.34
827	1449520E-5111960N	0.35



Boundaries of SNAs 163e, 164e, 826 (upper) and 827 (lower), indicated by hatching.



Boundaries of SNAs 184e and 184h, indicated by hatching.

These areas meet the ecological significance criteria in Appendix 3 of the Canterbury Regional Policy Statement. SNAs are subject to confirmation by Council. SNAs will eventually be listed in the District Plan by way of a notified plan review.

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.

Area Name: Rocky Ridges	Property: Ravensdown Fertiliser Company Ltd.
Ecological District: Geraldine	Nearest Locality: Kakahu
Central Map Reference: (NZTM): 1449125E-5112220N	Size: 0.73 ha
Surveyor: Mike Harding	Survey Time: 2 hours Survey Date: 18-05-2009

General Description:

This SNA lies on a prominent limestone ridge on the north side of the Kakahu River. The underlying geology is pale coarse-grained limestone with pink tuffaceous layers and underlain by green-grey calcareous glauconitic quartz sandstone of the Kekenodon Group (Cox and Barrell, 2007). It is an area of limestone rock pavement, lying at an altitude of approximately 280m.

Plant Communities:

Indigenous broadleaved forest is the main plant community present, as described below. Naturalized (exotic) species are indicated with an asterisk*.

The forest canopy is dominated by broadleaf (*Griselinia littoralis*), mahoe (*Melicactus ramiflorus*), kohuhu (*Pittosporum tenuifolium*), mapou (*Myrsine australis*) and pohuehue (*Muehlenbeckia australis*). Other canopy and sub-canopy species present are cabbage tree (*Cordyline australis*), five-finger (*Pseudopanax arboreus*), wineberry (*Aristotelia serrata*), mountain akeake (*Olearia avicenniifolia*), barberry* (*Berberis glaucopcarpa*), hawthorn* (*Crataegus monogyna*) and old man's beard* (*Clematis vitalba*). The forest understorey is in most places open and depleted. Understorey species present, mostly at rocky sites protected from grazing, are *Coprosma propinqua*, mapou, five-finger, barberry*, leafless lawyer (*Rubus squarrosus*), poroporo (*Solanum aviculare*), black nightshade* (*Solanum nigrum*) and rarely *Clematis marata*.



SNA 164e comprises the south (right-hand) end of the ridge-top forest.

Ground-cover species present are *Blechnum chambersii*, *Asplenium lyallii*, button fern (*Pellaea rotundifolia*), common shield fern (*Polystichum richardii*), hound's tongue fern (*Microsorium pustulatum*), maidenhair fern (*Adiantum cunninghamii*), *Epilobium nummulariifolium*, *Leptinella* sp., toatoa (*Haloragis erecta*), pennywort (*Hydrocotyle novae-zelandiae*) and seedlings of *Coprosma propinqua* and barberry*. Species commonly present in forest openings and at the forest margins are *Coprosma propinqua*, leafless lawyer, barberry*, Khasia berry* (*Cotoneaster simonsii*), native broom (*Carmichaelia australis*), matagouri (*Discaria toumatou*), *Calystegia tuguriorum*, native jasmine (*Parsonsia capsularis*), old man's

beard*, pohuehue and scrub pohuehue (*Muehlenbeckia complexa*). Species occasionally present are mistletoe (*Ileostylis micranthus*), gooseberry* (*Ribes uva-crispa*), koromiko (*Veronica salicifolia*), stonecrop* (*Sedum acre*), horehound* (*Marrubium vulgare*) and silver tussock (*Poa cita*).

Birds/Fauna Observed:

Native bird species observed at or adjacent to the site during this brief survey were bellbird (*Anthornis melanura*), rifleman (*Acanthisitta chloris*), grey warbler (*Gerygone igata*) and Australasian harrier (*Circus approximans*). Additional species likely to utilise the forest habitat at this site are fantail (*Rhipidura fuliginosa*), kereru/NZ pigeon (*Hemiphaga novaeseelandiae*), silvereye (*Zosterops lateralis*) and possibly tui (*Prosthemadura novaeseelandiae*) and tomtit (*Petroica macrocephala*). The site lies within the present range of long-tailed bat (*Chalinolobus tuberculatus* “South Island”).

Notable Flora, Fauna and Habitats:

The site provides suitable habitat for long-tailed bat, a species listed as ‘threatened; nationally critical’ by O’Donnell *et al* (2013). The site supports modified vegetation of an ecosystem type (lowland podocarp-broadleaved forest) that has been depleted to less than 20% of its former extent in the ecological district (Harding, 2009). Limestone scarps are a ‘naturally uncommon’ ecosystem (Williams *et al*, 2007) that is listed as ‘nationally vulnerable by Holdaway *et al* (2012).

Condition and Management

Indigenous vegetation and habitat at this site are in relatively good condition, except for the presence of invasive weed species and the effects of grazing. The most important plant pests are barberry, hawthorn and old man’s beard. This area and adjacent parts of the Rocky Ridges site have been subject to an intensive Council-funded weed control project over the past two years. Animal pests were not surveyed, but possums, wallabies and feral goats are present in the area. The most important management issues at the site are continued control of woody weeds, and control of wallabies, possums and feral goats.

ASSESSMENT AGAINST REGIONAL POLICY STATEMENT CRITERIA:

Criteria	Significant?	Comments
Representativeness	Yes	Indigenous vegetation that 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. Indigenous vegetation and habitat on a naturally uncommon ecosystem (limestone scarp). Provides suitable habitat for a ‘threatened’ species (long-tailed bat).
Diversity and Pattern	No	Does not contain a high diversity of indigenous species or habitat types.
Ecological Context	Likely	It is part of a network of fauna habitat.

Discussion:

The site supports indigenous vegetation on limestone, which is a naturally uncommon ecosystem that has been substantially depleted from its former extent. Indigenous vegetation at this site is part of a network of habitat that is one of the most important in lowland Timaru District. The site provides likely habitat for long-tailed bat and good habitat for forest birds.

Area Name: Quarry scarp	Property: Ravensdown Fertiliser Company Ltd.
Ecological District: Geraldine	Nearest Locality: Kakahu
Central Map Reference: (NZTM): 1449670E-5111270N	Size: 1.23 ha
Surveyor: Mike Harding	Survey Time: 1 hour
	Survey Date: 18-05-2009

General Description:

This SNA lies on a prominent limestone ridge on the north side of the Kakahu River. The underlying geology is pale coarse-grained limestone with pink tuffaceous layers and underlain by green-grey calcareous glauconitic quartz sandstone of the Kekenodon Group (Cox and Barrell, 2007). It is a steep scarp lying at an altitude of approximately 250m.

Plant Communities:

Indigenous broadleaved forest is the main plant community present, as described below. Naturalized (exotic) species are indicated with an asterisk*. The site was not surveyed closely, partly because of difficult access.

The forest canopy is dominated by broadleaf (*Griselinia littoralis*), mahoe (*Melicactus ramiflorus*) and pohuehue (*Muehlenbeckia australis*). Other canopy species are cabbage tree (*Cordyline australis*), mapou (*Myrsine australis*), five-finger (*Pseudopanax arboreus*), kohuhu (*Pittosporum tenuifolium*) and native jasmine (*Parsonsia capsularis*).



SNA 184e, photographed in 2009.

Understorey species present are mingimingi (*Coprosma propinqua*), mapou, poroporo (*Solanum aviculare*), leafless lawyer (*Rubus squarrosus*) and black nightshade* (*Solanum nigrum*). Common ground-cover species (mostly on rock) are *Asplenium byallii*, common shield fern (*Polystichum richardii*), button fern (*Pellaea rotundifolia*), *Blechnum chambersii*, maidenhair fern (*Adiantum*

cunninghamii), hound's tongue fern (*Microsorium pustulatum*), *Epilobium nummularifolium* and pennywort (*Hydrocotyle novae-zealandiae*). Plant species present at the forest margin or at open sites are mingimingi, matagouri (*Discaria toumatou*) and *Clematis marata*.

Birds/Fauna Observed:

Native bird species observed at or adjacent to the site during this brief survey were bellbird (*Anthornis melanura*), fantail (*Rhipidura fuliginosa*), rifleman (*Acanthisitta chloris*), grey warbler (*Gerygone igata*) and silvereve (*Zosterops lateralis*). Additional species likely to utilise the forest habitat at this site are kereru/NZ pigeon (*Hemiphaga novaeseelandiae*) and possibly tui (*Prosthemadura novaeseelandiae*) and tomtit (*Petroica macrocephala*). The site lies within the present range of long-tailed bat (*Chalinolobus tuberculatus* "South Island").

Notable Flora, Fauna and Habitats:

The site provides suitable habitat for long-tailed bat, a species listed as 'threatened; nationally critical' by O'Donnell *et al* (2013). The site supports modified vegetation of an ecosystem type (lowland podocarp-broadleaved forest) that has been depleted to less than 20% of its former extent in the ecological district (Harding, 2009). Limestone scarps are a 'naturally uncommon' ecosystem (Williams *et al*, 2007) that is listed as 'nationally vulnerable by Holdaway *et al* (2012).

Condition and Management

Indigenous vegetation and habitat at this site are in relatively good condition, in part because of the steepness of the site. The forest canopy is intact and there is regeneration in the forest understorey. The site has been affected at its edge by quarrying. Plant and animal pests were not surveyed. The most important management issues at the site are control of any invasive weeds and protection of the site from the effects of quarrying.

ASSESSMENT AGAINST REGIONAL POLICY STATEMENT CRITERIA:

Criteria	Significant?	Comments
Representativeness	Yes	Indigenous vegetation that 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. Indigenous vegetation and habitat on a naturally uncommon ecosystem (limestone scarp). Provides suitable habitat for a 'threatened' (nationally critical) species (long-tailed bat).
Diversity and Pattern	No	Does not contain a high diversity of indigenous species or habitat types.
Ecological Context	Likely	It is part of a network of fauna habitat.

Discussion:

The site supports indigenous vegetation on limestone, which is a naturally uncommon ecosystem that has been substantially depleted from its former extent. Indigenous vegetation at this site is part of a network of forest and limestone habitat that is one of the most important in lowland parts of Timaru District. The site provides likely habitat for long-tailed bat and good habitat for forest birds.

Area Name: Lower scarp	Property: Ravensdown Fertiliser Company Ltd.
Ecological District: Geraldine	Nearest Locality: Kakahu
Central Map Reference: (NZTM): 1450030E-5110620N	Size: 1.34 ha
Surveyor: Mike Harding	Survey Time: 1 hour Survey Date: 25-06-2019

General Description:

This SNA lies at the lower end of a prominent limestone ridge on the north side of the Kakahu River. The underlying geology is pale coarse-grained limestone with pink tuffaceous layers and underlain by green-grey calcareous glauconitic quartz sandstone of the Kekenodon Group (Cox and Barrell, 2007). It lies between altitudes of 100 and 150m.

Plant Communities:

Indigenous broadleaved forest is the main plant community present, as described below. Naturalized (exotic) species are indicated with an asterisk*.

The forest canopy at this site is dominated by broadleaf (*Griselinia littoralis*), mahoe (*Meliccytus ramiflorus*) and kohuhu (*Pittosporum tenuifolium*). Other canopy species are kowhai (*Sophora microphylla*), mountain akeake (*Olearia avicenniifolia*), five-finger (*Pseudopanax arboreus*), mapou (*Myrsine australis*), weeping mapou (*Myrsine divaricata*), cabbage tree (*Cordyline australis*), fierce lancewood (*Pseudopanax ferox*), wineberry (*Aristotelia serrata*), elderberry* (*Sambucus nigra*), plum* (*Prunus cerasifera*), hawthorn* (*Crataegus monogyna*), pohuehue (*Muehlenbeckia australis*), native jasmine (*Parsonsia capsularis*), *Clematis foetida* and old man's beard* (*Clematis vitalba*). Trees of pine* (*Pinus* sp.), macrocarpa* (*Cupressus macrocarpa*) and crack willow* (*Salix fragilis*) are present at the lower margin of the site. Understorey plant species are weeping mapou, mingimingi (*Coprosma propinqua*), native broom (*Carmichaelia australis*) and tree nettle (*Urtica ferox*).

Species at the forest margin or at open sites are mingimingi, native broom, koromiko (*Veronica salicifolia*), scrub pohuehue (*Muehlenbeckia complexa*), flax (*Phormium tenax*), blackberry* (*Rubus fruticosus* agg.), gooseberry* (*Ribes uva-crispa*), hemlock* (*Conium maculatum*), woolly mullein* (*Verbascum thapsus*), nodding thistle* (*Carduus nutans*) and, less commonly, tree nettle, gorse* (*Ulex europaeus*) and broom* (*Cytisus scoparius*).

Plant species present on areas of exposed limestone are *Blechnum chambersii*, maidenhair fern (*Adiantum cunninghamii*), *Asplenium lyallii*, necklace fern (*Asplenium flabellifolium*), *Cardamine debilis* agg., *Epilobium nummularifolium*, *Carex breviculmis*, *Lagenophora* sp., *Leptinella serrulata*, stonecrop* (*Sedum acre*), white clover* (*Trifolium repens*), mouse-ear chickweed* (*Cerastium fontanum*), mouse-ear hawkweed* (*Pilosella officinarum*), cocksfoot* (*Dactylis glomerata*), Chewings fescue (*Festuca rubra*) and the moss *Hypnum cupressiforme*.

Birds/Fauna Observed:

Native bird species observed at or adjacent to the site during this brief survey were bellbird (*Anthornis melanura*), fantail (*Rhipidura fuliginosa*), grey warbler (*Gerygone igata*) and harrier (*Circus approximans*). Additional species likely to utilise the forest habitat at this site are kereru/NZ pigeon (*Hemiphaga novaeseelandiae*) rifleman (*Acanthissita chloris*), silvereye (*Zosterops lateralis*) and

possibly tui (*Prosthemadura novaeseelandiae*). The site lies within the present range of long-tailed bat (*Chalinolobus tuberculatus* “South Island”).

Notable Flora, Fauna and Habitats:

The site supports modified vegetation of an ecosystem type (lowland podocarp-broadleaved forest) that has been depleted to less than 20% of its former extent in the ecological district (Harding, 2009). Limestone scarps are a ‘naturally uncommon’ ecosystem (Williams *et al*, 2007) that is listed as ‘nationally vulnerable by Holdaway *et al* (2012). The site provides suitable habitat for long-tailed bat, a species listed as ‘threatened; nationally critical’ by O’Donnell *et al* (2013). The site supports a healthy population of mature trees and young shrubs of fierce lancewood; a species listed as ‘at risk; naturally uncommon’ by de Lange *et al* (2018). The site also supports a healthy population of tree nettle, which is a locally uncommon species.



SNA 184b

Condition and Management

Indigenous vegetation and habitat at this site are in relatively good condition, in part because of the steepness of the site. The forest canopy is intact and there is regeneration in the forest understorey. The site has been affected at its edges by grazing. The most important plant pests are hawthorn and old man’s beard. Animal pests were not surveyed. The most important management issues at the site are control of invasive weeds and protection of the site from the effects of grazing.

ASSESSMENT AGAINST REGIONAL POLICY STATEMENT CRITERIA:

Criteria	Significant?	Comments
Representativeness	Yes	Indigenous vegetation that 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. Indigenous vegetation and habitat on a naturally uncommon ecosystem (limestone scarp). Provides suitable habitat for a 'threatened' (nationally critical) species (long-tailed bat) and supports an 'at risk' plant species.
Diversity and Pattern	No	Does not contain a high diversity of indigenous species or habitat types.
Ecological Context	Likely	It is part of a network of fauna habitat.

Discussion:

The site supports indigenous vegetation on limestone, which is a naturally uncommon ecosystem that has been substantially depleted from its former extent. Indigenous vegetation at this site is part of a network of forest and limestone habitat that is one of the most important in lowland parts of Timaru District. The site provides likely habitat for long-tailed bat and good habitat for forest birds. It supports populations of 'at risk' and locally uncommon plant species.



Fierce lancewood at SNA 184b.



Maidenhair fern on limestone at SNA 184b.



Tree nettle at SNA 184b.

Area Name: Ravensdown shrubland **Property:** Ravensdown Fertiliser Company Ltd.
Ecological District: Geraldine **Nearest Locality:** Kakahu
Central Map Reference: (NZTM): 1449330E-5112150N **Size:** 0.34 ha
Surveyor: Mike Harding **Survey Time:** ½ hour **Survey Date:** 25-06-2019

General Description:

This SNA lies mid-slope on the east side of a prominent limestone ridge on the north side of the Kakahu River. The underlying geology is pale coarse-grained limestone with pink tuffaceous layers and underlain by green-grey calcareous glauconitic quartz sandstone of the Kekenodon Group (Cox and Barrell, 2007). It lies at an altitude of approximately 200m.

Plant Communities:

Indigenous shrubland/scrub is the main plant community present, as described below. Naturalized (exotic) species are indicated with an asterisk*.

This plant community is dominated by mingimingi (*Coprosma propinqua*). Other canopy species are matagouri (*Discaria toumatou*), native broom (*Carmichaelia australis*), gorse* (*Ulex europaeus*), lawyer (*Rubus schmidelioides*), pohuehue (*Muehlenbeckia australis*) and mistletoe (*Ileostylis micranthus*). Other species present in or associated with the shrubland community are silver tussock (*Poa cita*), Californian thistle* (*Cirsium arvense*), foxglove* (*Digitalis purpurea*) and a native rush (*Juncus edgariae*). Low-growing species present on or associated with exposed limestone are necklace fern (*Asplenium flabellifolium*), *Dichondra repens* and a moss *Hypnum cupressiforme*.



SNA 826.

Taller vegetation is present at the lower part of the site. Additional plant species present here are manuka (*Leptospermum scoparium*), mahoe (*Melicactus ramiflorus*), cabbage tree (*Cordyline australis*), sweet brier* (*Rosa rubiginosa*), fuchsia (*Fuchsia excorticata*), leafless lawyer (*Rubus squarrosus*) and old man's beard* (*Clematis vitalba*).

Birds/Fauna Observed:

Native bird species observed at or adjacent to the site during this brief survey were fantail (*Rhipidura fuliginosa*) and paradise shelduck (*Tadorna variegata*). Additional species likely to utilise the habitat at this site are bellbird (*Anthornis melanura*), grey warbler (*Gerygone igata*) and kereru/NZ pigeon (*Hemiphaga novaeseelandiae*). The site lies within the present range of long-tailed bat (*Chalinolobus tuberculatus* "South Island").

Notable Flora, Fauna and Habitats:

The site supports modified vegetation of an ecosystem type (lowland podocarp-broadleaved forest) that has been depleted to less than 20% of its former extent in the ecological district (Harding, 2009). The site may provide limited habitat for long-tailed bat, a species listed as 'threatened, nationally critical' by O'Donnell *et al* (2013). The site includes a small seepage wetland, an ecosystem type that is substantially depleted nationally.

Condition and Management

This small site supports modified, though regenerating, indigenous vegetation, in reasonable good condition. The main threats to vegetation at the site are old man's beard and grazing. The most important management issues at the site are the removal of old man's beard and protection of the site from the effects of grazing.

ASSESSMENT AGAINST REGIONAL POLICY STATEMENT CRITERIA:

Criteria	Significant?	Comments
Representativeness	Yes	Indigenous vegetation that 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. Indigenous vegetation and habitat in a naturally uncommon ecosystem (seepage wetland).
Diversity and Pattern	No	Does not contain a high diversity of indigenous species or habitat types.
Ecological Context	Likely	It is part of a network of fauna habitat.

Discussion:

The site supports modified/regenerating indigenous vegetation associated with limestone and around a small seepage wetland. Indigenous vegetation at this site is part of a network of forest and limestone habitat that is one of the most important in lowland parts of Timaru District. The site provides possible habitat for long-tailed bat and good habitat for forest birds.

Area Name: Ravensdown kowhai	Property: Ravensdown Fertiliser Company Ltd.
Ecological District: Geraldine	Nearest Locality: Kakahu
Central Map Reference: (NZTM): 1449520E-5111960N	Size: 0.35 ha
Surveyor: Mike Harding	Survey Time: ½ hour
	Survey Date: 25-06-2019

General Description:

This SNA lies mid-slope on the east side of a prominent limestone ridge on the north side of the Kakahu River. The underlying geology is pale coarse-grained limestone with pink tuffaceous layers and underlain by green-grey calcareous glauconitic quartz sandstone of the Kekenodon Group (Cox and Barrell, 2007). It lies at an altitude of approximately 200m.

Plant Communities:

Indigenous treeland/shrubland/scrub is the main plant community present, as described below. Naturalized (exotic) species are indicated with an asterisk*.

The shrubland/scrub plant community is dominated by matagouri (*Discaria toumatou*) and mingimingi (*Coprosma propinqua*). Other canopy species are native broom (*Carmichaelia australis*), gorse* (*Ulex europaeus*), pohuehue (*Muehlenbeckia australis*) and old man's beard (*Clematis vitalba*). Other species present in or associated with the shrubland community are silver tussock (*Poa cita*), blackberry* (*Rubus fruticosus* agg.), foxglove* (*Digitalis purpurea*), *Dichondra repens* and a native rush (*Juncus edgariae*). Emergent from the shrubland community are trees of kowhai (*Sophora microphylla*) and cabbage tree (*Cordyline australis*). Part of the site is dominated by a dense stand of kowhai.



A large stand of kowhai is present at SNA 827.

Birds/Fauna Observed:

Native bird species observed at or adjacent to the site during this brief survey were bellbird (*Anthornis melanura*), fantail (*Rhipidura fuliginosa*), kereru/NZ pigeon (*Hemiphaga novaeseelandiae*) and paradise shelduck (*Tadorna variegata*). Additional species likely to utilise the habitat at this site are grey warbler (*Gerygone igata*), tui (*Prosthemadera novaeseelandiae*) and silvereye (*Zosterops lateralis*). The site lies within the present range of long-tailed bat (*Chalinolobus tuberculatus* “South Island”).

Notable Flora, Fauna and Habitats:

The site supports modified vegetation of an ecosystem type (lowland podocarp-broadleaved forest) that has been depleted to less than 20% of its former extent in the ecological district (Harding, 2009). The site may provide habitat for long-tailed bat, a species listed as ‘threatened, nationally critical’ by O’Donnell *et al* (2013). The site includes a small seepage wetland, an ecosystem type that is substantially depleted nationally. Large healthy trees of kowhai are present.

Condition and Management

This small site supports modified, though regenerating, indigenous vegetation, in reasonable good condition. The main threats to vegetation at the site are old man’s beard and grazing. The most important management issues at the site are the removal of old man’s beard and protection of the site from the effects of grazing.

ASSESSMENT AGAINST REGIONAL POLICY STATEMENT CRITERIA:

Criteria	Significant?	Comments
Representativeness	Yes	Indigenous vegetation that 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. Indigenous vegetation and habitat on a naturally uncommon ecosystem (seepage wetland).
Diversity and Pattern	No	Does not contain a high diversity of indigenous species or habitat types.
Ecological Context	Likely	It is part of a network of fauna habitat.

Discussion:

The site supports modified/regenerating indigenous vegetation associated with limestone and around a small seepage wetland. Indigenous vegetation at this site is part of a network of forest and limestone habitat that is one of the most important in lowland parts of Timaru District. The site provides possible habitat for long-tailed bat and good habitat for forest birds.

References Cited:

- Cox, S.C; Barrell, D.J.A (compilers). 2007. Geology of the Aoraki area. *Institute of Geological and Nuclear Sciences 1:250,000 geological map 15*. Institute of Geological and Nuclear Sciences Limited, Lower Hutt.
- de Lange, P.J; Rolfe, J.R; Barkla, J.W; Courtney, S.P; Champion, P.D; Perrie, L.R.; Beadel, S.M.; Ford, K.A.; Breitweiser, I.; Schönberger, I.; Hindmarsh-Walls, R.; Heenan, P.B; Ladley, K. 2018. *Conservation status of New Zealand indigenous vascular plants, 2017*. Department of Conservation, Wellington, New Zealand.
- Harding, M.A. 2009. *Canterbury Land Protection Strategy*. Nature Heritage Fund. Wellington.
- Holdaway, R.J.; Wiser, S.K.; Williams, P.A. 2012. Status assessment of New Zealand's naturally uncommon ecosystems. *Conservation Biology* 26: 619-629.
- 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 3). *New Zealand Biological Resources Centre Publication No.5*. Department of Conservation, Wellington, 1987.
- O'Donnell, C.F.J.; Christie, J.E.; Lloyd, B.; Parsons, S.; Hitchmough, R.A. 2013. Conservation status of New Zealand bats 2012. *New Zealand Threat Classification Series 6*. Department of Conservation, Wellington.
- Williams, P.A.; Wiser, S.; Clarkson, B.; Stanley, M.C. 2007. New Zealand's historically rare terrestrial ecosystems set in a physical and physiognomic framework. *NZ Journal of Ecology* 31: 119-128.